



## **Prologue**

□□ *datastream downloading...* □□

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*In the 27<sup>th</sup> and 28<sup>th</sup> centuries C.E., the first high-resolution virtual universes were created. They encompassed small areas of virtual space in which trillions of virtual beings could live in relative comfort, each one simulating a volume only a few light years across. Nevertheless, they required massive amounts of high-density computronium. Their inhabitants included virtuals, who discarded their real bodies for a life in the virch, and avatars, representations of corporeal users.*

*After a few hundred years, astonishing virtual civilisations sprung up. However, some of them tended towards lawlessness and barbarity after a certain period. And so, a special kind of virtual creature was created. These were known as Guardians, and they were given root access to the digital environment.*

*At this point we digress for a brief aside on the Guardians. The most famous of all the Guardians was Aleu Ghyte, who defeated the Cetus Anomaly in 2742 C.E. by committing suicide, along with the entire virtual universe he was in at the time. Aleu Ghyte was immortalized by this act of heroism, and a monument to him was commissioned by Cetus (the machine intelligence of the Cetus constellation) to be built on Tau Ceti b. The monument still stands today. It is a life-size diamondoid sculpture of Aleu Ghyte, and resides in the Tau Ceti Museum of Virch History.*

*This is his story.*

# Chapter 1

## Cassini Division

Aleu Ghyte stepped onto the icehopper monorail, the huge tan disc of Saturn visible through the window. He strapped himself into a seat and thought-controlled his nanobots to strengthen his bones for the half-gee acceleration. He knew this did nothing, but it gave him some strange reassurance which he liked. He checked his datastream receiver and discovered a new order for an E11 expert system for handling antimatter reactor simulation. Damn, he thought. E11s required picotech computing substrates, which he'd have to get shipped in from Pan. As the icehopper gently accelerated towards the transit station 4 kilometres away, Aleu wondered how his virtual copy-an exact copy of his consciousness he had created that morning-was going in one of the virtual worlds.

Aleu Ghyte was a tall, wiry human with the usual nanotech implants and enhanced brain material. He had green eyes and, for some strange reason, six fingers on each hand. Amazingly, he was over four hundred years old. For 370 years he had been a sentient virtual being. Then, in 2712 he had decided to manifest as a human for one incarnation. Due to nanotech repairing, he had been biologically twenty-six for the past thirty years.

A minute after it left, the icehopper monorail arrived at the transit station, a huge station carved out of one of the billions of rocky iceteroids in Saturn's rings. It was about a kilometre wide, and at one end there was a large electromagnetic launcher for the Cassini Division shuttles. The station was powered by a small antimatter reactor. The airlock hissed, and Aleu stepped into the Embarkation Lobby. To avoid floating in the zero-gee environment, his shoes had automatically triggered their electromagnets, keeping him firmly on the floor. The Embarkation Lobby was an extremely large, gold room. It was two hundred metres wide and almost six hundred long. And all the chairs and tables and sofas (it had been constructed in a slightly retro style, as was the Saturnian fashion in the 2600s) were bright, metallic gold. He checked the system clock. He had twenty more minutes before the Cassini Shuttle left. He went over to a small bar in the corner. According to an infochannel, it was an imitation of a bar that was at the campus of the Australian National University in the city of Canberra during the late 20<sup>th</sup> century. Above the bar, there was a wooden engraving-genuine Martian mahogany, Aleu noticed-of famous TwenCen physicists, including Albert Einstein, Neils Bohr, Richard Feynman, Erwin Schrodinger and Subrahmanyam Chandrasekhar. Aleu ordered a low-alcohol fruit cocktail, with the standard nootropics. Fifteen ecus and thirty seconds later, a quartz glass with a red-yellow liquid in it and ice floating on the top below the lid arrived on the bench. He took it to the nearest gold sofa and sat down. He started to drink through the straw. He downloaded the news feed to his datastream receiver. He read through the main reports. But then something caught his eye. A newsfeed reading:

<begin feed>

### **Tau Ceti Virtual Crisis**

Reports from the Tau Ceti system today indicate that no contact is available with the occupants of V-space G114585DFGGRES, a populous virtual universe with one hundred billion inhabitants. An AI spokesbeing for Cetus repeatedly denied rumours of a destructive anomaly in the virtual world network.

<play sound file>

"It is the belief of Cetus that due to the nature of the virtual space, an anomaly physically cannot come into being. The lack of contact with the occupants of said virtual universe is a regrettable technical fault. There is no further comment."

