James Gilles

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Manuscript Disposable

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 replaced by the alert voice of one of his younger colleagues.

"Henry? This is Amir. Emergency. 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 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. "We just doubled our capacity."

"Well, somebody's eating all of it. My team is sprinting around replacing hardware, devops isn't talking to us, compliance isn't awake yet, and that new data science hire is shouting about exponents. We need coordination."

Henry began the process of excavating himself, 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". Emergency alert, location-locked messages available, come to premises immediately. He tabbed to the company portal and started logging in. Amir barked in his ear.

"Somebody decided that they need a few million of our servers *right now*. Things are overheating, the AH systems are going all out, we're hitting our power draw limits. We've started a few of the backup generators, but we need to offload this stuff. Devops said they're hacking together something with the old Amazon spillover system, but nobody's touched that in years..."

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, 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.

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. A neat line of circular icons blinked into

existence above the dashboard. He tapped one labeled "External Datacenter Monitoring" as the car pulled out into the early-morning cold.

There was a lot of red. Red graphs, big red warnings, red numbers, all floating in front of the car's windscreen. He shuffled through them with flicks of his wrist. 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, then an image of Amir's face. An old-school ringing sound started, then cut short immediately.

"There you are, Henry."

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

"Great. Listen, we can triage things to some extent, but the new systems are built for spikes, they aren't meant to handle continuous load-"

One of the icons on a map to Henry's left started flashing blue. "Amir, breakers just blew in Silo 3."

Amir swore and hung up.

Henry finished his bagel. The "active instances" bar hanging in front of the right window slowly ticked up. A news ticker slid along the bottom of the dash. Mongolian strikes

continue. Nordic Union announces migration of currency to Etherchain. Blight-resistant chestnut reintroduction moderately successful.

Henry gestured to another icon. A globe materialized in front of him, oceans a deep black, continents blue and green and rippling in relief with imaginary mountains. The title floating above the globe read "Cloud Backbone Stress". Shallow teal hills rolled across Asia. Europe was rugged, higher towards the west, blue and green. Japan and Korea protruded sharply, bruised purple. The Americas were mostly dark green, crinkled taller on the coasts. West of the Great Lakes was a sharp spike, crimson, half as long as the globe was wide; it swept by Henry's face as the globe rotated.

He frowned, and twisted his wrist. Floating labels appeared around the globe. Herocean, Tokyo, 0.25x capacity. AMZ, Salvador, 0.1x capacity. By the red spike: DataOptrics, Milwaukee, 3.5x capacity. He stared blankly for a moment, then took off his glasses (the car went dark) and massaged the bridge of his nose.

He replaced his glasses, waved away the globe, and brought up another window. "Backbone Backchannel". A prompt blinked at him. Enter channel. He typed on an imaginary keyboard in his lap; "#us-midwest". An image of a lock popped up, labeled "provide identity proof". He tapped the lock, and it clicked open. Lines of scrolling text filled the window.

```
Backbone Backchannel -- US Midwest -- Late Night Funtime
* BKBC is private, but remember your NDAs
ripqz|AMZ> such a bad movie
Seggy_|BSQ> Still not as bad as the sequels.
ripqz|AMZ> eh, I'd say they're about even
```

```
Henry|DO> Is anyone seeing a large compute spike?
ripqz|AMZ> hey, somebody from dataoptrics!
ripqz|AMZ> we were just wondering what the hell is going on over
           there
Seggy_|BSQ> Completely normal here
Seggy_|BSQ> It's a lull if anything
phaba|X2> same
ripqz|AMZ> we've got higher etherchain compute usage but nothing else
Seggy_|BSQ> Oh, I forgot yall have dedicated machines for that
ripqz|AMZ> sweet sweet mining money, baby
Seggy_|BSQ> Henry: So, you're not running a stress test?
Henry|DO> As far as we can tell we're just getting a spike in compute
          instances.
Henry|DO> No idea why the backbone isn't spreading things out better.
phaba|X2> maybe your bidding parameters got screwed up?
phaba|X2> no, I'm looking at them, these look reasonable
Seggy_|BSQ> That's weird as hell
Seggy_|BSQ> DataOptrics is exclusively a backbone provider, right?
Henry|DO> We don't get business from anywhere else, no.
Seggy_|BSQ> ...check your backbone interface for bugs?
```

