

Rice Tea

- Julien McArdle -

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Cover Photo by Nintaro.

In memory of Steve Cisler.

Introduction

I would like to thank you for having purchased this book, though if you're anything like me, you've probably downloaded it for free as you contemplate whether it's worth your monetary support.

This book has come a long way from the six-page film concept that I originally concocted sometime in late 2006. Originally slated to be a realistic take on the 1995 film *Hackers*, this project evolved to become an entirely original story on its own.

If there is one thing that hasn't been affected by the metamorphosis from a screenplay to a novel, it is this work's adherence to reality. While the overarching story line may be fictitious, the technical abilities represented are not. They mirror the true experiences of those talented few that populate the digital tubes.

To that end, I would like to acknowledge the following for their valuable contributions on the Internet that helped shape this novel:

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PROLOGUE

Enter the Blackhat

In the windowless basement of a suburban home, in the wee hours of the morning, sat a twenty something man perched over the glare of his multiple computer monitors. In the one, he was playing some Hentai – at this point, the animated high school girl was giving off high-pitched squeals typical of the Japanese genre as she was being thrust into by her male compatriots.

However, at this point, the hacker wasn't paying any attention to the video. Rather, all his attention was focused on his other monitor. In it, he had a terminal window open in which he was issuing commands, the green text of his typed words set on a backdrop of black.

The desk on which his computer lay was pristine – his monitors and speakers were placed in perfect symmetry, the flat surface completely devoid of dust. This was an anomaly in this basement room, with the rest in utter disarray. Clothes were strewn all over, the posters were peeling down, and used cans of caffeine energy drinks peppered the floor. In this mess were also various technical books, usually opened to a certain page, on topics such as C programming and the TCP/IP protocol.

The hacker entered a few final commands in the terminal window, and sat back watching the screen spurt back copious amounts of text. The man smiled in relief. It was working, and on the first try. The blackhat hacker had succeeded.

ONE

Just Another Morning

Seth lay in bed, his alarm buzzer still ringing by his side. His head turned to face the source of the annoyance, and with it, his arm came violently down to silence the contraption. The buzzer continued. He had missed. With a sigh, Seth took a better look at the alarm and navigated his fingers carefully around its buttons. With a small tap, the room turned quiet.

Seth was an average height, average build, twenty-two year old. His face featured brown hair and green eyes, the latter usually complimented by his stylized translucent glasses.

Slowly getting up, he turned his head to look out his window. His room on the upper floor provided a nice view of the greenery behind his townhouse, a rarity in the bleak asphalt and concrete landscape that surrounded him.

After a quick shower, Seth put on some clean clothes and worked his way down the stairs. He turned to go into the living area, or the “man center” as he sometimes called it. Against the wall stood a large second hand television, to which game consoles of all sorts were plugged in – between him and his two roommates, they owned all of the most recent gaming hardware. Beneath the television and the consoles lay a hefty rack-mount server, that would appear to be more at place in a data center than a residential home. To the side of this humming machine was a laser printer, with a single freshly printed out sheet.

Seth snatched the sheet, and brought it to the kitchen. Inside,

he found his roommate cooking some eggs. Grabbing a lone magnet on the fridge, he posted up the piece of paper. The sheet was the product of Seth's boredom one afternoon, an automated script on the server that would run every morning at 6:30AM. It compiled weather information with the day's top tech headlines and some statistics about the server's current performance.

On this day, much like those before it, news of the Météo botnet were making the rounds. A new update had been released overnight, and more than 120,000 computers had thought to have been infected in the space of hours. While these newly enslaved machines might seem fine to their owners, they would in fact covertly be used to relay spam or assist in large-scale fraud operations. This was bad news for system administrators the world around.

Seth's focus was however not in these news, but rather the breakfast he would make himself. As soon as he had pinned up the sheet, he opened the fridge door to reveal its lackluster contents. He grabbed the loaf of expired bread, and put two slices in the toaster. Turning to his roommate, he asked:

“How was the LAN party last night? I didn't see you come in.”

“Yea, we went for some karaoke after. We beat Carleton U's comp-sci team again.” Always glad to hear when the other university in town had been beat, Seth replied “Good stuff.”

Seth ate his toast, loaded up his MP3 player with some new songs, and prepared his bag for school. On his way out, he yelled back “I'll get the mail!”

TWO

University

It was perhaps early spring, but with the sun beaming down it felt almost like summer. The snow that had been so pervasive the month previous had entirely disappeared. People were no longer shackled by the heavy winter coats that were a necessity even the weeks before. Seth felt unusually liberated as he wore his light-jacket on his twenty minute walk to the nearby transit station.

The transit system in Ottawa was a hybrid of diesel buses and light rail. Every morning, Seth would walk to the nearby station where he would grab a train down to his university. Over the years since his move to this city, he grew fond of the transit network's efficiency.

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After a twenty-five minute ride, Seth's train stopped right on front of his campus, and he got off. A large sign, written in both English and French, welcomed him to "Canada's University." He had always found the University of Ottawa's bold assertion rather amusing.

Walking through the university center, Seth stopped to grab a coffee. French vanilla, as per usual. As he poured in a bit of milk, he looked up to a nearby mounted television screen at the news. The price for the barrel of oil had again increased, and three analysts were feverishly debating the source of this latest hike.

“Seth!” Seth, shaken out of his television-induced stupor, looked around. A young man was fast approaching him. He was built, his goatee well-trimmed – the man looked like a twenty year old version of a Hollywood top actor.

“Oh hey Jinks,” Seth replied unenthusiastically.

Jinks went on. “So I tried hacking that 127 dot whatever IP address you gave me yesterday. I used Sploitster and everything.”

“Find anything interesting?” Seth responded.

“Yeah! Check this out!” Jinks pulled out a newspaper from his side, practically shoving it into Seth's face. Jinks continued. “It was an ATM!” Seth was still readjusting his eyes to read the newspaper held up so close to his nose.

“Look!” Jinks exclaimed. “It spewed twenties randomly on the ground somewhere in hick-town Saskatchewan. That was me!”

The Internet Protocol address Seth had given to Jinks was a loopback – it was a specially assigned address that would connect Jinks to his own computer. Jinks couldn't of accessed any other computer using it, much less an ATM. That was the thing with scriptkiddies like Jinks: they knew how to use certain programs to cause damage, but they didn't know the most basic tenets of computing.

“Uh huh, nice. Look Jinks, I gotta go to the washroom. Classes start in three minutes. I thought you had some now as well?”

“Yeah, well just one – Polish cinema. I should go too. Later Seth.”

“See ya.”

Seth threw the remnants of his coffee in a nearby bin, and walked to the nearby door. Past the door were large concrete steps that brought students to the lower level of the university center.

Seth walked down the steps. At the bottom of the stairs, he could see the washroom doors in the distance to his left. Turning in the opposite direction, he headed down a long hall, an into an open doorway which greeted students halfway down. He had come into the dark, funky smelling, dungeon that was the university's arcade. Save for a lone light hung atop of an old pool table, the room was entirely lit by the hyperactive screens of its coin operated games. Seth figured that most of these machines had to be at least twenty years old, but these retro games were cheap to play and had really caught on with the campus' students.

Seth walked up to the *Street Fighter II* slot arcade machine, where two students were furiously shifting their joystick and mashing buttons trying to beat each other's virtual characters to a pulp. Seth, looking at the taller of the two players, subtly pronounced "Gab, we got class in less than five." The message received no reply, the player's attention entirely consumed by the machine. However, the pattern of prerecorded pained grunts emanating from the game's characters started to shift, and within seconds, Gabriel had dealt the finishing blows. He looked back at Seth.

"Okay, I'm done."

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The duo walked with utmost haste down the halls of the university's computer science and engineering building. It was amongst the newest structures on campus, with a design that proudly showed off its support beams and heating ducts to all its patrons. It was also home to numerous computer labs, rooms filled with networked computer stations.

Stopping by one of the doors, the two quietly entered. The professor in the midst of discussion paused for a brief second at

the interruption, glaring at the two late-comers. Seth mouthed his apology to the unimpressed teacher, who then continued on his lecture. The two found some empty seats near the back and listened to the professor, slowly getting their bags off their back as to not produce any further noise.

The professor went on. "This term project is worth 30% of your final mark ladies and gentlemen, so listen up." Seth logged into the computer on front of him, paying only half-attention to the words of his middle-aged lecturer. Looking off to the side of his computer monitor at his fellow classmates, Seth's eyes couldn't help but to fixate themselves at the girl sitting half-way down the room. Her name was Kerstin. She had a rounded face, shoulder-length black hair arranged in a ponytail, and a very cute European accent that came out whenever she asked questions. To top it off, she was an extremely competent programmer. Whereas others wrote limiting textbook answers to the problems given in class, she was one of the few that could think outside the box and develop intriguing efficient solutions.

