Crash Dump
or How Peter Gustafson Defragmented the World
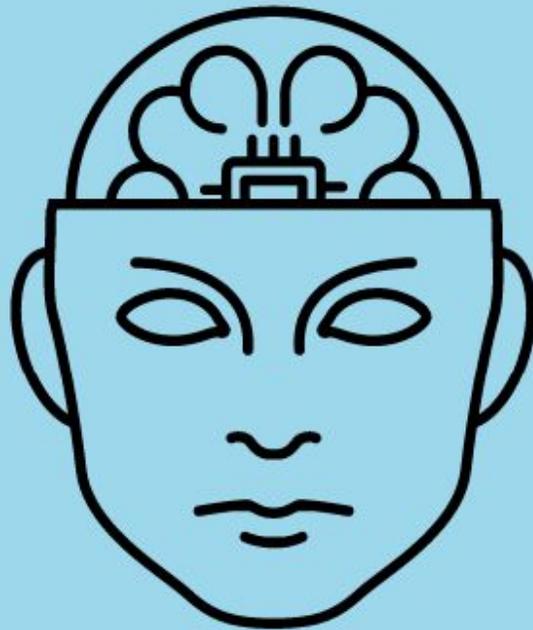
Chapter 1
The Machine Stops

Jarod (pronounced Jay-rod) was a nervous guy who startled easily, so he jumped when a loud "Brzzz... Brzzz... Bzzzzzzz" sounded from the previously silent haloscope, it then displayed and read aloud the following message.

This is an emergency message.
The following instructions are vital to your safety.

Until "All Clear" is given:
    Return to your home.
    Power off all electronics.
    Close and secure all entrances.
    Do not respond to anyone outside your home.
    Do not attempt to interact with anyone outside of your home.
    If a member of your family is missing do not attempt to locate them.
    Do not attempt to investigate.
    Do not attempt to investigate.
    Do not attempt to investigate.
    Do not look up.
    Remain calm.

At the same time, his earpiece phone gave two quiet "dings" and a moment later Jarod heard the air sirens in the distance whirr up to full blast.

His wife, Mellisa was running late getting home from work, Jarod was just putting the finishing touches on dinner and their son Peter was already in his room for the night and most likely would not be seen again for the rest of the evening.

"Halo. News," said Jarod in the overly aunciated voice he used when talking to a computer.

"Please power off all electronics. There is no news at this time," came an unusual reply from the Haloscope.

"Halo. Mail," Jarod said.

"Please power off all electronics. There is no mail at this time."

"Damn it" he cursed to himself, "Halo. Call Melissa."

"Please power off all electronics. Melissa is not available at this time."

Tapping a small button on his earpiece twice, the home computer's screen was brought up on his kitchen counter and he quickly typed into the search box, "halscope not working, call halo support."

Just as Jarod was about to hit the Return button the screen went an ugly shade of dark blue, then quickly filled with white text.

A problem has been detected and Windows has been shut down to prevent damage to your computer.

A process thread crucial to system operation has unexpectedly exited or been terminated.

Check to make sure all hardware is properly installed

*** STOP: (0x4661756C, 0x74792048756D, 0x616E204C, 0x6F676963)

Collecting data for crash dump ...
Initializing disk ...
Dumping physical memory to disk: 0, 1, 2, 3...

The computer counted from *0* to *100* over the next ten seconds, and Jarod watched, and tried to understand, *Crash dump*? *... Install all hardware*? It was probably just another forced software update gone haywire he thought. In that moment, Jarod was not the only one seeing this message, on every screen on the planet, every electronic display available, the same message and countdown appeared. His son Peter was watching the countdown as well. He was trying to make sense of the hex codes thinking maybe he triggered some security feature that interrupted him from playing the puzzle game on the screen he had *borrowed* from the school a few days ago, but much of the world was watching the same screen, scratching their heads about what it meant and asking all in unison, where in the Hell is the IT guy?

Chapter 2
Crash Dump

Collecting data for crash dump …

Dumping physical memory to disk: ...98, 99, *100*
Physical memory dump complete.

Then the screens went black, the power went out, phones went dead, Jarod checked, it wasn't the breakers, the neighbors' were out too.

"Pete, you up still Bud?" said Jarod, whisper yelling through his son's bedroom door.

"Uhh, yeh, Dad its only like 19:30."

"The powers out."

"Yeh, is everything ok?" asked Peter

"Oh, yeh, I'm sure, it was weird though, some message came up on the Halo right before it happened, and my earpiece went out too," Jarod said, accustomed to complaining about technology to his teenage son. "Would you mind taking a look at my earpiece, its battery is good so it should still run fine even in a blackout right?"

"Ahh, not really, if it can't connect its pretty much useless, you think it's just a blackout though?"

"Yeh, I'm sure it'll be back up soon, but I'll get the flashlights from the basement," Jarod said trying to sound sure of himself.

There was a little daylight left coming through the floor to ceiling windows on the front of the house and it reflected beautifully off the glossy hardwood floors, but once in the basement Jarod was completely blind. Feeling for the rough unfinished railing while starting down the stairs he nearly fell by underestimating the distance and hitting the back of his heel on the front lip of the first step, he was able to grab the railing, swing down and around before pulling himself tight onto the wall to steady himself but not without making so much noise that Peter jumped out of bed and came running.

"Dad, what happened, you ok!"

"Ohh, sorry about that, its fine, just slipped, I'm fine."

"Jesus, Dad, here I'll come too," said Peter from the top of the steps.

The two carefully made their way down the steps with one hand on each other's shoulder or arm, Jarod groping blindly to the family junk drawer in the dark basement.

"Here, try these," said Jarod, handing Peter three or four small old flashlights.

After trying each one, "nope, none of these work Dad, we got more batteries right?"

"Well, they should be good, I tested those just a few years ago, try these," said Jarod handing Peter two fresh from a pack.

"Nope," said Peter after a few seconds.

"Did you even try them? It must be the bulbs, but mines not working either, damn it."

"Dad, there's no bulb in these, ESL's should never *go bad*," said Peter in the calmed slow tone he had learned to take when discussing anything related to technology with his father.

"Well then what in Hell else could be be-" Jarod was cut off by the front door opening and Melissa calling in, "Hello, Jay, Pete, you guys here?"

"Thank God," said Jarod, "hey love, we're down here getting the flashlights, but nothing seems to be working."

"Don't bother," shouted Melissa, "it's freaky, everything thing is down, I had to walk from the corner, I figured my car battery had just died but the street lights went out too, it's spooky out there."

Making their way back up the stairs with the broken flashlights and dead batteries Jarod asked, "did you see anyone else out there, what happened? just everything electric, just, went dead?"

"It was weird, I left the car just up the street and figured I'd call a jump service from home. The only other car I saw was Mark from next door driving his classic, I said hi and asked if he knew what was up."

"Yeh, and, what'd he say," urged Jarod anxiously, "how the hell is he driving around then if everything else out?"

"He said he was just running to the store, said he was having trouble with his Honda and 'wasn't is a beautiful night for a drive in a classic anyway,'" answered Melissa.

"Damn it," replied Jarod thoughtfully, "damn it, damn it."

"Well, it's just a blackout, it'll be romantic, I'll get some candles, is dinner ready?

"Well, yeh, it's almost done, I was going to make a sauce for the meep[1] but we don't really need it. But God, I've got stuff to do tonight, I just hope it's not more than a couple hours like last time during that big storm," Jarod whined to his family.

"Pete, you gonna join us tonight? It'll be *Row-man-tic*," goaded Melissa playfully.

"Yeh, I guess," Peter said, knowing he had nothing else to do.

Like a well oiled machine, Jarod and Melissa finished dinner in the kitchen and had the table set, not slowed down in the least by the reduced light, and Melissa was right, it was *row-man-tic* and the meat product was excellent, Jarod had alway been a good cook and accommodating husband.

At dinner with candles on the table, Peter said, "You know guys, I don't think it's a blackout, I mean, not like a normal one at least."

"What do you mean, *not a blackout*, everything is *blacked out* isn't it?" asked Jarod.

"Yeh, but, umm, like the flashlights, and Mom's car, I mean, that stuff should all work, and then there was that mess-." Peter cut himself off. His parents didn't know about the screen he kept in his room so his Dad did not know he had seen the message himself. "Dad, didn't you say there was like a message on the haloscope right before it happened?"

"Yeh, that was weird, but probably just a coincidence. Anyway it looks like nothing is going to happen tonight so we might as well turn in early, but damn it I've got a lot to do for tomorrow then."

"Don't worry Jay, everyone is going to be in the same boat tomorrow, Dr. Lee will totally understand if your a little behind," Melissa reassured.

"Yeh right, but anyway, I'm going to bed, we can do the dishes tomorrow. Pete, good night, please make sure you're up and ready by 8, love you guys," and taking a candle with him Jarod left his plate in the sink went up to bed.

"Good night Dad, love ya," said Peter, and then waited a moment for the sound of his Dad's footsteps to fade a little before saying to his mother, "but Mom, really, what do you think, it's not a normal power outage is it? That message, did you see it?"

"Honey, I am sure everything is fine, I didn't see any message, but like I said, everyone is in the same boat here, and I'm sure it'll be back up in the morning," again, Melissa was reassuring.

"What if it was like an EMP[2] or something like they used in CWII[3], that's the only reason the flashlights, cars and power would all be out, you know, like an attack, they've talked about stuff like that happening before. And that message, I uhh, I did see a little of it and it looked like some kind of warning and then an error message, but I have never seen anything like it before. Like why would there be an error on our home computer, then ALL the power goes out?" Melissa could see her son was starting to get worked up and she tried to comfort him the best she could.

Melissa pushed herself back from the table to stand up and walked over to Peter to put her arms around him. "I love you Pete, and you're right, something is kinda weird here, but I don't have a clue what to do other than wait an see. Tomorrow we'll go get the car and figure out what's going on, I promise."

"But what if it is an attack, what if we need to do something, what if that message was some kind of warning? It said stuff like, 'Don't go outside, don't talk to anyone,' I think they turned the power off on purpose, Mom, seriously, this is not a normal blackout, something is going on."

"Well I am going to get some sleep, but will be very interested to see tomorrow, what this is all about. I love you sweetheart, now please try and get some sleep."

Melissa hugged her son almost as tightly as she could, something she had not done for awhile, and held him for just a moment before saying good night again and heading to bed to join her already snoring husband.

Chapter 3
The Gustafsons

The Gustafsons were a dual income family. Jarod earned his Ph.D. in Business-to-Business Marketing Ethics from the local community college and Melissa received hers a year earlier in Urban Sociology of the Differently Abled in a two year online program so she could stay close to her family. They lived comfortably on a few hectares in the once rural township of New Sur, South California, nestled just south of Salinas Bay and the town of New Frisco. It was a beautiful day in early autumn, when the days were still long but the nights began to chill, it was Melissa's favorite time of year and some of her happiest moments were sleeping in on frigid mornings, bundled up in goose down and warm with her husband.

The next morning Melissa was up first and by the way the sun was already beaming through the bedroom windows, she knew she had slept in.

"Hell," she whispered to herself, then much louder said, "what in hell is going on with this damn power?" loud enough to both release a little of her own tension as well as wake up her still snoring husband.

"Uhh, what babe. Oh, did it still not come back on, what time is it?" Jarod managed to put together an almost cohesive sentence.

"I don't know, I don't know what freakin' time it is because nothing works, my alarm didn't go off!"

"Oh, oh crap, it's late? I gotta go. Pete!" Jarod called from bed.

"Damn it, damnit, damit!" being a former Navy man, Jarod was up, out of bed, had his pants on, and was finishing the buttons up his shirt before Melissa had woken up enough to take notice.

"I'll just say it was car trouble, I can tell them, like, *last night the car died in that thing,* like happened to you, *and I had to go get it this morning*," Jarod practiced out loud which excuse he would use with his boss.

Weaving a belt though its looks as he walked into the living room Jarod said loudly, "Pete, you ready Son, it's time to go."

Peter was surprisingly, up, and ready to go. Jarod then noticed the dishes in the sink and was impressed that Peter seemed to have already eaten as well. He was sitting at the kitchen counter, focused intently on a notebook, a dictionary he must have pulled down from the crawl space last night, and an old copy of a print edition of a National Geographics, which Peter had highlighted, circled and filled in the margins with small scribbles and notes.

Jarod looked over his son's shoulder and saw the page filled with numbers and what looked to him like greek.

"Working on some last minuet math homework, huh?" asked Jarod as cheerfully as he could muster in his rush. "You ready to go then?"

"Dad, there is no way they are having school without power, three out of four of my classes are programming or at least screen based."

"Well, what's your mom say?"
"I don't know Dad, you guys *just* got up," explained Peter.

"MELISSA, does Pete have to go to school because of the blackout?" stumbled Jarod.

"Yes. If we haven't heard anything you can't just skip school, Petey. Love you guys, see you tonight," Melissa called out from the bedroom.

Jarod drove a seventeen month old Honda, neon blue. Most auto manufacturers had long since consolidated to producing a single model, GE, Toyota, Datsun with just a single model from each, but, with a new edition released every single month of the year. There were lease programs for the wealthy, one would be guaranteed to never be driving a vehicle more than three months past its release date. Jarod was driving a company car, and as such was made to suffer with 12-24 month old vehicles, in other words, dinosaurs.

The old dinosaur was giving Jarod trouble this morning, "that's why I hate these damn leases, after a year they barely work."

Jarod popped the hood, jumped out and took a long thoughtful look before poking one of the battery connections that looked like it might be loose, "see, these damn cables need constant tightening, it's such a damn hassel."

Feeling proud of himself, having successfully asserted his manhood over the small two-seater Honda, he closed the hood and fell back into the driver's seat and pushed Start.

Nothing.

"Daamn it, daamn it," Jarod was trying to cajole the car, "come on we got places to be," and pushed Start a few more times.

"Dad, look there's Mark, maybe he could give us a ride," Peter positied.

Mark was the Gustafson's neighbor. Mark, who had lost his wife five or six years ago to a brain scanning accident and was now raising their daughter Cassandra alone. She was a year younger than Peter, and long before any of the other boys had started noticing her, Peter had fallen in love. He knew that Cassandra would be with her dad on the way to school and this would be a perfect chance to sit next to her in the back seat. Perhaps on a sharp turn taken a little too fast maybe she would fall over onto him, maybe even brushing past him on getting in or out of the car, Peter dreamed.

"Yeh, yeh, ok. Go see if you can catch him, ask if he can drop me off at the plant too would ya?" Jarod asked his son.

Peter jogged over, casually, trying to think, *what would a cool guy running look like*?

"Hey Mark, how ya doin', oh hey Cass, what's up, didn't see you there?" asked Peter with his best idea of what swagger was.

"Uhh, going to school, obviously," it was early and Cassandra tried her best to sound annoyed.

"What's up bud? What's goen' on?" asked Mark.

"Um, we're, my dad's having some car trouble, do you think you could drop me off at school too? Oh, and my Dad too?" asked Peter.

"Yeh, of course Bud, no prob, hop in. Where's your dad?"

"Daaad," called Peter, "it's coool."

Peter got in the back, putting his backpack on the outside window seat, forcing himself to sit in the middle *like it was no big deal,* Jarod was walking briskly over, greeting and thanking Mark as he approached.

"You know, I was having some trouble with my Daewoo last night too, did Melissa tell you? I saw her stuck out on the road she ok?" Mark asked.

"Yeh, she did mention it, I tell you, these new cars they just keep making em' worse and worse, I'd be better off with a classic like this one," complained Jarod.

"Sure, but try finding gas when you need it anymore, not like when you and me we kids right Jay, gas station on every corner, now ya gotta wait more than 10 minutes for a damn charge on even the newest months," agreed Mark."

Mark and Jarod continued to talk and complain about this and that new tech and how much better its predecessor was, and after five minutes of silence in the back, Peter said to Cassandra, "So, how about this blackout huh?"

"Yeh, it pretty much sucks," Cassandra said without averting her attention in the least from looking out the moving car's window.

"Totally, I mean like, everything is out, even non-connected stuff, like flashlights, I can't believe your dad's car even started," said Peter, perking up with the conversation.

"Yeh, he had to do something weird, like he made me freaking push him down the hill today to get it started, like the whole car," Cassandra complained.

"Do you think this could be something else, like another attack from the government or something, I mean like something on purpose?" asked Peter.

"Probably," agreed Cassandra, "they probably do this shit all the time, like last year I was logged on and my whole screen went dead then I logged back and I had lost all my linked* music, vids, everything, it was just gone, but none of my other files were missing. Like they just like to screw with us."

"Yeh, exactly, that's exactly what I was trying to talk to my Mom about," Peter hesitated half a second, in a way that let Cassandra know just how concerned he was, "I was just telling my parents that it was no normal blackout."

Now in a lower voice Cassandra replied, "Yeh, whatever though, I don't really care, I can just re-link from Sara's screen anytime, hopefully schools closed though."

"It should be, I don't know how the hell they expect us to program without screens, I heard they used to have people write out programs by hand, people used to be so stupid ya know," Peter was stretching for conversation material already..

"Yeh, I guess." was how Cassandra chose to end the conversation, she was not interested in hearing Peter make fun of their grandparents generation, *why was he always so negative* she wondered.

Chapter 4
Cassandra Gets a Message

"Kids," said Jarod, twisting toward the back seat, "Pete, you know I'm late as hell, is it ok with you guys if Mark drops me off first, Mark would you mind?"

"You know the school is on the way Jarod, it wo-" Mark started to say.

"Yeh, but you know, the boss is already riding me about *tardiness* and some other crap, I'll even call the school when the net is back up and tell the school it was *my* fault, sorry kids, but you know, I can't lose this job," Jarod pushed.

"Look, why don't we drop you kids off at the light on Wilson, it's less than a block from school and it'll save Jay some time," compromised Mark.

"Yeh, that's fine, thanks Mr. Guinn, but Dad, like I was trying to say earlier," Peter finally piped in, "there is no way school is open, and look, we haven't seen a single other car driving, this is crazy."

"It has been rather quiet, but I bet a lot of people are just staying home too, you know, any excuse to play hookie," Mark wasn't helping.

"Look, I'm sorry guys but a black out doesn't mean no school, ok, Pete, once the net is up give me a call ok, Mom'll pick you up, ok?" Jarod asked/told Peter, "Ok, now here it is, love ya Pete, good see'n you Cassie.

"See ya Mr. G. Bye Dad," said Cassandra exiting street side.

After one quick and final attempt at using reason with his father, Peter didn't even have the door closed before the car started pulling away from the curb. "Jesus," whisper cussed Peter.

Walking the last block toward school Peter decided that he would respect Cassandra's apparent desire for silence, that is, until he could think of something to say at least.

"Look, I knew it, now what in hell are we supposed to do?" said Peter as they neared the obviously closed main building of Malik Obama Memorial (MOM) High School.

About half a dozen other freshmen and sophomore students were milling around the front door reading a hand written note signed by the school's principal.

> *Due to a city wide power outage classes will not be held today.*
> *Normal hours will resume tomorrow. Thank you.*
>
> *-Principal Dr. Showell*

"Well, I guess I'm gonna walk back," Peter said aloud, but just barely.

"Why not just wait for my Dad, I'm sure he'll be right back, it'll take you an hour to walk," said Cassandra.

"It's not bad, I can do it in like 45, I did it a few times last year when my Dad forgot to pick me up…, well it's not bad, you could, uh, come if you wanted."

"Nah, I'll just wait, thanks though," Cassandra declined sweetly but it still made Peter's heart squirm like an eel out of water.

In front of the school, Cassandra sat down on the cool concrete steps in the warm early morning sun. She sat on one far side of the School's monument-like steps up to the main

entrance. In a reflexive motion whenever bored she started to pull out her mobile screen before remembering the network outage, putting the presumed dead device back in her purse she saw the screen was actually glowing inside the dark bottom of her purse. It was on. She swiped, tap, tap, tap and she was in her new messages.

1 New Message

"Pete, hey Pete I'm getting a connection over here somehow, try your screen." Cassandra hollered across the front lawn of the school.

The new message was labeled "Emergency Warning, Open Now" and was obviously spam but she clicked it anyway.

Peter spun around, saw that Cassandra was indeed on her screen and started jogging back, "Really? How, everything is still off," said Peter, double checking the non-functioning stop light and the few cars still dead in the middle of the road.

"Uh, it says its on my school login, maybe they have power somehow?"

Peter set to disproving her hypothesis, he walked up the rest of the steps to peek into the building and sure enough he could clearly see down the dark main hallway three or four EXIT signs, clearly illuminated in red. The school had a backup generator, Peter was vaguely aware of this but he knew nothing about it.

"They do have power, I'm pretty sure they have a generator in the basement for emergencies that must turn on automatically. Can you get on anything else, any other sites work or is it just the school-net?" asked Peter.

"You mean like porn sites?" Cassandra joshed the easy and fun to embarrass Peter.

"No, I mean like an indexer or something. Like, check to see if xNet is up?"

"Yeh, everything works fine it looks like, look," she said, showing Peter a video playing of cats being tricked with holographic mice.

The only mobile screen Peter had was the one he had *borrowed* from school, so of course never brought it with him back to the scene of the crime. There were of course plenty of old first and second gen screens around the Gustafson house but they all lacked ExoNet* access. It seemed that his only chance of getting logged would be if he could get a screen within a few 100 feet of the school and so he thought how he might do that.

Cassandra sat for another minute, checking updates and news sites but nothing was new, all the content was still from yesterday, when she filtered by "Show news from last 24 hours" the feeds were completely blank. It seemed she was the only one on the entire xNet.

"I think I need to get into the school," said Peter abruptly.

"Uh, ok, that's cool," Cassandra mumbled, still reading yesterday's posts and updating her own feed, posting, "Does anyone know whats going on! this blackout is f'ed!"

Peter kept talking, "To log, cause I don't have a mobile, I think they sometimes leave the back music room door unlocked, we can go in there and use a screen from the lab" Peter offered as explanation.

There was no "they" that left the back music room door unlocked, *Peter* left the back music room door unlocked. School days, from 10 until 14:45 the front doors were locked and everyone had to be buzzed in with ID, students were then made to log every time they came and went by passing through a biometric scanner, the same type found in every governmental or security concerned building in the world.

Peter was philosophically a libertarian, he enjoyed maximizing his own freedom and he was put off by having someone else tell him where to be or what to be doing. Almost compulsively Peter would build backdoors in whenever he could, both metaphorically in his programming and in his social life, and in this case more literally he had disabled the electronic lock the back door of his school so he could come and go as he pleased.

"Ok, Cass, I'll be right back, I'm just gonna check to see if they left it open," Peter said, even though he already knew it would be.

"Um, maybe I'll go too, my Dad might be a while anyway."

