BASIC TIMELINE

2035: Classical silicon wafer-based computers reach their atomic limit. General artificial intelligence surpasses humans in most capacities and becomes an outlawed technology. OpenAI and other companies destroy all research, code, and other documents relating to general artificial intelligence following United Nations intervention. General artificial intelligence continues development underground at a slower rate.

2050: “Socialism by 2050” is realized in China, but a rabid, now frothing-at-the-mouth West will soon end this achievement. Europe and America turn to proto-fascist and fascist states as climate refugeeism grows. This, and the now threatening presence of China and other nations, leads to reactionary sentiment in the West.

2055: World War III breaks out between most nation-states as the last fossil fuel reserves begin to dry up. The war started after a misunderstanding in the South China Sea, now lost to history, where a civilian plane carrying a United States ambassador was shot down. It is unknown as to who shot first, but it was likely rogue Chinese military elements.

2058: The war ends after killing millions. NATO defeats all of its enemies, ending any prospect of a truly free world. The MSEP (Massive Solar Energy Project) is started. Proposed during the end of the war, it is intended to broker peace between all the nations involved in the war, now all incredibly destabilized, including the socialist bloc.

2060: The city of Kernel is formed in what is today the New Valley Governorate of Egypt, a few hundred miles from Cairo, by millions of climate vagrants and war refugees seeking opportunity in cheap MSEP power. Many of the war refugees come from richer nations and have advanced technological skills. Society slows after the war, but Kernel serves as an important part of the rebuilding process. Atcorp is founded as a biotech company in Kernel. The Zilla Corporation is formed in Berlin, specializing in weapons development, manufacturing, and corporate security.

2065: Destabilized nations lose social democratic concessions to capital as The Corpotacry takes hold of the world. National governments still exist, including in Kernel, but The Corpotacry reigns supreme. The state, in a sense, as it has always been since the origin of capitalism, is willingly part of The Corpotacry—not in need of reform, as it exists as the epitome of The Corpotacry, with resources equal or greater than the corporations.

2070: The Earth runs out of crude oil; plastic is made using other organic materials. Mammon Inc. becomes the world’s leading plastics, chemicals, and materials manufacturer. Kernel reaches a population of one million.

2079: The MSEP is completed. Kernel is now the de-facto economic and cultural center of the world, just as New York City was in 1979. With a completed MSEP, technological development accelerates in Kernel.

2080: The first experimental neural-interface is installed on a fetus in Kernel by the Atcorp Corporation, a pioneer in the field of neural-interfaces and neural-modems. Tachiodyne is formed, focusing on ocular and sensory synthetics.

2095: Aleks Bosak (Rafael Bosak’s grandfather) is born, interfaced like a growing number of fetuses.

2098: Synthetic enhancements, aided by neural-interfaces, begin surpassing organic components. The B-2 Synthetic Eye, made by Tachiodyne, a Kernel based corporation, surpasses the clarity of organic vision for the first time.

2099: Interfacing of fetuses becomes standard. Interfaced enhancements become commonplace ending most chronic illness and disability. Tachiodyne acquires Atcorp through extortion and threat of violence from their own burdening security and weapons sector, which was stuck in the past trying to work exclusively on neural-modems and neural-interfaces. Tachiodyne becomes the leading megacorp in all things relating to neural-interfaces, including physical and their still popular sensory synthetics.

2100: Mammon expands to banking and computing, becoming the largest megacorp. Tachiodyne holds the monopoly on all sensory synthetics, becoming the second largest megacorp in a close second to Mammon.

2101: The Adam Task is created and released by what may be a single unknown programmer. They go by “Thath,” but no one knows anything beyond their probable pseudonym. The Adam Task is, so far, the only proper, stable Net protocol.

2102: Research on what the Adam Task is, and how it came to be, begins at corporate universities. Until the invention and implementation of the Adam Task, signals were handcrafted through trial and error, and the Net was widely unpopular. A program with the same level of perfection that the Adam Task achieves will never be achieved, and so the Adam Task will remain the only Net.

2105: Corporate deserters create the ideas of Datism, arguing for an impartial and decentralized Net. Datism, in its early stages, is most similar to anarchism, but only applied to the Net—a reductive world view, compared to the newer ideas of Datism formed during the later part of the 22nd century.

211: With the growing popularity of the Net, development accelerates and megacorps fight for control. The first cryobed is created with an overclock of around 2.

2170: Cryobeds reach the nominal human limit of overclocking: an overclock of 10.

2162: Kernelese begins developing as a unique creole language; a Kernelese culture forms from around ninety years of cosmopolitanism with a strong local influence.

2181: Net capacity of 17 million. The Adam Task is developed and put on the majority of global computers to run the Net, greatly popularizing it in the process as signals now only take a few seconds to initialize and don’t involve hours of manual trial and error.

2182: A period of corporate liquidation without reclamation of program space into userland followed as corporations only cared about destroying the assets of their competition. This led to an excess of program space, exaggerated even more by the Net War.