<end sound file>

Nevertheless, rumours abound with stories of a destructive being inside the network, with powers similar to a Guardian or more.  
<end feed>

“Hmm.” thought Aleu. He made a mental note to his organiser to look up more news on the virtual world scare. He had just finished his drink when a message came up on his datastream receiver saying that the Cassini Shuttle was just about to depart. He got up and walked over to the lifts. After a thirty-second journey, he entered the Departure Lobby. From there he found the airlock leading to a glass walkway into the shuttle. He boarded a long, cylindrical shuttle about ten metres wide and two hundred and fifty long. The 4,700 kilometre trip would take one hour with a thirty-minute acceleration, a brief turnaround and a thirty minute deceleration. On the bottom was a small proton-Boron fusion drive. The drive could not be operated while the shuttle was still docked, so a large electromagnetic launcher had been emplaced to propel the shuttle to a safe distance.

The doors closed, the walkway retracted, and the shuttle started accelerating. The huge electromagnetic coils shift the ten-thousand tonne shuttle at an acceleration of about 1/6 of a gee. Aleu's magnetic boots automatically switched off to avoid being disrupted by the launching system. After half a kilometre of accelerating, the fusion engine was switched on. Immediately Aleu heard a soft whistling sound. This was the sound of incandescent helium blasting out the exhaust, every atom moving at four percent light speed. With nothing else to do, Aleu settled back in his chair and went browsing the Interstellar Net.

An hour later, the Cassini Shuttle docked at the hub of huge rotating habitat. It was ten kilometres across, its outer rim rotating at eight hundred kilometres an hour. Aleu disembarked through an identical glass walkway and took an elevator down to the half-gee level. Now this lobby was more modern. It had biomorphic seating, quartz-glass refreshment nanofabs and 11 Terabit/second Interstellar Net access. His datastream receiver told him that the next ice hopper to his hab was in four hours. Damn. He decided to check out some more news on the Tau Ceti scare. He found several headlines from recent newsfeeds.

**All Contact With G114585DFGGRES Lost, Avatars Mysteriously Logged Out  
Cetus Spokesbeings Deny Cover-Up Of Information  
Technical Fault Explanation Unlikely, Say Experts**

He decided to make the order for that picotech he needed shipped over from Pan. But then, he noticed something. The order for the the E11 expert system wasn't there anymore. In its place was a message with no sender address or subject line. It read, simply:

Station Terminal Eleven. 1305 hours Standard Saturn(Sol) Time, today. Further instructions on arrival.

Aleu checked the system clock. It was 1245 hours, SS(S)T.

## Chapter 2

# Locked Box

Station Terminal Eleven was a computer terminal used by technicians to perform maintenance on the station's systems without being monitored. The Station Terminals were now obsolete, although the staff had not got round to removing them yet. Probably dealing with Jupiternian tourists who wanted a look at a gas giant with a serious ring system. According to his map of the station, it was behind a door about fifty metres from where he was standing. It was only when he got there he realized he had no idea how to get in. After all, it was a solid metalloplastic door, impenetrable to anything short of railgun pellets.

However, at 1305 hours, the answer was clear. At that exact moment, the blank white door silently slid open. Aleu stepped inside, making sure that no-one thought stepping into an unmarked door to be a tremendous cause for interest. The door slid shut, and a ceiling light turned on. He sat down in a biomorphic chair in front of a holoscreen. Immediately, a line of text appeared.

SPEAK YOUR NAME.

“Aleu Ghyte.” stated Aleu.

ACCESS GRANTED.

PLAY RECORDING.

At this point a flat green line appeared and an audio file began playing.

“Hello, Mr. Ghyte. It appears you've found the locked box I left for you. First of all, my identity. I am Cetus, the machine intelligence of the Tau Ceti system. I've been monitoring you for quite some time and it has come to my attention that I require your services for an interesting task. I cannot reveal its nature here, suffice to say you will need to come to Tau Ceti. I have arranged for your mind to be uploaded, stored on a molecular memory substrate and shipped to Tau Ceti, where your body -yes, I have a sample of your DNA – will be reconstituted. Please note that your salary will be, for want of a better word, exorbitant. The task is a much-envied position in the Cetan virtual worlds area.

If you accept, the uploading can commence immediately. If you decline, well, you go back to your normal life, and this experience is erased from your memory.

So, what do you say?”

The green line disappeared and was replaced by a single line of text:

[YES/NO]?

'Hmm. Well, I suppose my virtual copy could run the company without me. And besides, if a super-smart AI is willing to give me a free trip to Tau Ceti just for this task, it must be pretty urgent. This opportunity is too good to pass up.'

And then he spoke the final, decisive word.

“Yes.”