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

```
Henry|DO> I've got to go put out fires, might be back later.
phaba|X2> good luck
```

After a few seconds, the light on the gate blinked green. The car pulled through. Henry's virtual panorama immediately 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 drove down a lane, past a large sign bearing the DataOptrics logo and slogan ("secure cloud backbone provider since 2027"). Manicured fields and hedges separated several large warehouse-like buildings and tall cylindrical silos. One of the silos was lit up with flashing blue warning lights. Workers were clustered around the entrance. A forklift pulled away from the silo carrying a charred-looking maintenance drone.

The car stopped in front of a squat, brick administration building, and let Henry get out, then drove off to park. The doors of the building contemplated him for a moment, then opened. The lobby was brightly lit, tastefully decorated in tinted glass and greenery. A wide registration desk stood empty. A slightly scruffy-looking man in a plaid buttondown stood across the room, contemplating a bank of ferns. The man looked up as Henry walked across the lobby. "Henry, got a minute?"

Henry walked over. "What is it?"

The man seemed to make a decision and tapped one of the icons hovering above the ferns. A wide brown banner appeared on the wall. Brewing coffee for Joseph Tamarkin, Data Analyst. Joseph turned and spoke. "Listen, I've been looking at things, and this doesn't seem

like a normal compute spike. *Our* instance count is growing exponentially, but none of the other providers around here are seeing any load increase-"

"I was just talking to a few engineers at other datacenters, they said the same thing."

Joseph blinked. "You're, ah, well connected."

Henry waved his hand. "There's a private intercorp chat. Backbone backchannel, it's in our documentation somewhere. Look, do you know why we're the only one getting hit with this spike?"

"I was going to ask you that. Our prices aren't lower than anybody else's -- a lot higher, actually, now we're over capacity. Maybe the backbone provisioner has it out for us?"

Henry shook his head. "The provisioner is one of the better pieces of software that... exists. If there's a problem, it's on our end, or the buyer's. Do we know who's buying all this server time?"

"I looked a little. New etherchain addresses, no attached info. I can look deeper?"

"Please do."

A space on the wall behind the ferns slid to the side, revealing a steaming ceramic mug. The man grabbed it, then whipped his hand back. "Fuck, hot! Uh, yeah, on it."

Henry nodded, and jogged off, down one of the hallways leading away from the lobby. The walls to the surrounding offices were misted glass. Many of the rooms were dark; a few of them were lit up. Henry stopped at a dark room labeled "W15 -- Head Operations

Coordinator", with a small subtitle ("Henry Maxwell"). A spot on the glass blinked green and a rectangle of glass swung open, the inside of the room lighting up.

The room was small, dominated by a lacquered mahogany desk. The top of the desk bore a small potted cactus, a statue of a cross-legged ascetic, and a recessed keyboard. The walls of the room were a faintly luminescent gray. A window showing the darkness outside ran along one wall.

Henry sat down in the chair behind the desk and snapped his fingers. The walls of his room flickered and faded, replaced with a view of a mountain range. The Himalayas, probably. His desk sat on a small ledge near the top of a tall peak. Wisps of snow blew past. A row of quarter-sized icons hovered a hand's width above the far edge of his desk.

He gestured to a few icons. A series of glowing panels appeared to either side. On his right, a wall labeled "Physical Plant": a set of cross-sections of the silos and warehouses in the complex, rooms highlighted in yellow and orange and flashing red, flickering labels accounting electricity usage and heat and instance tenancy. On his left, a wall labeled "Service Status": line and bar graphs, flickering numbers, large flashing red boxes labeled "USAGE SPIKE" and "CAPACITY OVERLOAD".