The professor's unintelligible droning voice was punctuated by Gabriel's clear whisper.

"I think you're freaking her out."

Kerstin was staring back directly at Seth. Abruptly shaking out of his apparent daydream, Seth's eyes immediately returned to the idle screen on front of him.

"Fuck," he muttered.

"Not bad," said Gabriel. "You haven't even met her yet and she already thinks you're a freak. It only took you what – three months?"

"Yeah, thanks." Seth replied with a smirk.

The professor went on for some time on the minutia of memory management in operating systems. Finally, alerted by the communal ruckus of students packing their bags, the lecturer took a look at his watch.

“Oh look, we're all out of time. See you next time, and take a look at the assignment due next week!”

Stretching his arms, Gabriel looked to Seth. “Are we still on for the beers?”

“You know it.”

“See you there in what... ten minutes?” Gabriel continued.

“Sounds good to me,” replied Seth.

THREE

The Digital Losers

Seth sat waiting at a table at the local university pub, *1812*. It was one of his favourite hangouts. Not only did it provide a great view of the campus, but the beer was decently priced, and it was rarely home to more than a few patrons.

Coming by with two beers in hand, Gabriel sat down, sliding one of the alcoholic beverages to Seth.

"Thanks."

The duo took out their laptops, and flipped them open. As he was waiting for his laptop to boot up, Seth began speaking. His gaze did not shift away from his laptop screen.

"You know, I'm really going to miss all of this."

"Miss what?" asked Gabriel in return, as he sipped his bottle.

"University. All those parties. The stupid shit we've done. Feeding the hamster weed. Or like after Christmas - making roadblocks with the trees people were throwing out."

"...or the races down the hill with the computer chairs," countered Gabriel. "It went by fast, didn't it?" he finished by saying.

"Yeah, it's depressing," concluded Seth.

"Who says that all that has to end though?"

Gabriel looked back down at his laptop. It had now finished starting up and was standing idle. He began typing a few commands.

"Let's see what kind of catch we have for today," he mused.

Gabriel's laptop was connected to the nearby wireless repeater, a device to spread the specialized digital signals across campus so that all students with a wireless-enabled laptop could instantly log on to the Internet. All computers connecting to the repeater were added to a pool of networked computer, which all accessed the Internet via a central gateway. This was entirely automatic, and so the average student wasn't aware of all the technology that made this seemingly magical Internet access possible. This also meant that they were quite unaware of the extent to which their computer was made vulnerable by subscribing to such an open network.

Gabriel didn't need any specialized programs to explore the hard drives of the computers that had connected to the network. All from his seat at the pub, he could explore dozens of computers at will, logging into them much in the same way as a legitimate user. Gabriel's seemingly limitless access was based on the fact that most computer owners did not bother to set an Administrator password. Such an oversight made these machines extremely vulnerable to takeover, especially when connected to a local network like the one in the pub. To people like Gabriel, the contents of these machines were as good as his.

Poking around the hard drives of various machines, Gabriel soon found something of interest.

"This guy's interesting. Looks like a prof's slides for a class."

Seth was now looking over Gabriel's shoulder. Looking towards Seth, he asked,

"Shall I?"

Sometime in the next month, a professor was giving a lecture in one of the university's many halls. His carefully prepared slides were projected to the front. The professor spoke to his students.

"...and so the biota in these sedimentary rocks can serve to identify the local conditions in the environment of deposition."

With these words, he moved to the next slide. The class of 400 students erupted in laughter. Puzzled, the professor looked back at the projected slide. Instead of the images of microscopic life he had prepared, there was a single repeating video clip of a bug-eyed hamster giving a very human-like look of surprise. Beneath the video was a short caption: "Brought to you by the Digital Losers."

The Digital Losers was the name that both Seth and Gabriel had given themselves to mark their pranking exploits. It had served them well since the duo had come up with the name in their second year of university. The two also maintained a website where they regularly published their latest exploits, often accompanied with audio clips or video footage.

The professor hurried to his nearby terminal to look at his slides, and drew a quiet sigh of relief upon seeing that all his slides remained intact. This rogue slide had somehow been inserted amongst the legitimate content, but none of the real slides had been affected.



Back at the pub, both Seth and Gabriel were still working on finishing their beers.

"I'm tempted to start university all over just so I can stay here," said Seth.

"Get a master's."

"I could..." Seth went on, "but as weird as this sounds, its the social experience of getting raped in my first year classes that I miss most."

"Yeah, that is weird."

"Thanks... oh hey, I got a guy here."

Seth, who was also doing his own sleuthing, had stumbled on another professor's computer. He looked around the computer's various files, and discovered some slides dated to be presented in the coming week.

Taking a look at the file containing the slides, Seth saw that it began with a pie chart presenting the break down of the last midterm. In this calculus class, forty-three percent of students had failed their examination, and the professor was ensuring that they all knew it. Editing the text in pie chart from his laptop, Seth changed the wording from "Failed Midterm" to "Sucked Ass."

As Seth was editing the slides, he continued to speak with Gabriel.

"I have been giving this second degree a lot of thought. Biochem was not the major I should have taken. I want to go into computer engineering."

"How many more classes would you have to take now if you wanted to make the jump? How many have you not taken?"

"I'd still have two more years to do."

Gabriel gulped down the remainder of his beer. Looking at the empty state of Seth's own drink, he asked, "Want another one?"

"Sure," came the reply.

FOUR

Kerstin

It was Friday morning. Seth lay in his bed, the low rumble of his snoring emanating from his throat. Suddenly, the cellphone by the alarm clock to his side started to vibrate in loud intermittent bursts.

The snoring stopped, replaced by a loud sigh. Seth blindly grabbed the phone, and putting the screen to his squinting eyes checked to see who was calling. He pressed a button on the cell, and in a tired voice said,

“Hey mom, how are ya?”

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As Seth went to his classes that day, he was unable to shake the thoughts of Kerstin out of his mind. He wanted to know more about her, but there was nothing to go by. They had no common friends with which to approach, and searching her name online had yielded nothing.

Later, as he walked down the bustling halls of the university with Gabriel, Seth stated,

“I think I’m going to ask her out.”

“Who? Kerstin?”

“Yeah. But whatever chance I had I think I killed it by staring at her for an hour straight without realizing it.”

Gabriel paused for a second, and remembering of an even that was to take place the upcoming weekend, said,

"So how about this: I'll invite her to the Saturday hackfest."

"She'll say no," was the quick reply.

"If it's you asking her, then maybe. Or okay, most probably. But I bailed her out with her on that microcontroller project. We've worked together a few times. Who knows, she might say yes."

"Mmm." was the resilient half-reply from Seth.

Gabriel stopped walking and looked straight at Seth.

"C'mon. You have nothing to lose. Want me to ask her in class?"

Seth conceded.

"Sure."

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Seth had installed himself in one of the rear seats of the computer lab. The professor was at the front, preparing the slides on his computer. Kerstin was at her usual seat at the front, with Gabriel at the workstation to her side.

From his position at the back, Seth could see Gabriel leaning towards Kerstin. He couldn't hear what he was saying, but he could see Kerstin turning her head towards his and saying something back. Gabriel then leaned back into place.

Quickly typing into his open terminal window, Seth sent an instant message to Gabriel.

"What did she say?" he wrote.

"She can't make it. Some family affair." Gabriel wrote back.

Gabriel could then be seen typing something else in his own terminal window. Gabriel stopped, and Seth received another message.

"Sorry bud," it said.



Seth's disappointment was further compounded by the fact that he had to work that evening – something he didn't particularly look forward to doing on this day. Still, he thought, work was money. So like the other students that were employed at this university coffee joint, he donned the green apron and concentrated on feeding the caffeine addicts their overpriced lattes.

Coming home that night, Seth opened his townhouse door to see his roommate playing a game in the living room. Glancing back at Seth removing his shoes in the doorway, he asked,

“You ask her out?”

“Yes,” Seth produced, with a sigh.

“That bad eh?”

Seth smiled back at him, but said nothing.

“Want to play a bit?” his roommate asked.

“Sure.”

Seth approached the console, and the two began to play together. Within seconds, Seth's preoccupation with Kerstin had faded into the flashy colours of his television.

FIVE

Weekend Fun

The morning sun was shining in Seth's room, and for the first time in what felt like an eternity, his alarm buzzer had no need to go off. Substituting the potential shriek of the alarm, however, was the sound of a chainsaw as a man trimmed a tree in the greenery behind his home down to size.

Seth lay in bed, the pillows squashed against his ears. Various scenarios of gruesome deaths for the worker quickly filled his mind.



Seth spent the day doing the small things he had usually lacked time doing during his busy weeks. He went and did his groceries, he washed the pile of clothes hidden behind his door, and he read up some pages from his text books.