It felt like being sucked into a giant black hole. His mind was being stretched farther and farther as every neuron was scanned and then had its contents uploaded. He was being spaghettified, like in so many thought experiments on black holes. In his last moments of lucidity, he had hoped that this job had better be worth it.

A few hours later, a dead body was discovered inside a locked room, its mind apparently rapidly uploaded.

At that moment however, the mind of Aleu Ghyte was dormant on a molecular memory cube, which itself was being loaded onto an interstellar freighter, bound for Tau Ceti.

# Chapter 3

## Select Few

Aleu Ghyte blinked. He held up his hands. Yes, they were his, down to the slight discolouration on the fourth finger of his left hand. He opened his eyes and looked around. He was in some sort of hotel room. He was still wearing the same clothes, although they had reverted to sleeping mode. He decided to keep them like that for now. Out of the wall-sized window he could see a beautiful bay, the waves lazily lapping against the sand, sparkling under the light of...Tau Ceti. Quickly Aleu set his implants to Cetan frequencies. At that moment, there was a knock on the door. Aleu immediately noticed that this was no ordinary door. It was bionanoengineered sequoia wood, grown from the original DNA stocks salvaged from old California before the Martian War of Independence. Because of developments in Cetan technology, all the wood produced acted like a living, breathing organism. Aleu opened up a video feed from outside the door on his eyescreen. What he saw almost convinced him that he was receiving a feed from the wrong door. It was the one person who had been his friend for over three and a half centuries, who had parted ways with him when they decided both to try out an incarnation as a physical being. It was Elon Asde, the woman who had worked out how to crack military-grade encryption standards and not get killed.

Elon Asde was the same age as Aleu, seeing as they had both started as the offspring of an AI study. In her human manifestation, she was slightly shorter than Aleu with brown eyes and black hair, although she changed the colour every day.

“So, after you went off with your computing contracting business, I decided that it was a much better bet to go and see the universe. Or, at least a bit of it. After all, four hundred years ago, 'The Universe' that you could go to barely stretched to Sirius. Now, of course, we've got loads of places to explore with the Calindon Drive.”

Elon paused to eat a slice of pinengo (a hybrid of pineapple and mango). Aleu and Elon were sitting at a diamondoid table on a terrace overlooking a huge waterfall, crashing down in the 0.67g of Tau Ceti b.

“Eventually, I decided to get a job. So now I run errands for Cetus.”

“Wow. What's it like?”

“Interesting. The big C is present in all the stars of the Cetus constellation, linked together with super-high bandwidth wormholes. So you get to go places. Did you know that Beta Ceti has an entire planet that was disassembled into loads of huge ring-shaped orbitals 14 million kilometres across? I think the concept was first described by some TwenGen science fiction author.”

“Iain Banks.”

“Thought so. But how have you been doing? I hear the Saturnian economic boom has been a big factor in recent times.”

“Well, actually reasonably well. I make 15,000 ecus a week, mostly from expert systems. There's a big demand for them now, seeing as Solar Picoscale have released their new antimatter reactor design. Almost everyone needs an expert system for such-and-such. I haven't even checked my Bank of Enceladus account since last year!”

“Really? I thought Solar Picoscale was into antimatter production via picoscale atomic manipulation.”

“Yeah, but they've moved into the reactor market. Squeezing a few extra terajoules out of antihydrogen is big business. But that isn't important. I want to know why I was brought here, and rather painfully at that.”

“Ah, yes. It's a really weird feeling when you get rapidly uploaded. Well, now down to business. *Cone of Silence!*”

Somewhere, a hidden security projector whirred into life, creating a cone of silence around the table such that none of the other hotel patrons on the terrace could overhear their conversation.

“Ok. Basically, Cetus wants you for a job that only a select few can do. A job that the chances of getting are over four million to one. A job that guarantees absolute power.”

“No way!”

“Cetus wants you to be a Guardian.”

# Chapter 4

## Iceberg

“What do you know about virtual worlds?” Elon asked as they walked through a wide corridor.

Aleu blinked. The fact that he was becoming a Guardian had dazed him for a moment.

“Well, I know that they are universes, in many cases indistinguishable from the real. They can simulate volumes of space almost a thousand light years wide, contain thousands of trillions of virtuals and run on very advanced femto-through-attoscale computronium. They can require an incredible amount of atomic memory substrates. They were first developed about seven hundred years ago, as the result of early quantum computing breakthroughs.”

“Very good. Have you ever seen a computronium computing node before?”

“Only small ones. And according to my eyescreen, that door leads into a room containing a computronium node. So it's very likely you're about to show me a very big one.”