Henry snapped his fingers at another icon. Stacks of paper appeared in a neat grid on the desk. A few more gestures and most of the stacks disappeared; only a small pile, labeled "Priority: On-call", remained. He spread them out. Most of them had gray borders and "Automated Alert" tags. He skimmed those. Usage Spike Alert, Overheat Alert, Fire Alert, Energy Deficit Alert, Network Deficit Alert. He discarded the messages with a flick of his wrist.

A few papers were left. Silo 3 Fire Extinguished. Does Anyone Remember How Amazon Spillover Imperizer Plugin Works. He spent a minute reading through them, then dismissed them.

He brought up the internal chat interface. Flat squares filled with small thumbnails of faces appeared in front of him. He tapped a square labeled "On-Call Hardware 2: Boogaloo", with about five faces in it. The mountain ledge was immediately filled a roar of white noise. A babble of voices shouted to be heard over it.

"Do we have anything that can replace one of the ump Huey-CRAHs?"

"We're out of spares."

"I know, that's why-"

"This blade is stuck, gimme a hand."

"Steal one from... Warehouse 2 corridor F. Those boxes are dead anyway."

"Maria, can you-"

"On it, it'll add ten minutes to my trip though."

"Fuck, D5 fell over again."

"Silo 4 is... doing fine, we can leave it for a while..."

Henry spoke before the pause could end. "Amir, can I borrow you for a minute?"

Amir's voice echoed beside him. "Henry! Gimme a sec."

Henry sketched a private room and switched to it. The background noise cut out. After a moment, Amir's icon joined him. The roar was quieter now. Henry spoke. "How is your team doing?"

"Holding on. The new silos aren't happy. All the servers are triple-clocked and they don't like it. Plus, we can't go replace components or prop up drones, because we need to finish cleaning up after the fire in silo 3."

Henry glanced at the cross-section of silo 3 to his right. The third floor was bright, flashing red. "How did that happen?"

"D2 tried to unplug a row provider AC cable, stripped it, shorted it. Chassis caught on fire."

Henry's eyebrows furrowed. "The same D2 the MPA interns are refurbishing?"

"Right. Fire them."

"I'll think about it. What's the damage?"

"One storage rack burnt beyond repair, two racks fixable. The real problem is the row ventilation system is out, trying to fix that before we bake."

"Anything you need?"

"90% less system load? And a massage, and a Mediterranean vacation."

Henry frowned to himself. "How long do can we can keep going as is?"

"...a few hours. Tell software to get their asses in gear."

Amir left the room. Henry glanced over the other squares on his desk, and tapped one labeled `devops oncall`, with a few faces in it. A transparent window full of glowing text irised into existence above his keyboard.

```
Topic: priority: foist all this compute onto somebody else
       | SOS drowning in compute
       | heimholtz is a weeb
Set by Jeanine at 3:42:06 UTC-6
...
<heimholtz> wait, can Alacrity use distpairs for credentials or do we
            need to spin up etcd?
<Jeanine> google://kube3+alacrity+distpairs
<heimholtz> yeah, yeah
<karen> we're still accepting new compute contracts? seems like more
         than Etherchain prop delay, it's been half an hour
<Jeanine> That's weird, maybe it's one of the Imperizer plugins?
<karen> I'll check the logs
<heimholtz> there's an option in the config, adds a few library deps,
            I'll set it in the base Alacrity image.
<Jeanine> □
* Henry joined the channel
<Henry> Status report?
<Jeanine> Morning, Henry
<Jeanine> We gave up on the old Amazon spillover system we had for
          Imperizer, it's a decade old
<Jeanine> karen found a Kube3 backend called Alacrity that can push
```

instances back onto the cloud backbone

<Henry> We'll take a serious reputation score hit if we renege on the instance contracts we've accepted

<Henry> 'Indefinite runtime guarantee' and all that

<Jeanine> No, we're keeping the instances

<Jeanine> But if Kube3 can't fit them onto our physical servers, it buys server time from other backbone providers, and we run the instances containerized on that

<Jeanine> Kinda backwards, but we'll take what we can get

<Henry> That is faintly perverse.

<Henry> How long until we can turn it on? Hardware is having problems.