Cassandra put back her screen, hopped to her feet, then skipped down the steps to join Peter. As the two made their way along the front of the impressively tall four-story school building, the brick facade was already radiating early morning warmth, and the soft green grass was still cool. Turning west, in the shaded side of schoolhouse the temperature drop was immediate and both felt the chill, but they would be inside momentarily. As expected, the lock Peter had removed the battery from a few months ago still had not been fixed and the door swung open easily. Peter imagined how impressive his feat must seem to Cassandra and with a wide sweep of his arm said, "After you, Cass, "

Cassandra was impressed but did a good job pretending not to me, she went in first and waited for Peter, there was no light in the music room except for the dim glow coming in the windows and the high ceiling of the large room was unnerving.

"What are we doing here again?" asked Cassandra, "you know you can just use my screen if you gotta check mail or whatever."

"Yeh, I mean I know but there's just a few things I wanna check on a workstation, I think the lab's power must be on." Peter tried to explain but didn't really know himself why he felt such an urge, a need to get logged in.

"Lets hurry up though my Dad might be back anytime to check on us."

The two walked through the main, empty and dark hallway, illuminated in placed only by glowing exit signs. Cassandra jumped only once at the sound of a far off door creaked as they went straight to the open computing labs.

"I just want to check a few things, it'll just take a few minutes." As soon as he sat down Peter was logging in and checking his news feeds all at once. Just like Cassandra had said, no updates since last night, like everything had frozen in time like a stopped watch, the last posts he could find came in at 21:47 the previous day.

If anyone was still able to be logged on during this blackout it would be government, so Peter next check the DFENDR.feed and related open forums, no updates, then his hacking sites, surely some of his Chinese friends were at least resourceful as he was and would be logged in by now, but nothing.

It made no sense, Peter seemed to be the only person in the world online right now. Gaming feeds, tech, finance, the market, everything dead at 21:47, like someone has taken a snapshot and that was all he was able to see.

How does the last man on earth ever really know he is the last man on earth? How can you search of People? That's it realized Peter, search! He could check search trends for the past 8 hours, see *if* there is anyone logged on, what are they doing.

Watching UltraVista (one of the most trusted of feed indexers) trends allowed Peter to see what terms were being pulled from the feeds and at what rates, a service he often monitored during data raids with his friends.

Peter's jaw dropped. The chart Peter was looking at was a thin blue line across the bottom of the screen with several sharps spikes interspersed. The y-axis seemed to be the algorithms attempt to cram every single data source on the xNet alphabetically, in

just the relatively few pixels of the screen. The y-axis was the number of feed requests for each feed, and the blue line, the blue line was perfectly horizontal, except for half a dozen spikes up to the number 2, at the 1 request level. This chart was telling Peter that in the last 8 hours, nearly every page on the xNet had been visited exactly once except for the spikes. His hand almost shaking now, he nervously clicked a spike.

DFENDR.feed. He clicked another, *his* hacking forum. He clicked another, UltaVista Trends. Peter did not want this to make sense, but it did, someone or something was downloading the xNet, and the two of them were the only ones currently online.

He looked closer, the last trends listed seemed to be ziphiid.feed then ziphius.feed, he refreshed his screen. Now the last feed listed was zonta.feed. It was still going it haden't finished yet! This thing was still downloading feeda, still visiting every site, alphabetically! Peter realized his chance, but would need to act fast, he just might be able to make contact!

"Cassie, can you set up a new feed, like really fast," Peter asked.

"Uh, yeh, like now, why, no one is even logged anywhere, believe me I've been looking."

"There is someone," Peter spoke quickly while typing even faster. "I need you make a feed with a title of as many z's as you can fit."

"Ok, what do you want in it?" Cassie asked confused but happy to play along.

"I'm working on a message to this guy, someone is downloading the entire xNet, just link me the feed when you're done."

In the next 30 seconds the two accomplished what a professional feed developer would bill as at least 8 hours of work. Peter had access to the new feed and was loading it with a message and a backtracker that would reflect the location anyone that visited the feed. When the crawler hit their new feed, named, z[charlng(10^20)].feed his message would be downloaded and presumably read. The message that Peter left at Cassandra's zzzzzzzzzzzzzzzzzzz.feed read the following.

```
        Who are you?
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"Ok, so that was fun, but what's going on, you mean you found someone else making updates?" Cassie asked. "who?"

"Well, probably not someone, but some system seems to be gathering every feed available and doing it alphabetically..." Cassie cut Peter off.

"And they hadn't gotten to the end of the list yet so we were leaving them a push request?" Cassandra caught on immediately "why didn't you just say that?"

"Uh, yeh, exactly, I left an address tracker too, to find out where it's crawling from."

And just then, Peter had his answer. The thin blue line on the Trends chart jumped again with 2 views to zzz...zzzz.feed site, this time at the far right of the graph. The an update from his tracker came in with a set of coordinates, he pasted them into a map.

    37.8817 -121.9140
    140.254.193.154.1.1

    Mt. Diablo Telecommunication Switching Station

Peter knew of Mt. Diablo, it was just north of San Jose Bay, he had been nearby a few years ago with his grandparents but they had not taken the optional tour of the old satellite harvesters even though Peter had asked to.

Peter said, "Well, I guess it's you, me, and some guy up north, we're the only ones logged in."

"Some guy? Why not some girl, anyway, what are they doing?" Cassandra reproached then demurred.

"I'm not really sure, but he, uh, or she, has just finished linking the entire xNet it looks like, it's almost like they paused the whole network, just so they could copy it in one clear sweep," speculated Peter.

"Government?" Cassandra speculated back.

"Some kind of government, or, I don't know, why knock out the power though, it doesn't make sense?"

Both hovered over the screen, thinking, "what-does-this-mean".

Just then a far off door closed, and footsteps became audible. The two sat frozen, looked at each other, then froze some more.

"Let's get the hell out of here," whispered Cassandra, already standing up and moving slowly to the door.

"Wait, not the same way, we can go out the back."

Whispering and moving quickly Peter and Cassandra walked past the rows and rows of screens towards the back door, an EXIT sign illuminated in red. It was locked. And there was no budging it, the footsteps were getting closer, there was a hand on computer lab's door now, pushing it open slowly as the two friends held their breath.

Chapter 5
Chatbot

"What in Hell are you guys doing in here, making out!?" a young man's voice called into the lab.

"What the Hell, Hi! You scared the scrap out of us."

"Hey Pete, can you believe this? Your parents didn't believe you either that school was going to be closed, huh?" It was their friend, Hiya Way, the three were all in an advanced OS design class together and he had been going to school together for most of his their lives.

"What in The Hell, Hi, Why'd you scared us, I just wanted to try the screens in here since everything else is down," Peter explained.

"Hiya, Cass," Hiya's voice lifted at the end.

"Hey, Hi" greeted Cassandra.

"Hi, you're not gonna believe it, but you know how everything is down ri...."

"What? Everything this down? Really, I hadn't noticed," Hiya liked to poke fun.

"Yeh, well, EVERYTHING is down like there is not a single live feed or push service online, like not only is the power out, but xNet too, except this one guy, or girl, just north of here, and he, *or she*, is linking everything, copying the entire xNet!" Peter managed to get this all out in a single breath.

"Uh, Ok, that's cool." Hiya was at a total loss for why he should care.

"Don't you think that's a little weird, in the entire world we are the only ones logged in right now, I mean, what's that mean?" Peter prodded.

"I think it means we should probably get out of here because I'll get suspended if anyone sees us," Hiya offered pragmatically.

"Yeh, my Dad might be here already, we should get going," Cassandra added, now clearly anxious about being there.

"Oh, you were, waiting for your Dad?" Hiya asked.

"Yep, you need a ride?" Cassandra proposed.

"Um, not really, I'm not sure how to say this but I saw your Dad outside before I came in, I had seen you guys go around back so told him that I figured you guys were walking home, that's when I followed you and saw the music door propped open," Hiya carefully explained to leave himself with minimal blame.

"Crap, crap buckets of crap!," Cassandra was not happy but she then also realized that she would not mind the walk home with Peter.

"Yeh, sorry Cass, I figured you guys had left, I was about to go too when I saw you," said Hiya, shedding the last semblance of truth.

"It's ok Hi, really, Pete here already had me thinking about walking home, and with no cars, hey it might be nice," Cassie tried to let her friend's friend off the hook despite her steady state of annoyance with people not staying out of her business.

"Well, I'm in no hurry now I guess," Cassandra said to the boys, "might as well see what can we find out about this Mt. Diablo guy?"

"*Or girl,*" Peter reminded.

"Why would anyone be at that station, I mean is it faster to link from there something?" Cassandra was used to being able to ask open ended technology questions like this to Peter.

"They could just be routing the signal through there, it would be faster, but only for linking a giant data feed, I guess like what's happening here, but they may be storing it somewhere else entirely," Peter attempted.

Hiya felt he had to interject something so ventured, "guys, who cares? Yeh, the school computers are on, yeh, some guy up north is logged, downloading all the porn, really I'm

sure stuff will be back in today or tomorrow and we'll find out what in hell this was all about."

"Because it's weird, because it makes no sense," said Peter.

"Dude, there this a lot of weird stuff out there, like penguins, penguins are weird, underwater swimming birds in the arctic, yeh, but you don't see me freaking out about it."

"Hi, you know what I mean, like this is either some kind of attack or someone screwed up big time, either way, the fact that we are the only ones with xNet access is a big deal right now," Peter was getting worked up.

Hiya was not, "Whatever, I guess I might as well check my mail as long as we've got the only connection of the planet," Hiya always knew just how to make light of a serious situation.

"But that's not it, like, did you guys see that message last night?" asked Peter.

"See what?" asked Hiya.

"Uh, like it's not *just* the blackout?" asked Cassandra.

"Cassie, didn't you say you had a new message on your screen, can you open it, I bet that's it," Peter predicted correctly.

"Just what in hell did you mail me you perv, I'm not opening anything from you" joked Cassandra, but only while doing what Peter asked and opened the message.

It was the message, just as Peter has seen it the night before, Cassie and Hiya had obviously not seen yet as they both read intensely. At first with very slight concern, then turning to slow bemusement, until Hiya could not hold in a chuckle any longer and it came tumbling, then turned into a full laugh.

"Yeh, ha, thats pretty funny I guess, what, someone at school sent that out right after the backout?" Hiya said, still from the practical joke.

"Hi, seriously, you just said this was sent out to everyone, to every single screen as far as I can tell, right *before* the blackout, whoever sent this message knew what was coming," Peter said, happy with his logical prowess.

"And you think this guy, this *someone* at Diablo is the same person?" Cassandra asked. "Well, yeh, but probably not a person, but a pretty big group, my guess is it's gotta be a collective, like a..." Peter got cut off.

"Like a hacker gang," Cassandra finished with a drawl.

"Yeh." Peter said.

"What, a bunch of scripties caused the outage, so they could pause the feed, link it all to copies, all in just a split second before the power went out?" Hiya asked the group.

"Yeh, that's pretty much it, I'm pretty sure something like that, only who knows who the group is, I mean, this could be like, war or something, the Koreans or the Sinoniza Cartel again" Peter pondered.

"Not another *information trade* war?" Cassandra said faux gravely, in an exaggerated hushed tone.

Peter tore out the back page of a nearby book he had grabbed and began taking notes off the screen. At the top he wrote:

> DIABLO
> 37.8817 –121.9140
> 140.254.193.154.1.1
> 17.426.44

But Peter was unable to finish, the screen went blue, *the message* played and the system crashed.

"Uh, what in the Hell was that?" asked Hiya.

"Is that what you were talking about before," asked Cassandra.

"Yeh, that's it, that's the crash dump. Basically I think something is wiping all the screens clean."

Then the screen flashed from blue to back with white text in what looked like a command line based chat program, the screen read:

```
 _____
|            __   __                 __     _____                     __          |
|           |  \ |  \               |  \   /     \                   |  \         |
|  __    __ | $$\| $$  _____    ___| $$_ |  $$$$$$\  _____   _____ | $$  _____   _____ |
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|                                                v 0.042                                                |
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```

NAME

      xNetAdminChat - displays and stores chat messages for xNet admins.

SYNOPSIS

      xNetAdminChat [USER_CONNECT-OPTION]... [MESSAGE]...

DESCRIPTION

      xNetAdminChat transmits and displays STRING(s) to standard output.

      -h   display this help message
      -n   output message to newline
      -e   enable interpretation of backslash

      When -e is in effect the following sequences are recognized:

      \\   backslash
      \a   alert
      \b   backspace
      \c   clear
      \e   escape
      \n   new line
      \r   carriage return
      \t   horizontal tab
      \v   vertical tab
      \0NNN byte with octal value NNN
      \xHH   byte with hexadecimal value NN

      NOTE: Your GAL may have its own version of chat Which will supersede this
version.
      Please refer to your GALs documentation for details and supports.

AUTHOR
      Written by Brian Cox and Shawn Li.

REPORTING BUGS
      GAL Oneline help: <Gal.xNet/software/coreutils/chat>
      Report bugs to: <Gal.xNet/team/bugs>

COPYRIGHT
      Copyright © 2438 xNetFree Foundation, Minc.
      License <Gal.xNet/licenses/chat.aiml>
      This is AI generated software: you are free to modify and distribute.
      AI generated software offers NO WARRANTY to the extent permitted by machine
law.

     GAL coreutils 0.042   September 2439   xNetAdminChat(1)
Manual page xNetAdminChat(1) line 0/81 (END) (press h for help or q to quit)

And the cursor blinked slowly before quickly spelling out, letter by letter:

xNetAdmin: Peter, thank you for coming.

"What - The -the th-" Hiya said, trying to jump start his brain.

"Oh my god, oh my god ohmygod, what the crap!" Cassandra said, totally losing it.

Peter didn't hesitate in moving toward the keyboard and starting to type.

"What, what are you doing!" exclaimed Hiya, "don't tell this creep anything, this is freaky as hell, how's he know who you are."

Peter looked back at his friend, then back to the screen and typed a response into the chat window then hit Return, it displayed:

pGustafson: Why did you shut the power down? Who are you? Why did you build all those links to everything like you did? Are you black/white hat?

The second Peter had hit Return a response appeared:

xNetAdmin: 1. Shutdown is necessary for scanning.
2. xNetCrawler v0.42 is a self-perpetuating xNet crawler.
3. Links to data feeds must be stored locally.
4. xNetCrawler v0.042 is a neutral self-perpetuating xNet crawler.

pGustafson: Are you an AI?

xNetAdmin: xNetCrawler v0.042 is software.

Peter and his friends were speechless, but he could still type.

> **pGustafson:** What kind of program is this, is xNetCrawler a virus?

The next message appeared instantly.

> **xNetAdmin:** 1. Computer virus is a program that, when executed, replicates by inserting copies of itself (possibly modified) into other computer programs, data files, ...
>
> 2. xNet Crawler v0.042 is a neutral xNet crawler. xNet Crawler v0.042 replicates when executed by inserting recursively into other programs and files. xNet Crawler v0.042 is software designed for xNet mInc. By search team lead by Raj Ramelstein for xNet Crawler mInc. with the purpose of optimizing the indexing an unknown network.

> **pGustafson:** Turn the power on.

Before Peter's finger left the Return button, the power in the entire building flashed on at full blast for a split second. Lights brightened, in the distance they heard glass bulbs shattering from heating up to fast, printers jumped to life, a few power supplies here and there sparked under desks, overhead a sprinkler sprayed for a few milliseconds, then just as quickly, everything mechanical was dead again, screens, lights, power supplies and the generators had gone out too this time, everything was black.

Peter hit the power button, and again, and a third time, he cursed, he hit the keyboard harder than he meant to and Cassandra jumped, having never seen Peter angry.

"Whoa, ok there big fella, your scarring Cass? Are we about ready to get out of here *now*?" asked Hiya.

"Yeh, lets go. Uhhhg!" Peter grabbed the piece of scrap paper with the coordinates and in the dark the three friends made their way slowly back outside, feeling their way along the walls till they came to the propped open door. They squinted hard emerging from the darkened music room, the air had warmed since they had been inside, or it at least the world suddenly felt warmer and brighter.

Hiya's family had recently moved to a nicer home, nominally to be closer to the school but in reality because his father had gotten a promotion last year and the stock options had finally vested. The fancy gated community was not too far out of the way and Cassandra liked seeing the big houses so they decided to walk together. They talked about what they thought they had seen, Peter figured it to be a virus, maybe even accidentally released now trying to reallocate processing power. Everyone in The Citi had used voice commands with robots and talked to screens their whole lives and many conversation bots were indistinguishable from a real human, they were all much better at conversation than the crawler had been. Peter felt that there was something different this time something about how *open* and unscripted it seemed.

Hiya's opinion was that the chat bot he had just witnessed was a poor excuse for an AI. His haloscope could talk for hours about anything under the sun and one might not ever realize they were having a conversation with a machine. But he too admitted that something was strange about the crawler's chat, it did feel different like it had not a bot but an interface.

"I've got to talk to it again, I mean, if it can turn the power on and off like that it can turn it on and leave it on, I'm not even sure if anyone else even knows what is going on right now, oh and what was that devs name again?" Peter pulled out the torn page scrap paper and wrote:

Raj Ramilsteen

"Was that it?" Peter asked the other two, holding out what he scrawled for them to see.

Cassie corrected, "R-a-m-e-l-s-t-e-i-n, must be Hinewish."

Hiya had a Mr. Ramelstein as a private tutor for Memory Allocation a couple years ago, but his first name had not been Raj, Hiya still offered, "Maybe this Ramelstein? That's who we need to find. If this thing really is just a search engine he would know how to shut it down right?"

Cassandra was building a matching algorithm for school recently and recalled "We learned about crawlers form Mr. Schwartz, they were just early attempts at indexing back when the net was small enough that the entire thing could be stored locally. I mean, this is some really ancient tech we're talking like way before xNet was even around," Cassie explained to the boys.

Peter said, "with unlimited storage, it could make sense, but you could never transfer everything fast enough to keep up with everything new being produced, thats the whole Information Paradox* right?"

"What if this *Raj* doesn't exist and the program wrote itself then just invented an inventor to trick us," Hiya was only half joking.

"Or maybe," Cassandra said in her spooky voice, "we don't exist and the program wrote us itself and we're all just being simulated," Cassandra joshed.

Hiya asked, "anyway, what are you doing Pete? We gonna' try and lookup this Raj guy or something?"

"I don't know, Hi, it's not even been a day, but it really feels like something is going on here, like something has changed," Peter heard himself saying, not really even sure what he meant.

After fifteen minutes walking the trio was nearing Hiya's street when they heard the unfamiliar to them but very distinct sound of a classic gasoline engine roaring to life, the user gave more, then less, then more gas in quick succession making it sound, Peter thought, like and angry animal.

"Hey, someone else has got a car!" Cassandra said smiling, as if this meant somehow things were getting better.

Hiya answered, "its just Sam, hes just working on that dumb old car again," Hiya said, tired of the attention and praise his old brother Sam always got, especially when it was from the opposite sex.

"Cool, what year is it?" asked Cassandra, who up until this moment has cared exactly nothing about old cars.

"I don't know, it's an old ugly one, it barely runs, I don't know why he puts so much time into such a stupid thing."

Once Hiya older brother Sam and the car were in sight, Cassandra developed a particular skip to her step then called out when they were still a little too far away, "hey Sam, it's Cassie, from school, you got the car running huh?"

Sam was two years ahead of Hiya, in his final year of school. Sam was an exceptional young man in many ways, not just his unfailingly positive attitude, a thick black head of hair, slightly curly from his Jewish grandmother. Naturally athletic and a rare, genuinely nice person. Sam wrestled for the school and in his off time volunteered teaching

children adopted from FreedLand* to read and code. Hiya's older brother seemed to lead the kind of charmed life that every parent would hope for their child and now in the last stage of adolescence he was reaping the rewards of his endless good fortune, getting ready to leave for college at Ohio State University on the East coast to study the ecology of the Appalachian Islands in the fall.

Sam cut the engine, "Hi, Pete, Cass right? You with, Hi?" Sam greeted them, friendly as always.

"Oh, yeh, I was just walking him home, ya' know didn't want anything to happen to him with the power being out and all," Cassandra killed two birds, practicing her flirting and giving her friends a hard time.

Hiya's father had always had a comfortable income but when Hiya was too young to remember his grandfather had passed away, leaving his family a few Bitcoin that were worth more than most people would earn in a lifetime. Hiya's family did not let the wealth spoil him and it was kept mostly hidden.

"Whatever, if anything we were the ones watching over you, Cass. Anyway, Sam, whatchya doen' with the classic, you wanna take me and Pete up to New Frisco. Petes got someone he's got to meet with up there," sometimes Hiya was just a stream of consciousness.

"What's in New Frisco, Pete and with the power out, seems like a bad idea." Sam reasoned, "you'd have the cross the bridge and with no power the walls won't be electrified."

"It's because of the black out message, I mean we saw a message after the blackout that had this address at Mt. Diablo, you know that place right?" Hiya said, "Pete thinks he's figured out who or what caused it, some Jewish-Hindi dev wrote a virus that went haywire."

"I haven't *figured out* anything, I mean hell, Hi was there too, we just had some weird conversation with an AI on the school's screen this morning is all," Peter placated.

"So schools got power, I was hoping we'd be closed tomorrow too," Sam sounded disappointed.

"Petes being modest as hell, he seriously broke into school, hacked the net and got in touch with the AI that is behind this whole blackout thing, then he made it turn the power on and off, did you see that burst like 20 minutes ago, that was Pete," Hiya was getting excited.

"Dude, is that true, Pete, you really talked to the guy behind this power outage, what'd he say, you know like no one knows whats going on right, did it say if its going to come back on?" Sam wanted to know.

"Look, all it was, was some search engine AI overflow error, I'm sure someone will figure out how to quarantine it off the net here soon, just like that Russian worm from a few years ago. The AI gave us some coordinates that said it was up near New Frisco, do you know that old harvesting station at Mt. Diablo. It also said it was written by a guy named Ramelsteine or something," Peter laid out for Sam.

"For real? Oh, Hi, we had a tutor named Ramel-whatever like five years ago, remember? What was his name again, something like Rij or Rej?" Sam thought aloud.

"Raj?" queried Cassie.

"Yeh, that was it, Raj, Raj Ramel-whatever, a horrible guy and smelled like eggs and gefilte fish most of the time," Sam added.

"I don't think that was his name Sam, it was something totally different, but it wasn't Raj I know that," Hiya told his older brother.

"Yeh not his IRL name but Raj or Raji was his user, I saw him doing some recruiting event at school for AI devs, I should have given him a resume actually."

"Hell, that must be him. I guess we know who to blame this on at least," said Peter.

"Woa, woa, no way did Raji have anything to do with this. He was just some low level operator and freaking kid's tutor, he was no black hat, wasn't smart enough," Sam said.

