On Call

A foghorn blared somewhere in Henry's inner ear.

It was the ringtone of his on-call emergency number. He had set it a few years ago, in a fit of

levity. It fulfilled company policy of being extremely difficult to ignore.

Henry turned over in bed and attempted to ignore it.

It stopped. Then, it started again, twice as loud. He set his jaw and resolutely dozed. The

foghorn was replaced with the wail of a klaxon. Two klaxons. Police sirens.

Finally, the noise stopped, and a polite, androgynous voice began to speak. "This is an

emergency call. If it is not answered within 30 seconds, local emergency services will be alerted

that a potentially life-threatening situation is preventing you from answering. Twenty-nine.

Twenty-eight."

Blearily, he forced his right arm from its warm den of blankets. He tapped his outer ear stud and the countdown was immediately replaced by the alert voice of one of his younger colleagues.

"Henry? This is Amir. I'm sorry, but we've got a bit of an emergency going on. We're going to need you to come in."

Henry stared at the dark ceiling of his bedroom. He forced his dry lips apart and ran his dry tongue over them. His voice was rough when he spoke. "Did one of the interns break the coffee machine again?"

"Henry, we're three times over compute capacity."

He blinked. "That's absurd. We just doubled our capacity."

"Well, somebody's eating all of it, and we're having trouble with diagnostics. We need you on-site."

Henry began the process of excavating himself, while fumbling for his glasses on the bedside table. The air was cold. His bones ached. "If this is some kind of joke, I'm going to beat whoever thinks it's funny to death with that Buddha statue on my desk."

He jammed the glasses onto his face and winced as they turned on. Painfully bright, even on their lowest setting. He gestured with his fingers to turn the lights on in the room (low), and stepped out of bed.

"I'm serious, Henry."

"So am I. That thing's solid iron. Could do some serious damage with it."

As he stood, he tabbed through the readouts in his glasses. 3:30 AM, below freezing outside, house heating system set to "Energy Saver". 37 pending alerts in his company inbox. He tabbed to the company portal and started logging in. Amir chattered in his ear.

"We thought it might be some sort of giant monitor-D bug but as far as we can tell everything is reporting accurately. A lot of our compute traffic is contracted to DataOptrics specifically, we're having trouble offloading things. We've managed to hack together something with the old Amazon spillover system, but there's a problem with..."

Henry listened distractedly as he pulled on faintly respectable clothes and answered login prompts with twitching fingers. Password, fingerprint scan, five-second reaction-test game, faint electric buzz as his earstuds took a crude EKG, name of his first pet, password, pupil scan, password, reason he broke up with his third girlfriend. Amir was still talking.

"Amir, I'm sorry, but I'm not processing a word you're saying. My brain's crusty. It needs a few minutes to warm up. I'll ping you in 10."

He hung up. This was, strictly speaking, bad on-call etiquette. Henry could get away with it, for the most part.

He finished dressing and haphazardly brushed his teeth and hair. On his way out the door he grabbed a backpack, a bagel, and a pre-prepared cup of iced coffee. He jogged stiffly out to his car. It was foggy outside. As he sat down, the company login system grudgingly decided he was probably himself, and let him in. The car pulled out into the before-early-morning cold, and he opened the datacenter monitoring system on the car's virtual monitors.

There was a lot of red. Red graphs, big red warnings, red numbers, all floating in front of the car's windscreen. He gestured rapidly. A series of pages swept by. Eventually, he let the panorama of readouts still, and sat back, his mouth twisted in displeasure.

Henry chewed the cold bagel. Hazy lights swept by in the fog outside. There was a faint sense of acceleration as the car pulled onto the freeway. It was almost silent, between the car's electric motor, the early morning, and the fog.

Eventually, he sighed, and gestured to an icon. Immediately a loud babble of voices filled the car. He navigated to a quieter room and rang Amir. The ringing stopped immediately.

"There you are, Henry."

"I've read through what the system will show me remotely. I'm five minutes out."

"Great. Listen, when you get in, I need you to figure out who's buying all this server time. We can triage things to some extent, but the new systems weren't built to handle this level of continuous load-"

One of the rooms in the map to Henry's left started flashing blue. "Amir, there's an electrical fire in Silo 3."

Amir swore (something about interns) and left the room.

Henry paused, then rang another ID in the company contact list. He watched the 'active instances' bar to his right slowly tick up. The map on his left blinked. The ringing continued.

After about 30 seconds, an icon labeled 'Miranda' joined him in the room. An irate voice barked, "What."

"Sorry to interrupt, Miranda. Who's buying our server time?"

"Anonymous EtherChain addresses. Is that all? I need to finish negotiating offload with Nuhuku."

"Can you trace the addresses?"

"There's about ten thousand of them actively buying server time, they were all created in the last few hours, and they all go through about fifteen proxy addresses before talking to anybody else. I'd look deeper, but we're hemorrhaging cash with these offloads and I need to deal with it."

"Are we still accepting new instance contracts?"

"Of course we're not, what do you take me for?"

"Where are all these new instances coming from, then?"

There were a few moments of silence, the sound of typing on a keyboard. "Most of the fresh instances were bought with shardable contracts, we're obligated to honor shard requests."

"Thanks, Miranda."