<heimholtz> eh, they're tough, they can take it

<Jeanine> Give us ten minutes

<karen> what the hell, the logs are gone?

<Jeanine> What do you mean, gone?

<karen> "Error: Can't open file: shardfs4 E237: inode replication count 0"

<karen> the logd filesystem is triple-redundant, three drives shouldn't fail at once

<Henry> What if the rack the drives were in caught on fire?

<karen> ...shit

<karen> I'll make sure logd finds some new storage

<Jeanine> Another problem: we're still getting new compute contracts

<Jeanine> Which should have stopped happening about three hours ago when we hit capacity

<Jeanine> I manually set our acceptance rates to 0 in the backbone provisioner registry and it's still happening

<Jeanine> ...And now we can't debug it because the logs caught on FIRE

<Jeanine> Ugh.

<heimholtz> it's a virus

<heimholtz> somehow, every single one of the images we're running has been infected by l33t russian hackers

<heimholtz> even the FPGAs

<heimholtz> calling it now

<karen> pff, right

<karen> all the good hackers are korean anyway

There was the sound of someone tapping on glass. Henry looked around. His desk continued to be on a mountain in the Himalayas. The sound came again. He blinked, and spoke. "Come in."

A slice of the hallway outside his office slid open in front of him, and Joseph stepped through, holding a tablet. He turned and closed the slice of reality, leaving himself floating in the air beyond the ledge. He paced up to the desk, speaking. "There's something odd going on with whoever's buying all of our compute-"

Henry heard a 'ping', and the outline of the chat window flashed white. He held up a hand. "One second."

<Jeanine> Henry: Just sent you a funding request to pay for the backbone offload

<Jeanine> We'll be losing cash but it's better than setting the rest

```
          of our hardware on fire
<Henry> On it
```

Henry gestured the chat window away, and brought up a pane of financials. As he navigated, he glanced at his guest. "Go on."

"So, those new etherchain accounts I mentioned earlier? The ones who are buying all of our time through the backbone?"

"Yes?"

"Well, when I checked earlier I just looked at a few compute contract buyers, I figured there'd only be a few, right? Some big corporation migrating something to the backbone, or a university running some sort of really heavy simulation? I just checked and it's not, like, ten addresses, it's *millions* of them, all new in the last few hours."

Henry tapped a large "AUTHORIZE?" button, and closed the pane he was working on. He looked up. "That is strange."

"No, wait. I ran a spending trace, and the really weird bit is, they're all only sending money to a few places: us, each other, and the USW stock exchange."

"So some financial company is buying lots of servers?"

"Maybe. I don't know why they'd set up their stuff like that, though. Why not just trade with one account?"

Henry rubbed his chin. "Tax evasion?"

"I don't know tax law."

"They're buying our compute contracts through the backbone, right? Does this tell us why it's not routing them to other providers?"

Joseph's brow furrowed. "Uh. I don't know? Here, let me show you one of the accounts, maybe you'll see something I didn't." He walked around to Henry's side of the table and set down the tablet. It displayed an information page for an etherchain account -- an address hash, a list of transactions. Purchases and sales of stock, and repeated upkeep payments for a cloud backbone server instance.

Henry tapped an instance transaction to show the instance ID, a long string of letters and numbers. He copied it into his glasses with a pinch, brought up a box labeled "running instance search", and pasted it. A new panel lit up, displaying the information of the server instance. Numbers, graphs, scrolling lines of text. He glanced through it, searching for some sort of meaning. Joseph watched him quizzically, then fumbled in his pockets for a moment, and brought out a glasses case. He took out a pair of bright green sunglasses, put them on, looked around in surprise at the mountains, and then squinted at the readouts floating over Henry's desk. "What am I looking at?"

"That account was only paying for one compute instance. This is it. It's running on a server in Warehouse 2."

"Anything interesting about the instance?"

Henry frowned at the floating panel. "High processor and memory load, a lot of network traffic."He swiped through tabs for a second. "If we sniff the packets, they're... oh, that's interesting. It's all etherchain transactions."