She smirked.

“Still ruining surprises for everyone? God, you've been like that for four hundred years. Still, getting to be a Guardian must have been a surprise. If you say it wasn't, I'll know you're lying.”

“Yes, it was a surprise. But, hang on, how do you know about all this? I thought that no-one was supposed to know the identity of a Guardian.”

Elon cut him off before he could finish.

“I have 4.1.A privileges, because I'm a direct agent of Cetus.”

They stopped in front of a large metal door embedded in the wall at the end of the corridor. Elon placed a finger on an indentation in the titanium-fullerene door. At that moment millions of nanobots gushed through a microscopic hole in her skin and into the bloodstream. After interfacing with her own nanobots, and with samples of DNA, the nanobots rushed out into the door. For a millisecond the door's computer checked the DNA, and then gave it the stamp of approval. Electric servos whirred, and the huge door rushed upwards.

What Aleu saw inside the superlarge cavernous room in front of him was unlike anything he had ever seen before. A huge sphere, over two kilometres across, was mounted on supports made of metallofullerenes, superstrong carbon-metal compounds with an incredible strength-to-weight ratio. The room itself was staggeringly big. A square over ten kilometres to a side, and extending four kilometres down into the bedrock of Tau Ceti b had been lasered out at astronomical expense. The sphere appeared to be made of a transparent glassy substance and inside it contained the most extraordinary liquid Aleu had ever seen. It seemed to consist of millions of tiny points of light, each changing colour faster than even his implants could detect.

Elon broke the stunned silence.

“All of what you've seen up till now is what's on the surface. This is the rest of the iceberg.”

After taking an electromagnetically-propelled cart around the cavernous interior, Aleu and Elon got off onto a large walkway which ran all the way around the inside surface of the room about three kilometres above the floor. They went through another titanium-fullerene door, or as they were known, buckydoors. After the massive expanse of the previous room, Aleu was somewhat shocked by how small this room was compared to the one next door. It was only about ten by ten metres, and in the middle were two biomorphic chairs with virtual immersion gear.

“Strap yourself in.” Elon motioned towards the chair. She was already sitting down. Aleu sat down, and the bioplastic proteins inside the chair reacted to his presence by morphing to fit him. After some difficulty, he finally managed to get the Transcranial Magnetic Stimulation immersion helmet on his head.

TMS helmets worked on a simple principle. Instead of having real inputs go into the brain and come out as real outputs in the ril, TMS bypasses the real inputs and sends virtual inputs direct to the brain, where it processes them. But the TMS helmet also captures the outputs produced by the virtual inputs and sends them into the computer. This allows a person, when immersed, to be walking down a virtual street while in the ril, they don't move a muscle. Well, except the vital systems like the heart and lungs.

Elon called out, "You ready?"

"Yep."

She pressed a button on her armrest. Immediately the continuum of the ril shattered, and dissolved into the fabric of computer code that makes up the virch. When his surroundings regained lucidity, he saw that he and Elon were orbiting a virtual planet that looked like one of the millions of examples of the Gaian type. It had a single moon, and large amounts of liquid water. Then he noticed that they were not wearing vacsuits. Elon spoke, which was also impossible, seeing as there was no air to carry the waves of compression and rarefaction that made her voice.

"You're looking at events that were recorded over a period of four seconds, riltime. In here, about half an hour. You see, virtual universes make recordings and logs of everything that happens. This was one of the more out-of-the-ordinary events. In case you're wondering, this is V-space G114585DFGGRES, an average one, encompassing everything within a lightyear of that star."

She pointed at the parent star of the planet they were orbiting, a yellow G-type just rising over the western edge of the planet.

"It's due to happen....now!"

At the precise moment she finished the word 'now', two blinding specks of light rounded the moon at a sizeable fraction of the speed of light, and continued on straight towards the planet. As they got further away, the blinding light dimmed. But by the time Aleu estimated they must have reached the surface, they were still visible from the high orbit he was in. Now it looked like one of the specks was chasing after another all the way around the planet, leaving an unimaginable trail of destruction. Then, they stopped moving. The point on the surface flared brighter than the sun for a moment, and then expanded to reveal a wave of fire rolling around the planet, wiping off all traces of water, air and life. The firestorm dissipated, and soon an utterly sterile world was left, its surface incandescent with seas of molten rock, and two blinding specks of light. One of the specks flared brightly, and then went out.

Then the planet exploded.

First, the surface just cracked. Then, with a light that could scorch a hab into dust from a million kilometres, quintillions of tonnes of rock just blasted out at over half the speed of light. And after the metaphorical dust had settled, a speck of brilliant light could be seen, moving away from the wreckage.