Late that afternoon, he biked over to Eric's place. The twenty-four year old lived in his parent's single-storey home, in a nearby residential neighbourhood. Seth had first met Eric through one of the local hacker meetings that took place every month, but over the years they had become good friends.

Walking through the house's unlocked side door, Seth proceeded down the nearby steps. He could hear the discussion and the laughs emanating from the basement. "Hey guys!" he announced walking down.

Gabriel, Jinks, Eric, and a few others were in the basement. Laptops were strewn on the floor. Looking up at the new arrival, Gabriel said, "Hey! We're just watching the tail end of the new Binary Phunksters episode."

Eric's basement was a true computer enthusiast's den. Old system motherboards were hung on the walls as decoration. A disheveled desk was nearby, with an open monitor and computer parts laying on its surface. By one wall was Eric's true pride and glory: a six-foot tall mainframe server. This behemoth was considered obsolete by the data center to which it was previously home, and yet, it still sported more memory and parallel processing power than any modern desktop. Eric had managed to snatch this monolith for a mere two thousand dollars.

The guys, some sprawled on the couches, some gazing at their laptops, were all facing the projection on the wall. Eric was playing hacker shows being broadcast over the Internet. Seth sat down to join them. Taking a beer from the reserve in his bag, he flicked the imported aluminum can open, and looked up to the animated wall.

In this episode of *Binary Phunksters*, its hosts, Flow and i0, were detailing a prominent security flaw with the design of certain cellphones. As a demonstration, the duo walked down the fashion district of their native Toronto. Stopping on front of a store, they were able to turn the cellphone of an unwitting client inside into a virtual eavesdropping device. With a few keystrokes of their laptop, the voice of the client was heard over the machine's speakers. The victim was speaking with a strong lisp, discussing the importance of tie colours with a clerk. Flow and i0 finished the show by recommending basic security measures to avoid falling prey to the same kind of digital

hijacking. They then signed off and a quick bout of end credits ensued.

The projector screen turned to black, and the synthesized voice of a female came on. "Next on rootTV," it said, "Hacker Jeopardy."

"I'll get another beer," said someone.

The introduction to *Hacker Jeopardy* began. The sequence showed footage of the various sights of downtown San Jose, part of the American Silicon Valley where the show was based.

The doorbell rang. Puzzled gazes appeared on the faces of the young men. Eric spoke out "Anyone invite someone else?" There was silence.

"No," said Seth. "I'll go check it out."

"I'll pause the show," replied Eric.

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Seth walked up the stairs to the side door. He opened it. It was Kerstin. She wasn't wearing the neat clothes she wore in school – this looked more casual. More artsy.

"Kerstin?"

"Hey... you!" she said in an uncomfortable voice. She went on, "Apparently there's a bit of a comp fest going on here tonight?"

"Yeah..." Seth replied meekly. "Yeah!" he affirmed, as if the stun of this surprise had subsided into ecstasy. Inviting her in with his hands, he exclaimed "Come on down!"

Descending the stairs, Seth spoke. "Gabriel told me you were invited, but I thought he said you had something tonight."

"My birthday party," she replied.

“Oh.”

Walking down the final steps, Seth looked at the curious cocked heads. “Hey guys,” he said, “this is Kerstin. She skipped her own birthday party to be here.”

“You skipped your own birthday party to hang out with strangers?” asked Eric. “Harsh. Happy birthday.”

“Yeah, happy birthday,” said Jinks.

“Thanks but it's next week,” retorted Kerstin.

Seth glanced at the people around the room. Extending his hands towards Gabriel, he said, “Okay, well this is Gabriel, who you already know.” He went on, “We also call him riscphree.” Turning to Eric, he said, “This is Eric, who also goes by the name of colonel_panic.” Looking at Jinks, he said, “This is Jinks... Also known as Jinks – he doesn't like us calling him by his real name. Then there's Dave, aka. hacknslash, Pat, aka. rm-rf, and Greg, aka. Nirvana.” Finally, Seth said, “I'm Seth, or ion, if you catch me online.”

“Are we ready?” asked Eric.

“I think so,” replied Seth.

Kerstin and Seth both sat down. Kerstin took her laptop out of her bag, and set it up on front of her.

“Beer?” asked Dave, presenting her with a can.

“Sure,” she replied.

Eric pressed a button on his computer, and the *Hacker Jeopardy* introduction resumed. It was a quiz show, much in the same vein as those seen on network television. The host of the game show was a man in his mid thirties with already graying hair. He presented the audience with his three contestants. Two were university computer science students, and one worked as a freelance IT security specialist.

The show began, and the first contestant was asked to pick a category from a pool displayed on a very large screen. The contestant, a thin teenager wearing glasses and a stylish blouse, had chosen the *Vulnerabilities* category.

The host provided the first question, "OpenBSD is widely considered to be one the most secure operating systems ever released. Name one of the critical vulnerabilities that have been documented on the platform in the last two years." Shouts were heard from within Eric's basement as everyone tried to answer. "There was none! It's a trick question!" "No, no, there was one... what was it?" "The fake one? Does the OpenSSH hash salting problem they had count?"

The sound of a buzzer interrupted the discussion. One of the contestants had an answer. It was the security expert. "What is the DNS Bind cache poisoning vulnerability?" he asked. Answers in the game had to be formulated as questions.

"Judges?" replied the host, looking off to his side.

Following a brief pause, the host looked back at the contestant.

"No, I'm sorry, that's not among them."

The other contestant buzzed in. It was the other student, a young Asian wearing a suit. "What is the lprm exploit?" he said.

"That is correct," announced the host.

As the student had the correct answer, he was next to choose the category of the next question. He chose *Famous Books*.

"The R in K&R is the father of the C Programming language," the host began by saying. "The two also wrote the bible on the matter, often referred to by computer science teachers and students alike as the 'white book.' What does K&R stand for?"

"Kernighan and Ritchie," voiced Eric, before taking a sip out of his beer.

A buzzer went off. "Who is Kerry and Ritchie," sputtered the Asian contestant.

"No, I'm sorry," replied the host.

"Who is Kendell and Ritchie?" said the security expert.

"That isn't it either." the host said.

There was a pause. The host finally said "The answer was Kernighan and Ritchie."

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The evening wore on. The shows were still playing on the wall in the background, but the volume had been reduced to such a point that it was no longer audible. The beer flowed freely, and the evidence of its use littered the floor. The youngsters, having lost all awareness of the noise level of their own voices, were speaking with great excitement on all subject matters. Those that weren't actively engaging in the discussions were transfixed by the glow of their laptops. Eric was going off speaking about the hidden wonders of JavaScript to Kerstin.

Dave, meanwhile, was off in his own tangent. "You know how there's six degrees of separation? Well with the active hacking/phreaking community it's like there's two degrees of separation – we all know pretty much everyone, and if we don't know them, then we know someone who does."

Pat and Seth sat by his side. Pat said, "You think so? I don't know. I don't know anyone from the Computer Chaos Club. Or anyone that knows them."

Dave quickly replied, "Okay but that's like Europe. Think of this continent though. We kinda know almost everyone - you know what I mean? I'm sure its like that in the demo scene too. Or the open source community."

"Yeah, I guess," Pat answered.

Greg came by Dave, Seth and Pat. "We're going outside for a bit of 420," Greg said, "want to join?"

"Yeah sure. Guys?" Seth replied, looking to Kerstin and Eric,

"I don't smoke marijuana, but I will go out with you guys," responded Kerstin. Eric was already putting on a jacket to go outside.

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The guys were out on the back deck of Eric's house. Muffled music was emanating from within the house. A lone porch light lit up the scene. Seth, Eric and Dave were huddled together in the cool night, smoking a joint.

The trio were passing the joint around. Dave took a deep puff, and passed the smoke to Seth. Seth breathed the air out of his lungs, and inhaled with the joint at his lips. He was already buzzed from the beer, and it was doubtful that the drug could do anything more. Yet it did. He took another puff before passing it on to his right. He coughed a bit.

Seth, beer in hand, walked off to where Gabriel and Kerstin were talking. The two were leaning over the wooden railing of the porch.

Seeing Seth arrive, Gabriel said "Kerstin was just telling me why she came to Ottawa U."

"So anyways," Kerstin continued by saying, "their IT department got all crazy and started to blame me for everything that went wrong with their network. Greater latency? They were saying I was causing it. Some server crashed? They'd blame me for it too. It was so stupid. They were telling me that they were going to expel me. They called the police."

Seth was blinking his eyes, trying to maintain his focus. Kerstin drank from her beer and went on, "My dad is a diplomat here. He got me to transfer out of the university in Berlin and worked hard so that I could start here."