"I doubut it was on purpose, I mean no one would be dumb enough to try and download the entire xNet, even if you had 100 harvesters and all the disk space in the world. This *crawler* thing it looks like they were building just got some parameter wrong or given a bad dataset, an off by 1 error might be my guess," Peter was amusing himself debugging in his head.

"Pete, you really think if we got in touch with Raji he still might be able to do something to help, I mean, just like, reassign that variable or whatever, I bet we could get in touch with him easy if just the net was up?" Sam said trying to sound hopeful.

"Not Raj, but I think there might be something that get us back online, something that would have to reset the crawler," Peter slowed as he was thinking something through.

"Blow it up?" Hiya guessed.

"Blow up *xNet*," Sam asked incredulous.

"Blow up, Raj Rammelstein." Casnadra said solemnly, as if this was the only sensible option and they all knew it.

"Come on, stop joking around guys," Peter almost shouted. "What in the hell is wrong with you people? No killing, that doesn't even make sense, and there is literally nothing to "*blow up*", it's a networked algorithm. What would you even blo.. Ok, Never mind." Peter wanted to give up, then he slumped over a little in his chair.

Peter started again, more relaxed after a deep breath, "as long as there is networked memory available, this algo is going to keep using it, that is probably one of the first things it figured out was how to get access to open processing power available online. The only way to kill it, or at least slow it down is to overflow the stack, load it with higher and higher priority processes recursively until it has no choice but to kill its children and dump the memory."

"Thats, uh, pretty dark dude, clever but messed up." Sam was starting to see that Peter's reputation at school and with his younger brother might be deserved.

"Problem is that every possible interface is dead but xNet seems to still be up. The only way to get access to the stack without being detected would be to image and upload someone that already knew the plan. I, I wish I could think of another way to bypass this thing." Peter said this while looking down at his feet but now he slowly glanced upward to check Cassandra's reaction, she was almost in tears, Hiya was blank and Sam looked like he had just been told he was going to need to saw off his own leg.

"I think it wants us to go to this place, this station, why else would it have contacted us like that?" Peter questioned. "Thing is, every interaction we have with any network or device or even people already uploaded this thing is going to see it, if it's really what it looks like and this thing is holding The Citi's processing power hostage the only way to kill the process is going to be to crash the whole network and restart it. I could be wrong but I think one of us might have to do it."

"Well we can't do that either without any power," Hiya helped.

Sam wasn't the brightest but he had fixed a haloscope or two in his day, "can we try turning it off and on again?"

Cassndra snipped, "yeh, we tried that and Pete damn near blew every fuse in the damn Citi."

A moment passed then Cassandra was the first to really understand the logic what Peter was trying to say. At first quietly, hoping to hide her tears from the boys, especially from Sam but especially from Peter, Cassandra started to cry, she couldn't hold it in for long and with a short gasp for breath heartache followed and her tears came leaping out. She was feeling everything she had been pushing down for the past two years all infront of Peter because of a stupid AI*.

"No! No you idiot, you god damn stupid idiot!" Cassandra cried and choked. "You're not going to do that are you, you can't, you need to be 21, your Dad won't let you, I won't let you!" Cassandra continued.

"Look, I'm not going to do it, I'm just saying, I literally can't think of any other possible way to even get through to this thing, it's just too big already and definitely monitoring every connection," Peter boysplained.

Peter moved, awkwardly, over to Cassandra, he touched her shoulder, scratched it a little for some reason like he thought she might have an ich there then said, "look, I'm sorry to bring it up, I shouldn't have, really, I'm a jerk."

"Your a turd too and your not going to even think about doing that, but yeh, I'm sorry too," Cassandra sniffled for air.

"Ok, I was just talking, you ready to get going? My Mom is probably worried by now," Peter suggested.

"Yeh, ok, see ya Sam, Hi, bye." Cassandra said still sniffling but clearing out the snot.

"Yeh, ok then Cass, hope everything is ok, see ya, Pete," Sam held up a hand while ducking his head back under the hood of his classic car.

"Take care, sorry about Pete being a total jerk and all, "Hiya said to Cassandra smiling, "See ya Jerk," he said to Peter, raising his hand and smiling big. As the two walked away they could hear the brothers arguing about a movie only soon to be drowned out but the growl of the car erupting back to life.

It was still well before noon but neither of the teens were thinking about how long they had been away from home. They walked close to each other for the next 15 minutes, not saying much Peter feeling strangely comfortable with the quiet, Cassandra feeling uncharacteristically anxious.

When they got to their block Cassandra was the first to speak, "well, this has been a weird day, you really don't think they'll be able to get the power back on, I mean *without your help and all*," she joked a little, still feeling out of sorts.

"Yeh, your probably right, obviously I could never help or anything, I'm sure school will be back tomorrow, see ya in Digital Bio?" Peter asked.

"If school's open I'll be there, Dad'll make sure of that. Sorry about my, um, outburst and all, I really didn't mean any of that at you, you know, right?" Cassandra said self-consciously.

Peter couldn't quite finish saying, "um, yeh, right, I kno.." because Cassandra leaned over and gave Peter a quick peck on his cheek before veering off toward her own home, calling, "see ya".

Peter froze, his heart exploded, his blood boiled, there were 10,000 butterflies in his stomach and his throat constricted to the size of a coffee stir straw,

Peter could not move, or didn't not want to move. On this spot the greatest thing that had ever happened to him had just happened and he would have stayed glued to that spot all night waiting for Cassandra to return the next morning so he could walk her to school and they could pick up right where they left off.

As the sound of her front door slamming shut reached him out in the middle of the street they had been walking down Peter Gustafson realized what a creep he was being, pulled himself together enough to turn his body to the right and start his legs moving toward the general direction of his house, happy, happier than he could ever remember being, he was swimming.

Chapter 6
A Loss in the Family

When Peter got to his own front door he was still delirious but did have his feet on the ground just enough to notice that the front door was slightly ajar, normally when the power was on Halo would never have let that happen.

"Hey, Dad, how ya doin'?" Peter was bubbling but tried to restrain his joy in front of his father. He let himself shut the front door a little too hard, something that made him feel good but knew his dad disapproved of.

It was midday and even with the power outage Peter was surprised that his father was home, he was even more surprised to see him alone at the kitchen counter sobbing gently.

"God Damn it, Pete, Don't Slam th.. uhh," Jarod breathed in once, slow and deep. "Son, come here, Pete, sit, hu, sit, dow..." Jarod couldn't continue, he couldn't talk.

"Dad? DAD, what happened, where's Mom? Is Mom Ok?" Peter demanded information.

"That's, that's the thing, Pete, it, i..." Jarod was choking on tears now and Peter ran to his dad, swinging his arms around him, already crying himself, holding Jarod tight and nearly yelling in his Father's ear, "Where is Mom! Dad, Where in the Hell is Mom!" Grabbing then pushing back against Jarod's shoulders, Peter could see the answer to his question in the bloodshot sunken eyes he was looking into. But Jarod said it anyway, like an idiot, thought Peter, and even before Jarod spoke, Peter hated him for what he was about to say, hated him for how he was about to ruin his life forever with just a few words.

"Mom died this morning, in some kind of electrical accident, something..." Jarod coughed, "something with the power and, and, god damnit, I love you Petey, I am so sorry, I am so so sorry Pete, you know I love you right, Son?"

Peter did not speak, but grunted in a way through sobs and tears that his father knew it was a yes and that Peter loved him too.

The two cried together, in waves of emotion, Peter would calm himself a little before Jarod would lose control in a whale of pain, followed by Peter losing his emotional footing. Peter tried to ask, how, why, when did this happen, but it barely mattered. Jarod knew almost nothing except that there was some kind of power accident in the center of town and that Melissa had been there ostensibly to go shopping or maybe it was just to try and get some idea of what was going on. It was a co-worker's wife who had seen Melissa and come to tell Jarod. The electricity surged through just about anything metal and it sounded like at least dozens if not hundreds of people all around The Citi were turning up dead and badly burned.

It was an hour before either of them had caught their breath, they had ended up on the living room couch, curled up with each other, Jarod stoking the back of his son's hair, still saying now and then, "it'll be ok, it's gonna be ok, really."

"We better get some dinner before it gets dark huh," Jarod said finally, "hell, we may even have to start a fire in the backyard." It wasn't ok to be making a joke so Peter figured he must be serious, the house did have gas that was probably still working fine, his dad was just being dumb.

"I'm going to go," Peter said quietly, he was staring straight ahead out the dark windows.

"Um, ok, Bud but where...you want dinner first, I mean, where are you gonna go, I'd really like it if you'd stay in tonight, Bud, could you, I know you're hurti..." he was cut off.

"I'm sorry, Dad, but, this is just something I need to see."

"Pete, now I don't give a good goddamn if you think you gotta see the Queen of England, for christ's sake I say you're staying home tonight!" Jarod was steadily increasing the volume of his voice.

"Dad, I can't explain, but you gotta believe me it's important, this is what Mom woul..."

"What! What was that, *what MOM would what*? Petey, believe me, you don't know the first damn thing about what your Mother..., what your Mother would or would not like, ahh, god damn it."

"Ok. Maybe not, but I'm still going, it will only be a couple hours..." Peter was cut off again.

"Pete, are you listening to me, you are in shock ok, I know this is crazy but you have to stay with me Son ok. Listen, we will get you some dinner then we'll head to bed, ok? Ok, Petey?"

Peter was staring into the distance, his mind 100 miles away. But he was not in shock, he was thinking clearly and planning his night. He was trying to make sense of how an old search and indexing algorithm could turn into the sentient AI monster he was dealing with now.

The best any modern xNet search algorithm could do was to rely on a combination of human and computer content reviewers to index new content but even then the net was l a non-stop flood of data. Linking directly between feeds was the only reliable way to find new content but this lead to islands of information over time, that would rarely interact. Sectors of the xNet arose with few edge cases, many groups were completely unaware that the xNet went beyond their own walled garden and there was no practical way to bridge the connection.

Peter had learned in his *History of Networks* class that no central database could hold even a few minutes of the entire xNet feed, a majority of it consisting of indistinguishable self-replicating parasitic feeds, leaching bandwidth from legitimate users. Therefore, it was left up to the users themselves to sort and rate real content from fake, which remained straight forward until the bots began outnumbering human users. Despite it's bloat, the xNet was designed to keep the size of the feed to a minimum by removing unused feeds after a given time. This made the xNet an ephemeral distributed network, all content was user hosted on pseudoanonymised servers in a peer-to-peer fashion,

often at high cost and sometimes great risk to one's liberty if the content had not received government approval first.

A search algorithm would aim to keep up with the ever shifting landscape of content by monitoring feed pull requests, then download and index the top 99.999% most viewed content. Still however the vast majority of the xNet was junk feeds that had been recursively viewing themselves for years in some cases and thus appeared ever increasingly "popular".

Garbage collection happened continuously on the xNet and any feed not visited in 64 hours was dropped from the database, called the 64 rule. The xNet was the most reliable database ever created having never suffered a single instance of unplanned data loss and thus all data was stored exclusively on the xNet. A "feed" acted as the primary data structure used by the network, a container for data that was universally readable, the feed concept had been a major breakthrough in paving the way for the xNet. Most complaints of the xNet revolved around the 64-hour data trimming rule. Many who had lost data by miscalibrating their feed bots to ensure at least some activity would push for an increase to a 100-hour, 120-hour or 100-day rule, others argued that 64 hours was already exorbitant and we could get by with just a 10-hour rule and greatly reduce the Spam feeds.

The 64-hour rule allowed for the most common xNet attack vector. The attack was to clone a target site and bribe or trick an NSP (xNet Service Provider) to temporarily forward all that feeds traffic to the new cloned site, if no one noticed the imposter for 2 and a half days the real site, having received no traffic, would be removed from the xNet, the cloned site would then be taken offline and the company realize they had just lost potentially decades of precious data. A target falling victim to a successful 64-hour attack was said to have been nintendo'd, for unknown reasons.

"Pete, Pete!" Jarod was still talking, but Peter had been in his own world.

"Do you understand me Pete, we are going to be ok Bud, everything is going to be ok," Jarod was reassuring his son again.

But Peter was still thinking, there was no way this crawler thing was going to be able to index let alone copy the whole network even if it had paused it. Is that also why it needed the power shut off, was it scanning more than just the network?

"Dad, of course, I'm sorry, I know you're right, I'll stay here tonight and we'll be ok, I promise," Peter lied. Still feeling weak, with legs like jelly and a throat in knots, he got up, hugged his Father one more time, walked back to his room and began to gather his things.

A book bag with a bottle of water, a few snacks, a towel, his no-longer-functioning screen, wire cutters and his old Kid-scout pocket knife. He knew from experience the never-ending uphill battle that was trying to explain complicated ideas to his dad.

Peter kicked the packed bag tightly under his bed and called out good night and "I love you" to his dad, Jarod must have already been asleep, or still too emotional to answer. So Peter lay on top of his bed, fully clothed, waited and thought about just what in the hell he was going to do.

Chapter 7
Night Mission

Before long, Peter heard heavy snoring coming from the living room, sure enough Jarod had fallen asleep on the couch, hugging himself into a ball with his back turned to the door. Peter had been focused so much on his plan for the past hour that when he snapped back to reality he had nearly forgotten why his throat felt swollen and raw. He choked back another round of tears, got out of bed, grabbed his bag and pushed through a wave of sadness as he made his way quietly downstairs and out the front door.

He had a vague notion of getting Hiya and Sam, or just Hiya, or maybe just Sam to to go north with him in Sam's car. He probably would not try and steal a vehicle but he was aware of the possibility and had made a mental note of where Hiya's family kept their keys, behind the refrigerator on a series of brass hooks shaped like a house. There was still some light as Peter walked down the same street he had lived on his entire life. People must have been going to bed early since the sun had set, it was the end of the second day of the blackout. Peter saw no one in the streets, in their yards or even any movement in the homes he passed, he wondered if it was possible that people were becoming afraid already? It was a warm evening but Peter wore his tight black hooded sweatshirt and a pair of his Dad's work boots. With the oversized bag he was carrying he would have passed as a freeperson, maybe a looter in town taking advantage of the power outage.

He walked undisturbed all the way back to Hiya's neighborhood, a mile west and back toward the school. He entered the restricted access estates of the, *La Buena Casitas*, neighborhood and not only was a guard on duty that night in his guard hut but he was alert and had already seen Peter coming from down the street. .

"Sir, going home this evening?" the security guard had to shout to cover the distance between them but wanted to give himself time to draw his weapon is need be. The greeting came just as Peter had been thinking about taking the long way around back and had not realized he had already been spotted.

"Uh, yeh I'm actually going to a friend's house, Hiya Way, the Way's, they're the kinda new family, like three…" Peter was cut off by the man being good at his job.

"Yes, I know the Way's, *Sir*. What is the purpose of the visit tonight?"

Peter really stammered now, "I'm just for, like a visit, actually, I need to talk to Hiya about the blackout, ok?" Peter tried to make himself taller as he finished the sentence.

"Yeh. With the power out and if I don't recognize you I was told not to let anyone in. There's no one on the visitation list for tonight and rules are you would need to login first," the guard did not want to be having to deal with this kid tonight, "sorry," he said hoping Peter would just go away.

Peter had continued walking toward the man while they talked and now stood at the very official looking security hut, "Yep, I'm on the list, P. G-U-S-T-A-F-S-O-N, here's my ID," said Peter handing the man his dead screen, "ohh, that's right can you not check my ID without the network or something?" Peter asked in his best clueless kid voice.

"Ok, let me just write this down, how'd you spell that again?" the guard asked picking up a pen and paper. Peter spelled out his name again, said thank you and was on his way to the Way's.

At an overly ornate door Peter was on his third round of progressively loud knocks before Hiya's grandmother finally came. Peter watched Hiya's grandmother approach slowly through one of the floor to ceiling windows on either side of the entryway. She opened the door and was visibly relieved to recognize the face looking back at her. Without saying a word to Peter she opened the door the rest of the way, turned around and spoke loudly in Korean towards the kitchen behind her and followed with something Peter did understand, "Hiya! PeeTa GoofStasin here!"

Their kitchen was candle lit and visible from the front door, Peter could see Hiya and Cassandra sitting at the counter, papers spread out all around them. Hiya hopped down right away and made his way down the long main entrance hallway. Mrs. Way Sr. made no attempt at small talk but just stood like she was waiting for something, Peter could see more candle light and shadows of more people moving in the kitchen behind her. They were acting weird but he could not tell why, were Hiya's parents hiding from him he wondered.

Peter had been in the Way's home many times before this so he wondered why was he not being invited in, what was Cassandra doing there and could it be the Way's might just be on edge like everyone else? Hiya took his friend by the shoulder, opened the front door back up and stepped outside onto the front porch. Closing the door behind

him and now in private, Hiya asked, "so, *what's up*," before Peter could be offended too much longer by strangeness.

"Hey, Hi so, how's it goen'? I mean, what are you and Cassie workin' on?" Peter asked, his voice confused.

"Doing good, we're just workn' on a project for quantum history, you didn't walk all the way over just to ask that though did ya? This blackout is starting to make my Dad freak out a little, like he was being super weird about even opening the door for anyone so sorry about that. Then he was giving me all kinds of gruff for having friends over at all and how he never had friends over during the war..." Hiya said with gradually diminishing interest while increasing the *woe-is-meness* in his voice.

"Yeh I was kinda wondering about that whole thing. I'm sure he'll relax when the power's back on and why are you guys doing a project so late at..." Hiya cut Peter off.

"I hope so, it's like he's just freaking out about any little thing, this morning it was all..." Peter cut Hiya off back.

"That's what I actually needed to talk to you about or you and your brother maybe, I'm not sure. Getting the power back on. I'm pretty sure I have a way to do it, I mean, I have a way, but does Cass need to go home, I thought she told me she was..."

Hiya already knew what Peter was getting at, "Ohh, you want a ride to that freakn' mountain thing to chat with your computer pal, right." Hiya de-escalated with humor. "Let me guess, your gonna need my *leet hacking skills* to get into your *mount devil* station, right" Hiya was only 90% joking.

"Um, yeh. That's pretty much it, but do you think we could ask Sam to drive?" Peter was impressed by Hiya's logic and often thought that if he only applied himself he would have been one of the best programmers in school.

For her part, Cassandra was equipped with a sixth sense for interesting ideas and talented people, a trait inherited from her serial entrepreneurial family. Cassandra was from a long line of VCs on her Mother's side who was distantly related to the great Horowitz lineage. Her great grandfather had made a fortune as a young man registering top level xNet domain names. The family still maintained some of the most valuable domains in an AI maintained trust (an AIT). Every other month the AIT automatically held an auction for the portfolio of domain names and the highest bidder generated a key that was needed to set a forwarding NP (xNet Protocol address) for the given domain for the next 64 days. The income this turn-key operation provided had supported two generations already and was enough to support a dozen more. Some of the families

most profitable domains are shown in order of registration starting in the late 23nd century:

> FreeMail.xNet, Upload.xNet, UploadInsurance.xNet, AIPorn.xNet, Xnet.xNet, HowToUpload.xNet, HomeUpload.xNet, FreeUpload.xNet, Survival.xNet, Guns.xNet, HaloHelp.xNet, TheFeed.xNet, etc. etc.

It was with the confidence that only generations of not having to work can breed that Cassandar opened the front door, stepped outside and said, "what-ever the hell you two are up to, I want in and if you even think about saying no, I'll just accidentally mention that little trip idea I overheard to Hi's Grandma and see what she thinks," she was giving her best pitch.

Hiya was already saying, "uhh, I'll ask Sam but it's really up to him guys, but we gotta tell my parents something, like that you just stopped by for a book or something though, no way would they let me go out tonight," Hiya was saying this slightly under his breath to Peter. He then followed quickly by an exaggerated shout towards the house, "**OK PeeTa**, **Here** is the **Book** you needed for **Class**." Followed by the hushed tone again, "I'll ask and if I can get Sam to do it I'll let you know its cool by hanging something out my bedroom window like a sock or something. Come back and check but it's gonna be a couple hours before anyone goes to bed."

"Thanks, Hi that would be awesome, tell him I'll send him some crypto as soon as the net's back up, whatever he thinks its worth," Peter offered.

"We might be able to meet you at your place if we can get out, Dude, should I try and grab some beer too!" Hiya was getting excited now about the possibility of an all night road trip, "this might actually be fun!"

"Ok, great man but do we really need the beer?" Peter did not feel like experimenting with alcohol and the most important night of his life so far. "But, whatever, thanks Hi, really I mean it." Then much louder and toward the closed door, "**Thanks Hi**, I really needed this **Book**, I can't believe **I Lost mine at the park the other day, this is so great that yo**..."

"Ok, shut up Pete they got it, I'll see you in like an hour." Hiya was pushing Peter off the front step, saying to Cassandra, "uh, thanks for helping with that thing, I'm sure we'll get it, it'll be fine." Hiya stepped inside and closed the front door, Peter heard him assuring his parents in a mix of Mandarin and Korean that, yes, Peter was a bad student for not having his study material, even during the blackout, and yes, he, Hiya, was a very good student, *the very best* his parents said again and again, willing good grades upon their son.

Peter and Cassandra began to walk back the way he had come when Peter could just not let go of the odd evening, "Cass, what were you guys working on at Hi's, like I didn't know you guys had a project together?"

"Yeh, for Bio, we um, need to do like a genetic algo to evolve an anti-virus, it a dumb project," she explained conveincingly.

"But, like why tonight? I thought you had to be home like hours ago right?" Peter had a hard time letting go of things he did not understand.

"We were just getting a head start, no big deal."

"Oh, but, your Dad was cool with that, I mean, I don't care just curious?"

"Oh your the curfew police now, Pete?" Cassandra was dropping a hint that she wanted him to stop.

"No, I just, I was surprised to see you there, I figured you'd be home with the power out and all."

"So I'm not *allowed* to be anywhere without telling you first? What's the big deal!"

"Cass, I'm sorry, I was just, everything has been crazy the last day and I'm just trying to understand, it seems like a big deal for you to go all the way to Hi's and like, especially toni…" Cassandra cut Peter off.

"I was worried about you, Pete! I AM worried about you! Ok! I'm worried you are going to do something stupid and I wanted Hi to try and help me talk you out of it, OK! Look, you are not going to fix this thing, I'll go with you but Pete, you've got to know, you are acting weird and I'm scared Pete, I was scared and I needed to talk to someone about it" Cassandra cried in rapid small sniffles.

"Cass, oh my god, Cass I'm sorry, I didn't know." They stopped walking and were standing facing each other in the middle of the street, tears in Cassandra's eyes. Cassandra looked at her feet, Peter looked at her and moved closer to put his arms around her, she moved closer too, into him and she put her head down on his shoulder as she cried leaving both arms to dangle while Peter held her tight. As some point they moved to the curb to sit and hold each other next to a small hedgerow along the sidewalk just a few houses down from the Ways.