Aleu was aghast.

"What the hell was that?!"

"That was Guardian versus Guardian. And the one who won has created a nightmare situation. Because we have a being with absolute power who has realized that being good isn't the only option."

## Chapter 5

# Hidden Factors

"How did this happen?" Aleu asked Elon as they rode the electromagnetic cart around the chamber.

"Ok. You want in on the big secret?"

"If it'll help."

"Ok. There's never been enough Guardians for all the virtual worlds. Never. Not enough people live up to the incredibly high standards. So, to fill the gap, we created specialized AIs which were hardwired with the moral character. It's an effective system, and has been in place for the better part of the last two centuries.



Unfortunately, this secret has been discovered by certain...factors. Groups.”

“Terrorists?”

“No, freedom fighters. And bloody ruthless ones at that. Apparently it had something to do with taxation to core systems. I don't know. No-one knows.”

“So what happened?”

“Well, the group in question-don't know their names-worked out how to crack into the controlling systems for the AI Guardians. They concentrated on one particular program, and infected it with a virus. It became a program known as a *berserker*.”

“A berserker?”

“It's an old term. It means that the virus was programmed to make the AI Guardian it infected go into berserker mode. Basically, it went insane and started destroying anything it could touch. Although, by now the program has started to gain a bit of control over its berserker tendencies.”

“Wait a second, when did all this happen?”

“About a month ago, riltime. Over a year in virtual.”

“But if the rogue Guardian is using its root access to wreak destruction, can't you just stop it from accessing the root?”

“If it were that simple, we would have done it already. The virus has root access and is not letting go. No, someone has to go in and actually kill it.”

“But can't you just send an AI Guardian?”

“Oh, we've tried. But the virus has realised that the AI Guardians are just software, and is killing them without a second thought. You saw what happened to the last one. Eight billion fatalities, just as real in the virtual world as in the ril. There have never been deaths on that scale before. Ever. In all of human history.”

“It's just unbelievable that any group would cause destruction on this scale purely for their own ends.”

“Yes. But here is the tricky part. The virus was designed so it could be switched off when the group's demands were met.”

“How thoughtful.” Aleu observed cynically.

“It required three out of six of the group's leaders to send an encrypted confirmation signal simultaneously. But this is the weird part. One week ago, the entire group was killed. We don't know who did it. All we do know is that one day they were gathered at a meeting on an asteroid orbiting Wolf 359, and the next, BAM! They got vapourised by high-megatonnage antimatter warheads.”

“Nothing less than they deserved, surely?”

“That's what we thought at the time. At least until we discovered the confirmation signal process. It appeared that some other group, some hidden factor didn't want them to stop the virus. And that this hidden factor appeared well-armed and well-financed. Hundred-megatonne range antimatter warheads don't come cheap, after all.”

“So you need me to go in and kill a virus which has killed loads of Guardians and billions of people and come out alive.”

“That's the gist of it, yes.”

“You're quite mad! It's a suicide mission. I won't last a microsecond!”

“You'll last a lot longer than that with the stuff in here.”

Elon gestured sideways. The cart had come to an identical buckydoor embedded in the wall.

“What is in there?”

“The Guardian training centre. It has double the security, although you could never tell by looking.”

Elon went over to the door, performed some complex operation with her fingers and typed something into a keyboard that had sprung out of the door. With a hiss the door opened to reveal a completely white room. Aleu stepped in, and looked one last time at the giant sphere outside while the door hissed shut.

Inside the white room were two white biomorphic chairs. In fact, this room was exactly identical to the room they had been in earlier, except that everything was white. Aleu and Elon sat down in their chairs and put on the TMS VR helmets. Immediately Aleu was plunged into deep space. Everything was black, except for thousands of stars, silently glittering. A pleasant voice said,

“Root Access Activated.”

Then, deep space shattered and gave way to what looked like a large laboratory. Elon was already there.

Root Access was incredible. He could see things from all possible angles, in multiple dimensions, speeded up, slowed down, and he could change them too. He could be nowhere, somewhere or all places at once.

"Nice isn't it?" Elon asked, making Aleu return to normal conditions.

"It's incredible!"

"That's just the beginning. There are two devices you can have to make it doubly incredible. Like this for instance."

She walked over to a nearby bench and picked up a large silver gun-like object.

"This is a global manifestor. It allows you to alter the virtual world, allowing you to manifest anything you want with your root access. Try it."

Aleu slipped it over his arm. He noticed that it seemed to shrink to fit him. And, despite its heavy-duty appearance, it felt as light as a feather.