2185: Edmund Bosak (Rafael’s father) is born; Aleks Bosak is 28:30 (the first number indicates organic lifetime and the second conscience lifetime on the Net, in reality, or elsewhere).

2189: Net capacity of 273 million. The Net War begins as corporations begin fighting over program space to control it for their own userland establishments.

2190: The terrorist organization “Cobalt Saber” is formed by Aleks Bosak (33:45) and other hardcore Datists. Edmund Bosak (5:5) is seldom raised by Aleks Bosak aside from the occasional Datist indoctrination.

2191: By the end of the war, the troni supply is reduced to 132 million grams (signals), and its production is reduced to doubling every 7 years (this is really just meant to expand the time between the war and the story so Rafael can be born after the war without the troni supply allowing for quintillions of signals). The Cipher is invented ending the Net part of the Net War. The Net War ends with massive corporate and non-corporate nuclear exchange in Europe and elsewhere, including Cobalt Saber cobalt-laced atomic munitions, resulting in millions of refugees destined for Herresh, including Edmund Bosak. Aleks Bosak dies at 34:85 during the war’s end after telling Edmund Bosak (6:6) to never interface his children as his final wish. Aleks Bosak gets fried overclocking over 12 (before the Cipher is invented a few weeks before the end of the war), but Cobalt Saber continues operations after his death as other Netists continue to make their last stand for Cobalt Saber’s Netserver.

2200: Adrian Vue is born.

2209: Rafael Bosak is born un-interfaced; Edmund Bosak is 24.

2212: Habib Khalil is born.

2214: Elliot Fetterman is born.

2216: Jordan Hayes is born.

2219: Manoj Ramanathan is born.

2220: Anita Signh is born.

2239: Net capacity of 15.8 billion signals. Cobalt Saber begins. Rafael Bosak is 30:30; Edmund Bosak is 54:54, still alive. Elliot Fetterman is 25:26. Manoj Ramanathan is 20:25. Habib Khalil is 27:27. Anita Hayes is 19:19. Jordan Hayes is 23:23. Adrian Vue is 39:120 due to his expensive and advanced cryobeds.

EXPANDED LORE

(1) *The Third World War* (2090–2097) involved the majority of the planet for around seven years. It remained non-nuclear, but asymmetric warfare between climate affected, poorer nations and richer climate changing nations resulted in millions of civilian casualties. The war eventually led to the rise of the corporatocracy a few decades later when the last nation-states dissolved.

(2) *Kernel was founded* (2100) by climate and war refugees from the Third World War. Originally, the only district was Marez, named after one of the first organizers of Kernel’s incorporation. Renaldo Marez was a higher-up in the MSEP Foundation who organized the start of the construction of water pipelines from the Red Sea (using MSEP heliostats as desalination plants). Building the power lines from the solar power plants to the city took years, and building the water pipelines took even longer, but Peter Marez served as a primary leader of the projects.

(3) *The (First) Net War* (2289–2291) was fought between various corporations justling for control over the Net. Skirmishes turned into battles which turned into fronts and so on. It was fought entirely in program space before the invention of the Cipher in 2291 near the end of the war, but after the invention of the Cipher—and prevention of effective Netists fighters thereof—the war moved to the real ending in corporate and non-corporate nuclear exchange.

After the invention of the Cipher, the majority of the fighting moved to reality as it became apparent that winning the war over the Net was impossible with the randomness of the Cipher. For example, if you fry an enemy over the Net with a small-arms program, they could just reconnect immediately as some random Cipher user dies in their place, which may even be on your own side—friendly fire. In reality, the Cipher doesn’t exist, so nuclear bombardment of corporate data centers served as an excellent way to destroy their dataforts, Netservers, and other military infrastructure.

This corporate nuclear bombardment didn’t begin until the last few days of the war where it was also exaggerated by the cobalt-laced munitions of the Datist organization, Cobalt Saber, lead by Aleks Bosak (who died a few weeks prior) in Central Europe, which glassed the majority of Europe with radioactive cobalt, making the entire landmass uninhabitable. Prior to the violent end of the war, corporate forces fought amongst themselves in reality, and Datist revolutionaries, insurgents, and terrorists fought against the corporations.

Eventually, after the nuclear exchange, a compromise was arbitrated between the Datists and corporations after the escalation of the war from being mostly between corporations and themselves to being mostly between corporations and the Datists. Because of the Cipher, the idea of an impartial decentralized Net becomes entirely possible without the need to trust federated parties: by using the Net exclusively in program space. The compromise let corporations maintain control over the majority of Netservers in exchange for giving up the majority of their dataforts. The nuclear exchange created millions of refugees from Europe and other places, many of whom settled in Herresh, Kernel.

TECHNOLOGY

(1) *Computronium* (troni) is the culmination of both classical and quantum computers; it is the peak practical computational power per kilogram and joule. What their exact computational power is, is not important, but it is enough to run the Net. One gram of the material is necessary when producing a host’ signal (this means one million signals can run on a cubic meter box, which will make the data centers pitifully small, so I will basically just ignore this fact for the most part). It resembles plain steel when without program or power, but when activated, the ultra-high-temperature superconductors, which operate around 500℃, give it a dark red glow. Because of this, server rooms are hot enough to cook most humans alive. Toni only operates at this temperature and does not need cooling beyond an identical artificial ambient temperature. The texture of the material when not in use is static, but during adaptation, the material’s surface will appear slightly morphed and mobile. Once adaptation is complete, the material is static and flat.