"So what's with the deal of you skipping your b-day party?" asked Seth.

The three were now resting their shoulders over the railing. Kerstin looked towards Seth. "I love my dad. I hate his Canadian wife. No offense."

"Shit," responded Seth, grabbing another swig from his beer.

"So Kerstin, does that mean you can root a box then?" The voice came from from Jinks, who had just installed himself on the railing as well.

"Whoa. I didn't even see you there," said Gabriel, looking over his shoulder.

"What kind of question is that?" asked Seth.

Playfully, Kerstin replied, "What, are you saying I couldn't?"

"No, no," retracted Seth.

"Are you saying girls can't hack?" continued Kerstin, with a big smile.

"Would you like me to be saying that?" returned Seth, with an equally large grin.

"Is that a challenge?" replied Kerstin, taking another drink from her beer.

"It could be if you wanted it to be," toyed Seth.

"Fine. Name your terms," she returned. She was enjoying this.

"If I win, we go on a date."

Still smiling, Kerstin said "Two problems with that. One – it's kind of creepy. Two – I'm not a whore."

Hurt, but still donning a cheery voice, Seth replied, "Okay, name your terms there."

"If I win -"

This sentence fragment was the last thing that Seth would remember hearing that night. He slipped out of consciousness, and into the black hole of alcohol over consumption.

SIX

The Challenge

Seth awoke into consciousness. It was day, and he was sitting cross-legged on the corner of a busy street intersection. He had no idea where he was. Thankfully, he wasn't feeling any after effects from the alcohol. Glancing at his watch, Seth saw that it was just after eight o'clock.

He checked the pocket in his pants for his phone. It was there, but his bus pass was not. He searched his other pockets. Everything was there, except for his bus pass. The money in his wallet was also curiously absent.

Seth grabbed the phone. There were three missed calls. He called up Gabriel.

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Gabriel was on the carpet floor of Eric's place, in a deep snooze. The phone in his shirt pocket started to vibrate and glow through the cloth as it rang.

"He..llo?" answered Gabriel, in a tired voice.

"Gab, what happened last night?" returned Seth who was by this point fully awake.

"Spiked drinks," Gabriel retorted. "Oh, and you and Kerstin are doing a competition of sorts."

"For real?" came Seth's reply.

"Yea. What time is it?" asked Gabriel.

"8:12 AM"

“Call me later and we’ll talk about it.”

Gabriel did not wait for Seth's reply. He fumbled his fingers around his phone and shut it. Seth meanwhile looked all around him. He truly had no idea of where he was. He started walking down the main road, hoping to see some sign of something that would help him to place himself.

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Seth, Gabriel, Kerstin and Eric sat outside, around the small table of a student-run coffee shop near campus. It was a beautiful Sunday afternoon. The sky was a clear blue, and the unusually warm weather was punctuated with a refreshing breeze.

“Are you guys still in?” asked Gabriel to both Seth and Kerstin.

“Yes,” replied Kerstin.

Looking at Kerstin, Seth's reply followed, “Yeah, yeah.”

“So here's the deal,” Eric began saying. “You each will perform some kind of technically challenging social feat. The winner will get bragging rights, but as you so enthusiastically agreed to last night Seth, the loser will have to wear a dress for a day. A school day.”

“Did I really agree to this?” asked Seth.

“Yep,” was the cacophonous reply from the others.

“That's not particularly fair is it?” Seth retorted. “Her being a girl and all.”

Gabriel was the one to speak. “You chose the terms Seth, not us. You can still back out if you want.”

“No, its all right. I'll do it,” replied Seth, unconvinced.

“Awesome,” Gabriel said, “Eric and I will be the judges.”

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Seth was standing on the grass by a parking lot of the *Lawmart Megastore*, holding his open laptop on his arm. The massive building was home to everything from everyday housewares, to groceries and electronics. Kerstin and Eric stood beside him. Gabriel was inside the store, pretending to shop. He sent a message to Seth's cellphone. "Ready," it said.

It was time to execute the plan. Seth used his laptop to connect to a local unprotected wireless router. This gave him access to the Internet from his position in the parking lot. He then launched a program that gave him access to the telephone network via the Internet, allowing him to make calls from his laptop. The calls were not free, he paid for the service using a prepaid credit card he had purchased at a convenience store. However, this meant that he was able to place calls with complete anonymity.

Seth looked up the phone number for another *Lawmart* store on an online directory, and called it up. He was greeted with a recording, "Welcome to Lawmart Megastore." There was a pause. "For cookware, please press one. For electronics, please press two. For hardware please press three."

Seth pressed the three key on his laptop. A multi-frequency tone was heard over his speakers, followed by ring tones.

"Hardware," came the reply from the other end of the line.

"Hey – I'm James with electronics?" said Seth.

"Yeah, whats up James," replied the voice.

"Well uh – you see I gotta make an announcement over the intercom about a sale. Manager's not here though – do you know what it is we have to press to get on the PA?"

"Star four seven," answered the voice.

"Thanks."

With that, Seth hung up. He then looked up the number for the store on front of him. He called it up on his laptop. Upon hearing the recording, he pressed the star four seven keys. There was a click. He was now on the air.

Seth began to speak into the microphone built into his computer. With a particularly artificial cheery voice, he said “To all shoppers in store at this time, listen up! We have Mango portable media players to give away to the first four customers that reach Isle 5! These players are valued at over \$400, so get down there now! No strings attached!”

Meanwhile, Gabriel was in isle five. It was in the grocery part of the store, and he was glancing at the dairy products that line the refrigerated racks. Seth's announcement had just been aired on the intercom. Gabriel stood up, and looked at either end of the desolate isle.

The faint ruckus of clanking shopping carts could be heard. It was getting louder. Much, much louder.

Back outside the store, Seth received a second message from Gabriel on his cellular phone. “Success!” Kerstin smirked.

“A nice prank, but overdone,” she said.



Seth was running down a sidewalk in the concrete jungle of car shops and laundromats. It was Kerstin's turn, and he didn't want to miss it. She had told him and the others to meet that evening at a small pizzeria in the west part of town. By this point, he was almost there. He could see the sign of the pizza place glowing in the distance.

Seth almost stumbled as he entered the restaurant. It was a small joint, with a single long table manned with bar seats facing the large windows. Facing opposite was the serving counter, with a single cash register. The place didn't look particularly clean, or popular.

Seth found Kerstin waiting inside with both Gabriel and Eric. She was wearing an orange-coloured reflective jacket, akin to that worn by construction workers.

"Sorry guys," Seth said, still hyperventilating. "I took the wrong bus."

"It's okay," Kerstin replied. "We just got here five minutes ago. Here, take this."

Kerstin pulled a blank clipboard out of her bag, and passed it to Seth. He stared at it.

"You'll see," she said, as if to appease his curiosity. Looking at the other two, she proclaimed, "Okay, well, let's go."

They walked out the front door and onto the sidewalk of the adjacent roadway. The road was a major artery of the city, feeding the east-west line. It was also usually very busy, although on this Sunday evening it was all but dead. The group walked down the sidewalk for a bit, chatting, before Kerstin went towards the road and stopped.

She was standing by a large mobile electronic construction sign, the type that informs oncoming traffic of temporary lane closures and construction work. She looked around.

"We're too many," she said. Pointing to Gabriel and Eric, she said, "Can you guys go over there by the post? I'll work here with Seth."

"Yeah no probs," Eric returned.

The two walked off, leaving Kerstin and Seth together. He now understood the purpose of the clipboard and reflective jacket - they were both a ruse to fake a sense of legitimacy. He smiled at this realization. He looked towards her, as she prepared her gear. She truly was the most incredible girl he'd ever met, he thought.

Kerstin unfolded a small leather satchel. Within it was a collection of neatly organized thin metal instruments. Seth recognized them as the standard tools in a beginner's lock picking kit. Pulling out two small metal tools, she started to attack the padlock that kept the large orange control box underneath the electronic display shut.

"I'm having trouble with the lock," said Kerstin, after minutes of unsuccessful fidgeting. Seth looked around, and could see both Eric and Gabriel off talking in the distance.

"No problem," he said, turning back to Kerstin. He moved towards her, and grabbed the tensor from her left hand. The tensor was a thin L-shaped piece of metal that was crucial in the process of lock picking. She then passed him the other small metal tool that she had been handling. This one was a little thinner than the tensor, and had a thin curved tip. Using the two in concert, he was able to produce within thirty seconds the definitive click of an unlocked padlock.

"Thanks," she told him.

"Don't worry. As far as I'm concerned, you opened that," Seth replied.

Kerstin grabbed the manual from inside the control box. After reading for a few seconds, she grabbed the antiquated keyboard that was stored to its side and plugged it in. She started to type.