"How does it, er, work?"

"It's thought-controlled. Just think what you want to manifest and it'll do it. It also doubles as an offensive omniweapon, seeing as it can conjure up railgun pellets, laser beams, plasma cannon bolts and so on, from thin air in defiance of several laws of physics."

"I see. Just a second. I'm thinking of-"

Before Aleu could finish, a stream of pinango slices shot out of the front of the device. Elon found this hilariously funny.

"Hungry?" she asked, trying unsuccessfully to stop laughing.

"Well, yeah. I haven't eaten since this morning at the hotel."

"Don't worry, you're booked for dinner as well. The good thing about being a Guardian is that you get great food."

"Brilliant. So what does this other device do?" Aleu asked, pointing at a small black device which looked not unlike a wristwatch from the early 21<sup>st</sup> century.

"That's a wristwatch from Historical Studies Division. The other guardian tool is this."

She held up an interesting black armband, with a strip of transparent material in the middle. It looked like it was full of liquid.

"This is known as an interchanger. It allows you to change certain fundamental laws of physics in a specified region. It's thought controlled too. So you can just think about changing, say, Maxwell's Equations. A quick thought or two and BAM! All the electrons in an object fly into the protons."

"That's not good. It'd explode with the release of potential."

"Yeah, I suppose. Now, I'm exiting the virch for the time being, but you have to stay here while the Guardian training programs are uploaded to you. Ok?"

"All right. See you later."

Elon dissolved into thin air. A few seconds after she disappeared, the entire room shattered, and gave way to the deep space environment he had been in earlier. Immediately massive amounts of data began to download into his mind. Nearly four thousand petabytes of information immersed itself into the superconducting matrix of Aleu Ghyte's brain, countless collections of ones and zeros that made up everything anyone would need to know about being a Guardian. An hour of virchtime later he was ready. He had tapped into all the collective knowledge of every Guardian of the last five centuries. He was ready.

## Chapter 6

# Equal Matching

"You're sure about this?" Elon asked. She raised an eyebrow.

"Yes, Elon. I want to go in and fight him. It. Whatever."

"And you realize that there is a high probability of you being killed very painfully?"

"Yes. But I know about that. I can get the virtual world set up so when I am just about to die, I get pulled out. Page four million-and-something."

They were in the electromagnetically-propelled cart heading along the wall of the massive chamber.

"All right, but don't blame me if you get killed. We'll have to go to the virtual world control room to find out where the virus is. Then I can send you in. But be warned. Things might get ugly in there."

"The virtual world, or the control room?"

She chuckled at that.

"The virtual world, obviously."

A few minutes later the cart coasted to a halt. After going through yet another buckydoor, they came to a white room identical to the previous one, except this one had holoscreens all around the wall. Elon spoke.

"Computer, identify the anomaly."

A pleasant voice spoke back.

"Anomaly identified as Virus/Defect 1A0x00."

"Identify present location."

"Location found as V-space G754374TGGGHTR."

"Good. Aleu, you should get in the chair."

Aleu sat down. As the chair moulded to fit him, Elon pressed a long sequence of letters and numbers into the keyboard on the armrest.

"There, I've programmed in the coordinates in the virtual world. Now, remember. The second you go in there, the virus will detect a new Guardian. So be ready to fight at a moment's notice."

"Ok."

"And don't get killed. Even though we can pull you out, it might not be pleasant."

"Ok. I'm ready to go now."

"Good. See you later."

She pressed a button on the handrest. Aleu immediately saw the ril shatter into the virch.

Aleu was in low orbit over an Earth-like planet. He had the two gadgets he had been shown earlier, and had the amazing sensation of being able to see things from all possible angles at once. He remembered what Elon had said, and powered up. By transferring from idling mode to powered-up mode took less than a second. Immediately he felt a strange sensation. All his vision powers were becoming thousands of times more powerful. An observer on the planet would have seen a blinding speck light up the sky.

That was when another such speck rounded one of the moons of the planet.