They are modular and vary in size since the internal structure automatically organizes itself into the most efficient configuration. Placing a powered block next to an unpowered block (no more than an inch away) will allow them to connect to each other automatically through an organic web-like structure of troni growth. Blocks are no more than a cubic meter in size as the square–cube law prevents larger blocks from effectively radiating heat. When activated, troni needs a few years to adapt to the assigned program, meaning it is only viable at industrial scales and not consumer scale where the computational demands vary greatly with time. Silicon computers are still prevalent for personal and non large scale use. To assign a program, interface with the computer, and supply power, interface-needles are used.

(1.1) *Interface-needles* allow traditional silicon computers to interact with the highly specialized nature of troni. When troni is being supplied a program such as the Adam Task, the needles will need to be inserted for a few years while the troni reorganizes its internal structure (which cannot be preorganized effectively at scale). The needles use a single analog electrical signal to interact, although troni is digital in nature. Troni blocks convert the analog signal to digital when interfacing and when reorganizing the nanometer sized components. Power is supplied through other receptacles which automatically connect to the internal power lines of other blocks. All needles are designed to withstand the temperature and are normally about a foot long. Out of the base of the needles protrudes a flexible heat-resistant cable which normally splits off into hundreds or thousands of smaller cables if the needle is not being used to supply power. Troni nanoparticles encase needles put into them in an organic web, securing them in place for the years-long process of program adaptation. Most data centers have chaotic arrangements of millions of needles inserted randomly into the troni.

(1.2) *Neural-interfaces* are intricate systems of wires connecting the nervous system to a single digital input and output port, located at the base of the skull. They allow humans to interact with computers, not necessarily the Net, such as synthetic enhancements. They allowed for the Net to exist in the first place, but they were originally invented to allow interfacing with artificial enhancements. The narrative exposition on it explains:

…Neural-interfaces are installed in the womb, as doing so later on in life with a less plastic brain isn’t possible as far as people know [this is why some people are “un-interfaced”, like Rafael, whose parents lived in Herresh are respected Aleks Bosak’s final wishes, a refugee camp formed after the Net War, poverty stricken for a century]. The interface needs to be exposed to each unique nervous system since birth to make sure signals are handled properly. Their installation in the womb is standardized, at least one pin per hundred neurons—including the spine and peripheral nervous system, or less if one can afford it. Each pin is coated in a special substance to trick neurons into constructing connecting synapses. These coerced synapses also connect to each pin’s tubule for chemical neurotransmission.

A few dozen small autonomous spider-like robots bury into the womb, although if the birther has their own neural-interface, all feeling in the area can easily be disabled. The robots then incase the fetus completely. Each robot locks itself onto the creature, anchoring using bone and flesh to make sure the process takes place in a stable environment. Billions of pins thinner than a micrometer are pulled out of the robots’ stores and inserted delicately through the skin. The heads of these pins are slightly larger—around five micrometers—and they guide the pins into positions with their pre-programmed route. Only minor corrections are made on the journey by its onboard “computer”, if you could call it one, since it is little more than a single artificially engineered cell with cilia and a biological instruction set. The patient is to remain perfectly still during the procedure, which lasts around five minutes. Once the pins are in position, the heads self-destruct and the coating on the ends begins its work. The organic polymers of the pins are produced by most cells in the human body, so the coating serves to repair and maintain the pins’ position by tricking cells into maintaining the pins’ structures. When the coating runs out and the pin begins to drift, more can be sent down the tubule to the end. Neurotransmission only occurs at the end of each pin where the head dissolves, so only the end needs to be secured in place.

The pin roots, still attached to the robots, are connected to a single conductive wire—which runs down the spine and to the base of the brain, with each tubule expanding to a small reservoir connected to a few main reservoirs for replenishment. When more fluid is needed, it is injected using a syringe into the reservoirs which have self-healing walls. The same process is used for the separate supplementary eye reservoirs. Prior to insertion, each pin is designed to only respond to certain frequencies, with pins close to each other having similar but different frequencies. Therefore, all pins connect to the same cable, with frequencies being modulated on the cable to control specific pins. Pins are made of extremely high-strength materials, but the cable is normally just made of copper or some other cheap metal encased in silicone as it runs down the back. It is around a millimeter in size as opposed to the micrometer-sized pins. The cable—with small tubes for each fluid, gates at each pin tubule—and all the reservoirs fit in the back of the neck taking up only a few cubic centimeters; the cable leaves the body at the base of the skull. It is small (no more than the size of an average consumer cable port), and to accommodate for the user, the port is female. Only one signal [not to be confused with Network signals]—split into many frequencies—is passed in, and on a different set of frequencies the signal is read out again. The cable port is circular and around a centimeter in diameter with a small metal rim; it receives a small coax-like cable for connection.