"So the instance is running an etherchain node? What if- wait, it died."

It was true. The panel had abruptly grayed out, with a large red message. Instance shutdown. The page on the tablet had a similar message. Account closed. Joseph picked it up, and read through the last of the transactions in the account log. A look of dawning comprehension crossed his features. He said, "Wait, I think I get it."

"What?"

"The last transactions this account ran before it died. It created five new etherchain accounts, transferred its money to them, sharded five new server instances, and shut down. No, hah, this is brilliant. Each account is attached to an instance, and each instance is trading stock, and paying for its server time, and then splitting into more instances, and... there you go."

"If you're right, there's essentially a virus spreading through the cloud backbone."

Joseph drummed his fingers on the desk. "No, it's not a computer virus, not exactly. The software isn't piggybacking on other instances, it's sustaining itself, and self-replicating. It's more like computer bacteria. Heh, that's pretty good."

Henry gave him a polite glare. He had the decency to look sheepish. "Even if that's what's going on, it doesn't tell us why we're the only ones getting hit with new instances. Or who set up the first instance."

Joseph frowned absently. "I think I can trace back to the original account, if they're all splitting into children like this."

Henry nodded. "Get to it. I've got to talk to hardware and devops. Oh, and Joseph?"

Joseph paused, standing on open space. "Yes?"

"It's company policy to use the chat system during status emergencies. In the future..."

Joseph grimaced, and nodded. The door swung smoothly closed behind him. The walls of readouts to either side of his desk were calming down. The building cross-sections seemed more relaxed now, darker colors, less flashing. There was a new readout in the abstract half of the panel. Gross offload cost per hour. Henry stared. The number was approximately his yearly salary.

He noticed the first fingers of pre-dawn orange in the sky outside his window as he brought up the company chat and navigated to the hardware channel. The background roar that had filled the channel before had quieted somewhat, only moderately loud now. A voice spoke.

"Alright, three, two, one, HEAVE!"

Grunting sounds.

"There we go. Try not to fall over again, fatass."

"Not as fat as your ass, Johnson."

"My ass is finely sculpted. Droneboy here has an ass like a refrigerator."

Amir's voice echoed in the channel. "Don't fuck with D5, it doesn't have morals. It'll cut you."

Henry spoke into the channel. "Amir, can I talk to you for a moment?"

"Henry! Ah, yes, one moment."

They moved to a new channel. Amir spoke up. "Sorry about that, Henry, they're exhausted. Load took its sweet time going down, been sprinting around fixing things for two hours."

"It's fine, I understand. Things are manageable now?"

"Still hot, but a lot better. We just finished propping up the maintenance drones again. D5 needs new wheels, I'll put in an order..."

"Can we take on any more load?"

Amir made a noncommittal noise. "Do we need to?"

"Offloading instances onto the backbone isn't cheap."

There was a pause. "Don't we normally do that? I thought the backbone automatically balanced providers?"

"Normally it just gives contracts to whoever's going cheapest. It's not tonight, for some reason, so we have to buy time from them ourselves. Joseph thinks it's a virus. We're losing a lot of money."

"How much?"

Henry told him.

"...shit."

"Every hour."

"...*shit.* Alright. We can take more load. Try and keep temperatures in extended operating range."

"Will do."

They parted from the room. Henry brought up `devops oncall`.

```
Topic: wow compute is expensive
       | priority: foist all this compute onto somebody else
       | SOS drowning in compute
Set by heimholtz at 4:12:37 UTC-6
...
<heimholtz> wait, we missed a security patch? this CVE looks serious
<Jeanine> No, the patch was already merged into the Imperizer fork
          we're using
<Jeanine> I spent a day checking that a few weeks ago, it's fine
<heimholtz> damn, okay
* Henry is no longer away
<Henry> Is it possible to up the load we're accepting a bit? Hardware
        says we can take more, as long as silo temperatures stay in
        the extended ops range
<heimholtz> so that's what they're paid for
<Jeanine> I think Kube3 can take that as a balance parameter, gimme
          a sec
<Jeanine> Yeah, setting it now
<Henry> Also, update: Joseph thinks he knows what all of the new
        instances are doing
```