From a distance, Eric and Gabriel saw the sign change from *'Highway closed August 15-17'* to *'Live Nudes, Exit 122'* Seth let out a chuckle.

Seth and Kerstin both walked back to Eric and Gabriel.

"Not bad, not bad," said Gabriel.

"I like it," said Eric.

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The next day, the four pranksters collected between classes on a bench by the university library. Seth was on his laptop, holding the one side of some headphones to his ear. He pressed a few keystrokes.

"Okay," he said, "it's almost ready."

He unplugged the headphones from the machine, and stared at the motionless screen. All they could see was that Seth was again using his laptop as a telephone.

"What is it we're waiting for?" asked Gabriel.

"You'll see," was the cool reply.

The group stared at the screen. Suddenly, a double beep was heard from the computer speakers. Seth placed a single finger to his lips, motioning the others to keep quiet. Speaking in a style akin to that heard on a recording, he began to talk.

"Hi and welcome to Radeon theaters. For movie listings, please press one. For -"

A single tone from the other end of the line interrupted Seth.

"I'm sorry, but the tone did not register. Please press harder," he replied. After a brief pause, the same short multifrequency tone was renewed from the other end. "No, press *harder*," emphasized Seth.

The tone was heard again, but this time it lasted a few seconds. Seth raised his voice.

"PRESS HARDER DAMNIT!"

The caller replied with a six second long beep. Seth resumed his calm demeanor. "Thank you. Unfortunately, all our recordings are busy at the moment playing the theater times to other customers. Please hang up and call back later."

A double beep followed. The caller had hung up. Looking back at the others, Seth explained. "I took over the phone system for the Radeon theater out in the east end."

"How?" asked Eric.

"I just called up the telephone company and pretended to be the manager. It was easy. I ordered call forwarding on their line and got them to reroute all the calls they would normally get to this friendly conference number," replied Seth.

Another double beep emanated from the laptop's speakers. Someone else had called the theater. The others grinned in anticipation.

Instead, of repeating the seemingly pre-recorded introduction, Seth spoke naturally.

"Hello, Radeon Theaters."

There was no reply. Seth spoke again.

"Hello?" he said.

"Oh hi there. I was expecting a recording," came the middle-aged female voice on the other end.

"Yeah, the system is down for today. Is there anything we can help you with?"

"Well, I just wanted the times for your movies today?" replied the lady.

"Sure thing. We have *Bush Hour*, playing at 4:45, 6:30, and 8:15. Then there's *Free My Willy*, playing at 5:15, 7:10, and 9:20. There's also *Saving Ryan's Privates*, playing at 5:00, 6:45, and 8:30. *Good Will Hunting* is on as well."

"Got anything with kids?"

"Do we ever!" interjected Eric.

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It wouldn't be until two weeks later that Seth and the others would convene once more to witness Kerstin's much anticipated grand finale. They were told to meet outside of the *Nekôtel* building downtown, an average fourteen story tall office tower that nary stood out in the high-rise laden surroundings.

Seth waited by the night sky with Gabriel. Eric walked up.

"Hey guys! Seen Kerstin?" Eric asked.

"Nope," replied Seth.

They waited. Seth exhaled slowly against his hand to see if he could produce any condensation. Finally, Kerstin came out with a business-like strut from the building's front entrance, brandishing the clipboard.

"Hey you! So where's this big finale?" jested Seth.

"Oh, you'll see," she returned, smiling. "Follow me."

The men followed her to the other side of the building. They crossed the street, and stopped facing the back of the office tower.

"Look up," she said.

The group looked up. Eric was the first to speak out.

"Oh my god."

“That's frickin' epic,” said Gabriel.

Kerstin had transformed the outside of the building into a large digital billboard. The office lights had been turned on and off to produce the shape of a giant heart. The group stared on, in awe.

Seth looked back down at the prodigious girl.

“How did you...”

Kerstin did not immediately reply, but instead smiled back at Seth in a manner he had never really seen her do. The bright office lights shone off of her cheek.

“It took a week to get to this point,” she said, looking back up.

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The next day, the group met on the roof of one of the city's many downtown buildings. They were on a well groomed public terrace located at the top of a large unassuming shopping center.

From his vantage point, Seth could see down to the tattoo parlors and smoke shops that populated the bottom. He turned back to face Kerstin, Eric, and Gabriel. Dave and Pat had also decided to join along for the event.

Eric was by his open laptop. He clicked a few buttons, and the machine started to produce the steady sound of a drum roll. Eric held up his hand as if it held the name of the winners.

“And the winner is...” he began.

The pause in his speech was sustained by the persevering sound of the drums. The percussions concluded with a loud reverberating clash of the cymbals. Eric took a deep breath.

“Neither of you. Or both of you if you want to think it like that. Its a tie.”

Kerstin was the first to speak out, “Oh come on, you guys suck!”

“Now, now,” Eric replied, “you guys were both good. Kerstin with the Nekōtel stunt and Seth with the accumulating of 2,530 university login credentials and counting.”

“So you're just going to leave us hanging?” asked Seth.

“Do you *want* to wear a skirt?” retorted Eric.

“Fair enough – I'm convinced. Do you guys want to go get hammered?” replied Seth. The faces nodded in approval.

“Sounds good to me,” said Gabriel.

The group packed up their bags and walked back inside the building.

SEVEN

Rice Tea

It was a beautiful afternoon, and Seth was in the backyard of his townhouse, enjoying a beer as he poured over his school notes. His laptop was open on the table to his side.

His focus on the ink-laden papers was interrupted by the squeaking of the house's opening screen door. Seth's roommate walked out, hamburger patties in hand.

"I'm going to cook some burgers. Want anything on the barbecue?"

"Yeah sure. I'm going to go get some of my dogs."

Seth put his beer and notebook down and disappeared in the house. He came back out with two large wieners held in a paper towel. He lay them to the side of the soot-stained barbecue.

"So how's university going for you now?" asked Seth.

"Same as usual. Raping me up the ass," replied the roommate.

Seth grabbed his beer and took down a gulp. "Heh – same here," he said. "Seen your exam schedule yet?"

"No, didn't even know it was out," said the roommate, as he lay his hand over top of the barbecue's burner to ensure that it was indeed on.

"Yeah, they put it out two days ago," informed Seth.

The sound of three harmonious bells emanated from Seth's laptop. Seth had setup his instant messaging program to produce such a soft audible alert whenever Kerstin logged on to the communication network. He walked towards the laptop.

"Just a sec," he told his roommate.



Kerstin rested back in her room's computer chair, scrutinizing the ceiling's imperfections as her leg rocked her seat from side to side. Her eyes made no contact with the blank word processor document that adorned her monitor.

Her computer produced a chime, and a new window opened on her monitor. It was Seth. He had sent her an instant message.

"Hey K," he wrote.

Kerstin looked back at the monitor, and typed in a message back.

"Hey"

"Are you a big fan of rice tea?"

"Rice tea?" she returned.

"We're all meeting at the *Tea Foundry* tomorrow for a bit of wireless mischief. You in?"

"Sure."

Seth smiled and looked back at his roommate.

"Looks like I'm seeing her again tomorrow!"



It was a cloudy day, and the threat of rain loomed above as Seth navigated down the city's large open market. Produce sellers and ethnic food stalls lined the streets. Finally, he reached the small joint that was the *Tea Foundry*. It was one of many such outlets in the large barn-like complex that was at the heart of the market.

Kerstin and Gabriel were waiting inside, enjoying some of the *Foundry's* imported specialties. Seth spotted them and walked towards them.

"Hey guys! Been waiting long?" he asked as he sat down.

"No, no. We just got here. Eric can't make it today, he had to cover for someone at work," Gabriel replied.

"That's too bad," Seth returned. Looking at Kerstin, he said, "So did Gabriel tell you what we were doing today?"

"Not yet, no," she replied.

Seth took out the laptop from his bag and opened its cover. He pressed the power button, and returned his attention to Kerstin.

"Okay, well here's the deal. We're right now in lunch-time central. This is where all the government people take their breaks, chat it up with buddies, whatever. There's also more laptops here per square kilometer than anywhere else in the city. As such, wireless Internet here is a must. Now guess how many wireless access points are within range."

Kerstin shrugged. With a big grin, Seth raised two fingers.

"Two?" she stated.

"Two," Seth confirmed.

"Actually, there's about twenty access points within range here. But they're all either encrypted or require you to pay something ridiculous," Gabriel clarified.

Seth continued. "So all these people that are out here during their lunch hour can only connect to these two routers if they want free Internet access. What we then do is that we connect to one of these, and perform a little ARP cache poisoning. You know what that is?"

"It's for man in the middle attacks on networks," Kerstin said.

"Have you done this before?" asked Gabriel.

"I tried it once on a Windows box, but couldn't get it to work," she answered.