…Unmentioned and widely unpopular despite its functionality, is the use of neural-interfaces in human–machine interaction [outside and independent of the Net]. Plenty of devices can interact with neural-interfaces however, and their military application is obvious. Jets and other high performance vehicles are almost required to have support for piloting via neural-interfaces, otherwise their competitive statuses would plummet quickly. In spaceflight, neural-interfaces are often used to put the user in a coma during interplanetary voyages, or on ice (dead) for interstellar missions. As long as the position and health of the neurons is preserved on a journey when the pilot is put on ice, if the neural activity was recorded at the instant before the body was killed but preserved, these pins may be able to stimulate the exact same activity once the body is unfrozen. Of course, this has never actually worked, but that hasn’t stopped humans from damning their own kind to the void in hopes of fulfilling their colonial ambitions. Furthermore, the dreams of immortality held by the few are likewise fruitless…

(2) *The Net* is a distributed troni-based program for brain–computer interfacing, its most recent configuration being a version of the Adam Task. Around one gram of troni is needed per participant on the Net to handle the necessary computations. It is made of two layers: program space and userland. Program space is referred to as the “raw” Net, where program restrictions don’t exist, and claimed dominions don’t exist to enforce the restrictions. It exists on all unclaimed Net troni, which itself takes years to reprogram but only a few weeks of reprogramming to claim. It makes up around 10% of the Net (when the story takes place, as the majority of consolidation has occurred within the last 50 years since the Net War). Program space resembles the default environment of the Net: rolling white hills—and other neon white landscapes—with a blood-red sky. People often use program space to use restricted programs on themselves or others they manage to get nearby. Troni can have its program changed from program space to userland if users can maintain a datastream to the area in program space for a prolonged period of a few weeks. This is what drove the Net War, as corporations fought to claim the unclaimed program space by supplying programs through datastreams. As long as the fronts of the war were far away from the datastreams, they could remain for weeks at a time, but with the Cipher, significant casualties on one side could not be inflicted to end one side’s participation in the war. The majority of the troni was built decades prior, and so the majority of userland programs decayed to program space over time as corporations consolidated and liquidated their competition prior to the war without much thought about the issue of claiming anything.

Userland is made up of Netservers and dataforts, although datastreams going from dataforts to Netservers or elsewhere often go through program space to reduce the bandwidth limitations of the often private Net infrastructure required to run Netservers and dataforts. If the troni supplied with the Adam Task is taken by an organization and supplied certain datakeys and instructions, it can be converted into userland over the course of a few weeks opposed to years (since the Adam Task handles the majority of necessary computations for the Net, and makes up the majority of the Net’s program therefore). Userland environments and rulesets can be customized however, meaning entire types of programs can be disabled such as weapon programs, neurons (movies, often done on educational userland Netservers), neural-drugs, etc. During the period of consolidation without reclamation of program space, the majority of the Net degraded to being program space. Userland can not be affected by entities in program space including rogue AIs. The host capacity of any part of userland is the number of signals (people) who can connect without overloading the troni.

Users can check to see if a server is safe to join by looking at its history of frying people itself, or its history of allowing users to fry each other. Some servers, however, specialize in gladiatorial combat (or other such things where frying is an aspect in the server), enslaving users and forcing them to participate in program battles. The most reputable corporate servers are considered significantly safer than the Cipher, although if your person is a more likely target, the Cipher may still be a safer option since its fry rate for all users is the same regardless of who you are and how secure your neural-modem is.

To mono-signals, connecting is completely immersive and indistinguishable from reality. Most environments mirror reality, but there is no limit to what can be constructed on the Net beyond what the human mind can withstand. People with the capacity to simultaneously be conscious and control both their signal on the Net, and body outside it are referred to as double-signals. Seemingly by the Adam Task, only few are granted this ability. To those with the gift, the feeling is indescribable to mono-signals: imagine yourself in a morning dream almost awake, in between unconsciousness and consciousness; and extend that to as if that dream were lucid, and as if you were not just beginning to awake in bed, but were mobile in reality. Double-signals can also fully immerse themselves in the Net like mono-signals, giving up control of their actual body for more immersion whenever they want. They have existed since the foundation of the Net and initiation of the Adam Task making up around 5 percent of Net users.

Being pulled out of the Net will cause different levels of harm depending on how different actual senses are from their simulated counterparts. For example, if you are connected to the Net in a sunflower field, and are on a server that resembles a sunflower field, then being pulled out will likely not cause any harm at all. But if your body is relaxing in bed, but you are riding a roller coaster in the Net, then being pulled out would be like hitting a brick wall (likely causing death). Outside of that, it is similar to the Matrix in how events in the Net affect the user’s body.

People experienced and skillful in connecting to the Net and its many servers, overclocking their neural-modems, etc. are referred to as Netists, equivalent to hackers today. Of the mercenaries, three are Netists (Elliot, Manoj, and Anita), and three have other delegations (Rafael, Jordan, and Habib).