The tiny speck raced towards the planet. After crossing a million kilometers in less than a second, it came to a halt about a hundred kilometres away. And so the battle began. Two tiny specks, racing towards each other with no anticipation of what would come next. Aleu teleported in a few kilotons of air, charged it up to three billion degrees and shot it at the virus at a high fraction of the speed of light. The virus countered by generating a 2 megatesla magnetic field and compressing the plasma into a tight torus around it. Immediately, Aleu saw a plan. He raced off towards one of the moons, with the virus in close pursuit. He was traveling at a hairsbreadth under the speed of light when-he *slammed* into the asteroid moon, creating a flash visible from a light year, and blasting chunks of silicate out at over ninety percent light speed. His energy field holding, he quickly caught one, and used his interchanger. After increasing G a trillion times, he had a small black hole. He hurled it at the virus, where it sucked up most of the plasma torus, before-BOOM! The virus had changed the law regarding black hole evaporation, causing the singularity to detonate in a pulse of hard gamma rays. The distraction gave the virus time enough to formulate its own attack. It opened up a wormhole to the convective zone of the nearby star. A billion tonnes of superhot plasma blasted out in all directions, consuming all it touched. But Aleu knew what to do. He masterminded a fundamental change in the equations governing spacetime metrics, causing wormholes to be impossible. The sphere of plasma imploded into a black hole, crushing its atoms into nothingness. While this was happening the virus sent out a stream of highly destructive gravitational waves. Aleu was disoriented, and shot straight towards the planet.

Aleu had sunk a few metres into the ocean when he regained his orientation. But the fight was not over yet. In the sky was a blinding speck, rapidly enlarging. The virus slammed into the atmosphere at ten thousand kilometres a second, rocketing down into the ocean trailing a cylinder of plasma that would scorch a megacity. Aleu rose above the surface, and was struck by the rapidly approaching figure of the virus. Quickly he shot off in the other direction, having the virus chase him all the way around the planet. Closing fast on Aleu, the virus shot around the planet at half the speed of light, trailing a wave of destruction that vapourised entire cities. Seeking a way to get out, Aleu left the atmosphere behind with the virus in hot pursuit. To gain the critical advantage, he ramped up the speed of light to a thousand times normal. But the virus was too quick. It was only a hundred metres away, and closing. But then Aleu saw it. Blueshifted by their incredible velocity, the sudden increase in the level of gamma rays meant only one thing. They were falling into the sun.

He saw an opportunity and took it. Immediately he created a forty megatesla field around himself and rapidly accelerated towards the sun. He slammed into the photosphere, creating a shock wave which slowly rolled around the sun. After tearing through the tacholine into the convective zone, he made a beeline for the core. He accelerated to ninety percent of the speed of light, and then-BOOM! His magfield slammed into the core, making a fusion pulse which could turn the planet he had been near earlier into slag. The world-sized shock wave smashed into the virus. But it had been ready. It quickly wormholed out the superheated core material, and shot straight towards Aleu. But Aleu was disorientated after the shock wave, and was too slow to react. Just before the virus was about to hit-smash! The virch shattered, and gave way to the safety of the ril. Aleu passed out.

## Chapter 7

# Recuperation

Elon Asde yawned. She was out on the terrace with Aleu, and was having breakfast. He appeared badly shaken by last night's incident.

"Don't worry. The dinner wasn't very good anyway."

He laughed at that, but it sounded more like a series of hiccups.

"Wha-what happened last night?"

"I snapped you out of the virch just before you were about to die. You passed out immediately and didn't wake up for another eight hours. "

"I-I need to relax. Settle my nerves. I've signed up for a tour of this planet. Want to come?"

"Let's see."

Elon checked her implanted organizer.

"Today my schedule is emptier than hard vacuum, so yeah, I can come."

They took a scramjet aircraft to some of the incredible sights of Tau Ceti b. They visited the Tiberion Falls, a massive waterfall that crashed down a sheer eleven kilometre drop. They saw genengineered fields of eucalyptus grow within seconds. On a high-altitude flight over the north pole they flew through massive sheets of light, the beautiful interplay of charged particles and magnetic field. Through a nightside telescope they watched the massive interstellar freighters wink out of existence as the tiny singularities within them wrenched spacetime to their destination, perhaps many light years away. They watched the ocean flow through one of the most incredible things in the universe-a 500 metre wide tunnel under a continent. From sub-orbit they looked over entire city-continent.

Late that afternoon the scramjet touring craft landed vertically at a pad near the hotel. It was lightly raining. Elon switched her clothes to water-repellent mode.

"Elon."

Elon turned around, and there was Aleu, but this time with no nervous tics and a determined look.

"I want to go back in."

"No. You can't. Not after last time."

"Elon, when I was up in sub-orbit I saw a whole planet. Nine billion people, each with their own hopes, dreams and wants. If I don't go back in, that many could die. Every person, every being is connected to about a hundred others somehow. Family, friends, coworkers, schoolmates. The loss of billions of people isn't a statistic. It's billions of times worse than the loss of a single person. I have to go in."

"But you'll die! The virus just keeps getting stronger, and soon you won't be able to kill it without destroying yourself in the process!"