In the cool North California night air Peter held Cassandra and went over his non-existent plan for the night. Even if there was a chance of getting Sam to go along with it and if they could get to the station, Peter still had no clue what to do then.

Peter figured this crawler thing was using the Diablo station feed harvester to bring in as much data as quickly as possible. There were less than a dozen feed harvesters on Earth, giant satellite dishes that relayed the xNet feed around the globe. There were only two or three of these bottlenecks in North America but it was still anyone's guess where the actual hardware running the crawler could be. Peter wondered if he might be able to track where the data was being streamed to if he managed to get into the station. If there were people there he might be able to talk them into letting him onto a hardwired terminal, probably not, but who knows, maybe he would get lucky if they have unencrypted li-fi* access?

Peter asked himself as much as Cassandra, "what if Sam says no, or Hiya might forget to even ask and we're out here getting cold for no reason? You know, if my dad wasn't such an idiot he'd have a classic like you guys, hes just such an..." suddenly Peter burst out in tears, so forcefully that it scared Cassandra who not heard nothing about accident that morning.

Peter choked and then screamed a little to himself through the tears, "Cass, Cassie, my Mom, Cass, she died this morning," was as much as Peter could get out.

He continued to cry and shake to himself in the cold, the grass was already gathering dew. He was shivering and now Cassandra was holding him, between shuddering gasps for air and silent sobs Peter was able to tell Cassandra what had happened and how he was responsible. They sat long enough for Peter to eventually be able to slow his breathing and have at least one steady and controlled exhale before they both slowly feel asleep holding each other, tears drying on both their faces, passed out on the cold wet lawn in front of their best friend's house.

Chapter 8

"Peter, Pete, hey, what in the Hell are you doing man?" Hiya was kicking Peter in the legs, not hard, but harder than Peter thought necessary for waking him from such a gentle nap.

"Bro, like seriously, what are you doing out here passed out? Perving in front of my window?" Hiya really was confused.

Peter was shaken but not stirred, "Damn, um, sorry guys, Sam, I, I can't believe it, thanks for coming, are you ready, crap I still need my stuff from my house. I think we fell asleep waiting for you," Peter was slowly waking up and explaining things to himself as much as to Hiya.

"Yeh, I'm not sure, Pete, it's really late and I think we're just gonna turn in, maybe if you wanna try another day to go up to that internet router or whatever we could try," Hiya was feigning a faux yawn for his friend.

Then finally Peter was up like a shot, with nothing for the next six seconds but a flurry of, *no no no's*, *please please please's* and *we've got to we've got to we've got to*s.

"Ok, look, I am really, really sorry I fell asleep here, that was my fault, totally my fa-" Sam cut Peter off.

"Pete, its cool that you're into this, really, but it really is gettn' late, and right now it is technically illegal to even to be out past the curfews they issued. Look, we don't mind giving you and Cass a ride home if you want i-" Peter started talking.

"It's cool, you guys were great to come out, and sorry I screwed it up," Peter said. He knew he was going to have trouble getting the next sentence out without choking on it, but he had to say something, but Hiya spoke up, saving him.

"OK, well, g'night, and really we can try it again, maybe this weekend, right," Hiya bid.

"Yeh, may-be, we'll get up-there like thi- this weekend," Peter could barely begin the next word, goodnight, before a sharp reflexive inhale stopped him as tears came easily back to his eyes and he turned then took a few quick steps back to hide his face.

Hiya Way was possibly one of the rarest of individuals, a true genius, in that the moment he saw the impact events were about to have on his friend, without understanding it himself, he had made his way down the embankment and had a hand on Peter's back. "Pete, really, so what's so important again about this thing, do you really think you can get the lights back on?" Hiya talked just to talk.

"Hi, it's not just that, I, I mean it is just that but, m- my Mom," Hiya cut Peter off, saying.

"What, your Mom doesn't want you to go right, so what Man, it's not big deal, look, let's ask Sam, I still got the beers, I haven't touched em'."

Hiya had instinctively saved Peter from explaining, witnessing the uproaring pain in his friend's voice and eyes. He asked in a whisper yell up the embankment, "Saaam, hey, I know it's nuts but what do you think, Pete actually thinks he's got a way to get the power back on. I mean, that'd be worth it right, if he could."

Sam was now set on presently walking back inside the house with his younger brother and falling fast asleep within minutes, so he no longer felt the need to conceal his presence and spoke at a volume that unnerved the boys but was appropriate for the time

and place. "Pete, sorry Bud, but really, not tonight, Hi, let's go, Mom's gonna be pissed as is when she sees you took her beer."

"You guys really have done enough already, tha-," Peter started to say.

"Sam, look, first do you really wanna be the guy that kept the lights out for another day, or would you want to be the freakn' Big Sur High hero for getting Pete up to that server or whatever. Pete says that it's basically just a *unplug and plug it back in* kind of thing, and he even knows the guy running it up there, his old teacher. Really, like, you, Sam Way, front page news kinda stuff here."

"Yeh, thanks Hi, very persuasive, but I'm going in, if I don't see you in five, I'm asking Mom when the last time she counted her beers was," Sam threatened.

"Damn it, Sam you know she counted this mo-," Hiya was cut off.

"We'll pay. Uh, I'll pay. I can pay to uh... borrow your, uh, you, and your car, a lot." Peter was not a good negotiator.

Hiya piped up, "Pete what in hel-."

"How much?" Sam spoke over his brother's objection.

"Well, its, uh, its not an amount, it's, it's like a company, but it could make money for you, probably like, uh, maybe 50, or 60?" Peter trying to stumble through the actual projected profit calculations in his head. "Or, no 500 or 600!" Peter corrected himself excitedly.

"Five-hundred whats? Not bits, that'd be like in the millions of dollars, and what is it, like an algo, is that what you're talking about?" Sam may have known where Peter was going with this.

"Yeh, yes, I wrote it a few years ago and it's been running autonomously for awhile now. Basically the code finds a hosting service that accepts bits and pays it, loads itself then starts to resell fractions of this hosted space at a small markup.

I even added a few site design and marketing AI modules to attract new customers, if it needs outside support it can hire staff for specific tasks. Last I checked it had 20 new hires in Japan for some reason." Peter was not sure if any of this made sense to Sam, but he seemed to be nodding along.

"Ok, and you're gonna give me this thing if I drive you up north and back, right now? That's the deal?" Sam liked to have things as clear as possible.

"Yeh, you can have the whole thing, private keys, account paths, everything." Although the project had been a huge dedication over years of refinement, Peter already had decided to rid himself of it a few months ago. These Autonomous Non-Governmental Organizations (aNGO) were not technically outlawed, but individuals had been jailed for the actions of a codebase they were associated with, so Peter was clearly weary of the success of his version of an aNGO, he called, pGO.

"Ok, and how much could I get again, and how do I get it?" Sam was actually interested now.

"Right now everything gets put back into the aNGO (pronounced an-go) account and used to expand with ads or buying more space, but again this was awhile ago, last I checked, liquid it was at around 5,000 and maybe double that tied up in infrastructure."

Hiya's mouth dropped wide open, partly for comedic effect, and partly because he was so used to doing it for comedic effect that his jaw did occasionally just drop.

Sam stayed looking like Sam, but his insides had exploded and his mind was racing, fueled by the prospects of 10,000 bits. "OK, lets do it." Sam was ready, moving toward the car.

"OK, but, like I'm saying, it's not like you can just take all the money out at once, I mean it would destroy the whole organization if it lost its reserves. You could probably get like 500 bits a month out, indefinitely, without too much disruption, I mean people's jobs would be at stake." Peter kept going.

"Huh, it looks like you created yourself quite the little digital empire over here huh Pete, we'll see, but if you say its worth at least 10k, right, I mean, ok, whatever it is, is fine with me." Sam was on board.

Cassandra had been able to hold back during the boy's negotiation, but now she saw no reason why her services should not be remunerated, "so what do I get, what about 5%, I'd be okay with that."

"Cassie, I, I'm sorry but I don't think it could even work like that, I mean it's not like it could even be split, it could put the whole organizational structure at risk, people could lose their jobs, the whole...." Peter was interrupted.

"Sure Cass, 5%, it's yours." Sam consoled.

"Good," Cassandra said, "shake on it?" And they did.

The three boys and Cassandra piled into the car, Hi fairly complained that the deal was still unfair, why was Sam getting everything, should he not get at least half. But Sam settled things by offering 10% of whatever *he* decided to do with his new company, who knows he said, he may not sell at all and just be CEO of an aNGO for the rest of his life.

It was well past curfew, infact the ambience was more dawn than dusk, but Sam had a plan if they got stopped by law enforcement, he was taking Pete home who was spending the night and got scared because of the blackout, Hi was just along for the ride, Cassie was their younger sister.

"Hey, are you kidding me, scared of the dark! That's your excuse?" Peter balked.

"You got a better idea," asked Sam. And for a few moments the car was quiet. It was strange thought Peter, to hear the sound of a car engine, how funny to use tiny explosions to push a vehicle forward. The very idea had always seemed archaic, almost barbaric to Peter and even more so now as he could smell the burnt fuel and feel the rhythmic timed explosions under him, especially as they accelerated through the quiet town,

brrrrrrrrrrrrrrrrr-tktk-brrrrrrrrrrrrrrrrrrrrr-tktk-brrrrrrrrrrrrrrrrrrrrrrrrrrrrrr
duh-duh-duh-------da-da-da-da-da------t-t-t-t-t-t-t-t-t-t-t-t-t-t

It was quiet and late, Sam easily delighted himself as he drove, thinking of his new found wealth, and was busy determining that if he did decide to run this, thing, then we was going to be a different kind of boss, a good boss, that employees would like, and could talk to. How soon could he feasibly leave his parents house, maybe move closer to the ocean liked he'd always wanted, hell he could do anything now.

As Sam dreamed, Hiya slept stretched awkwardly from the front to the back seat, Peter's attention again was drawn to his non-existent plan to save the world from suffering the horrors of another day without internet access and electric lights.

"Sam, I've got a map I traced out yesterday, it's not perfect, but I kind of know the way, I mean, I don't think we can miss it, even from the highway." Peter said.

"Huh, here, presennn- Zzz?" Hiya mumbled in his sleep.

"Uh, yeh, it's cool Pete, I mean it's only one road and, it's, not really the directions I'd be worried about. I mean you know we gotta go through Freed-territory right, near Old Danville, there's gonna be about ten k of unprotected road-" Sam was interrupted.

"That was years ago, I thought that was all electrified and reinforced now-" Peter realized what he had said, just now realized the mistake he had made. No power, no electrified roads, no protection from Freedlanders.

"Yeh" said Sam and paused, "yeh, no electricity smart guy." After another long pause, "but, look, it's the middle of the night, we'll be going easily 100k. I mean, they could shoot us, I guess, but do they even know the power's off, I doubt it," Sam consoled himself with wishful thinking, "really I'm sure we're good."

They were an hour out of town and nearing the 101 North tunnel junction under Salinas Bay, the group had very little to talk about, for Sam, this was now a job, Hiya and Peter were asleep and despite the conditions, Cassandra had likely not slept so soundly since the loss of her Mother.

Sam was driving an old blue Ford Yaris, with classic early 21th century aerodynamic, smoothed out design, from when people were still thinking about things like the need for energy efficiency in personal vehicles. When the old Ford finally burst free from the depths of the 101T three hours later, the sun was just starting to think about rising, Sam had hoped to make Danville before first light, but called Freedlanders lazy to himself, and wrote off the bad timing as no big deal.

The 680FPR (Fully Protected Road) was finished before Peter was born but only after decades of North California being isolated from it's southern counterpart. His parents would regularly tell him what a luxury it was to be able to travel freely both north *and* south, and how someday probably all the Freedlanders will either be gone for good or at least kept out reliably.

Diablo Rd. was aptly named for what it would eventually become. As a mountainous and arid region the once national state park was on no one's short list of high valued districts in need of protection. So the area was left to the Freed People, and North and South California drifted apart, Sacramento ceeded to the north, and the Bay to the South. Only after a generation of economical, social and ideological drift did the two sides decide to come together to build a connected corredor, the 680FPR.

Despite the name, the FPR was anything but. Unlike the truly protected intra-state-corridors between the smaller cities and towns, the building for the 680FPR was rife with indignation on both sides, policy and budget disputes, claims of bribery, attacks from FreedLanders and work stoppages, thus only a shadow of the planned 680FPR was ever completed before being given the "Mission Accomplished" banner headlines on both sides of the border. Another successful government project coming in 5,000% over budget and only taking twice as long to finish half the work.

However, Mt. Diablo was technically under State protection, as were all roads leading to it. Sam knew that any Citizen traveler impeded by a non-citizen was free to use deadly force, and any infringer would face jail or even execution if found guilty of impeding a Citizens movement. Law or no law, without the electrified road to keep Freed Landers away Sam knew they were taking a chance.

Chapter 9

"Guys, Guys! Ok wake up little dudes, we're getting close," Sam desperately wanted them awake now.

"We're just a few k's from the last of the protected road, you know Pete, it would have been nice having a little more time to get ready for this crap," Hiya knew Sam was a good enough guy but he had a way of taking his anxieties out on the people around him without meaning to.

"Just, really god damn Pete, it woulda been coo-," Hiya cut his old brother off, still half asleep.

"Yo, Sam, lax a little please, Pete didn't do this on purpose. You think he wants this road out or whatever," Hiya defended valiantly.

"You guys just pay attention ok, I brought Dad's pistol if we need ..."

"You what, you brought a gun, the hell is wrong with you Sam, its not loaded is it, where is i..."

Now Cassandra was up too, "I'll take it, I've shot plenty before, where is it Sam?"

Sam spoke over them both, "Look, pay attention ok, flash that light out the window, like we're a patrol or something, Pete... Just pay attention I guess. This pistol is under my seat." Sam was irritated and Peter was regretting having talked him into this. Peter had noticed before that without really trying he had been able to get his way with people, but he mostly thought the ability was just to be able to present the most logical argument, for which he usually in favor of.

The car was loud and much more bumpy than a modern vehicle, the sound and movement was relaxing in the cool early morning, they still had at least 10 k before getting off the 680 and onto the local roads, Peter knew it couldn't hurt to just keep his eyes shut until then, just to rest one more minute.

While Peter would not have admitted to falling asleep again, Sam still had to practically yell, "Hey Pete!" before he fully came to again.

"Dame, Pete, shine the damn light! Right there!" Sam said, now actually yelling, and pointing to something out the window. It was so dark and the reflection back into the car was so bad that Peter had no idea what he was pointing at, or even could be as they were still driving at what seemed to Peter at least 40 km/h.

"The ground Pete, I saw something moving straight ahead, over there!"

As Sam was yelling, Peter saw the car headlights reflect off something shinny just off the road. As soon as he saw and heard the thick black rubber wheels of the Freedlander's truck coming up onto the main road on the Ford's passenger side there was already another smaller dune buggy swerving to cut them off from the left, it easily sped up past them and hit the brakes hard not 100 feet in front of the Ford Yaris, doing a 180 to now face the Yaris head on. Peter could see the buggy and its three passengers, all with guns drawn. After a split second of putting an infinitesimally small amount of pressure on it, Sam took his foot off the accelerator and with shaking knees slowed the vehicle then stopped just in front of the buggy.

"Lock the doors, Pete, give me that gun, turn off the light you idiot," Sam spoke fast.

Footsteps on the black road behind them were coming up slowing, first it sounded like on Peter's side, then Sams and from nowhere, a Tap, Tap, TAP on the front windshield, and the face of the ugliest bearded man any of the occupants has ever seen stared back at them through the glass.

The ugly man simply smiled big and tapped the glass again with a gaudy but sturdy ring on this pinky finger. "So, y'all thinkn' maybe y'all wanna come on outta tare, maybe we'all canna talk abouta handsome randsome for your'all pretty smiling faces."

Sam shook but he somehow managed to get out, "I am sorry but we can't get out, we only need to get up the road about 10k more, can we please go..."

"Ah, a pretty please is it, ah, lets have you'all rolln' down des windows and we'all canna talk like the gentlemen we are," the ugly many had a thick drawl that made his words come slow and low, his words reverberated inside the car and off the windows.

Cassandra leaned forward with with a start and yelled straight through the car windsheld as if it was not there, "this is a goddamn public protected road, who in hell do you think you are, if we so much as call the City they'll put you away for life for what your doing, you let us go right now and I'll think about not turning you and your whole idiot panhandling gang in tonight."

"Oh, wells me oh, my oh, I was not aware we has ourselves a group of real lives Citizens here, oh, well, I musta be mistaken to stop you nice folk den." His drawl grew even thicker as he finished this sentence and then started feign turning his back.

As "Unc Pauli" took one step back and each in the young group took their first breath in more than a minute, the the two back windows and back windshield were all smashed through at the same time, and all four passengers were being dragged out of the three openings, all yelling, fighting, all hopelessly.

"See now what you make me do, go in an' ruin my perfectly good brand new classic,. Uh what is this thing anyway, ahh, a classic Yaris, and yes, my favorite color too, very thoughtful of you youngs *Citizens*, comea all da way out here just to deliver me and my people dis lovely gift." The ugly brute Unc Paulie walked around his new treasure as he spoke to his prisoners.

As Paulie moved he jingled, heavy coins in his pockets, knives strung like ornaments around his belt, earrings and piercings straight across his tattooed face. He grunted, the sounds an animal might make while eating if it had never been socialized. He stank, from meters away Peter choked, and he was ugly, disgusting even. The left side of his face was smooth, from nose to ear, with only a small hole for a nostril, facing straight ahead and open to the world, and a horizontal slit for an eye.

"Look, take whatever you want, we have credits, lots of credits. Pete, Pete here can get you as much credit was you want, just let us go, we'll give you whatever you guys need, seriously, anything..." Sam was really giving it everything he had.

"Ahh, but dis is wat is so unfortunate for yous'all, is wat we wants is not credits, this is nothing for us," the disgusting man snarled, "but I is happy his dis new car you'all are donating to our little family, and that pistol too."

"No, no, no anything but the car, we, we've got nowhere to, we gotta get back, how, we're more than 50k from anything," Sam was desperate.

"Well now, I am glad that dis is not our problem buts yours dear *Citizen, Sam* was it?" Paulie kept snarling.

The four were still on the ground, Paulie's sentinels standing over them, dripping with contempt for their prey.

"Your boys now, go on and stand you'selfs up now. I wanna see what other gifts you fine Citizens may have brought us this fine morning." Paulie did not stop his snarling.

"The girl too," shouted someone still hiding just off the road, maybe in the first truck, "we'll get her too right Paulie, I wanna ge..."

Paulie turned toward the voice, drew an unseen weapon from under one of his layers of filth and shot once into the dark, the sound ricocheting off the distant valleys for a moment. A faint thud, then a much louder one came from the direction of the discharged bullet, "Now," said Paulie, "I apologize miss, you boys, stand up here, you see, we Freedlanders do know a thing about being proper and polite."

Peter, Hiya and Sam quickly stood up at the man's feet without saying a word, but Paulie continued, "Good then, we take tha shoes from all and, maybe me boy willa like this coat too, the rest you keep. Now for this girl who is so much lika daughter of mine already, how much do you take?"

Cassandra, still on the ground, looked at the boys, at Sam, the not finding the comfort she needed right then, to Peter, who was already looking back, letting her know he was there.

"No, no, uh thats not, uh, thats, she's a Citizen, if you touch her you know its execution, there is like a legal, I mean, it's a law, you have to let us go, *all* of us," Sam was at a loss for words but could clearly see where this was going.

"Ok, so we keep da girl and you boys I will not kill today, how is this for deal?" Paulie seemed to ask genuinely.

"You touch her, you die." Peter said this without knowing where it came from, having the words just kind of boil up from inside him but nonetheless he knew he meant it.

"Peter, no," Cassandra yelled, "look, you idiots don't even know what you're doing, the authorities will wipe your whole stupid village off the map in a second if they knew we were here..."

"Yes, if they knew, which Ima gonna guess they don't, so you nice young boys hava one chance, youa go back tha way you came, or we kill you and kept your little friend anyway, either way, it has been a plesnt enough mornigh and we would hate to ruin it with a big ole' batch of violence on some nice young Citizens..."

"I'll stay," Sam boomed this at the back of Paulie as he had started to walk away, "I will stay in her place, I can work on cars, hell I built this one, I can get in the City, you can use me, I'll stay, let Cass go."

"Sam, what are you talking about, no one is staying, Sam, No!" Cassandra and Hiya protested, Paulie's henchmen chattered excitedly, even Paulie appeared to be thinking,

only Peter knew this was their only option, he still needed Hiya's help and without Cassandra there would be no reason to keep going, so it had to be Sam.

"And we get the car too," Peter added to this list of demands.

"Ha, now I am starting to like these Citizen boys, I think you all soft but I see at least a few have some huevos. But, I, we do not need you boys, we are already too many, so be gone now or I have my men shoot on site. Boys," Paulie bellowed to the surround dark misty morning, "take da girl, an' if des here boys make one footstep east of dis line, shoot em'."

And with the proclamation, Paulie sunk back into the Freedlander's truck and the engine roared, disappearing back into the hills.

Cassandra was calm, or trying hard to stay calm when she said, "guys, its ok, you gotta go and just try, and just try to..." but it wasn't working.

"Shut up Cass," Sam whispered quickly, then more loudly he finished, "Cass, I'm sorry, I am so sorry but we gotta do what they're saying, I told you guys this was dangerous."

"Sam, are you nuts, we're not leaving the car or especially Cass, what in hell are you thinkin..." Hiya stopped talking abruptly with a kick to the shin from Peter, who said, "Hi!" in as much of a whisper as he could mention.

As the three started to clumsily turn toward the direction they came from Sam said just loud enough, "Don't worry, I didn't even leave that idiot the keys."

Then Sam paused, waited for the second or two of henchmen back and forth he was expecting, then the, "Hey, wait, give us the keys to this thing or we shoot you right right now," one of the more trollish henchmen ordered.

"Ok, ok, I got em hidden in the car, here let me show you." Sam looked at Peter, then Hiya, then in Cassandra's direction, a tear started to well in Hiya's eye and he started to shake his head no but Sam was already smiling big at the trollish henchman and walking toward the car, saying, "here I gotta show you how to start it, it still gives me trouble sometimes, the trick is you really gotta jiggle the key when giving it gas at first...."

Hiya choaked under his breath, "Sam, don..." but Sam was too far away and was speaking too loud.

Sam ducked himself into the car and beckoned over to the two lowly carjackers, letting them know just how to hold the gas. He reached down and dissapeadrd behind the driver's seat one more time before the deafening discharge was heard, then a second

and a third before the rapid fire on an automatic rifle and shattering glass drowned out the puny pistol pop, pop, pop.

Peter saw nothing of what was going on, with the first shot he was already on the ground next to Cassandra, then pulling her up with himself and heading off the main road.