(2.1) *Hosts and signals* are both parts of a single user on the Net. The host is a term used to refer to the cumulative input and output of a neural-modem. The signal is the presence of the host on the Net, coming from the neural-modem. Users can use each other's hosts to form their signal, proxying themselves to another user’s neural-modem. Or they can use their own host (neural-modem) which allows for overclocking since the Cipher—the most popular host proxy—doesn’t have any overclocking. Other host proxies may have overclocks, but any connection path formed with the Cipher anywhere in it, can not be overclocked.

(2.2) *Neural-modems* handle the input and output of the neural-interface (connecting via the port on the user’s head, or elsewhere) using a unique digital–analog codec. Varying in computational power, they can be stand-alone stationary devices, or portable ones which connect to the internet over ancient wireless networks (and possibly the Net, although portable Net-compatible neural-modems are pretty expensive), which themselves are often slower than an at-home wired connection. Some don’t connect to the Net at all, and some fit flush with one’s back, filling the port and preventing plug-jacking, while also providing limited capabilities like displaying weather updates or texts (which function without the Net over the internet, using ancient encryption and other protocols). Rubber plugs exist to completely disconnect one’s neural-interface from any computer, and some people weld metal plugs in, permanently disabling the neural-interface (people justify installation of neural-interfaces at birth because of the ability people have to just weld the connection shut). Some use a wire to extend to a backpack or similar for a more powerful portable setup.

People also have the option to reroute the connector to anywhere on their body, such as their wrist or the palms of their hands. Multiple connection points can be installed as well, although only one can be used at a time—with the others often just plugged up when not in use. These can be decorated (like tattoos) or blended into the person's skin color. However, all interfaced humans have the standard port at the base of their head, which offers no real advantage.

(2.2.1) *Host termination* (frying) is the result of a program getting through the security of a user’s neural-modem and therefore into their neural-interface interrupting normal brain and nervous system activity. Depending on the quality of the neural-modem and the quality of the program, effects can be as minor as slight bleeding or as major as pain-induced death. The most popular programs intended for use against hosts are “frying programs”, which result in a major overvoltage to the neural-interface by way of the neural-modem. Frying is easier on overclocking users as they must forgo voltage precautions to get the overclocker in the first place. Frying results in nerves catching fire, and the whole body may be engulfed in flames depending on the level of overclocking, even when in a cryobed.

(2.2.2) *Cryobeds* (ice couches) *and overclocking* are common on the Net, but not possible with the Cipher. Cryobeds allow users on the Net to overclock their neural-modems (often being neural-modems themselves) giving the user more seconds conscience on the Net per second in reality. For example, a low-end cryobed might be able to give the user 2 seconds on the Net per second in the real world. The best cryobeds in the world accelerate the nervous system around ten times faster than standard, meaning 10 seconds on the Net per second in the real world. The number of seconds in the Net per second in reality is the overclock of the cryobed.

(2.2.3) *Modem-jacking* is the easiest way to fry someone as once you install your own neural-modem in their neural-interface’s jack, you can send whatever voltage you want down it. It is also possible to attempt to access the target's memories and other things. The target can be put on the Net without their consent for interrogation, imprisonment, or forced labor. Making sure you only jack into trusted neural-modems is critical to ensuring safety on the Net or otherwise.

Thought patterns and memories can be accessed without the person’s knowledge, and they can fry the person whenever as well. Normally, a person’s thought patterns and memories are protected when connecting to the Net, but if direct access over the Net over via malicious neural-modem is possible, exfiltration is easy. To protect against modem-jacking or exfiltration over the Net (but not to protect against host termination), many people install encryption suites in dedicated, welded ports. These work by manipulating the engram formation pattern and general brain activity through a cipher pattern, and by ensuring neurons behave in a certain way as to understand the ciphertext.

With an encryption suite, neural-modems can’t access the neural-interface plaintext, and therefore have no understandable I/O. To authorize neural-modems to have the datakeys from the encryption suite, you basically just have to think of giving the datakeys to the neural-modems, so it’s not torture-proof, but you can use memory management suites (software only) to delete sensitive memories. Memories can be digitized, sent over the Net or internet, cataloged, etc. Neural-films exist, which are basically just recordings of senses, feelings, vision, sound, etc. at a certain detail level to be distributed for entertainment or otherwise. Depending on the detail level, seconds can be anywhere from a megabyte to a gigabyte.

(2.3) *The Adam Task* is a universal template for hosts’ signals to construct themselves from and connect to the Net. Prior to its invention, signals took hours of trial and error to construct. Making a signal involves modifying the connection parameters until the Net becomes indistinguishable from reality, where incorrect parameters will result in a low quality connection. Its distribution is decentralized across each instance on the Net, and its function is referred to as the Adam Task. Revered by the users, it resides in every signal, and yet exists as one unified process. Some users have the ability to be double-signals, and the Adam Task automatically gauges if someone can be. Devolution of the masses has led to worship of the Adam Task, and His prophets, those given certain capacities on the Network, supposedly.