Aleu grinned.

"I've lived four hundred years. That's enough for me."

"You don't understand the situation!"

"I think I do."

"No you don't. You see, all the others who were in the AI research program 400 years ago are dead. Killed by the virus. I don't want you to join them."

"I won't."

"There's no point arguing with you, I suppose. Ok. I'll let you do it. But please don't die. We are the only remaining 400-year old AIs. I'd hate for there to be only one left."

Silently they walked back to the hotel.

## Chapter 8

# God versus God

The ril broke into a thousand pieces, and the virch took its place. Aleu found himself once again in space. In polar orbit over a Luna-type moon in the middle of terraforming. A quarter million kilometres away was a beautiful gaian planet. Elon, as usual, had been dead on with her calculations of the virus' position. Aleu powered up within seconds. As he did so, an impossibly bright speck rose above the horizon.

*So it has begun, for one last time.*

Aleu surrounded himself with a sphere of superhot quarks and gluons, a sea of superstrings roiling in agony. He shot off towards the planet. A mere microsecond later, in low orbit, the two blinding specks arrived. Gravitational waves were shot. A spacetime typhoon was underway a thousand kilometres above the surface. With a quick thought to the manifestor, a stream of tiny black holes moving at half the speed of light shot from Aleu to the virus. They detonated in a deadly cascade of gamma rays. The virus launched its own attack. It returned all the atoms within a few thousand kilometres to classical laws of physics, causing the electrons to spiral into the nucleus in a billionth of a second. Aleu escaped, but had time to glimpse something incredible. The virus itself. It was not humanoid, like him. Instead it was a three-dimensional crack in the fabric of the virtual world. It seemed to be fractal, the same on all scales. Aleu retreated downwards into the atmosphere at ten thousand kilometres a second, with the virus in pursuit. They raced over the ocean in seconds, trillions of tonnes of water evaporating into the atmosphere. In seconds the planet had become a greenhouse, with a three-times as dense atmosphere. Aleu analysed the situation, constructed a limited decision tree, and acted. He stopped dead. The virus continued on past him at tremendous speed, and it had already gone halfway around the planet before it realised that it wasn't chasing anything. Immediately it teleported onto the surface, where Aleu was standing. They met on a huge flat plain, smoking with the wreckage of megacities since vapourised. He could not glimpse its motives. Immediately, it started glowing very brightly, as bright as an entire star compressed into a point. It was a magnesium flare that melted rock beneath it for hundreds of kilometres around. Then it exploded.

A shock wave ten kilometres wide shot out from the virus. Aleu barely managed to hold on, so he teleported up into space to buy some time. What he saw made his blood run cold. A massive wave of destruction was

expanding across the planet's surface. He was even reading a neutrino flux. A miniature supernova had gone off. He could only watch in horror as megacities were reduced to molten slag in microseconds. In a minute it was complete. Where was once a prosperous gaian world was now a dead world, its atmosphere stripped away, its surface melted, its inhabitants dead. And on the surface was a tiny blinding speck. Aleu composed a plan from the situation and shot off towards the central star. He increased the speed of light, gathering ever more energy, until-BAM. He slammed into the surface and shot through into the center. Then, he *absorbed* the core. He physically transferred its energy into him. Unfortunately, the core was the only thing keeping the star from imploding.

BOOM. The entire star exploded outwards in an artificial supernova, outshining whole galaxies. The gamma pulse melted the surface of every planet in the system, a mere prelude to the actual blast wave. Entire planets reverted to molten slag, quintillions of tonnes of molten and gaseous rock. Deep in the remains of the system, the two gods battled. After an hour of attacks and counterattacks, Aleu realised that there was no way to win this battle. If he was to kill the virus, he would have to rip the very fabric of the digital spacetime. He would have to sacrifice himself to save trillions.

*Goodbye, Elon.*

A spherical section of the universe, a thousand kilometres wide, and containing both Aleu and the Virus, imploded and collapsed to nothingness.

## Epilogue

The memorial to Aleu Ghyte was erected a year later. It was carved out of a cube of solid diamond, and was a life-size statue of Aleu Ghyte, the man who destroyed the most vicious genocidal being ever to exist. Over the centuries, the story of Aleu Ghyte became legend, and was known throughout the galaxy. Until, one day, ten thousand years later...

In deep space, inside one of the distant descendants of the virtual worlds of the 28<sup>th</sup> century, a tear appeared in the digital spacetime, which slammed shut almost immediately. But one object had made it through. A man with six fingers, glowing brighter than the sun. His light dimmed, and he flew away.