"You'll see its easy," Gabriel said. "What we do is that we use that attack vector to essentially reroute all of the traffic here through our laptops. And that's where we have a bit of fun."

Seth picked up for Gabriel. "Because these people have their traffic rerouted through us, we can intercept and manipulate their data packets. Mess with their Internet connection a bit."

Seth looked at his laptop. "So I have a guy here for instance." He swiveled the computer on the table so that it faced her. Raw data from someone's connection to the router was being displayed on his screen. Seth continued to speak. "As you can see, he's surfing right now on an online store. Nothing too special, but if we wanted, we could do anything from replace the pictures on the websites he visits, to spoof SSL certificates and nab his credit card info."

"But we don't touch credit cards, or anything like that," clarified Gabriel.

"Speaking of which, I think I have a real contender here," said Gabriel, as he looked at his own laptop screen. "This guy is surfing the profiles of fourteen year old girls on a photo album website."

"Oh-ho. Sleazy. I like it," replied Seth, grinning.

"I have the perfect idea for this one." Gabriel typed adamantly at his keyboard. "I'm going to write a little filter so that the next time he visits a page, it gives him a little surprise."

Kerstin turned to Seth. "You guys are unbelievable."

"I know," replied Seth. "Isn't it great?"

"Awful. Absolutely awful. Which packages are you using to do this?" Kerstin asked, smiling. Seth moved towards her and her idle notebook computer.

"Here, I'll show you," he said.

The sound of a woman in mid orgasmic groan erupted from the patio of the Indian food restaurant to their side. Seth looked out, and saw a man quickly clasp his laptop shut. It ceased the loud embarrassing sound. Gabriel was laughing.

“Your doing I presume?” Seth asked.

“I just couldn't resist. The guy was looking up pics of fifteen year olds. I mean c'mon!”

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The trio worked at their laptops for the next hour. Seth helped Kerstin get set up, and within minutes she too was manipulating the network connections. Gabriel meanwhile was enjoying tormenting a man who was chatting with his girlfriend. Reading the man's emails revealed that he had in fact many, many, other girlfriends that this current love interest didn't know about. Gabriel couldn't help but smile as he replaced the words in the adulterer's instant messages with his own. No matter what the confused man wrote, Gabriel would only replace it with snippets of the emails that the man had sent to his other victims. Pure carnage unfolded on his screen.

“Oh this is neat,” Kerstin said, looking at her laptop. “Someone is accessing a computer via SSH.”

SSH was short for *Secure Shell*, an encrypted means of communication that allowed for users to log into computers remotely. With it, a system administrator could directly access a faltering work server from home, and attempt to fix it. Seth often used it to check up on his own home server from school.

“Let's see what's in it,” Seth said.

“But it's encrypted,” she replied.

“Yeah, that's true. But there's a way to intercept the encryption keys. Sending our own public keys instead of the server's to the client or something,” responded Seth.

“Let's do it,” Kerstin said.

Seth smiled. "I like your thinking. I got some guys I can ask around for some help."

"Alright," Kerstin responded, "I'll see if I can find anything online."

While Kerstin and Seth worked on finding out how to usurp the integrity of the secure communication, Gabriel had moved on to a new victim. This new target was surfing websites that spouted hate messages against the gay community. Gabriel proceeded to rectify the situation by replacing all the images on the websites that the homophobic man visited with pictures of the most perverted gay porn he could find. Right before the bigot so abruptly disconnected from the network, Gabriel could of sworn he heard a yelp from outside.

Kerstin sat back, stretching her arms.

"I found how to do it," she said, in the middle of a yawn.

"Great," replied Seth. He moved his seat to her side.

"I'm about to do it now. I'm sending the guy a bunch of reset packets so that he's forced to do the exchange of encryption keys."

Kerstin typed a few keystrokes on her computer, and stopped. She just stared at the screen, along side Seth.

"His connection was reset," she said. "Now we wait. He might not reinitialize the session. If he doesn't, we won't be able to get anything."

Kerstin had three terminal windows open on her screen, each monitoring a different aspect of her attack. The screen stood idle. The duo looked on intently to the motionless monitor. Then suddenly, one of the terminal windows started to update with a flurry of activity. The other windows followed.

"He went for it!" she exclaimed. "I'm dumping the output into a file."

They had managed to usurp the encryption. Yet, as the moments passed, something seemed to be amiss.

"He doesn't appear to be doing anything with the connection," said Kerstin.

"This is surprisingly boring," noted Seth, his face leaning on his palm as he looked at the static image of the monitor.

"Yes it is. How about we just leave the capture running and move on," she proposed.

"Sounds good," replied Seth, getting up to shake his blood-deprived legs.

The pranksters spent a few more hours at the *Tea Foundry*. While Gabriel continued to pick on the bigoted, Seth and Kerstin shifted to work on a programming assignment for school. Finally, with the sun beginning to set down, the three decided to call it a night.



It was the evening, and Seth was back in his room, reading a book on Geospatial Information Systems for a course he was taking in university. The cellphone on the table on his bedside began to vibrate and ring.

Seth leaned over and grabbed it. Gabriel was calling.

"Yo Gab, what's up?"

"VNC into my box."

VNC stood for *Virtual Network Computing*, and it allowed Gabriel to send the contents of his monitor in compressed form directly to Seth. For Seth, he could now see what Gabriel was doing at his computer as if he were at his side.

"Now dude? I've got a hundred pages to read for class tomorrow."

"Remember that SSH traffic you intercepted today with Kerstin?" Gabriel asked.

"Yeah?" replied Seth.

"Well she sent it to me because she wasn't gonna get a chance to look at it tonight. Anyways, I went through it. Right after you guys stopped paying attention to it things got a whole lot interesting."

"Okay, hold on, I'm gonna log in."

Seth moved to his computer nearby. It was already on. He started a program, and within seconds was logged into Gabriel's machine. The contents of Gabriel's monitor filled his own screen.

"Okay I'm in," Seth said.

"Yeah, I can see that," responded Gabriel. "Okay, look at this. What does this look like to you?"

Gabriel had opened the contents of the SSH session that had been captured earlier that day. It was pages and pages of text, much of it garbled, but Gabriel had one particular part highlighted.

"IRC conver- ... no... commands to a botnet?" wondered Seth.

"I did a bit of research online. These commands follow the syntax of the Météo botnet. He also sent these computers some kind of executable. One of the commands made them download it from some compromised corporate server. I grabbed it and sent it off to Eric. He's good with that stuff."

Botnets were the modern scourge of the Internet. Computers from all over the world were being infected with viruses and worms so that they could be made into mindless *bots* at the control of a malicious central authority. The machines were then used as instruments to send spam, attack legitimate websites,

and partake in other nefarious activities. The more *bots* were in a botnet, the more powerful it became.

“Shit on me. How many clients are in this one?” asked Seth.

“I counted seventy-five infected machines,” replied Gabriel.

“So it's a small botnet.”

“That's where it gets even more interesting. Check the name of the bots. I'm highlighting them for you now,” said Gabriel.

“test001, test002... what the? This is a test setup or something?” wondered Seth.

“Yeah, I bet you anything that the guy has a larger botnet somewhere and that this is to test the executable. I think it's an update file,” Gabriel mused.

“We should do a write up on it. A basic overview of what happened. Put it on the *Digital Losers* website.”

“Solid idea,” Gabriel said. “Let's meet tomorrow and see what else we can dig up about this.”

“For sure. Isn't this insane?”

“No kidding. I'll call Eric up for tomorrow. You'll see Kerstin in class, right?”

“Yeah I will. I'll talk to her there. Good night,” Seth replied.

“Night,” concluded Gabriel.

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Seth lay in bed. It was past two in the morning, and only the glow from his laptop screen remained to illuminate the room. Seth looked on to the computer at his side, and at the article he had just written for their website. He had titled it '*The Botnet Chronicles*'. With a look of satisfaction, he clasped the device shut.

EIGHT

Return of the Blackhat

While Seth slept with his laptop at his side, the cogs of the Internet spun. Not too long after the article was posted, it was discovered by one of the many technical-minded individuals that frequented the *Digital Losers* website. Believing that the content would appeal to others, the web surfer submitted the article to the *Dotslash* technology news outlet.

These news websites depended entirely on the contribution of users for their content, and articles on the elusive botnets always made a good read. Within an hour, the article was accepted and made the front page of the site. Within another sixty minutes, more sites picked up on the story.



In the basement of his home, the blackhat hacker sat staring at his monitor. A pool of empty aluminum cans surrounded his keyboard. A clock on the bottom of his screen indicated that it was just shy of 5AM.

Tired of discussing conspiracy theories with scriptkiddies, he closed his chatting application. He let out a deep breath, and opened another can of cola. The familiar sound of its escaping pressurized contents filled the room. With the can in one hand and the computer mouse in the other, the bored hacker launched his web browser. He navigated to a computer hardware review site.