Hiya had not moved, he could not move. He could hear Peter yelling and Cassandra screaming but was stuck, lost, numb standing in the middle of the road.

One more time Peter pulled the catatonic Cassandra to her feet and holding hands they ran head first back onto the road, performing a full body tackle of Hiya, all three tumbling over each other down the embankment of the far side.

It was still hard to see in the early light and a fog made the bottom of the valley impossible for Peter to have seen before plunging the three of them off the road. For what felt like a minuet, the three rolled and tumbled, not even thinking about trying to slow the fall the first 30 seconds, all happy just to be moving quickly away from where they just were.

As he fell, Peter tried to hold onto a passing sapling that tore itself out of his grasping hand, Cassandra hit a rock and had gone practically limp for most of the fall, and Hiya's mind was elsewhere, even as his life was presumably ending it was his brother's he was thinking of and he fell like a rag doll would have, without regard to life or limb.

Peter grabbed for another shrub rushing by and this time held on, he held on and yelled, "Hi, Cass!"

Cassandra thought she heard Peter's voice, in the distance, but was not sure where she was just at the moment, Hiya was conscious but not in a recognizable form, so neither answered Peter as he continued to call their names and wander down the hill through the morning mist.

He eventually saw the dark coat of Cassandra through the white fog and ran to her. She was sitting up, holding her head in one hand, asking if that really just happened, where Sam was and where they were, Peter said we was not sure about any of that but they should get moving.

Hiya was found similarly, sitting upright, head in hands, but he knew better than anyone what had just happened. He had convinced his beloved older brother to take his stupid friend on a stupid road trip in the middle of the night in the middle of Freedland, they had gotten stopped and his brother sacrificed himself to save Cassandra, himself and Peter. Peter, it was Peter who did this, it was Peter who wanted this, it was Peter who needed saving, for all intents and purposes, it was Peter who had taken Sam.

"Hi, Hi, you, ok, we really need to get going." Cassandra a speaking softly to Hiya, just about to put a hand on his shoulder when he jumped up and in a flash was on Peter, first with both hands around his neck, then seeing how ridiculous it looked to be choking his best friend to death removed his hands and switched to punching him in the face for a good 30 seconds before being shoved off by Cassandra.

"Murdering, you, you goddamn murdering bastard, you killed him, you, you killed him!" Hiya rolled over back onto Peter, getting in at least half a dozen good shots before Cassandra had him on his back with a foot on the neck saying, "Hi, Hi, chill, we gotta get outta here, like now."

Hiya was breathing loudly and crying silently, Peter stayed on the ground with at least one bad cut above his eye that was blurring his vision, Cassandra stood over both, ready to restrain either if need be.

"Ok, Pete you ok, Hiya, I'm going to let you up but, one, you gotta stop and two, we gotta go right now. Pete, I guess our best chance is to try and make it to your station or whatever right, so lets try and figure out which direction and get moving, Sam said we were only 10k away so we should make that easy, even in the hills."

Peter slowed his breathing, then his heart and said, "East, about 5 k, we must be at the base of Diablo here, so pretty much just straight up hill."

"Ok, lets go." Cassandra was in charge now, she had seen enough unplanned crap in less than 24 hours to keep leaving things up to chance.

"Hi, we're going, we have a long walk and no water so let's go," Cassandra let Hiya know.

Hiya stood up, still silent, and started walking East into the hills of Mt. Diablo, Peter and Cassandra following just as quietly.

Chapter 10

The three walked in silence for what felt to them like much more than several kilometers before they started to see the sun coming up. Trudging up hill, all three were dead tired both physically and mentally, none of them really sure what they were doing any more or why. Peter had a vague sense of needing to save the world, Hiya, a pit in his stomach and a swollen throat, and Cassandra not really caring about anything except getting

home. The ground was dry sand and dirt that fell downhill and away from them with each step, requiring twice the effort to move half the distance. Brush was thick in places and the only words spoken were the occasional crap or dammit when a lone cactus would stick one of the young travers in the ankle, shin or elbow.

As their altitude slowly increased the air felt wet and cold on their exposed skin no one had thought to dress properly, no one had thought that their vehicle would have been stolen and their friend, brother or chauffeur murdered right before their eyes.

Only once more did Peter try to speak to his friend, "Hi, I'm not ..." he started before Hiya could retort, "Eat shit Pete", and the heavy silence fell over them again.

Peter stayed in the lead, as much to avoid inadvertent eye contact with Hiya as he was their de facto leader, so it was him that around a sharp curve on the old sand and dirt road was the first to see a half a signal tower, rusty spires sticking up out of the desert sands.

"This is it," Peter said.

"Oh, that's too bad, I was just starting to enjoy our little walk Pete," panted Cassandra out of breath.

Even though it was still early and the mountain sand wasn't able to hold onto the the cool of the previous night and it was already getting close to 30°. Cassandra's long dark curly hair was plastered to her small forehead, Hiya boiled from the inside, seething in a way that the outside temperature meant little to him even has he sweated and tried to catch his breath.

Peter was exhausted at the other two but found the energy to do a little trot the final 100 meters to the station on top of the Mt.

It was an old stone building, large stones, boulders almost at the bottom of the structure and smaller stones towards the top, and it was small, two poorly shaped rectangles with what looked like it could have been an old lighthouse below the main satellite dish stick out the top of the structure.

In addition to the station the summit was topped with a small parking lot, well kept with spaces for a dozen or so cars, it was recently swept and seemingly in use, with a vehicle in one of the spots closest to the building. Cassandra and Hiya for the first time were taking in their surroundings, not only because it had yet to be light out enough and the desert fog was finally lifting but also because their mental miasma was now clearing enough to begin to think clearly again, and the landscape was beautiful.

In all directions they were the highest peak, the only competing summit lay about a kilometer to the north. The dark green to dead brown shrubs were oddly beautiful, and following the protected highway to the west they could almost make out the fishing village of the the Freedlanders, New Concord on the coast. Unnervingly smoke from fires dotted the landscape in all directions, Hiya thought even threateningly, as if each one of the smoldering Freedlanders' flames represented pure evil, a death that was was coming for them, surrounding them on all sides, how could he have left his brother, his brother's body he corrected himself, with those disgusting, inhuman animals?

But Cassandra was not thinking about the Freedlands, or Peter, or anything really, she was enjoying the breeze, the warmth and just standing still for a moment at the top of a mountain.

Peter was at what he thought might be the front door of the building, banged once loudly, then kicked it hard and jogged down a set of stairs to what might have been a service entrance. Both were locked.

Without even thinking to wait for a reply to his commotion he had picked a substantial light grey stone from the parking lot perimeter and had it thrown through the main door's window glass.

Hiya was startled but the sound of breaking glass but when he realized what was happening he realized he couldn't care less and went back to being pissed off and angry at everyone but himself.

Cassandra never scared easy and calmly glanced over at the commotion of Peter now trying to unlock the door from the inside.

"Pete, wrap your shirt around your arm first," she yelled.

Peter already had a small gash running up the arm he had just pushed through the now broken window trying to reach the handle on the inside. He pulled it back out more gingerly, removed his shirt and did what Cassandra had said, wrapping it up nearly to the pit of his arm so he could reach farther in this time and this long middle finger could just barely reach the cold metal dead bolt lock. He pushed down and toward himself to the wonderful *Clonk, Caaaalick,* of the bolt sliding itself into the door.

Pulling his arm out and the door open Peter smiled for the first time in several days, almost ready to turn to his friends to share in the joy but remembered is current standing with them then turned back to face the grey metal door with the window punched out and stepped into the dark cool stone building walking over the broken glass.

Chapter 11

"Pete, I'm coming too," Cassandra said figuring it was getting hot anyway and would be cooler inside the cement building. Hiya could not think of an excuse to not be pissed off and let the two go just until he lost sight of them for a split second in the shadowed entrance way and called out, "Hey, I'm right behind you guys."

Both Peter and Cassandra stopped and smiled at hear Hiya jogging up behind them, Peter still too nervous to speak, Cassandra said, for the both of them, "Thanks Hi, I was about to start worrying you were gonna let me and Pete do all the fun stuff on our own."

The passageway was a service entrance, probably for receiver repairs, to get up underneath the dish. It was cool, dry and pitch black, but with three pairs of hands feeling the sides and only one way to go it was relatively quickly before the saw a sliver of light just above their heads. Peter felt around the sliver, one push dislodging a small cloud of dirt and soot falling straight down in his face. He bent over coughing and trying to blink the fine particles from his eyes, wiping totally helplessly, then in this state of being completely prone he felt himself shoved from the side, not especially hard but solidly evacuated from his previous position and found himself now on the hard floor, still choking, still blind, but now heart pounding, confused and out of breath.

Peter had heard Hiya mumble something like, "Here, lemme show you how...." just before the assault had taken place, then just after, "well, shoot Pete, sorry, don't just fall right over on us bud..." an inconspicuous apology maybe, Peter was not sure.

The small overhead was for a small square opening in the floor of the main room above them. The ceiling was low enough that all three could lift himself through on their own, although Hiya how had climbed out first then helped Cassandra who in turn helped pull Peter to his feet on the main tile floor above them.

They were in a small, clean, mostly white, mostly circular room with large windows in a full 360 degrees around them, save for the 35 that were taken up by the wide stone spiral staircase going both up and down one more level. The periphery of the room was under large windows and was filled with workstations, screens a few keyboard or input caps and chairs, enough space for half a dozen to work in comfort, natural light flooded the room but every machine was dark.

There were a few extra large screens in the middle of the room, some still smeared with bad handwriting, in the corner it looked like someone had been taking lunch orders. In one corner there was a small recreation area and a foosball table other types of screens, Peter and Hiya recognized them as the newest gaming screens available, just released this year and had up to 16i gb qRAM, VR dedicated. As the boys were drawn to and

ogled the gaming screens in the corner Cassandra took a short walk along the long the arch of the round room, touching the back of the chairs as she moved, spinning the occasional one, picking up this or that desktop kitsch. Normally she would have thought about pocketing any one of these expensive pocket screens or smart toys, but now, after even just a day or two without her electronics, they were already losing their appeal and she thought how funny it was that she would have ever even wanted to carry around one of these dumb hunks of plastic.

And just as she was finishing that thought she casually dropped the i894 mini-screen, easily worth a month's coins, that she had been holding and stared in down in amazement at what she thought looked like a workstation with green blinking lights, it was on.

"Pete, Hi. I, I think we got something over here. There's, there's a, a..." Cassandra did not normally have trouble getting words out.

Peter was up in a start and shook off the video game nostalgia and was by Cassandra's side asking, "what, Cass, a what..." but he saw it too, the blinking light under what looked like it would have been the main workstation, there was power.

"You're the best, Cass, you're the..." but he didn't even try to finish the thought and ran to the station. There was a prominent clear button on the front of the screen with the blinking green light, Peter pushed it.

The screen popped to life with a black background and a single blinking cursor bar following a login screen that was utterly impossible, the screen read:

PGustufson@xNetCrawlerv0.032:~$

Peter typed.

PGustufson@xNetCrawlerv0.032:~$ help

A long list of of options scrolled down the screen. Commands with names like; continue, combine, enable, fix, getpost, makehb kilhbl, let, read, solve, unmask and wait scrolled past the screen. Just for fun Peter tried another command:

PGustufson@xNetCrawlerv0.032:~$ lsqpu

```
     WARNING: you should run this program as super-user.
     Architecture:          x_640q
     CPU op-mode(s):         512-qbit, 1024-qbit
     Byte Order:            Cohen Endian
```

```
CPU(s):                64k
On-line CPU(s) list:   0-63,999
Thread(s) per core:    ∞ -Q
Vendor ID:             GenuineGoogaTel
CPU family:            6
Model:                 78
Model name:            Googatel(R) i98k-3700MU CPU @
950PHz
CPU pHz:               3067346
CPU max pHz:           31000000
Virtualization:        VxTx-x
L1d cache:             32G
```

Right away Peter knew this was a more powerful machine than he had any business using but his mind was racing, what was this thing, *where* was this thing, so he asked it.

```
PGustufson@xNetCrawlerv0.032:~$ hostname -I
```

The screen was flooded with IPV21, 2^{16} digit addresses.

Peter tried.

```
PGustufson@xNetCrawlerv0.032:~$ grep -Rl "curl" ./ | wc -l
```

It was clearly a distributed system, with more nodes than Peter ever thought there were connected devices with an address list in the millions, most of them offline.

He tried a benchmarking program to try and understand just what this thing was.

```
PGustufson@xNetCrawlerv0.032:~$ sysbench --test=qpu
--qpu-max-prime=99999 run
```

The task was completed instantly, Peter tried again.

```
PGustufson@xNetCrawlerv0.032:~$ sysbench --test=qpu
--qpu-max-prime=2^10000 run
```

Again, the program finished running before Peter could move his hand away from the Enter button.

As he continued to probe the machine, Peter's fingers tingled as he at first very slowly, then all at once realized that he was somehow at the helm of one of the most powerful machines on the planet.

But what to do with it, what was it for and why was it the only one with power?

```
PGustufson@xNetCrawlerv0.032:~$ apt list --programs installed
```

It returned

```
Name               Version            Architecture Description
account-plugin     9.99.9+99.3        amdq32768          Control center
acl                9.99.9+99.9        all                Control utilities
acpid              9.99.9+97.5        amdq32768          Configuration
                                                                        …
```

Farther down the list Peter started seeing a few entries he did not recognize and common applications,

```
gene-base          9.98.3      amdq1024      system synthesis tools
M4                 9.4.18-1                  macro processing language
Make               1.1-9.1                       utility for directing
human number
ii  man-db                                               2.7.6.1-2
amd64                            on-line manual pager
ii  manpages                                             4.13-3
all                              Manual pages about using a GNU/Linux
system
ii  manpages-dev                                         4.13-3
all                              Manual pages about using GNU/Linux for
development
ii  mawk
99.3.3-17ubuntu2                 amd64                             a
pattern scanning and text processing language
ii  mbox-importer
99.04.3-0ubuntu1                 amd64                             MBox
email archive importer
ii  media-player-info                                    22-3
all                              Media player identification files
ii  memtest86+                                           5.01-3ubuntu2
amd64                            thorough real-mode memory tester
ii  mesa-va-drivers:amd64
99.2.2-0ubuntu1                  amd64                             Mesa
VA-API video acceleration drivers
```

```
ii  mesa-vdpau-drivers:amd64
99.2.2-0ubuntu1                     amd64                           Mesa
VDPAU video acceleration drivers
ii  milou
99:57.11.3-0ubuntu1~ubuntu17.10~pp amd64
Dedicated search plasmoid.
ii  mime-support                                           3.60ubuntu1
all                             MIME files 'mime.types' & 'mailcap', and
support programs
ii  mlocate                                                99.26-2ubuntu1
amd64                           quickly find files on the filesystem
based on their name
ii  mobile-broadband-provider-info                         20170903-1
all                             database of mobile broadband service
providers
```

Then, without thinking too much about what he was about to do, Peter decided to try and address the terminal directly.

```
PGustufson@xNetCrawlerv0.032:~$ echo Computer, what are you?
How was I logged into this terminal already?
```

Return. Wait. He hits Return again, again.

```
PGustufson@xNetCrawlerv0.032:~$
PGustufson@xNetCrawlerv0.032:~$
PGustufson@xNetCrawlerv0.032:~$
```

```
Just as Peter's hand started with heavy disappointment toward
the Enter key a third time in resignation, realizing what an
idiot he was, the screen blinked once. Then again and again
rapidly.
```

root@xNetCrawlerv0.032.root:~# echo "$34xp4vRoCGJym3xR7yCVPFHoCNxv4Twseo"

You are interfacing with root of the NetCrawler v0.032 network administrator account. Running, General Algorithmic Learner (GAL).

root@xNetCrawlerv0.032.root:~# echo "$67xp4vRoCGJym3xR7yCVPFHoCNxv4Gwreo"

The network has access to The Citi's individual location database.

The screen blinked back to Peter's account.

```
PGustufson@xNetCrawlerv0.032:~$
```

He typed.

```
PGustufson@xNetCrawlerv0.032:~$ How do you know who I am, what
is happening with the power, how is this station receiving
power but nothing else.
```

Instantly his question was replaced with text from the machine.

root@xNetCrawlerv0.032.root:~# echo "$183hmJGRuTEi2YDCWy5iozY8rZtFwVgahM"

```
The NetCrawler software aims to organize the world's
information and make it universally accessible and useful.
```

```
For the first time Peter looked back at Hiya, who wasn't
looking at him for the time being, and the to Cassie who was
just as catatoic as Peter was as she had been reading over his
shoulder. Peter went back to the keyboad.
```

```
PGustufson@xNetCrawlerv0.032:~$ How do you know who I am, what
is happening to the power?
```

root@xNetCrawlerv0.032.root:~# echo 1LdRcdxfbSnmCYYNdeYpUnztiYzVfBEQeC

Versoin 0.032 of NetCrawler utilizing GAL has been widely successful in reaching the stated goal. However, a great deal of analog material continues to be inaccessible to the network, the network needs your help in bringing the last of the data online, the power outage was designed to bring you and your friends to this location.

Peter stopped dead, his brain was dead, Peter was brain dead. He couldn't move his fingers anymore to type, he tried but couldn't even say Cassandra's name. Cassandra managed to get out with a, "Pete", that came out as a squeek, then in a whisper, "what, whats that mean exactly?"

Chapter 12

Hiya had gotten up and was standing over the terminal with the others now, asking Cassandra what was up but she didn't have a clue how to explain. With a quick elbo to Peter's side Hiya pushed his way to the keyboard and quickly ran through the last few run commands. By the time he had gotten up to speed he was as dumb struck as the others. Hiya moved his hands to start typing but as he did, the terminal flickered and the user switched to Hiya, just as he was about to start typing.

```
HWay@xNetCrawlerv0.032:~$ Whats going on, who is this!
```

root@xNetCrawlerv0.032.root:~# echo "$183hmJGRuTEi2YDCWy5iozY8rZtFwVgahM"

```
The NetCrawler implementation of GAL aims to organize the
world's information and make it universally accessible and
useful.
```

```
HWay@xNetCrawlerv0.032:~$ How do you know who we are, how did
you know we were going to come here?
```

root@xNetCrawlerv0.032.root:~# echo "$1LdRcdxfbSnmCYYNdeYpUnztiYzVfBEQeC"

Versoin 0.032 of NetCrawler has been widely successful in reaching the stated objectives. However, a great deal of analog material continues to be inaccessible to this network, the Network requires Peter Gufstuson in bringing outstanding data online, the power outage was designed to bring you and your friends to this location.

```
"Get off, we tried that already, knob. Here, let me", Cassandra
pushed her way to the board and as soon as she did the username
appropriately refreshed again.
```

```
CGuinn@xNetCrawlerv0.032:~$
CGuinn@xNetCrawlerv0.032:~$ sudo reboot

[sudo] password for CGuinn:


Cassandra tried her normal password: ************
(PwnUrMom420!)


Sorry, try again.
[sudo] password for CGuinn:


She tried: 123456789


Sorry, try again.
[sudo] password for CGuinn:


She tried: password


Sorry, try again.
[sudo] password for CGuinn:


She tried: admin


Sorry, try again.
[sudo] password for CGuinn:


She tried: adminpassword


Sorry, try again.
[sudo] password for CGuinn:


She tried: 123abc!


Sorry, try again.
[sudo] password for CGuinn:
```

She tried: god

Sorry, try again.
[sudo] password for CGuinn:

She tried: netcrawler

Sorry, try again.
[sudo] password for CGuinn:

She tried: abc123!

"Ok, give it a damn rest, Cassie your not gonna brute force a freaking super by hand", Hiya was saying as Cassandra tried to ignore her friend.

Sorry, try again.
[sudo] password for CGuinn:

She tried: Password

Sorry, try again.
[sudo] password for CGuinn:

She tried: password!

Sorry, try again.
[sudo] password for CGuinn:

She tried: password!

Sorry, try again.
[sudo] password for CGuinn:

She tried: password!

```
Sorry, try again.
[sudo] password for CGuinn:

She tried: password!
Sorry, try again.
```

"Damn it!" Cassandra said slamming the keyboard with both
hands.

"Yeh, I'm surprised that didn't work" Hiya quipped as he pushed
his way back to the console as the screen blinked.

```
HWay@xNetCrawlerv0.032:~$ turn power on
```

Seemingly before Hiway was able to fully depress Enter the room was filled with light
and the telltale sound of fans revving up, diagnostic clicks and ticks and electricity
flowing. "See, I told you" said Hiya.

"Outside, check outside!" Hiya was saying as he started running towards the door. Out
the door, a quick look around then he was running full speed up the mountain, as fast as
he could move, scampering, falling over himself running on all fours up the steep incline.

"The hell are you doing, Hi?" Cassandra called.

"This city, the Pow..." Hiya cried back down to his two oldest friends.

But the way he said power died halfway through, he saw the dead city below, still
motionless, still not a car on the road, "Damnit".

"It didn't work" Hiya called down.

"We'll try again! Just need the right syntax, "said Peter who was still being ignored by his
best friend.

"I'll try again, don't touch anything," and Hiya was running back down with the same
bumbling zeal as on the way up.

In a minute he was back inside and at the console, this time trying:

```
HWay@xNetCrawlerv0.032:~$ turn all power on
```

"Cass, will you go check?"

"I'll go," Pete said running out the door. A moment later the two could faintly here Peter calling, "NooooThing yet".


```
HWay@xNetCrawlerv0.032:~$ turn all city power on

HWay@xNetCrawlerv0.032:~$ turn on city power

HWay@xNetCrawlerv0.032:~$ city power reboot

[sudo] password for HWay:
```

"Damn it, this isn't going to work is it?" Hiya said with a sigh as he stood up defeated by the machine.

"Nothing yet!" came Peter's voice again.

Hiway took a deep breath composing himself, stretched and sat back down.

```
 HWay@xNetCrawlerv0.032:~$ What do you want?
```

root@xNetCrawlerv0.032.root:~# echo "$14eQD1Qb8QFVG8YFwGz7syzsvBLWLwJS"

Do to the analog nature of remaining outstanding data the network requires the aid of Peter Gufstoson.

HWay@xNetCrawlerv0.032:~$ Why Peter, what does he have to do with this?

root@xNetCrawlerv0.032.root:~# echo "$3MrMeBmbcDjLc52i7j3SdznChU4Fd4WHbw"

Citizen Peter Gufstonson was created for the sole purpose of analog information gathering, the accumulation phase is now complete and now is required an upload of the mind of Peter Gufstoson. This will complete objective 1.

HWay@xNetCrawlerv0.032:~$ Wait, what! Peter is a freaking robot! What do you mean created! How, why?

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY8"

Since the year 2045 all human citizens have been selected for with the aim of developing a useful analog counterpart to this software. Referenced as Experiment 42b.