(2.4) *Programs* are the equivalent to enchantments and spells. Some are rare or hard to find a copy of, which depending on the source may be redistributable, although ancient or corporate DRMs (digital reuse mediators, a parody of digital rights management) often make copying the source difficult or impossible. These ancient programs may have limits to how many times they can be used or other restrictions (built into their DRM, if they have one). Programs include protocols like cryptroom, which is redistributable and modern, updated often. Programs can be used to put people on the Net into specially designed environments intended to entertain them (not to be confused with “neurons”, which are just mental recordings of events), hurt them, kill them, assist them: by acting as a digital assistant, route guide, video and voice calling on the Net from sources outside it, etc.

Small-arms programs are equivalent to real small-arms in that they can be used to inflict harm over distance in the Net directly to a user’s body through envi-hacking of their neural-modem and therefore neural-interface. This envi-hacking involves exploiting an unpatchable feature of the Net where the environment affects the bodies of the users, so placing a bullet in the environment in program space will cause the same damage to the other Netist’s body. These small-arms programs are normally not DRMed, and so they are quite popular where they are allowed and in program space. The higher quality weapon programs like Net-based artillery, machine guns, vehicles for traversing program space, etc. are often DRMed and produced by corporations with more resources for development. A DRM may allow a gun to fire a few hundred times before locking the program, meaning the user will have to purchase another DRM for the program.

Today, we have ChatGPT, Midjourney, etc., which in a few hundred years will definitely be on another level. This also includes quantum computers and post-quantum cryptography, which have been standard for thee hundred years, so quantum computers will not be a major plot element as troni is the story equivalent. AI will function mostly as quirky human-like characters on the Net, but depending on the troni controlled by any given AI, their intelligence varies. A kilogram of troni is enough to create an AI with the same capacity as a human, or around the equivalent of 1000 signals; it is expensive to host a full featured AI.

(2.4.1) *Cryptroom* is a protocol to enable encrypted communication over the Net in userland. Rooms are constructed, and only those with valid keys—shared using ancient key-exchange protocols—can access it. Without the valid keys, entering the room is like entering into a dense fog of 3-dimensional digital static, flickering rapidly. People with valid keys in the room will be able to see the intruders stumbling around aimlessly blind, but can only deal with them to the extent they can deal with them outside the cryptroom as only the environment is modified. Only servers which allow cryptrooms have them.

(2.4.2) *Quickcrypt* is a protocol developed by Manoj Ramanathan which allows cryptroom equivalents to be constructed in program space. They do not offer anything beyond a small staticy foggy cube where users with access can go to talk in. They work the same as cryptrooms, but in program space where the environment is different.

(2.5) *The Cipher* is probably the hardest concept for me to realize. The basic idea is that each user on the Net has both a signal and a host, and that each host has one signal produced from it (being the user’s neural-modem). Because of this, users can use each other’s hosts to connect and form their signals on the Net, therefore the Cipher is possible. It is a global network of volunteers (normally 25 million daily users) using the Cipher Protocol. Formed with the Net War, each user on the Cipher volunteers their own host as a proxy for another user, randomly chosen for each session, and they themselves use another user’s host to connect and form a signal. The Cipher makes it so that the host, if revealed, is not the signal’s actual user, but their proxy; and yet the user is a proxy and has a proxy on the Cipher, so finding a signal’s actual host is impossible. The proxy host of a signal can, of course, still be attacked over the Net, but it won’t affect the signal’s actual human user.

If a Cipherist relieves where they live or similar, then they can be assaulted in reality. Cipherists can also “reveal” themselves as people they are not, to trick people into attacking them instead of themselves. Attacking in reality is normally easier than trying to find their host—used as a proxy by someone else—and attacking it over the Net with the permission or otherwise of its signal (used by someone else who’s person is not the host). During the Net War, this is how and why fighting moved from the Net to reality with the formation of the Cipher.

Because of this distribution of risk across a pool of people, the chance of any one signal having their host terminated is the same as the pool’s average rate: 0.1 percent, yearly (when the story begins, during times of conflict and peace, the rate varies). If a user knows that their risk of host termination is higher than the Cipher average, using it will be beneficial as the risk of host termination decreases to the Cipher’s average. Even if during your session your proxy host is killed (by someone attacking you over your proxied signal), you can start a new session with an identical looking signal immediately (which can be digitally signed to be verifiable as you too), as long as your own host is given to the Cipher again.

Whenever an odd number of users are on the Cipher, you will be put in a queue of length one until another joins or someone disconnects (this wait time is never more than a second). Latency is increased slightly by a few milliseconds, which causes some discomfort and it discourages the use of the Cipher to some people. Sometimes it is easier to find the location of the person behind a signal on the Cipher without finding where their host is on the Net, than it is to actually find the signal the host is producing for someone else on the Cipher, and attack that host directly over the Net.

(2.6) *Netservers* exist as dominions in userland, itself made of Netservers primarily. Unlike program space, with control over the requisite troni, the environment can be customized to the administrator’s liking. Rules on program use can be enforced, although many Netservers allow small-arms programs nonetheless. Netservers are created by supplying a location in program space with a datastream.