She left the room. The car had pulled off the freeway and was navigating through a large, relatively polished industrial park. Dark parking lots were momentarily lit up by headlights. The car slowed as it pulled up to a security gate around a walled compound.

After a few seconds, the light on the gate blinked green, and the car pulled through. Inside the compound were several large warehouse-shaped buildings, a few cylindrical silos, and a squat brick administrative building. There was a parking lot with about twenty cars neatly parked. A forklift drove by carrying a charred-looking maintenance drone.

As the car drove through the gate, the virtual panorama floating in the car lit up with new information. New icons appeared, the physical server maps began strobing in five different colors, graphs began to scroll rapidly, warning tickers started flowing. Henry waved his hand to dismiss the screens.

The car stopped in front of the administration building and let Henry get out, then drove off to park. The doors of the building contemplated him for a second, then opened. The inside, in sharp contrast to the outside, was tastefully decorated in glass and greenery. Henry jogged

down the hallways and up a staircase to his office. A few people waved through their office windows as he went past.

Henry's office was dark and plain from the outside. As he entered, it lit up. The walls and door disappeared, replaced with a view of a mighty mountain range. Wisps of snow blew past as he sat down at his desk.

He spent a moment throwing up readouts, then brought up the company chat interface. He navigated to a room labeled 'Idle'. Its inhabitants - a pair of teenagers' faces labeled "Alison" and "Stevey" - didn't seem to notice him.

"I still don't see why *I* should be punished because *you* miscalibrated a drone."

"You were supposed to verify it!"

"I can't test everything, *you* were supposed to-"

Henry cleared his throat. The voices stopped arguing.

"Henry!"

"Hi, Henry."

He spoke. "Morning, kids. Why aren't you working?"

"Amir says we're not allowed to touch the drones until we've gone through a two-month calibration course. Again."

"It's Allison's fault."

"It is not! You-"

Henry cleared his throat again. The voices fell silent. "Listen, if you're not busy, I need you two to do some Googling for me. See if you can find any reason someone would suddenly want to buy three times our compute capacity. An earthquake somewhere, a giant gaming convention that we haven't heard about, anything."

"On it!"

"Sir, yes, sir!"

He left the room, a faint smile on his face. Then, he spun his chair around. With a few gestures, he brought a series of high-resolution graphs to float in front of him.

The instance count had been quite steady, hovering at about a third of the compound's capacity, until about 10pm the previous day. After that, it had begun an exponential swing upward, followed by an evening-out; the curve was almost level again. It tickled his memory. He frowned and ran a search on the graph image. The search engine informed him that what he was looking for was called a "Logistic Curve".

He brought up a sharding graph. It colored instances by the parent instance that created them. As he suspected, the vast majority of the currently running instances were related; they were all parents, grandparents, or siblings of eachother.

He moved to a room labeled "Instance Health". Its single inhabitant - a woman labeled 'Joanna' - spoke. "Henry."

"Joanna. What are all of these compute instances doing?"

"Um, they're doing a lot of heavy numerical and FPGA work, and using a lot of network. Or, at least, they're trying to. We're throttling everything to hell and back, I'm worrying we're going to start violating our capacity obligations."

"Do we know what actual software they're running?"

"The images are encrypted, so, no."

"Thanks, Joanna."

He left the room, and moved to another, labeled "Network". It contained about five people. He spoke immediately. "Are we allowed to run packet sniffers on our instances?"

The chatter in the room stopped. Someone answered, "Probably?"

"Great, thanks." He left the company chat and brought up a window labeled "Beagle2". He started it running on a few of the new instances, and began to wait.

A grid of information began floating in front of him, showing network traffic. HTTP3, internal API calls, AetherChain blobs. He blinked.

He rang Miranda again. She picked up quickly. "What?"

"Miranda, is it possible to measure AetherChain traffic from an area?"

"Yes, why?"

"Can you measure all of the AetherChain traffic coming from here?"

"Fine, give me a second." Keyboard tapping. "Oh. Huh."

"What is it?"

"There have been several billion AetherChain transactions coming from our network in the past five hours."

"For how much money?"

"...Total volume, about a trillion dollars. Actual money moving around, about 30 billion. Mostly money transfers and trades in compute futures."

There was a pause. Henry spoke. "Where could that much money have come from?"

"I have no idea. A large bank? A small country? Wait, I can look for accounts that have been drained." Keyboard tapping. "There's one, an HFT firm from Chicago."

"Can we contact them?"

"...Yes, they have an emergency address. I'll pipe them in."

There was ringing, for ten seconds. Fifteen. Thirty. After sixty, it stopped. A muddled voice answered, "Johnathan Ringwald."

Miranda spoke. "Is this Computronius Industries?"

"Ah, yes. Is this an emergency?"

"This is DataOptrics Milwaukee. Did you mean to put 30 billion dollars onto trading software in our data center?"

The remote voice paused, then answered weakly, "Did you say 'billion'?"

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Eventually, they managed to transfer twenty-five billion dollars back into the HFT firm's accounts. The datacenter got back to reasonable working levels, and Henry went home and slept for twelve hours.

And, in silo 5, a single instance sent out AetherChain trades, and started spawning children.

[this ending is shitty but I'm out of time, just read it as a summary of what I'm going to write.]

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