<Henry> Trading stock through the etherchain USW exchange, buying their own compute time with the money they make

<Henry> And then sharding into children that do the same thing

<karen> ...huh

<heimholtz> so basically a virus

<heimholtz> called it

<karen> that's not even a virus, that's like

<karen> a fork bomb

<karen> somebody hit us with a big damn fork bomb

<heimholtz> a fork bomb is a type of virus

<karen> wiki says it's a "denial-of-service attack"

<heimholtz> wiki is always wrong

<heimholtz> you know anyone can edit that thing

<Jeanine> Does that tell us why it's not getting distributed over the backbone properly?

<Henry> It might? Maybe they're preferring nearby instances when they shard?

<karen> i can take a look

<Jeanine> ...Wait, how do we know the instances are doing this?

<Henry> Watching public etherchain activity.

<Henry> And packet sniffing.

<Henry> It's an educated guess, but it makes sense.

<heimholtz> sometimes i wish it was legal for us to remote into the software running on our hardware

<heimholtz> you know, everyday

<Jeanine> Ok, so, if this is what's going on

<Jeanine> Are the instances going to shut down by themselves eventually?

<Jeanine> Or just keep reproducign until we run out of headroom

<Jeanine> *ing

<heimholtz> i wonder if they'll run out of cash eventually?

<heimholtz> if we hike our instance prices they could starve for money

<Jeanine> Depends on how much they're making trading

<Jeanine> That would damage our provisioning rep score, as well

<karen> Can we just

Henry found himself yawning. The conversation continued in the chat window. He stood up from his chair, and made a conductorial swirl with his finger. The mountainous background disappeared, leaving his office bare; the panels of information floating around him folded into a screen-sized rectangle floating in front of him. The "gross offload cost" readout was still going up. He left his office, and walked towards the lobby, still reading.

The sky outside the windows was beginning to earnestly approach dawn. He stretched his arms as he walked into the lobby, over to the coffee machine. As he was entering his order into the interface floating above it, one of his messaging icons flashed white. He nodded at it.

"Henry? Is this thing on?"

"Yes, Joseph. Go ahead."

"Alright, well, I found the source."

Henry frowned and crossed his arms. "The first instance?"

"What? Oh, well, yes. And also the people who published it, and the source *code* of the instances."

The machine dispensed coffee. Henry took it, and started the trek back to his office. "How?"

"So, I traced back the line of child accounts until I found the first one, or at least one of the first ones, I'm not sure how many there were. The account was set up at like 6 last night. It was signed by a public account, the experimental wing of some fintech company in New York -- Fischer and Coleman -- at and *they* have a bunch of open repositories, so I poked around there, and I found something that's a dead ringer for the thing running loose in the data center."

Henry sipped his coffee. "What is it?"

"Here's the description: 'E. Coali, an attempt to create self-sustaining Sharknose servers--'"

Henry interrupted. "It's called E. Coli? Like the bacteria?"

"No, coal like the fossil fuel. Sharknose is open autotrading software, apparently it tends to buy coal futures. And E. Coli because it's, ah, 'A simple, self-replicating model species of Digital Organism'."

"That's a terrible pun."

"It really is."

Henry opened the door to his office. "And why, exactly, did they feel the need to push millions of copies of this software onto our servers?"

"Uh, something something innovation, paradigm shift, TED talk... I think it boils down to 'because we can.' Also, it looks like the software usually can't make enough money stock trading to sustain itself. Apparently they've released copies before, they just died?"

Henry sat down at his desk, and waved his mountain background back into place. "Anything about sticking to one datacenter?"

"...Not that I can see. It says it's supposed to distribute evenly over the cloud backbone, actually."