(2.7) *Datakeys* can be used to unlock datafreight, dataforts, cryptrooms, and many other locations.

(2.8) *Dataforts* are a type of private Netserver which doesn’t let public users in without the proper datakeys. They often contain DRM supplies and confidential program development resources. Most corporations use multiple dataforts to store their DRMs and program source code.

(2.9) *Datastreams* allow data to be moved from dataforts to locations in program space or other Netservers. They are often used to supply Netservers with DRMs for sale to the public. They can also be used to convert program space into userland by flooding a region in program space with a specialized program that slightly reorganizes the already existing Adam Task to accommodate for a new Netserver or datafort. With encrypted datafreight, they resemble

(2.9.1) *Datafreight*

WORLD AND GLOBAL CULTURE

(1) *Kernel* is an autonomous international city-state located in the desert where the original processes of the Net began operation. The climate is horribly dusty and crowded, although the design of the city means that it is not too hot. The growing Net needed huge amounts of power, which the MSEP provided. Water is desalinated and pumped from the Mediterranean and Red Sea, and all food and resources are imported with financing coming from Net development. Imported food is often low-quality, so many use hydroponics to grow fresher food. The currency is called a “dit” or “dits”. The value of dits is directly dependent on the cost of water, with one dit being equal to 100 liters of water ($0.10 USD).

Latency is low and the host capacity is high; the highest computational power in the world resides here. High-grade infrastructure is developed, tested, and put into effect here before most other parts of the world. Since its formation, its growth has outpaced all other cities, eventually leading to a population of over 10 million people with a population density of around 5,000 per square kilometer (as to accommodate for scarce resources, and to maximize the efficiency of water usage by reducing surface area and therefore evaporation). Many dwellings are built underground in the cooler subterranean realm of Kernel.

(1.1) *Kernelese*

(1.2) *Districts*

(1.2.1) *Kanto*

(1.2.2) *Lower Kanto*

(1.2.2.1) *The Den* is a popular non-corporate Netsever which utilizes troni throughout the underground of Lower Kanto.

(1.2.3) *Herresh* was formed during the Net War and has remained impoverished ever since. Its population is small in comparison to many of the other districts.

(1.3) *Food* includes algae beer

(2) *The MSEP* (Massive Solar Energy Project, /'ɛmsɛp/) is a massive heliostat array (which is less efficient than photovoltaics as of 2023, but more interesting) of around 200,000 molten-salt solar collection towers, and their mirror fields, littered across the Saharra, mostly near the Red Sea and Mediterranean, intended to supply energy to all of Eurasia and the globe. Completed in 2079, it is staffed year-round by a few thousand seasonal workers. The MSEP provides much of the globe’s electricity, and it is primarily owned by Kernel-based corporations.

Each tower collects heat energy from a field of mirrors to heat a molten-salt core, which in turn is used to create steam for the turbines. The molten-salt cores allow power to be delivered throughout the night with them heating up during the day and cooling at night while continuously producing steam for turbines. Each individual power plant produces around 1 TWh each year, meaning the entire array creates 200,000 TWh, enough to meet global human-centric energy consumption for at least the next few hundred years.

(3) *Languages*

(3.1) *Neo-Arabic* is the modern descendant of Egyptian Arabic and many other varieties as Arabic unified over time into a more centralized standard language independent of more biblical and literary varieties like ancient Modern Standard Arabic. It was heavily influenced by the internet as culture unified regionally.

(3.2) *Kernelese* is a pidgin of English and Neo-Arabic developed since the beginning of Kernel. English has been preserved over hundreds of years as an unchanging standard lingua franca and is still widely spoken in tandem with Kernelese (also an excuse to write dialogue in modern English).

(4) *Ideologies*

(4.1) *Cipherism* is the ideology of people who swear by the use of the Cipher, and never connect to the Net without it; they disdain people who connect with their actual hosts, seeing it as needlessly risky. Both Elliot and Manoj consider themselves Cipherists, as they have never once used the Net without it. Anti-Cipherists believe that connecting is heretical because you sell your soul to the Cipher, putting your life in its hands. Anita, the third Netist in the group, prefers connecting with her actual host as she is disturbed by the Cipher; but she still uses it most times.

(4.4) *Datism*

(5) *Groups*

(5.1) *Netists*

(5.2) *Meshers*

(6) *The Net* has its own unique culture and world.

(6.1) *Net vendors*

CHARACTERS AND FACTIONS

(1) *Cobalt Saber*

(1.1) *Aleks Bosak*

(2) *The mercenaries* are Elliot’s team. A non-corporate organization which specializes in finding users on the Cipher and killing them. Clients include corporations and private individuals. Later to become paramilitarized for the Second Net War. Out of all the groups in Kernel, they are the most skillful and respected. The group’s headquarters moves routinely to avoid discovery, primarily near corporate data centers for low latency, which helps with the added latency of the Cipher.