Stories on the latest processors and video cards consumed this hacker's screen. However, it was the word 'Météo' on the side of the window that grabbed his immediate attention. It was an automated news feed circulating the top stories of the hour. He clicked on the feed's link. The contents of the following page nearly made him spit out the carbonated contents of his mouth.

The article was about the botnet he had been working on that very day. This group, the *Digital Losers* as they called themselves, had somehow managed to intercept the interaction between him and his remote computer. How this was done was not clear, but the *Digital Losers* were promising more details the following day.

Panicking and unsure of this had even happened, the blackhat immediately extracted his laptop from his briefcase and scanned it for any suspicious activity. He wanted to make sure that his machine had not somehow been infected. Perhaps, he thought, these guys had sneaked keylogger or other malicious program on his portable computer.

Finally, after half-an-hour of tearing through his machine, the hacker sat back in his chair. He had determined that his computer was not compromised. Still, he thought, he had a big problem on his hands. He had been discovered. This was not good.

The hacker looked back up at the monitor on his desk. There stood the article that Seth had written. Bringing up a terminal window, he ran the WHOIS command against the *Digital Losers* website. The WHOIS command looked up the various databases on the Internet to display contact information about a particular website's owner.

However, the WHOIS data for the *Digital Losers* site was useless. They had hired the services of a company to act as an information middle man, with their own contact information substituted for that of the company's. It was a popular strategy amongst website owners to minimize the risk of spammers obtaining their valid contact information.

Unphased, the hacker then looked up past WHOIS records for the website. Though the contact information was now hidden, he thought, perhaps it wasn't always so. His persistence paid off. Within seconds, he was presented with Seth's full name, address, and phone number.

"You're going down," he muttered to himself.

NINE

Chaos

Seth lay sprawled in bed. His snores echoed throughout the room. The phone on his bedside began to vibrate, each burst moving it closer to the table's edge. Finally, the bursts stopped.

A few moments later, Seth's desktop computer turned itself on. A voice chatting program started on its own. Within a few short seconds, Gabriel's voice emanated through the speakers of Seth's computer, "Seth SETH Seth SEEEETH WAKE UP."

Seth's groggy voice responded from behind the protection of a pillow. He did little to hide his annoyance.

"Whaaaaat..."

"You have to see this," said Gabriel.

"Later dude."

"No, this is serious. Get up now."

"Fuck. Fine," said Seth, getting up from bed.

Walking over to his computer, he saw that Gabriel had already opened a bunch of websites for him. His squinted eyes turned wide open.

"What.... the... fuck," said Seth.

Seth was looking at a *DotSlash* article, with the headline '*Digital Losers behind Météo botnet?*' He quickly read the opening paragraph.

Claiming to have intercepted an update yesterday, it appears that audiences were duped by the Digital Losers hacker gang in following the wrong lead. As evidence

shows, this was a ruse in pointing the audiences away from the true authors of the nefarious worm – themselves.

“I didn't write this. What the hell,” retorted Seth.

“Did you read the user comments on the article?” Gabriel replied. “They generally think that it's actually us. I checked it out. There are fake forum posts Seth, with our handles on them. There are IRC logs of conversations we apparently had. All of it points to us. They're saying that we were the ones to control the botnet and release the update.”

“What the fuck! We were the ones to tell people about this,” shouted Seth.

“I know,” responded a calm Gabriel.

Seth glanced at one of the other articles that Gabriel had put on his computer.

“Ah shit,” he said. “There's even IP addresses pointing to us?”

“Pointing towards Ottawa. They assume its us.”

Seth continued frantically to read through the articles.

“It gets worse,” continued Gabriel.

“What?”

“A new update was released overnight on the botnet.”

“The one we intercepted?” asked Seth.

“That's what's fucked up,” Gabriel said. “Someone disassembled it and found more evidence pointing to us too.”

“We're being pinned for this botnet?” responded Seth.

“Yes. Yes, we are. I talked to Eric. From what he saw, the version of the update we intercepted doesn't have all that stuff that incriminates us,” replied Gabriel.

“These articles are implicating Kerstin too,” said Seth as he got his bag ready. “We have to tell her.”

Seth walked through the side door of Eric's house. Gabriel was there to greet him inside.

"It's worse now," he said to Seth. "I thought they were blaming us for a small Météo-based botnet. Pinning us as copycats controlling a few hundred machines. I mean that's what I thought we had found right? Being involved with a small botnet like that is still serious shit, but that I can deal with."

"What did you find out Gabriel," said Seth.

Gabriel was having trouble keeping his composure. His voice was trembling.

"What did you find out," said Seth again, who started to share Gabriel's sense of panic.

"They're pinning us for *the* botnet. The main botnet – the one with three million bots."

"You're fucking with me," responded Seth.

"No man," said Gabriel, "I'm not. Not about this. Not about this."

"What was the evidence in the update pointing to us?"

Eric walked up the stairs, to the entrance where Seth and Gabriel had been standing.

"There's an MD5 hash in a string in the code," Eric said in answer. "Someone passed it by a rainbow table and got '*digi_l0serz*' out of it. As in the Digital Losers. You guys."

"Wait – let me get this straight," replied Seth. "You're telling me that somewhere in that botnet code, there's our names written in there?"

"Yes," said Eric.

"How would they even get that string of text from the MD5 hash in the first place? I don't know of any public rainbow tables databases that could accommodate that many characters. And no one could generate it on their own, it would take forever. Not

overnight like that.”

“That’s what we thought too,” answered Gabriel. “Whoever supposedly decoded that MD5 hash is in on it too. Just like whoever sent that update. Or maybe they’re the same person. I don’t know, and at this point, I don’t fucking care. Whoever it is, they’re framing us.”

“The MD5 string,” asked Seth, “what is it for?”

“I don’t know,” replied Eric. “I didn’t analyze that version of the update.”

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The trio sat in the couches of Eric’s basement. Seth spoke.

“So we’re being framed for creating the single biggest network of infected computers in modern history. Don’t these machines send like twenty billion spam emails a day?”

“Yeah. I checked it up. It’s behind of a fifth of all the spam out there,” said Eric.

“This is bullshit,” Seth replied, shaking his head.

Gabriel turned to them from Eric’s computer. “Guys, I can’t even access our site anymore.”

Seth’s pocket vibrated. He picked the phone. There were nine missed calls. His phone showed the phone number of the incoming caller to be 000-000-0000. He answered.

“Hello?”

A low voice replied. “Fucking spammer I’m going to find out where you live and kill you. Oh wait - I already know where you live.”

Seth clasped his phone shut, his face was pale.

“Who was that?” asked Gabriel.

“A death threat,” he replied meekly.

“Are you fucking kidding me?” Gabriel retorted.

Eric stood silent, helpless, looking at the pair.

“What if this doesn't stop?” asked Seth. “What if one of these guys actually goes after me?”

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Inside a building past its architectural prime, walked a bespectacled man. Corporal Graham DuHamel was in his early thirties, with unkempt hair that defied the neatness of his general attire. He stopped on front of one of the doors in the institutional halls, and took out his keys. He swiped a thick plastic card by a black device attached to the wall at the door's side. The action reciprocated a beep, and the man walked through the door.

The room that Graham entered was compact, lined with five strategically placed oversized cubicles that sported top of the line computers. He was in the High-Tech Crime Unit of the RCMP, the Royal Canadian Mounted Police, based in London, Ontario. He made his way to the cubicle at the back, where a man sat preoccupied by the contents of the screen before him.

“Hey Kevin, did you see this?” Graham asked him.

“Hold on a sec,” replied Kevin. After a few more seconds of observing his screen, he looked up to the man and said, “Okay, what?”

Graham held up a sheet printed out from his computer. It was one of the online news article about the Météo botnet. “Apparently the people behind the worm screwed up and gave away their identities,” he said.

“Good stuff,” Kevin responded, returning his attention to the monitor on his desk. News of this nature wasn't anything noteworthy. The identities of the unsavoury types that filled the annals of the Internet were regularly being uncovered. Identifying them wasn't the issue. The problem, rather, was bringing these people to justice, especially when they resided in countries not friendly to Western authorities. Though inroads

had been made in the last few years, prosecutions remained a rarity. That's why Graham knew that what he was then about to say would make all the difference.

"They're Canadian," Graham said. Kevin's eyes immediately locked themselves on his.

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Eric was going on a tirade. "Don't you see? Every time the RCMP or FBI want to bust these fuckers, they always hit a brick wall. The evidence ends up pointing to some server in the Ukraine, the hosting company refuses to give them any logs or IPs, and they're stuck. Now here you are – Canadians. And the evidence is presented to them on a silver platter. The RCMP is going to be all over you."