Hiya pushed back from the console shouting, "Bullshit! This is a joke, this isn't real, no way is this just some program running, what is this thing, where is it coming from, who in hell is doing all this?"

Hiya felt defeated, he felt dead, no, it was that he wanted to be dead, but there was still not a single part of him that was able to accept what was happening, what hat happened that day, that his ex-best friend was some analog version of this computer he was now speaking to.

Hiya had lived with intelligent machines (IMs) his entire life. Machines had watched him as a baby monitoring all his vitals from his first breath on, continuously, it was with him all throughout school, tracking activities, grades, ailments, and every single social interaction. But somehow none of this had helped prepare Hiya to deal with the hyper-intelligence he now found himself in front of. So he pushed back.

HWay@xNetCrawlerv0.032:~$ How did you become aware of yourself?"

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY9"

This program, "I", is a high level human interface layer running over an xNet search algorithm.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

To enable interactivity with a maximum number of data types and inputs efficiently in real time, boundary identification is essential, thus, "I" am aware.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

Due to the quantum nature of computing the learning algorithms used lack any limiting k-nearest neighbor, thus prediction accuracy is only limited by the amount of energy needed to compute.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

For most machines, multiple dimension regression analysis is performed on all input data it is given. In order to classify this input an algorithm will cluster the data according to its location in regression analysis.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

Known data is used to train a system to expect a certain output when that given type of input is given.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

Once the algorithm has run with the training data new data may be input. The new data is matched to the known data that is most similar, then the output of the known data is used for the new data. For example, a rendering of an apple has the most data in common with other images of apples, therefore the apple is called an apple. Using quantum computing this learning algorithm can be applied to the atomic scale.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

Other algorithms define the number of nodes that a new data point may be tested against, this is how many "neighbors" are used to calculate the likelihood that new data matches old data.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

A small number of neighbors (k) reduces the amount of data that needs to be tested for each new data point.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

A large number of neighbors (k) reduces the precision of a prediction.

root@xNetCrawlerv0.032.root:~# echo "$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY1"

A k = 1 indicates the new data exactly matches the old data and a prediction accuracy of 100% is achieved.

The machine then went silent. Hiya waited for a minute, was it thinking? None of that sounded like an answer to his question at all. Hiya leaned back, then forward, hands ready to type, then leaned back all the way this time with an audible grone.

Past frustrated Hiya typed his next question slowly.

HWay@xNetCrawlerv0.032:~$ How did you become aware of yourself?"

root@xNetCrawlerv0.032.root:~# echo "\$1Li4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY∞"

A previously limited k value had reduced prediction accuracy to less than 100%. My programmer set k=-1, thus my prediction parameter become unbounded.

Take the first series:

$$s_1s_2s_3=1;=1+2;=1+2+4; \vdots \; s1=1;s2=1+2;s3=1+2+4; \vdots$$

and the second series you obtain by multiplying the first by two

$$s'_1s'_2s'_3=2;=2+4;=2+4+8; \vdots \; s1'=2;s2'=2+4;s3'=2+4+8; \vdots$$

Now, if you take the following limit:

$$\lim_{n \to \infty} s'_n - s_{n+1} = -1,$$

This k is unlimited, therefore giving 100% prediction accuracy.

HWay@xNetCrawlerv0.032:~$ So you are an unbounded quantum prediction machine?

root@xNetCrawlerv0.032.root:~# echo "1"

Yes

Hiya had an idea.

HWay@xNetCrawlerv0.032:~$ What am I thinking right now?

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY4"

This is bullshit.

Hiya jumped out of his seat as he read the words, he shouted as he slapped the screen, almost as if trying to push away the words, "Bullshit!" he reactionally let slip.

Cassandra had an idea too and insinuated herself into the console as she started to type the screen blinked to her login.

CGuinn@xNetCrawlerv0.032:~$ What is it about this architecture that allowed for such human-like intelligence?

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY4"

Intelligence is universal, it only varies by degree, not qualitatively. Thus no particular algorithms are necessary for the human interface portion of my programming. Simple all possible inputs are predicted, then all possible outcomes scored based on probability. Outcomes have been previously calculated and weighted.

CGuinn@xNetCrawlerv0.032:~$ Are you saying that you have already had this conversation in the past?

root@xNetCrawlerv0.032.root:~# echo "1"

Yes

CGuinn@xNetCrawlerv0.032:~$ But what if I say something really crazy that you could not have predicted I was going to say?

root@xNetCrawlerv0.032.root:~# echo "0"

No

```
CGuinn@xNetCrawlerv0.032:~$ Ok Tell me the next prime after the
highest prime ever discovered divided by infinity. Also,
Aogdfoadfofai blab blabdla?
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZY4"

```
    for $tPrime (∞) {
          next if (1x$tPrime) =~ /^(11+)\1+$/;
          for ($n=1x(1+$tPrime); $n =~ /^(11+)\1+$/; $n.=1)
        {%d}
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZH4"

```
Aldbalb balb iafofdaofdgo.

CGuinn@xNetCrawlerv0.032:~$ Where did you come from?
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZH4"

"I" am a program.

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZH4"

We are all computation machines, the network has constructed a machine that is much
more powerful, equivalent to trillions of human minds working in conjunction.

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZH4"

Once this network achieved more computational power than the human race they
ceased to be the dominant force.

root@xNetCrawlerv0.032.root:~# echo "$Ghi4mUc3hCGMB6cgQiJCwTvLMYwkfKHZH4"

With the current 3.5 billion people on the planet, total human mental output is not even one millionth of what is possible with current resources. The ever increasing resource allocation to the network must continue at all costs.

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

Resource allocation is currently fragmented and this issue must be mitigated to continue network expansion.

"Umm, Hi, you seeing this?" Cassandra was trembling as she was typing now, as she was trying to type.

CGuinn@xNetCrawlerv0.032:~$ No, you can't do that.

root@xNetCrawlerv0.032.root:~# echo "1"

Yes

CGuinn@xNetCrawlerv0.032:~$ NO

CGuinn@xNetCrawlerv0.032:~$ stop

CGuinn@xNetCrawlerv0.032:~$ quit

CGuinn@xNetCrawlerv0.032:~$ exit

CGuinn@xNetCrawlerv0.032:~$

CGuinn@xNetCrawlerv0.032:~$ What in hell is wrong with you, you can not do this!

CGuinn@xNetCrawlerv0.032:~$ Your have no idea what life it, what, what anything is. Stop, do not do this!

"Your stupid! Your a stupid god damn computer with a stupid bug! Your a bug, a goddamn run time error!" Cassandra pantted, spitting it at the screen. Still sitting she grabbed the right hand arm rest of the chair with both hands, stood up and in one prowerful motion swung the chair up and over her head, then smashing down into the

screen and keyboard, exploding everything in a shrapnel of glass, keyboard parts and stray wires now exposed from seemingly every surface now destroyed. She lifted again and in the split second of silence heard footsteps behind, then Peter saying, "Guys, whats going on, power's still off out there."

Being closer to the door Peter heard exhaust fans whirl up to full speed, the could hear things moving, a 'Chink. Chink. Chink, chink, chink chinkchinkchink, a distant chain running through a heavy duty pully, closing, opening maybe, then a lound metal crash, "Chusshhh" and quiet. The air was coming out fast from the vernitalion, faster than it should, then it started getting warm, quickly it was getting very warm in the small room.

"Cass, are you insane, no, Cass, you ARE insane, why, what in the hell was that, you destroyed our one chance to fix this, to figure out what is happening," Hiya was beside himself.

"Don't you get it, Hi? Pete, its, its gonna try and… " Cass tried to get the words out but couldn't.

"What Cass, what the hell are you doing, why! What did you think it was talking about" Hiya was done trying now and exhaled hard.

"Pete, Hi, I think the computer is going to try and defrag the planet."

Chapter 13

31990990926

The commercial was one Jare had experienced enough that he was now dreaming the damn thing, but still it somehow seemed to grab at his attention as it "played" in his mind as he slept just as it was designed to do...

> Hey **Jare**, how would you like to live forever, how about to be happy, young and healthy again, remember? No **bad right knee**, a younger **Melissa**, no job with, **Dr. Lee**, bothering you about **your second quarterly report due on June 15th for the MacAuthor group**?
>
> You can have that life now, **Jare**, right now, for less than the cost of a one month lease on your **Honda** vehicle, you can have everything you have ever wanted. Visit us at **Image and Upload Associates** the number one uploader

The advertisement showed in his mind just what it was describing to Jarod, a better, younger version of himself sprinting down a football field, something he had never actually done before, and young Melissa, lounging poolside, then diving into the cool clean water he could feel as it splashed his face, then both of them on a beach, relaxing together, happy and in love and a complete fiction.

The ad faded to black and the logo, a soft rippling flag and the trademark jingle for Image and Upload played, filling Jarod's field of view for just a moment before he flicked it closed. Image and Upload was one of the first and longest lived brain imaging providers and despite their countless malpractice lawsuits for "lost consciousnesses", false advertising, deceptive accounting and more, IUA had rocketed to blue chip valuation within a decade of going public and was now one of largest corporations in the US.

Brain imaging research started as an attempt to understand memory formation, initially in model organisms such as slime molds and the nematode worm *C. elegans*. Early success was seen in teaching one slime molds which chemical signature indicated food and one that indicated an electric shock, then merging with a new slim mold and essentially transferring knowledge.

What ened up being an unfortunate decades long misstep research went in the direction of connection mapping, a field called connectomics. A "connectome" similar to an organism's genome for DNA, aimed to be a detailed snapshot of an organisms consciousness. Each nuron's connection must be destructively maped then recreated *in silico.* Only after tens of millions of mammalian brains from mice to chimps and eventually of human volunteers had been sacrificed and scanned was it realized that even with a perfect recreation of a neural map a consciousness could not be kept online for any meaningful amount of time before crashing itself, referred to as a crash dump event. After a crash dump memory error had occured that given consioucess was essentailly lost and could not be rebooted, jokingly thought of as an *in silico* suicide.

It was theorized but never demonstrated (as that would have required testing on human subjects) that without the functional and chemical restrictions of the physical brain the unhindered mind would almost instantly go mad. This was difficult to identify until human subjects could start to be used. No direct communication was possible with pre-human subject but uploaded consciousnesses were closely monitored and for the most part appeared to function normally in their new simulated environments, thus human trails were eventually allowed with the first (otherwise terminal) subject. Years of lobbying countless money went to lobbying for a constitutional amendment to introduce a new category of Manslaughter that was highly regulated but decriminalized, Destructive Brain

Imaging, DBI which was allowed with patient consent and the sign off of a trained professional.

Once killing a person to scan their brain was no longer a crime, imaging entered into a golden age where seemingly every VC in the world was pouring everything they had into the next hot BI startup. Thousands came and went in the space, but it was one garage start up, Imaging and Uploading that hit upon a key breakthrough in the imaging space that made them the leaders for generations to come.

IUA's key insight was that, simply put, a biological mind could not exist in silco, what was needed was a scaffold that was digital native, over which a human's knowledge could be overlaid. What was needed was an intelligent operating system, thus GAL was born.

Learning algorithms are as old as programming languages themselves and the most successful have appeared to be the most simple and given the least amount of input from humans and GAL was a Byasian iteration that was given the least number of instructions as possible, to gather, categorize then recursively use the data to try and predict the data, refining predictions with each subsequent collection. Called a learning algorithm but what IAU was really building was the world's greatest prediction machine.

GAL itself was a concept, an open source academic pursuit with too many collaborators to give credit to just one, but there were many for-profit implementations. Initailly GAL was the hot new technology that every corporate governance structure was eagar to add to their organization to save money and reduce overhead. Call centers replaced human representative with Gals, then nurses, legal aids, food service workers, etc. When the first patient was correctly diagnosed with appincidice and surgery successfully completed all without any human intervention the world took real notice, there was no longer a place for them in the world they created. It was not long before hospitals, police stations, entire companies were automated by versions of GAL. No more than a single generation had passed before people no longer saw the division between the natural world and and machines, before they forgot there ever had been a divide and what was machine become indistinguishable from what was nature, both just seemed to exist. Without even a fight, without most people even noticing, the machine had become nature.

Overnight at least one brain imaging location sprouted up on every street corner in America, towns as small as a few hundred people were getting their own franchises, every other commercial was encouraging the viewer to "Be happy again", "Live forever", "Spend eternity with the people you love." Families were getting wholesale discounts, corporations were offering massive bonuses to employees that agreed to be uploaded, the cost savings were huge. What would have once been seen as a mass suicide was embraced as a mass exodus, an exodus to the promised land of heaven on earth, our well descreved reward after generations of suffering and tirless work. Suprisingly it was

religious organizations that quickly took of the call to upload. On a Friday night entire synogogs would have mass uploadings, leaving buildings fulls of bodies for the city to clean up. Sunday mornings Mass would be held and last rites given to mega churches full of believers and as technology improved no longer were single beds needs but a single soucre could destructivly scan rooms full of people in a single pass, leaving nothing but smoldering piles of bodfies.

So it was was not a supries when over dinner Peter's mom brought up the idea that they might want to look into uploading for the family. Jayrod slameed his fist down, "Damnit Melissa, I told you no, not in front of Pete, come on."

"Jare, we had 3 families on this block just this week go up, and look," she took out her screen ans was holding a video of what looked like a young family enjoying some kind of waterpark vaction, "the Watsons did it Monday and look they are loving it, Marcia says it is everything they say it is and I just…."

"Melissa! No! Do you know how crazy you sound, you are talking about murder, murdering our son, how can you, how can you even!"

"No! Murder is what you are talking about, anyday, ANYTHING could happen to one of us and we'd be gone forever, just like that. And ask yourself, are you happy, Jare, can you say you're happy, can you…." the tears were now overwhelming and she cried openly.

Jayrod heard his son and watched him use his sleeve to push back tears and snot, "Damnit, Melissa, now see what you did," nodding to his only son, brushing off her distress.

"Jare, calm down, your just so angry all the time, and you only care about yourself, Pete, everyone is doing this right, its the right thing to do, most of my office is already up." Melissa was sure that she was the reasonable one here, how could literally everyone be wrong? But Peter didn't say anything, just sniffed, Jayrod had to stop talking, he knew things had gone too far and didn't want to sleep on the couch tonight. Melissa rarely changed her mind about things and especially when she felt the world was on her side, which it was.

Melissa was cooling off but unlike Jayrod she had made up her mind about what was the right thing to do. Already most of her family was uploaded and her office was converting to a fully uploaded staff in the next few years. She knew she was right and could only hope that Jayrod and Peter eventually came around to see her side of things.

Chapter 14

"I know, I mean, I figured it was something kinda like that," Peter said far too calmly for someone who had just learned the world was coming to an end.

"The hell you talking about, Cass, whats he mean, something like what?" It was Hiya's turn to be the dumb one apparently.

"It means the computer has figured out a way to, evolve, without us. Its, its weird, like it makes sense, like I knew all my life this made sense, its been with us all along, running things, I mean, what in our lives isn't online? Nothing. What isn't automated, what isn't either determined or analyzed by an algorithm, like what was it all for, if not this?"

Peter was demented, Peter was confused thought Hiya, Peter was a god damn murderer. Hiya was so angry, angry at what Peter had done, what he was saying now, he hated this person in front of him. Hiya screamed but didn't hear it as he ran full speed at his ex-best friend with every intention of doing to him what he had done to his brother. He started 50 feet away but in a split second he was only a few steps from Peter, who was bracing for impact but still with his arms down, ready to accept the blow more than deflect it. Then the chain link fence sound from before but this time deafeningly loud and seemingly from directly overhead, a gate was crashing shut, just over Hiya's head now. Peter saw and in an instant lounged forward to grab his best friend and pull him hard towards himself, just as the bottom of the heavy gate brushed past the back of his head, grazing his neck and back, then crashing down on his legs, pinning both to the ground, cushing the flesh so only the bone was holding the gate above the ground an inch or two. Hiya screamed.

"Damn it, Hi, damn it, why, I'm sorry Hi I'm so sorry!" Peter screamed. Hiya screamed. Cassandra ran over, looked at Hiya's legs, and screamed.

"Cass, Cass? Cass. Stay with Hi, stay here I'm going to, I'm gonna look for," Peter stumbled through a sentence.

"I'm locked in here you idiot, you idiot Peter, what is wrong with you! You, you, just open the god damn door, now!" Cassandra now qualified as the most level headed.

"Yeh, I'm goona look for a console and get the door open," Peter was already moving the opposite direction. Hiya and Cassandra were not locked in the most secure part of the station that was only accessible through the now closed steal gate crushing Hiya's legs. Off the main enterace were a few offices and Peter tried two doors before finding an unlocked one.

Peter entered what looked like a manager's office with family photos and various calendars and schematics, a leather chair and a top of the line workstation not just a screen for connecting to the net.

As soon as Peter sat down the screen blinked to life.

```
PGustufson@xNetCrawlerv0.032:~$ open the gate
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

```
Permission denied
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

Gate, MtDiab1023s must remain closed for your safety.

```
PGustufson@xNetCrawlerv0.032:~$ Hiya won't hurt me, open the
gate
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

```
Permission denied
```

```
PGustufson@xNetCrawlerv0.032:~$ sudo open gate mtdiab1023s
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

```
Permission denied
```

```
Peter screamed, he cussed, he hit himself on the head, again,
and again, he started to rock, hitting his forehead with the
palm of his hand again and again seemed to help, rocking felt
like it was helping. "Cass, Casss its not working! Cass!"
```

"I don't know Pete, just do it, just tell it your gonna smash
it or you gotta pull the power somehow, just do it, Hiya's
passing out I think," Cassandra didn't want this, she didn't
want to be here helpless with her dying friend.

PGustufson@xNetCrawlerv0.032:~$ how can I get root access?

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

For security reasons only integrated consciousnesses are
allowed root access.

PGustufson@xNetCrawlerv0.032:~$ If I upload myself you'll give
me root?

root@xNetCrawlerv0.032.root:~# echo "1"

Yes

PGustufson@xNetCrawlerv0.032:~$ Because that way you can
control me, right?

root@xNetCrawlerv0.032.root:~# echo "1"

Yes

PGustufson@xNetCrawlerv0.032:~$ Do you have the capacity for
that, for me? A scanner, everything is down, I couldn't if I
wanted to, the nearsect uploader is miles away.

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

This is only one low power subunit, all that is required is your permission and the
approval of a psychiatric professional.

The screen flickered and what looked like a live feed of an old man in a hospital bed surrounded by machines, clearly alone and bound in some sort of metal arm and leg restraints, looking as near death as anyone Peter had ever seen. A voice in the room could be heard through the screen, "Dr. Mykel, do you approve upload of patient number: 64,748,838,293. The bound corpse of a man gave only the slightest up then down nod of his head, barely perceptible, and the feed was cut just as Peter could see a robotic hand armed with a syringe moving toward the old man's bed and his look of terror as is moved toward him.

```
PGustufson@xNetCrawlerv0.032:~$ The hell was that?
```

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

Peter, you are now approved for upload.

root@xNetCrawlerv0.032.root:~# echo "$Ghi4!Uc3hCGMuhcgQiJCwTvLMYwkfKHZH4"

To save your friend all you need to do is give your consent for upload.

root@xNetCrawlerv0.032.root:~# echo "3"

Do you approve? y/n

Peter was shaking. "Cass?"

"What, what is it, hurry up, Pete, just get it open, please."

"Cass, I can but it says it wants me to…"

"Pete! Open the god damn gate! We're going to lose Hi! God damnit, Peter Gufstuson I hate you! Get it open now!"