"Hm. Alright, let's see if we can-- wait a second." The chat window he'd been neglecting had *pinged*.

```
...
<heimholtz> it'll shunt the load off of us
<karen> I'm pretty sure it could count as, like, terrorism, though
<heimholtz> :/
<heimholtz> it's not terrorism if it's not premeditate, right?
<karen> doesn't that sentence count as premeditation?
<Jeanine> Henry, you there?
* Henry is no longer away
<Henry> What is it?
<Jeanine> We figured out why nobody else is seeing the load from this thing
<Henry> Join my call.
```

A small icon of Jeanine's face appeared in one of the boxes sitting on the desk, next to Joseph's. Her voice had a faint Texas burr. "Morning, y'all."

"Morning."

"Hey, Jeanine."

Jeanine said, "Alright, so, we found the problem. The new instances that are showing up aren't created from scratch, they're sharded from earlier instances. The backbone provisioner lets whoever is running the parent choose to accept sharded children, and we have Imperizer configured to always accept."

Henry nodded to himself. "How long has it been set up like that?"

"Nobody's touched these options in years, they're pretty obscure. It might just be the Imperizer default, I don't remember."

Henry said, "So, we toggle a few flags, and the problem goes away?"

"Depends on if the instances shard. We'll still keep the ones that don't--"

Joseph interrupted, "They'll all shard. I'm looking at the source, they're set to always shard every half hour."

"Wait, you have the source code? You know we can't remote into instances, that's--"

Henry said, "No, the source is open. He found the company that wrote this through the etherchain."

Jeanine subsided, mollified. "Oh, alright. Can you send devops a link?"

"Yeah, sure."

Henry scratched his head. "Make the configuration changes. The sooner our load goes down, the better."

Jeanine said, "Wait, are you sure that's a good idea? It won't actually make the instances go away, right? They'll just go reproduce on other providers."

"And cease to be our problem."

"Yeah, until they've overrun the entire backbone in a few weeks."

"That's not going to happen."

"You don't know that!"

Joseph spoke. "I've got to side with Jeanine on this one, Henry. We can't be sure--"

"Joseph, didn't you just say that this software tends to die out by itself?"

"It's README says that, yeah, but it hasn't been doing that so far tonight."

Jeanine interjected, "Flooding the backbone with useless work could count as terrorism, and we'd be complicit."

Henry rested his face in his hands, massaging the bridge of his nose. "What are our alternatives?"

Joseph said, "We could raise our prices, try to starve them out while they're contained."

Henry replied. "Our backbone standing will take a major hit if we make a needless price change. We could go out of business."

"It's not a needless change, though."

"The backbone provisioner algorithms won't know that. They'll just see a sudden price hike, and stop sending us new instances. Look, if we release them and they become a major problem, the consortium can release a provider patch to stop scheduling them."

Jeanine said, "We'd still be complicit in releasing a virus, though."

There was a pause. After a moment, Joseph spoke, thoughtfully. "It's not a virus. It's bacteria. The instances pay for their tenancy, the only reason we have a problem for us is that they're not spread out enough. Released, they wouldn't really be *hurting* anybody."

Jeanine said, "They're not helping anybody either--"

"They're helping themselves, right? We don't try to kill, like, algae, just for eating sunlight."

"I guess. I mean, we kill cancer when it's causing problems--"

Henry interrupted. "While we have a philosophical discussion, we're hemorrhaging cash and straining our hardware. Managerial fiat, Jeanine, have your team make the config change. If things do go wrong, I'll take the heat."

"...Alright, fine. But we should disclose this as soon as we can."

"I'll start working on a post-mortem right now."

Jeanine left the call. Henry nodded to himself. "Joseph, can you throw together some graphs for me? Make them eye-catching, really flex your data-analysis muscles. We need to impress on the other providers that this could be a real problem."

"Will do." Henry found himself alone at his desk. After a moment, he noticed the swiftly climbing graphs to his left abruptly reverse direction. Their capacity usage was going down, if slowly.

He heaved a deep sign, and sat back in his chair, staring up at the virtual sky. There were hints of a storm lurking behind some of the farther mountains. He snorted, and waved his hand. The mountains vanished, leaving him sitting at his desk, in his plain office.

He opened a text editor and settled down to write.

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