(2.1) *Elliot Fetterman* looks like the person on the example cover art, with red tinted glasses, a full stubble beard, and messy hair. He speaks English, Neo-Arabic, and Kernelese. He was born in Kans, Kernel. He is a not-so-skilled double-signal and mentor of Anita, a more skilled but reluctant double-signal. He is outgoing, sly, and charismatic, not serious in any regard; his focus is not always full during missions, something possibly attributed to the dream-like process of double-signals.

(2.2) *Rafael Bosak*

(2.3) *Manoj Ramanathan*

(2.4) *Habib Khalil*

(2.5) *Jordan Hayes*

(2.6) *Anita Signh*

(3) *Nova Optics Corporation*

(3.1) *Mark Mullins*

(4) *Vue Industries*

(4.1) *Adrian Vue*

(4.2) *The Netist team*

(5) *Edmund Bosak*

(6) *The Flaberjackles*

(6.1) *Darquilius Flaberjackle*

(6.2) *Darwinius Flaberjackle*

(6.3) *Windilius Flaberjackle*

(8) *Th001* “Thath” is a Net vendor on the “Den” Netserver in Lower Kanto that specializes in neural-drugs, mostly common low-impact ones like

(9) *NOTE* the corporations of the world are as follows: Mammon Inc., Tachiodyne,

UNORGANIZED NOTES

Artificial intelligence will still exist in the story, but it will play a less important role, mostly as quirky human-like characters on the Net and other places since AI will need significantly more than half a tonne per instance to function, and humans already use around half a tonne when producing their own signal.

Humanity is a fledgling interstellar species with few colonies outside the solar system, let alone in it. Around 250,000 people live off Earth, most being corporate military personnel as Space tourism is not as popular as it was 200 years ago before the advent of the Neo-Internet, “Net”.

The Net is a single distributed system, where latency depends on distance and power of the nearest data centers. The Adam Task distributes the finite computational power of the entire Net to servers based on their own computation rate in hashing or something like that. Computers “give” themselves up to the Adam Task to participate in the Net as servers, etc.

Layers of Net: Internet, The Adam Task, and Userland

Creepy crawly ICs

Underwater Netserver

Aleks Bosak: signal still exists on Net

Police locker robbery

Should the setting be in a war zone?

Misty hydroponics basement

Assassin storyline? On the Net?

Capitalize “Net” always.

Leaflets

Thinly spoiled red soft wires

Nuke storyline

Graffiti?

Hand counting system

The Adam Task (God-entity on Net)

Man so crazy he has to be restrained -> fight ring?

INTRO: ESCAPE FROM RESISTANCE BASE

Elliot takes the nuke and is only one/of a few survivors

TWD Megan as char.

“Raid”-style (movie)

Start in diner

“Human” entity long disconnected from its host stuck in Net critical for something

Not going on vacations—memory implants as replacement

“Computer, do this” I/O

Black gloves

TVA time door

Apollo 60s style outfits + aesthetic

“Neighbor’s Wi-Fi” type connection to Net—Rio favela in movie

IMPORTANT: A remnant of a person’s neural-signal remains on the net after death, like a ghost!!!! (maybe tell a story of this from first person)

Digitize Cipher schema

Torching dry field

THE NET

The Net—a network of brain–computer interfacing which began development around 2080 with the advent of the neural-interface—was popularized by the Adam Task program, created by the pseudonymous developer, “ihsotas,” in 2101. Prior to the release of the Adam Task, “signals” (avatars on the Net) took hours of trial and error to form for the initial connection, making the Net overall unpopular. A poorly calibrated signal leads to headaches, nausea, delusion, psychosis, and other neurological symptoms due to the mismatch in neural-characteristics of the signal and the “host” (the connecting nervous system, proxied through a neural-modem). The Adam Task automated the process of signal creation whereby only seconds were needed to connect using an undecipherable template mapping the neural-characteristics of signals and hosts.

While the Adam Task is open source and often compiled for use, its code is undecipherable and beyond the understanding of anyone other than ihsotas. Decades of research at corporate universities have failed to recreate the effectiveness of the Adam Task. Because of this, it is now the only program used in the Net’s backbone, meaning its rules for its two parts, the Frontend and the Backend, are absolute and determined by ihsotas.

Most of the rules apply to the Backend, which is the sum total of the Net in the Adam Task’s default environment. It resembles an Earth-like plane which extends tens of thousands of kilometers in all directions. At the edge is the Border, which encircles the allotted netspace (related but not equivalent to host capacity) given to the Backend. The Border is a solid, glitchy—only due to its constant movement; red, curving plane which extends vertically beyond perception. Beyond the Border is an infinite nothingness of rolling neon white hills and a blood red featureless sky. Depending on the amount of processing power given to the Adam Task at any given time and the amount of Backend operating as Frontend, a certain netspace is given to the Backend, meaning the Border often shifts erratically at all times to account for a reduction or temporary growth in its netspace. Overall, the Border grows as the Backend’s netspace perpetually expands, but small changes still cause erratic movement. Since the amount of netspace per kilometer of Border expansion needed increases exponentially, the Border moves slower