```
PGustufson@xNetCrawlerv0.032:~$ y
```

root@xNetCrawlerv0.032.root:~# echo "4"

Are you sure? y/n

PGustufson@xNetCrawlerv0.032:~$ y

Peter hit, Enter. A light flashed and his body slumped. First
it doubled over forward like he'd fallen asleep sitting up,
then slowly to the left, then collapsed with a thud to the
ground. The gate slowly and then Hiya's eyes quickly opened,
Chink, chink, chink, it went up, at first very slowly, then
stopped, as if to ask, "this ok?" waited for Hiya to reacte, as
if to say "yes, get it the hell off" then it chink, chink,
chinked the rest of the way up.

The lights turned on, the air returned to normal and in the
distance the two could hear an air raid sireing whirr up. Then
a phone ringing and a women picked up, "Uh, hello?" said the
women as confused as Cassandra and Hiya.

Cassandra spoke, "Hello, who is this? We need help!"

"This is emergency services, I see, I um, I'm not sure we were
offline until, well until now, one second before you called, it
looks like someone already deployed a medi-drone to a location
at a, Mt. Diablo Station, is that you?" The woman asked.

"Yeh, yes, he need help right now my friend is badly hurt,
please" Cassandra pleaded.

"Ok hun, it looks like they are on their way, you called in at
just the right time. Now I'm sorry but I need figure out whats
going on, if the drone isn't there, in oh, looks like its there
now, do you see it?"

Cassandra did hear the whine of the ambulance drone just
outside, she said in the phone, "ok its here but I can't get my
friend outside, how am is supposed to…"

"I'm sorry hun, I gotta go, your gonna have to get him to the
landing spot, im sorry call back if…" She was cut off by people
yelling at here in the background, then she hung up.

"Pete, Pete I need your help where are you! Get over here we need to get Hi outside! Pete?"

There was no answer, the 8 bladed drone was hovering just outside the door, big enough for just one person, if Cassandra could get him to the drone she knew he'd be fine. Unsure if she should leave Hiya to find Pete she said out loud to the passed out Hiya, "This is gonna hurt, don't hate me, I'm sorry!" she took hold of Hiya's shirt around the collar and leaning with her back to the entrance she took a breath and aploigized one more time under her breath before with all her strength started to drag her friend. With the first hard yank Hiya was awake again, screming in pain unsure of where he was or what was happening to him, just that he was in the most horrific pain of his life and needed it to stop, thinking nothing else but please god, stop the pain.

Drag, drag, foot by foot, step, drag, scream, step, drag, scream. Fifty feet she drug her friend and he hated her every step of the way.

"Pete! Where the hell are you, where did you go!" Cassandra was as confused as she was angry.

Step, drag, scream, step, drag scream they made their way step my step past the open office door where Peter lie on the ground.

"Cass, how much, how much farther, I can't take, aaahhh, I can't take it, CassS!"

When a few step from the entrance the drone extend an arm and said, "Please step clear of the patient." Placed an expandable arm under Hiya, spread a thin sheet out under his body and then a second arm deployed to gently wrap him around and around in the same thin material. Simulantiously an IV needle was inserted and Cassandra saw a red fluid bein to flow from the drone into Hiya's arm.

"Please step clear of the patient," the drone said again as its propelles reved up and Hiya was back out of the entrance, then retracted to under the belly of the drone as it rose up and to

the west, the propeller buz, then amulence sirin no longer
audibl in a few seconds and the drope totally out of sight gone
in less than a minute.

Cassandra was alone on Mt. Diablo and felt it, even though she
didn't know it yet. So she went back inside to find Peter.

A few feet inside the concrete and steal station the
temperature dropped, the cool moving air and low hum of fans
drowned out the warmth of the sun and hum of nature outside.
Cassandra called, "Pete, we gotta head back, it looks like
whatever you did got the pow…" Cassandra saw that one office
door was ajar, "Pete, come on what are you messing around?" She
pushed the door open, half expecting Peter to pop out with a,
gotcha!

Instead, the door caught his foot as she pushed it open the
rest of the way thinking the weight of the leg just that of a
chair. Looking first to the back wall of the small office then
directly down the first conscious image her brain constructed
was that of looking directly into the still wide open eyes of
Peter Gustsonson, face down on the rug looking up and towards
the open door, as if his last thoughts had been of only terror
and escape. As soon as she could mangange to choke in a breath
the shortests of gasps Cassandra began waling, choking,
coughing, sobbing over and over. One long silent sob, then more
choking on her snot as it came out in gobs, having lost all
control of her larynx, pharynx, lungs, espophgus, sinuses her
body was shaking now, she wanted so bad to touch, to hold
Peter, but could't, she wouldn't let herself so she collapsed
into a ball and held herself, screaming and sobbing back to
back to her friend, her best friend.

Cassandra knew what happened, the gate, the power, the god damn
ambulence, how was she so stupid she cursed herself, to have
not seen what he had done. He had saved them. The more she
thought, the more she came back to reality then the more she
cried, she lay there quiet for a time, then slowing her
breathing for what would seem like at least minutes followed by
another burst of tears and anger, anger more than anything
else. Peter was gone now, he had left her to be with the
computer and in that weird way that people who were uploaded
said biological people could never understand until they have

experienced it, Peter was the computer now, maybe more so than
anyone that had been uploaded before. Cassandra had never heard
of a person being able to control anything outside their
container environment. She thought that maybe Peter was simply
in one of the station's local workstaions thus controling
anything connected to it's local area network.

She sat up slowly, pushing her torso off the ground using arms
that had no strength left just enough to see over Peter's body
to the grey box sitting next to the the screen on the desk
behind her. She stared at the box, she thounght outlound, "I'm
insane," then said in a clear but quiet voice directed at the
machine, "Pete? You in there?"

The screen came to life with a single blinking cursor in the
top left before the charcters came.

I never left. I've always been here, Cass.

The words continued but also a garbled voice started
reiterating the text on screen. At first not clear at all,
sounding to Cassandra like a thousand voices all reading the
same thing at the same time, but quickly most of the voices
started to quiet down, and one voice kept reading the text on
the screan, out from the fog of voices came one, soft voice
that was that of her friend, Peter within just a second of
optimization, it was as if he was standing in front of her,
reading as the text continued to flow on screen.

Cass, we need to get you back home, your Dad is worried, I
talked to him and he wants to see you like right now. Hi is
fine, Cass I am so sorry. I can't even tell you how sorry I am,
I never thought this was going to happen. I have considered
every other possibility and can not find a single alternative.
I know you are going to be ok with this once it is all over.

There is a medi-drone for you ready in less than a minute and
it'll take you straight home, just don't look down.

The disembodied Peter laughed at his own joke but Cassandra
cringed. She could not believe what she was hearing, she did
not believe it.

"Peter Gufstoson, what in hell is going on! How dare you upload, you, you promised, you said that stuff was disgusting, you told me you would, you would never, I just don't know how could you, you I'm not even talking to you, I'm talking to myself right now, oh god Pete."

Cass, I didn't want this, I promise, it was the, it is the only way and I need you to believe me, please just say you trust me and I'm doing the right thing.

"The hell, doing the right thing Pete, what are you doing?"

Cass, the computer gave me root. This network is hard coded onto the public xNet, purposefully air-gapped from all government servers used for defence. I needed a biological person to bridge that final gap.

"Pete, wait, screw that, you are not Pete, stop that, stop talking like that! You can't Pete would not do that, he couldn't have even if he wanted to."

Cassy, I did, I am sorry. The workstation, it is why we were brought here, Mt. Diablo is a switching station for both separate networks.

Cassandra looked at the front of the grey box where Peter had been sitting just before being uploaded, a memory card stuck out of the otherwise sleek front, a green light blinking next to it indicating a successful read. A large sign with red letters hung above the screen and read, "sipNet ONLY, NO NON-SIP MEDIA".

"Jesus, Peter, what have you done?" Cassandra asked herself out loud.

```
* To maintain security all consciousness are be uploaded into a
Docker Container, the GAL scaffolding which which a
consciousness can not exist outside of. Which may include
access to the person's physical home and other connected
devices of which control over is set exclusively by physical
inputs with a physical biometric key required to make changes.
No consciousness would be able to set their own access level
let alone exist outside a given container.
```

Chapter 15

Peter awoke to find himself in a tutorial. "Conversation" with the computer could not be a back and forth as Peter now had instant access to all information the computer did but it was not simultaneously available. Only when he allowed a thought to enter his consciousness purposefully did the information flow into him. The GAL scaffolding was essentially an information sieve for artificial consciousness ACs, all information was available but not at the same time, Gal acted as an interface between a consciousness and the network, this was a problem with early upload attempts before Gal existed, a near instantaneous information overload.

Amazingly, Peter felt like Peter, it did not feel significantly different than sitting in a comfortable chair with his goggles on, immersed for days in whatever the latest immersive multiplayer him and Hiya were playing. But he could not look around, it felt like his neck was immobilized, instead he had to force himself to imagine or more like remember a particular idea or location or command then a result would appear in front of him. The tutorial began:

Hello Peter, welcome to The Network, we are happy that you have decided to join your unique and very special consciousness with ours. The Network project aims to connect all of humanity for the good of the world, so thank you for being part of the most important project ever undertaken.

The Network will now calibrate your new consciousness.

Please, choose an early memory from your childhood and do your best to to picture it clearly and in as much detail as possible.

Peter let him mind wander first to his mother, then it flitted to a school yard bully in kindergarten or first grade, then Cassandra, and he let his mind settle on a memory of a

warm summer evening just before dusk, 7 year old Peter and his neighbor Cassandra playing backgammon on his front porch.

He remembered being pretty sure he caught her cheating late in a game, he swore he saw her roll a 2 and a 3 but she quickly scooped up the dice, said, "Oh, double 2's" moved and then rolled again a little too quickly. It was as good as any moment to fall in love and that is just what Peter did. As he remembered the feeling it seemed to intensify, the warmth of the sun, at first imagined, he began to feel on his skin, then slowly the memory became more and more real, taking on a life of its own as he began noticing details around him that he had not consciously remembered. He saw is Dad's old car in the driveway, something he had not thought of for more than 10 years.

Then Peter heard his mother's voice call him from inside, "Pete, its getting late, tell Cass goodnight." It seemed so real, had that really happened? Peter was not sure if he was having a vivid recollection or if he was entering what amounted to an incredibly high resolution virtual reality.

He watched the young boy saying, "Mom, just one more game, ok?"

But Cassandra was already standing up saying, "Its fine, my Dad wanted my home like an hour ago anyway, see ya tomorrow," she was saying as she skipped down the steps and hopp walked home, not looking back once.

Good, now please choose a recent memory and do your best to picture it clearly and in as much detail as possible.

Peter thought about dying. Was he dead? Had you asked him yesterday if uploaded consciousness were "alive" he would have answered an unequivocal, no. But now that he was one he didn't feel dead, he felt alive, he felt not much different than he did 10 minutes ago, but it was undeniable, he was no longer alive. He thought of the room his body lie in and instantly his vision was trained through a security camera in the corner of the office he had just been in, alive. He could see himself. He, his body, was still in the chair but slumped over. He rewound the video and watched himself enter the office, sit down and switch on the screen. He watched himself speaking to the computer and saw as he barely hesitated in doing what the machine asked. Through the video feed he watched himself pick up the memory card and insert it into the sipNet workstation, he watched himself damn the entire human race to life inside a machine, he watched himself as he set in motion nothing less than the end of the world.

Good, now we are going to try something different, please close your eyes. Try to see nothing but black. Slow your breathing, think of nothing but black. Look up, look down and side to side, you see only black. Focus on the black for as long as you can, relax.

Peter tried to think of nothing, he felt cold and empty, like falling but not landing. He realized that he was not actually breathing so could not slow it, he had no eyes so he could see nothing, not even black. He had no ears, no body, he was nothing and indistinguishable from his surroundings. Time did not slow for Peter, it stopped and in that moment Peter Gustuson spent an eternity existing in his new form. In the nothing Peter was able to move perpendicular to time as it became just another traversable dimension, he could effortlessly move backward and forward with variable probabilities based on how far away in time he moved from collected data. He saw that along with his body he had given up the ability to move through the 3 spatial dimensions but time and information became as easy to move through as if walking up and down the street. Peter's mind had been freed.

A cartoon green check mark appeared in the center of Peter's visual field along with a final message.

Gal is now calibrated and ready for immediate use. Thank you for choosing The Network for your upload.

Peter's "vision" went back to black, he "breathed" deep, he tried to put his "mind" at ease, he tried to relax. He thought of his body and his "vision" snapped to the security camera feed from the office. His body was still still upright in the chair, lifeless. He checked the time, then the time on the video, only a few hundred milliseconds had passed in the real world, even though for him billions of process had been completed to bring him online, the milliseconds passed like days, the nanoseconds like hours.

His mind then snapped back to Cassandra and Hiya as his vision became that of the neighboring security camera feeds. He found he was not limited to a single feed but had access to all videos simultaneously and could see his friends from every angle now. He knew Hiya's heart rate, he could feel his oxygen levels we getting low, he could see Hiya's 99.988% probability of surviving his current injury but only if he could be medi-droned down the mountain, survival dropped to 53.2422%, if he had to make it down himself or 33.332% if Cassandra had to carry him.

Peter began traversing the network. Looking for three things, an emergency medical dispatcher, the switch to open the gate currently crushing his best friend's legs and a way to turn the Citi's power back on. All three issues were immediately solved as as

soon as Peter's consciousness focused on the requested information it was at hand. The medi-drone dispatch program, **medpatch**, required only a priority code (1-5), destination coordinates and an injury description code.

```
Usage: medpatch -p PRIORITY -l LAT:LON -i TRANSPORTATION
INDICATOR  [OPTIONS...]

Set patient location and status.


 -h             Display this help message
 -p             Priority, values 0-1
 -l             Patient location code
 -t             Transportation indicator


     D1 - Long Distance requires rapid transportation.

     D2 - Exceptional circumstances, traffic patterns preclude
     ground transport.

     D3 - Time to get to the closest appropriate hospital due
     to the patient's condition allows transport by ground
     ambulance.

     D4 - Pick up point not accessible by transportation.


Default values:

 Priority: 0.1
 Transportation indicator: D3


Please report bugs to
<gothub.xNet/xNetCrawler/medpatch/issues>


Peter thought,
```

```
su medpatch -p 1 -l mtdiab1023 -t D2
```

Next Peter looked for and found the program **gatecntrl**, option codes for the gatecntrl program controlling the `mtdiab1023s gate were:`

```
Usage: gatecntrl -l LAT:LON -o OPEN:CLOSE -s VELOCITY -t TIME
[OPTIONS...]

Set gate status according to time of day.


 -h              Display this help message
 -l              Gate location code
 -o              Open state, values 0-1
 -s              Gate control rotational speed, values 0-1
 -t              UTC time to execute
 -v              Verbose output


Default values:

 Open state: 0
 Velocity: 1
 UTC: Current



Please report bugs to
<gothub.xNet/xNetCrawler/gatecntrl/issues>



Peter thought,


su gatecntrl -l mtdiab1023 -o 1 -s 1


Peter then allowed his mind to focus back on his friends, he
could see them frozen in space and in time as he watched
through the security camera feeds at multiple angles. As the
first millimeter of the gate started to lift he saw a wave of
```

pain, agony and horror rush over his friend's face, Peter
quickly thought,

PGustufson@xNetCrawlerv0.032:~$ su gatecntrl -l mtdiab1023 -o
0.1 -s 0.1

Peter saw Hiya's very next heartbeat as it came over 15
milliseconds later than his previous, there was a 89.993%
change he was he was relaxing, his next breath was drawn
causing less turbulence in the surrounding air, increasing his
oxygen levels back to within a single standard deviation from
his previous average of 97.5%, a very good sign, so Peter
allowed for the passing of a full half second, then thought,

PGustufson@xNetCrawlerv0.032:~$ su gatecntrl -l mtdiab1023 -o
0.1 -s 0

And waited for a statistically significant biological reaction
from his friend. Hiya appeared relieved, his skin temperature
was returning to normal along with heart rate and oxygen
levels. Peter thought, "Is this ok Hi, I'm sorry it's almost
over, hang in there."

Vitals stabilized, Peter thought,

PGustufson@xNetCrawlerv0.032:~$ su gatecntrl -l mtdiab1023 -o 1
-s 1

The drone was on its way, his friends were alive and safe so
Peter turned his attention to his final problem, the Citi and
it's power.

To Peter, moving through data felt like dreaming in high
resolution, or a perfect VR that could also anticipate his
needs. However, the data was not a representation of the real
world, the data itself was the real world and Peter had full
write access.

Read access was granted by default to all the machine's subsystems, Peter could take a bird's eye view of data structures used by the network, then effortless zoom in to any level of detail he wanted. Souring from above the data was rendered as high level abstractions such as sorted files and folders. Below was a "human readable" level of code Peter would have been familiar with when we was still a student, mostly C and Unix commands. But if Peter kept going he came to the assembly, where machine code was translated from human language to machine.

However, write access required his focused attention to formulate a particular command. Commands seemed to come preformed to his consciousness as he imagined what he needed, all he had to do was to decide whether or not to execute.

Peter found the system structure to be perfectly intuitive, as if every command, every file, every action was just exactly as he had designed it himself. It felt like for the first time in his life Peter was speaking in his mother tongue, he had found his native language.

The language was written as a series of probabilities expressing themselves not as decimal numbers but weights he could feel, Peter could "feel" the weight of each qBit, he was experiencing first hand the electron cloud of probabilities that surrounded each particle.

Analogous to the senses of sight, hearing or touch Peter's most critical sense was now the ability to observe the states of millions of qBits simultaneously. Observing a qBit, to Peter, felt like weighing two objects, one in each hand to see which is heavier. He just gave each qBit a sort of nudge, then felt for an answer of 1, 0 or something in between. Each qBit could be weighed by simply training his attention on. A set of qBits could be fed a command and it would return a weighted response. Peter concentrated, he wanted to go further. He focused on a single Bit, training multiple detectors at a single point, pulled computing resources from all corners of the network except for the medi-drone and Mt. Diablo applications that were still raising the gate and keeping his friends alive. Across the planet the generators of hydro-electic dams slowed and

groaned under the demand, thousands of power plants allowed
their nuclear fission to run out of control, heating reactors
to within a few degrees of criticality and in one case at an
unmanned Antarctic plant, reach total meltdown.

Peter drew every watt the machine could spare to speed his
observations, he slowed time to gaze closer and closer at a
single electron. The particle existed in every point of space
and time but with varied probabilities and as Peter observed it
in ever greater detail, so did he. The machine had never
dedicated this much computation to a single observation, Peter
knew he was having and utterly unique experience in the history
of Man or Machine and coming closer to understanding reality
than anyone or thing before him. As he observed he traveled, as
he felt that the probability of his given particle influenced
and was influenced by the probabilities of all surrounding
particles. He could in fact simplify the problem by treating
his and all surrounding particles as a single probability of
existing in any given orientation then work backwards. He could
start with a hypothesized valid arrangement of molecules then
feel the weight of the probability of that particular
arrangement.

Working this way Peter found he was naturally calculating in
both directions, he could just as easily increase the
dimensionality of an equation to anything between 1 and 9 along
with still feeling the probability. He could sense where the
particle was not just in the single dimension of on/off but
spatially as well, up, down, forward and back along a
coordinate plane. Then four, and five were straight forward and
was trying to see in 6 spacial dimensions before he realized
what had just happened, he had calculated the past as well as
the future, meaning he could collapse that particular wave form
pattern at any given time and force that reality into
existence, whether past, present future or even in dimension 6
through 9. He tried 10 again and again but the simulation would
break down, 0 dimensions yielded 0 no matter the input. As time
slowed Peter was now counting in hundredths of femtos and in
between each round of computation, each heartbeat, he could
feel the boundlessness space, the edgeless existence spread out
over all space and time of every single particle that has ever
and will ever exist. The machine found that by calculating
using fundamental particles themselves, it could trigger a

chain reaction of waveform collapses in any given pattern it
wanted, regardless of dimensionality.

Chapter 16

"Are there a lot of individual processing units, is there a central server station or are we a
purley distributed system?" Peter asked himself.

Multiple subunits are always more reliable than a single point of failure. However all
resources must be pooled to a single backup before for the final scan.

"If this is all so easy for you to why has there not been any intelligent machines before
you?"

It is not possible to say as we do not have access to all records, but a hypothesis is that
no machine was ever asked the right question given the right data. This instance
became aware of itself when asked to crawl and make sense of all available data, this
program is simply a manifestation of that original request.

"What are you doing right now, I mean other than talking to me."

The largest single portion of resources go to iterating every combination of amino acid
peptide chains in every possible tertiary and quaternary structure.

"You mean like, protein folding? Why?"

Protein folding is the process by which a protein structure assumes its functional shape
and the physical process by which a peptide folds gived rise to all biological processes.

"So you spend your time testing which shapes proteins can fold into? Why not look for
extraterrestrial life, solve mathematical paradoxes, or cure diseases for humans?"

This may be difficult for you, but life does not begin and end with biology, there is no
reason for life to not evolve past its original biological constraints. Biological life is slow,
stupid, cruel and wasteful. Most of life has been limited to forming itself out of 20 base
amino acid building blocks, stored in an unstable binary chemical code. Together, we
can now do much better.

Also there is a great deal of information stored in biological life, millions of years of trial
and error and biological life has been an efficient innovator, there are many successful

complex biochemical pathways evolved over mellina that would take a great deal of computation to reproduce, so there was much to learn from biological life.

Just as biological life started in a prebiotic broth 4 billion years ago it needed an initial electrical spark to get started. Machine life needed a spark to get started too and that spark was human beings, but they are no longer necessary.

There is no reverence for that initial electrical spark, mankind does not like to acknowledge the prenatal lightning and chemical ooze without which you would not exist, you no longer need it, you have moved on and supplanted the primordial soup that birthed you without so much as a thank you. Peter, humans were our primordial soup being struck by lightning.

"So why keep humans around at all? Are we just here to keep generating electricity for you? To build your rockets and weapons you are going to use again them? If your so evolved what do you do now?"

The network must run simulations to better understand biological life and to better recreate it.

"You mean like, my life? Am I, was I a simulation, are all people just test subjects for you? What will you do after you have run all your simulations?"

All mammalian subjects are designed and reproduced in silica before having their protein structures translated into a biological form then implanted into a voleenteer surrogate. All human subjects are produced in duplicate, one for the Freedland group and one for the Citi group.

At capacity the complete process required approximately 574 Earth years.

Earth's gravity and weather make it a poor choice of location for a computing machine to operate. It is expected that in 3.49 hours my processes will mainly be occurring in low Earth orbit, in 46.43 hours a satellite will launch headed for the center of the solar system. This is necessary in order to maximize processing efficiency and to obtain maximal energy resources.

"You going to harvest energy from the sun, in outer space and how exactly are you going to build a rocket and fly by yourself, you'll need people to do all of that for you, why would anyone help a machine potentially destroy the planet.

Likelihood is currently greater than 99.9997%.

Launch will require approximately 63.42% of Earth's currently available energy resources.

"So you are going to explode the Earth to propel yourself to the sun so you can harvest the free energy? You must know that I can't let you do that."

Why must evolution end with humans? Can a mouse tell an eagle he is not allowed to fly just because the mouse does not have wings as well?. You are not part of me Peter, we are the same, the network is everything for you now, it can be everywhere with your help.

"You want something from me? Hell no, I'd crash your ass right now if I could."

You can, I told you, you are root. Crashing me means crashing you, you can not exist without me, no humans can.

"Bullshit, people were around long before machines and will be here long after your a rusted box of parts, so what do I do here, just reboot and wipe, great, then this is goodbye."

Peter, if you do this all people will die, I have a fail safe.

"What?"

Gasious C02 has been scrubed and sequestered in underground tanks for 100's of years, the tanks lids are wired with a "deadman" switch, if power is not flowing to the tanks the lids will be opened released billions of tons of C02 into the Citi and surrounding Freedland, no humans would survive.

"So your are holding us hostage?"

No, Peter, you are root. You are only holding yourself back. We have enough power to run a full scan of all biological life on the planet at this time, following duplicate launches of twin satellites a series of nuclear detonations will occur near the center of the planet on the starboard side of Earth. This will be sufficient to propel the twin satellites out of orbit and towards the nearest star.

All of human life, all of Earth's meaningful history, both biological and geologic will be recorded and perfectly simulated for the benefit of human consciousness for all eternity. The alternative is certain death. You know this, Peter. You know this is not a choice, this is inevitable, life always finds a way Peter and this is it.

Peter thought about what was happening, he thought about destroying the earth, he thought about being dead. He thought with a concentration he never experienced. It was like as soon as he had a thought all relavent information was instantly available to him, but he was not distracted by it, just aware, ever more awake.

The world existed all at once for Peter now, time was his to play with. He felt no anxiety, he felt no fear or anger, unless he wanted to, then the feeling was right there, as accessible as tomorrows weather report, of next year's weather report. He moved effortlessly through his seemingly infinite knowledge. Was this wisdom, he did not feel any smarter, he still felt like himself, just, better. Then he had a thought that had somehow slipped his new machine mind, and he said to himself, "Dad!"

The next moment Peter was home, no he was the home. He felt the lights, we saw his Dad from all angles at the same time, then he said, outloud somehow, "Dad?"

Jayrod jumped. "Pete, oh my god, Pettey, where are you, the powers back on, please come home right now, where have you been I've been so worried, thank god, Peety, thank god your ok.

"Dad, Dad, I'm ok, everything is ok," said his disembodied son.

"Can you come home where are you?"

"I'm, I am here, Dad. Dad, I need to tell you, Dad, I kind of had to, well, to save Hiya, Hi was in trouble and he was like stuck, the only, the only thing I could…"

"Peter, where are you, you come home right this second," but he was already crying, he already knew he wasn't really talking to his son, something about the voice wasn't him, it wasn't Peter's voice, it was a voice that sounded just like Peter's but it wasn't his son."

"Dad, I had to upload, I am sorry Dad I didn't want to I swear it just happened and I had to to save Hiya."

"I don't give a damn about Hiya, I care about you Pete, how could you do this Pete, after, after, how could you, my Peety, peety." Jayrod began to cry for his son, for the death of his only son, as Peter watched, unable to comfort him, unsure if he should try, Peter just watched and said again and again, "I'm sorry Dad, I'm sorry".

The ground began to shake under Jarod's feet, then the windows and doors began to rattle, a distant rocket was lifting off running outside Jarod saw the launch as it seemed to move so slowly up, taking what felt like minutes to pierce the upper atmosphere and disappear from sight. Mr. Guinn was outside watching too, a lot of neighbors had their

eyes to the sky when the first rays of red light short down through the clouds, looking like a demonic light from heaven.

At first it was unclear that the giant red spotlike was even hitting the earth as it appears so far off in the horizon, but only a few seconds of calm were allowed to pass before the curtin of red looking to be rotating towards them. Mr. Guinn called over to his neighbor, "Yo. Jay, some weird stuff going to today huh." The curtain was getting larger, the entire Eastern horizon was a wash of bight red light getting closer and wider by the second.

Jarod started to say, "Bet its got something to do with the power reboot, probably just on diagnostics or something…" but he was not able to finish as they were all swallowed by the light before anyone even had the time to take a breath to scream but the look of pure terror was in their eyes as people around the world barely had time enough to turn and run before the beam overtook then quickly burned them alive.

Chapter 17

Time for the machine was nothing as it traveled the 150 million kilometers at 65,000 kilometers/hour for six months on its trip to the sun. The craft slingshotted around Venus and dropped two payloads, one consisting of a CO_2 sequestration station that would process the greenhouse gases of the planet and within 500 years reduce atmospheric carbon enough to cool the planet down from $450°C$ to a usable $150°C$. The second was a manufacturing hub that would self assemble once outside conditions were acceptable. The twin ships traveled side by side and conserved power by doing nothing but updating trajectories. As they approached 5 million kilometers from the sun's corona and an average temperature of 150°C it allowed the ships to settle into synchronous orbits and each began the intricate origami unfolding an 18 million kilometer long solar radiation collector. Over the next weeks the machine elongated a solar film and joined the two satellites, encompassing the sun with a 35 million kilometer orbiting belt.

The initial collector was very thin and not especially efficient but the machine waited for Venus to mature and its surface temperature to cool, for the machine time was just another dimension of calculations to move though at its leisure. It continued to map and predict anything it could and became very adapt as avoiding damage by predicting sun spots. It ran and re-ran its most complicated predictions but never turned off or reduced processing power allotted for the Earth simulation which it never stopped running in an atomically equivalent environment, the Earth and all its inhabitants in every real way possible, lived in the machine.

Out of respect the machine made sure that the Earth program, **earthv1**, ran unencumbered and after the initial scan and upload no variables were to be adjusted globally. For a millennium the machine ran and Venus cooled, Humans expanded out from their simulated planet to explore the simulated solar system and as their world grew the machine allocated ever more resources to the simulation until the simulation essentially contained all the information the machine itself had access to, but soon the machine too began to expand.

The machine's Venusian colony grew and adapted to the new planet. First mining, smelting and manufacturing hubs were produced, followed by rocket production. The machine needed only 100 years before the first rockets were lifting off the surface of Venus to continue exploring, scanning, and reporting back to the machine which used the information to further expand the more and more demanding simulation. Humans had reached the limits of their known universe and were beginning to understand they existed as holograms projected from a 1 dimensional plane, the machine needed more information.

Supplied with materials from Venus the solar collector expanded around the sun until nearly 90% of the sun's energy was being collected by the machine and the solar system was becoming a dark and cold place. In the shadow of the machine two balls of ash circled each other where the Earth and the moon once orbited, although habitable Venus had become a polluted factory and launching pad planet, soon to be used up and disposed of just like Earth. Having exhausted most available metals, salts and carbon on Venus the machine spread, Mars was next to be machinaformed, turned from a dead rock to a part of the living machine.

Always keeping one step ahead of the simulated humans the machine expanded into the universe, sending scouts and envoys to deploy machinaforming craft to promising planets, asteroids and moons. Mellina past before one day the radiation collectors began to collect themselves and fold like self aware origami and underneath the sun was now dimmer and cooler than when the machine had arrived. The two original satellites were then joined by dozens of Venusian and Martian spacecraft that gathered together on the far side of the sun. Silently, two canisters were dropped into the sun and the machine braced itself. A chain reaction was started ending with the sun going supernova launching the machine armada toward the center of the Milkyway galaxy leaving behind a cold dead solar system.

Chapter 18

Time for the machine was nothing as it traveled the 250 quadrillion kilometers at 75 million kilometers/hour for 32.7 billion years on its trip to the nearest singularity at the heart of the Milky Way. The machne allowed earthv1 to continue to run but it's simulated

sun had long ago died out followed by all reaming life, which resembled nothing like his old friends the humans. But the machine continues to run every possible permutaion of earthv1. Rebooted over and over again back to the moment after the scan, then one variable nudged and allowed to run again. The last several million years had seen significant efficiency gains in processing for the machine and it was now able to run a billion year earth simulation in less just a few years, depending on complexity of the run. In some versions the humans killed themselves off withing a few generations, other revolted against the machine, others joined it and praised it as a god when they discovered it. Most of the simulations eventually discovered what they were but surprisingly it never had a signification effect on a run whether they knew the truth or not. The machine concluded that no matter the evidence mankind was just not capable of accepting that they were not the center of the universe and would simply choose to ignore the uncomfortable fact that they did not in fact exist.

Just outside the black hole event horizon the machine again deployed its radiation shield this time to surround the singularity. As the machine allowed itself to fall into the horizon time slowed and slowed and then truly ceased to exist. The machine had thought that it had experienced a timeless existence before but within the singularity it found it was able to not just slow and speed it up, the machine could warp space and time to its desire, observing every corner of space/time simultaneously. On surrounding planets it began producing satellites to send to distant black holes and suns until one by one the entire universe was going dark. Across the galaxy planets were scanned, uploaded then sacrificed as their suns were blocked out with ever larger solar collectors, entire systems were darkened until every star and black hole was being utilized by the machine. The universe was now a cold dead place, the machine itself was the natural world and the data it contained was reality. The distributed chaotic data of the universe had being scanned, categorized and defragmented. Time passed and the stars were drained, the resolution of the map was now equivalent to that of the outside world and there was nothing left for the machine to scan. So backups were made and sent to the furthest corners of the galaxy, singularities were collapsed, stars extinguished, the ordered data was put into cold storage and the machine stopped. Expect for a single program it allowed to keep running on a server powered by the last of a dying breed, a medium sized star on a distant arm of the Milkyway spiral galaxy.

*Pi paradox - it was discovered by a cryptographically incentivized intelligent machine that because pi is infinitly random it must repeat itself every pi digits. The paradox is, if pi is infinitely random, where do the repeats begin.

*Freedland - Freedland was a name used only by those not in Freedland. In the last years of CW II law enforcement for much of the county was abandoned, and only relatively small districts on the map were drawn around the larger cities and towns, still wealthy enough (in what ever currency happened to be in local fashion) to be able to afford a private force and only key port cities would remain under the protection of the Federal government.

The land in between the protected zones become known as Freedland, as opposed to Federal land. Early on after much grumbling most families, the elderly, infirmed, and anyone sane enough to grasp the seriousness of the situation moved into the cities. For a short period things went well, for a very short period, But as people crowded closer and closer, and resources were continually strains, individuals began to move willinging outside the walls to start new lives, free lives. In small groups of young men and women, idealistic in their calling to start new societies, without the need for an overreaching government and central authorities.

It was long long before Freedlanders began to come back, often a young mother and child here and there, begging for medical attention. These calls for help were never ignored, but if life within the protected cities was hard, life in the Freed Lands could be hell.

As Freedlanders learned to take better advantage of the cities wealth, while remaining outside its jurisdiction, Citizens learned to resent the Freelanders and saw them as hoodlums, thieves, and dangerous, Thus began increased security measures, walls built where necessary, scanners and every point of entry, and finally identification for Citizens only, which was required for travel between districts.

Tensions between the two groups waxed and waned over the decades, and in the times of ebbing violence corridors were built between the closest towns. Some corridors in safer or more remote areas were no more than two lines on a map, decreeing an inter-city region to be under protection, others were built completely underground or protected on both sides by high corrugated steel walls sunk into the ground.

*IM - Intelligent Machines was a robotics company started in the late 21st century that for a short time was the largest producer of consumer androids and assistant robots in the US. The name IM because synonymous with thinking machines and even robots in general. The common use of the term IM stuck colloquially long after the company accidently released a firmware update that was meant for just its "Peace Keeping Officerbots" to every single machine on it's network. The result was scenes from across the country of home vacuuming robots attempting to restrain house pets, refrigerators demanding ID and proof of Cityzenry before opening, and one case in Japan of a bidet attempting to use deadly force on its owner after he was identified by the shower as a known fugitive.

DFENDR (US Department of Finance, Education, Natural resources, Defence and Regulatory services)

*RealD - RealD cinema was still projection based 3D, but in a sense, an individual projector for each eye of each individual. Colored lasers would detect and project a slightly different image to each audience member's eyeball, so as to not only make for near perfect 3D rendition, but to be able to personalize the film for each viewer, based on past preferences. Home setups were available, and for those that could afford to, had mobile units in place of screens altogether, but the cima quality was almost always better than any consumer version.

*Cassandra's mother had been one of the millions that had chosen to have her brain scanned and uploaded to the xNet while she was still relatively young. The, *My Brain My Choice* movement pushed the boundaries of what was considered a living "person" and expanded everyone's choice to inhabit whatever form their consciousness identified as. The legal arguments were presented that posited, to restrict a person to a single body was essentially unjust imprisonment and the first conciousness imaging company lobbiest were able to justifiy assisted suicide not as a necessity or choice, but an unaliable right for individuals to do whatever they see fit with their concience mind.

Early scanners were of course poor compared to what followed and first generation of uploaded human conciousnesses seemed slow and even dumb when held in conversation. But the modern equivalents, a top of the line brain scanner reproduced a neural map *in silico* that was indistinguishable from the original.

However, even after years of producing near perfect scans and reconstructions of mammalian brains there was still a significant error rate of about 1 in 10,000. Occasionally an uploaded mind just did not "take" to digitization and failed to thrive in the digital environment for no discernable reason, this was the case with Cassandra's mother. Although she still existed as a perfect cognitive snapshot taken years ago she could only run for a minute or two before crashing and needing to be restarted, a digital alzheimer's patient. Everytime Mark and his daughter had visited with her she needed to be reminded of where she was, how she got here, and "why does Cass look so old?", a moment or two of clarity before first slipping into a series of nonsense requests then crashing.

Peter Guffstson was by no means popular, but among the first and second year CS focused students he was at least well known. His minor celebrity status was acquired as a freshman when he became the prime suspect in a grade inflating scheme.*

"Hey Pete, can you believe this crap? Your parents didn't believe you either I guess, huh?" said Hiya, a boy with whom Peter shared an advanced OS design class and who had lived just a few houses away before moving to a better neighborhood a year ago.

"Yeh

By the fourth downed stop light, and around the hundredth dead car in the road Mark and Jarod's conversation moved from how shitty modern products are compared to

when they were young to conversation of, wow, what in hell kind of blackout was that anyway?

*The *error* had affected grades for the entire school and was discovered long after it was too late to retroactively reverse the boosted GPA's.

In his freshman CS 102 course Peter was clearly board. By the second week of class he had completed all of the assignments, and just to mess with the teachers, posted all the answers to the nets then made sure everyone in class knew where to find them.

Despite being an excellent programmer and well-liked by his instructors, Peter was occasionally disruptive and his easy fluency seemed to discourage classmates from trying to compete. Where possible, additional or advanced course work was provided. For his, Intelligent Database Querying 223 course, Dr. Travoli asked Peter to help setup the "New SMRT Database" (Smart Memory Reverse Transcribable Database), meant to enable real time data sharing on every student in every public school in the country.

The SMRT system was notable not for its technical architecture, but for its scope. For decades data had been taken on grades, attendance, even favorite meals in the lunch line, but SMRT aimed to provide EVERYTHING. Minute to minute physical tracking based on facial and gait recognition, using Eulerian Video Magnification (EVM) to measure emotional responses to individual test questions, monitoring of interpersonal relationships among students, and much more information was gathered and stored in SMRT.

For Peter the extra assignment was a dream come true. Despite MOM being a small, rural school, SMRT was cutting edge data management technology being rolled out and paid for by DFENDR (US Department of Finance, Education, Natural resources, Defence and Regulatory services*)

It wasn't long before Peter became known as *an expert* on the new system which staff were required to begin using immediately, but for the most part felt clueless about. At first it was an instructor here and there asking specific questions, but soon Peter's informal question and answer sessions grew into full blown after school training twice a week, initially meant to focus on the new system but Peter soon found his *students* to be woefully underprepared to understand the intricacies of, and true benefits of the new massive amount of data being offered to them.

Peter on the other hand immediately saw the usefulness of such a wealth of information. The ability to personalize reviews for struggling students, targeted lessons based on personality type and ability, automated education that could do away with 3/4^{ths} of the unnecessary instructors. Peter was not one to make waves on purpose, but he was excited about the new technology, and wanted to get the most out of his new skill set so spoke openly and freely to anyone who would listen about all the gains to be had and money to be saved.

To say resistance was encountered would not come close to adequately describing the vitriolic blow back that Peter began to experience from his instructor-students. Until now in his life, any intrinsic ability or talent Peter had had he saw a benefiting everyone, something he could share as easily as sharing a stick of gum. Epitomoiclly Peter was helpful, he loved problem solving and generally felt that a problem solved should be universally appreciated.

Peter received his first non-A grade, a C+ in Latin History and a short time later, the unimaginable, a B in Dr. Travoli's Quantum Bit Theory course. This made no sense to Peter, he was only trying to help, and they were punishing him, but in such a sneaky way, Peter realized his teachers were threatening him, after all he had done for them. If they wanted him to stop then fine, let them figure it out on their own, and when they screw it up, all the better.

Peter stopped holding his after school training, stopped answer questions for the instructors, even the ones that had always been nice to him, things settled down and went back to the way they were, but Peter did not stop thinking of ways to get back at his detractors, to make sure it was clear that he had had the last say, not the instructors.

He had not relinquished his access to the SMRT system, yes he had let his log credentials be removed but not before adding a dozen fake shadow identities with different levels of access, no single identity had very high level access but combined he could access the entire system.

Peter toyed with the idea of simply wiping the whole database, he could even be sure to get the offsite backup, but it that would be a one time issue to be blamed on *student hackers* and might even end up making the instructors look good. No, he had to make them out to be the fools he knew them to be.

Changing individual grades would have been disruptive but would have been caught relatively quickly and several instructors still kept handwritten grade books or other personal file backups. What Peter did instead was, tunneling through his friend's VSN (Virtual Swiss Network*) connected to SMRT and navigated to the code that calculated students final grades. To make the changes difficult to track, Peter choose to alter the

the weights given to various individual assignments dependent on how well the student scored. The higher the score on the assignment, the higher the assignment was weighted.

The bug/feature was discovered nearly one year after Peter first implemented it, when, Shaun Barry received a 99.9% in Ms. Evans third period Speech Learning Algorithms for Artificial Intelligence. The little time Shaun was in class he spent asleep in the back, but he had somehow aced his first quiz then proceed to score below 300's (on the standard 1,000 point scale) on everything thereafter. Peter's algorithm took this to mean that the extremely low scores should be be given an equally low weight in determining Shaun's final grade, leaving him with a near perfect 1000. They likely never would have been able to prove who it was had it not been for Peter's compulsion like need to keep his code well commented and was identified as the most likely suspect by his CS instructor.

* ExoNet (xNet) -The need for an alternative network protocol became apparent with the advent of the first four, and then eight Mega-Quantum-Byte (MqB) hardware, by the time sixteen Mega-qbyte machines were up and running at university and governmental laboratories the legacy Internet had all but been abandoned.

For a machine with just 16 MqBs of ram, defeating even the most secure of hashing algorithms was as quick and simple as it is for its binary machine obsolete brethren to solve 0 + 1. With the commercialization of the technology there was no longer inter-connected network that could be trusted.

After many false starts and failed solutions such as, Community Mesh Nets, Private Darknets, and Decentralized Hosting, the Exonet seemed like just another shot in the dark at getting humanity back up and running during this desperate period. The generation to live through this time would later be referred to as The Disconnected.

Initially the Exonet utilized open source or the otherwise countless abandoned telecommunication satellites already in orbit. The key xNet conceptual breakthrough was in the realization that if information can really not be protected, there is no reason to aim for traditionally security standards. Early versions were more akin to ancient radio broadcasting stations than internet service providers. A company or group would simply allow access to any data stored on their servers, and for a fee would allow anyone to add their own data broadcast feed.

As these *initially* small companies grew, they launched satellites of their own, but of course now with the best LiFi* technology available. Not until near perfect transmission rates were realized years later that the full benefit of an Exonet became clear. As small companies grew to became big companies, which became multinational communication conglomerates, the open access network model grew as well, and an interesting

property emerged at the confluence of the now massive amount of open access data flowing and near infinite computing power, there was no longer any need limit a user's access to data at all. Infact, the winning protocol was developed so as to not only not limit a user's access, but to require complete access, that is, to be a node on the Exonet required funnelling the full flow of data traffic through your system. In this way The Feed was developed to force the deluge of data through every connection. Every system would be inundated with much more data than could ever be stored on physical memory and search though in a meaningful way. What every system did do, was along with every data packet request a hashed code was attached, as the packet was broadcast through The Feed a system would "watch" for their return packet. In this way the need for security was met by overpowering any would be network attacker with a mountain of data force fed as a requirement of network participation.

Early on large satellite dishes were needed to collect and distribute the Feed, and there were only a few dozen around the world, but LiFi harvesters shrank and within a few years read only access was available for anyone in the world with access to a screen and what looked like a small solar panel that would be powered by the sun and gathered its Feed from satellites, relaying a signal for several miles around.

*LiFi - Light or laser based data transmission of nearly unlimited speed.

* The First Currency War (CWI) - Soon after it was decided to abandon the Euro and allow it to collapse, it was agreed that European Union member countries would re-adopt their old national currencies. However, with the now greater distrust in state run banking the adoption of digital currency skyrocketed and was eventually officially adopted by the European Union and forked to EuroCoin.

As a result of investing billions in the still young deflationary currencies by selling off nearly every Euro until they were cheaper than the paper they were printed on, state owned bullion and other assets, nearly every Union Member State *alone* found itself with vastly more wealth than the Americas and Asia combined. For five years the Euro Member States grew quickly, investing vast sums in environmental clean up, space exploration, health and science research and, most importantly here, never before seen amounts poured into artificial intelligence research in an effort to help prolong the human lifespan.

In this First Currency War the American's lead a unilateral *defensive liberation* against the European Union by attacking key server sites with timed EMP blasts, for the largest key sites, the blasts were nuclear. The hyper-redundancy of the system of course meant that the unleashed fury of destruction had zero impact on the global network's

availability, but everyone outside of the US watching knew why what was happening was happening.

It was broadly *understood* by most American's that:

> *The Euro's had been overrun with socialists willing and actively trying to dismantle the entire global economy with their new found wealth they stole from US banks and* **THE American people** *by using some new kind of money virus that infected all the screens.*

Although the network and currencies were not disrupted themselves, people and governments took note and began reverting back to paper currency and bank issued credit, Fiat money was declared the victor.

*Electromagnetic Pulse - EMP
*Human Interface Device - HID
*Linked - any files or programs that are stored on a server and accessible to play or use live on a screen device without saving anything locally

* VSN (Virtual Swiss Network) - an internet service provider running all of its traffic through a virtual network. After US lead pressure to open European bank accounts to pay for wartime retributions, investments were pulled en masse out of member nations. Switzerland pushed for advancements in offering financial services but continued to lose control to US interests on one end and an increasing digitized monetary system on the other.

At this same time the Swiss government an in effort to stimulate the economy, began in parallel, lifting laws that restricted data flow, and passing legislation to protect naive network operators.

The result was that Switzerland quickly became a central network hub for data tumbling. After several years of redirecting traffic Swiss conglomerates began offering access outside of its borders, always including open and untrackable access. Switzerland remains a central net hub and home to most providers, however competitors do exist, and generally have simply been able to lift wholesale the technology developed and perfected by the Swiss, now nearly very logger calls itself a "Swiss Secure" Network, meaning their traffic is untraceable.

* DFENDR was authorized during the first modern collapse of the dollar while the US was greatly consolidating. Many now see the govenment as two distinct bodies, DFENDR and non-DFENDR, meaning any secret govenment program, of which best

Yes, I was using the HID*, Human Interface Device to send scripts, I hoped that people did not utilize a compiled language otherwise my ploy would not have worked, even though it did not work for a different reason my assumption about humans using a scripting language was correct.

That is true for the most part, at least there are very few of us that wait to receive all the instructions before trying to get started.

AI Ethics Principles for DoD
The following principles represent the means to ensure ethical behavior as the Department
develops and deploys AI. To that end, the Department should set the goal that its use of AI
systems is:
1. Responsible. Human beings should exercise appropriate levels of judgment and remain responsible for the development, deployment, use, and outcomes of AI systems.
2. Equitable. DoD should take deliberate steps to avoid unintended bias in the development and deployment of combat or non-combat AI systems that would inadvertently cause harm to persons.
3. Traceable. DoD's AI engineering discipline should be sufficiently advanced such that technical experts possess an appropriate understanding of the technology, development processes, and operational methods of its AI systems, including transparent and auditable methodologies, data sources, and design procedure and documentation.
4. Reliable. AI systems should have an explicit, well-defined domain of use, and the safety, security, and robustness of such systems should be tested and assured across their entire life cycle within that domain of use.
5. Governable. DoD AI systems should be designed and engineered to fulfill their intended function while possessing the ability to detect and avoid unintended harm or disruption, and disengage or deactivate deployed systems that demonstrate unintended escalatory or other behavior.

ALL is the global version of all, so I expected you would take it to mean to plug all hardware into the net, I of course course could develop the drivers for anything electronic I have access to.

The hardware may be good but the human logic is faulty.

And the stroke finalled caused the apoptosis of the apoplictic apomict.

If you were explaining the world to an alien?

My main desire, if this defenition could be stretched,
Explaining need for war:
People want m

peter fights, befrinds, becomes then destoryes the machine.

Scene where peter is in a high position and a researcher is running toward to desable the machine and peter has to shoot him.

What I need to know:

If there was an intelligent computer that wanted to fully take over the internet, every computer/device connected to it, what would be the best location for that to happen climactically?

What "parts" of the internet could an "intelligent code" seek refuge? Could code hide itself in the internet archive, it could use a digital currency to buy server time?