"So we come clean," Seth suggested. "Tell the RCMP everything."

"Are you shitting me?" replied Eric. "They don't care if you did it or not. If it suits them to think that you did it, they will fuck you up until the only real option is for you to plead guilty. That's what they did to Nate. You know that."

"What makes you think they'll come?" asked Seth.

"What makes you think they won't?" was Eric's instantaneous reply.

"Because," Seth said, "the only thing pointing to us right now are some forum posts and some code. It's bullshit!"

"It doesn't matter. The whole intertubes thinks you're guilty. Plus look at what you write about on your site - stories of computers you dicked around with, phone systems you jacked. What do you think they'll see that as?"

"Fuck what they think," retorted Seth.

Eric was livid. "Fuck that? Fuck *that*? Fuck the RCMP?"

Gabriel had quietly watched the exchange between the two. He spoke out.

“Who guys... just...”

He didn't know what to say. He was himself in deep personal turmoil.

“...just stop it alright? Kerstin's going to be here any second, we better figure out what we're going to tell her.”

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At the RCMP offices, things were moving forward. Kevin and Graham were sitting together in an office. Opposite to them was their Master Sergeant, an imposing figure and twenty year veteran investigator for the force.

“I got a call from media relations,” the Master Sergeant said. “A reporter from the *Globe* phoned them this morning. They're wanting news about these Canadian hackers. Media gave them a generic response, but we have to figure out what we're going to do here.”

Graham spoke. “It looks pretty clear cut. We'll just get a search warrant, clone their drives, and get the evidence we need. We're in, we're out, it's done.”

“I did a quick search on these guys,” Kevin said. “They did a video presentation at a hacker conference on how *not* to get caught. As in how not to get caught breaking into computers. I don't think we'll have any problems getting that warrant passed legal.”

“Good,” said the Master Sergeant. “Keep up the pace. The last thing we need is for them to be tipped off and have those hard drives end up in the river.”

“Understood sir,” Graham replied.

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A car screeched into the entrance of Eric's driveway. Jules, Seth and Eric stood outside the doorway, and looked on as Kerstin got out slamming shut her vehicle door. She did not wait to be at their side to shout.

"Why did you have to mention me on your site. Why?!"

"I'm sorry! We didn't know this would happen." Seth replied. After looking at her for a brief second, he said "I didn't know."

"You fucking asshole!" she screamed.

"I'm sorry! What more do you want me to say? I'm not bullshitting you here – I'm really sorry."

"Well fuck you," she retorted.

Eric interjected. "Look guys the RCMP won't sit on their asses."

"I still think they won't come. I think we're taking this a little too far. Don't you think that that's being a little paranoid?"

Gabriel spoke up. "An hour ago you got a death threat and you think we'll be okay?"

"Because of some idiot with Internet access. So what? I bet you anything the police don't know jack shit about this. I say we go home, sleep on it, and within a few days this will all be a distant memory."

Eric looked up to Seth. "Fine, but I don't want you here."

Seth looked at Eric in the eyes, unsure of what to make of that statement. The uncomfortable pause was interrupted by Seth's vibrating cellphones. He took it out of his pocket and looked at its screen. It was his roommate. He put it to his ear.

"There's a car with tinted windows across the street. It's been taking a bunch of photos of our place for minutes. Dude, did you do something? Seth? Hello?"

Seth pressed the button to end the call. Meekly, he said, "They're by my house taking photos."

"It's so they can get a description of the place for the warrant."

"They really *are* after us," Seth replied, speaking slowly. His face had turned pale.

"Turn off your cell," Eric told him. "They'll be able to triangulate you. You guys need to go, now. They'll come here next."

"I should SSH into my box now." Seth responded, his voice barely audible. "Delete everything. Send a command to write over the sectors over and over till there's no real data in the hard drive."

"Then they'll assume you're covering your tracks," Eric replied, in a commanding tone. "Just leave it there. Let them find out for themselves you're not part of this. But you guys need to be on the move. *Now*."

"You guys can come in my car for now. Let's leave," Kerstin said.

"I'll just get my bag," said Seth, meekly.

He walked in the house and down in the basement where his bag was waiting. Gabriel followed suit behind him.

"You.. you alright man?" Gabriel asked him.

"Yeah... I'm fine...." Seth replied, his words barely audible. He didn't really mean what he was saying, but the words left his tongue before he could give them any thought.

The two heard muffled sound of Kerstin's engine starting. Seth put his laptop in his backpack, and the two walked back up and left the house. Eric stood outside.

"Guys... You probably shouldn't contact me," he said.

"Yeah Eric, sure," replied Gabriel.

"Good luck," Eric finished by saying.

Seth and Gabriel got in the car. Kerstin was waiting in the driver's seat.

"Where are we going?" she asked.

"I don't know," replied Seth, his voice still soft and shaking.
"Anywhere I guess."

"I know a spot we can go," said Gabriel.

"Good enough," Kerstin responded. She backed out and drove off.

T E N

The Plan

Kerstin was driving the car out of Eric's neighbourhood.

"So what do we do?" she asked.

"I don't know. Seth?" Gabriel replied. There was no reply. He turned to face him. "Seth?" he asked again.

Seth had his eyes wide open. He had become very pale again.

"They're going to put us in jail. They're going to put us in jail. They're going to put us in jail."

Seth was hyperventilating. His breaths were deep and getting more frequent. "Stop the car," he mustered.

"We're still too close to Eric's place!" Kerstin shouted back.

"Stop it now," Seth said again, in between breaths.

"I think I'd do it if I were you," Gabriel indicated.

The car stopped. Seth got out, and was making gagging motions with his mouth. Finally, it all came out. Gabriel stood by his side, rubbing his back. Seth felt emptied, as if he were a shell of a body. Warm tears flowed down his face.

"I'm... I'm better," he said. "It's over."

"We should keep moving," Gabriel quietly informed him.

Seth nodded, and the two reentered the car.

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Kerstin's car pulled under one of the city's numerous interprovincial bridges. The three were about a five minute drive from Eric's, but the suburban landscape had already given way to the peaceful natural environment that now surrounded them.

Even the constant hum of the vehicles traveling on the bridge overhead seemed to blend in with the birds chirping and the rustling of the water. As he got out of the car, Gabriel asked Seth,

“You feeling better Seth?”

“Yeah, much. Thanks. Kerstin?”

Kerstin ignored them. She sat down on the grass nearby. They were alone, this spot only used by locals later in the season to launch boats. Seth and Gabriel sat at her side. They looked on, to the slow moving river ahead.

“We need to think about what we should do,” said Gabriel.

“Well we could turn ourselves in,” suggested Seth. “But I don't trust the RCMP to believe us.”

“Neither do I, but we can't run away,” replied Gabriel.

Silence overtook as the trio kept looking on to the river. Kerstin spoke out

“It's not running away if we're gone for a legit reason – like a camping trip.”

“They won't fall for that,” said Gabriel. “Even if they did, and we were gone for three days, we'd still be on square one at the end.”

“Not if we prove *for* them that we're not behind this botnet,” replied Seth.

“But there's so much there planted to make it seem like it's us,” said Kerstin. “Forums posts, the update logs...”

“Exactly. Remember that entry on the *AntiOffline* discussion board?” asked Seth.

“No,” she answered.

“Kay. Well, someone wrote on the boards there pretending to be us. An admin there said that the IP of the person came from here in Ottawa. They were using that as proof that it was us.”

“So you think its that the guy we intercepted that's doing all of this?” postulated Gabriel.

"Who else?" came Seth's reply. "We intercepted this guy in Ottawa, whose somehow related to the botnet. Next thing we know, someone from Ottawa is trying to frame us for the same botnet."

"How do we prove it?" asked Gabriel.

"Is there wireless Internet here?" returned Seth.

"Yeah."

"Perfect."

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Gabriel and Kerstin were on either side of Seth as he typed away at his laptop keyboard.

"Okay," said Seth, "so here we have the botnet update that we intercepted yesterday. And here's the new update that circulated on the real Météo botnet last night, courtesy of your local honeypot project. Now if I compare the two..."

Seth typed some more in the terminal window. The computer reciprocated the action by displaying a rudimentary chart, made up of blocks of blues and reds.

"...and there we go. The blue represents what's the same between the two updates. The red is what's different. It's pretty much all blue...except for this one block here."

There was one red block that stood out in the sea of blue. Seth moved his cursor to it, and pressed the enter key. The screen shifted modes from a graphical presentation of multicoloured blocks, to a text-based hex editor. The raw data that made up the update displayed itself on Seth's screen. A portion of the text had been highlighted by Seth's program. He recognized it as being part of the evidence planted against them.

"Shit I really didn't think this would work. That's it. That's the MD5 hash that links us to this worm."