CYBER NOIR

THE CASE OF THE MISSING INFLUENCER

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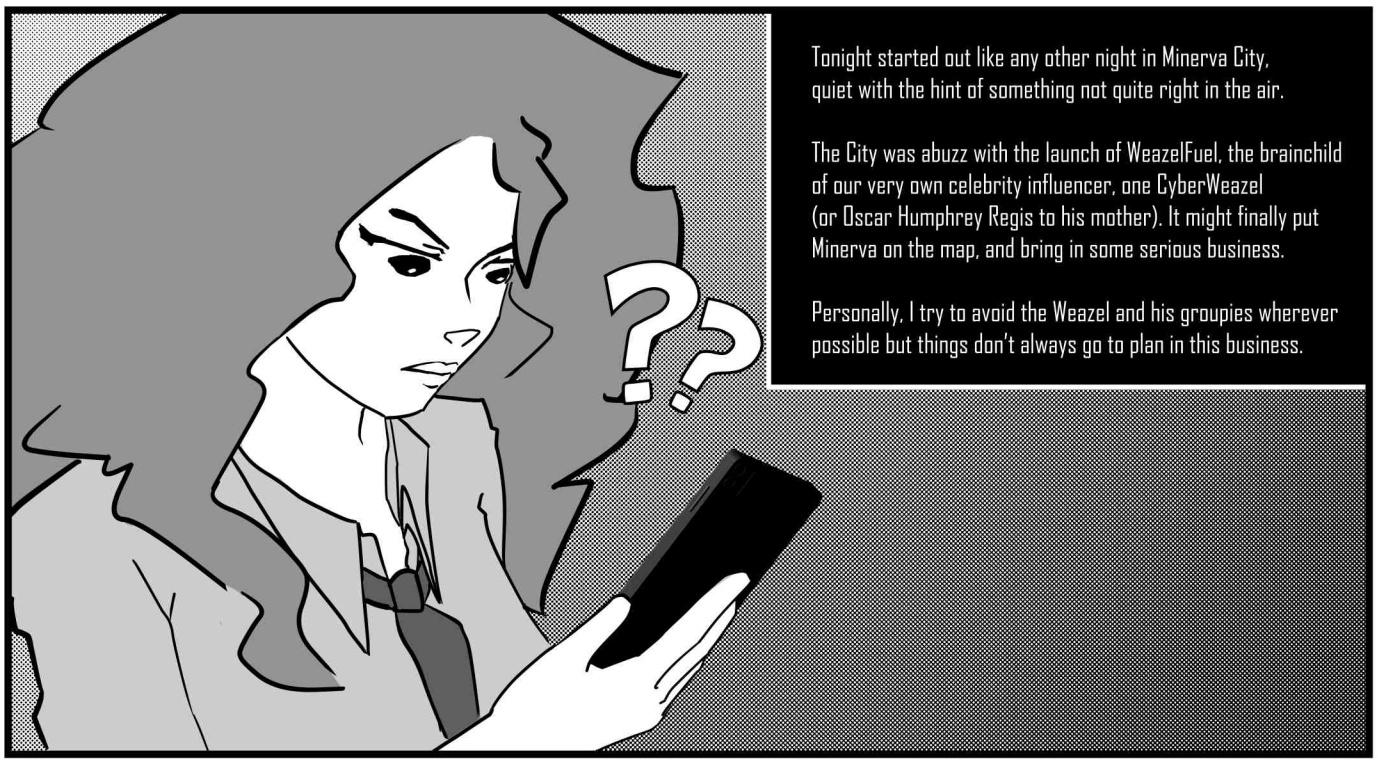
&
ILLUSTRATED BY HELEN QUINLAN

CyBOK

Lexi Cipher

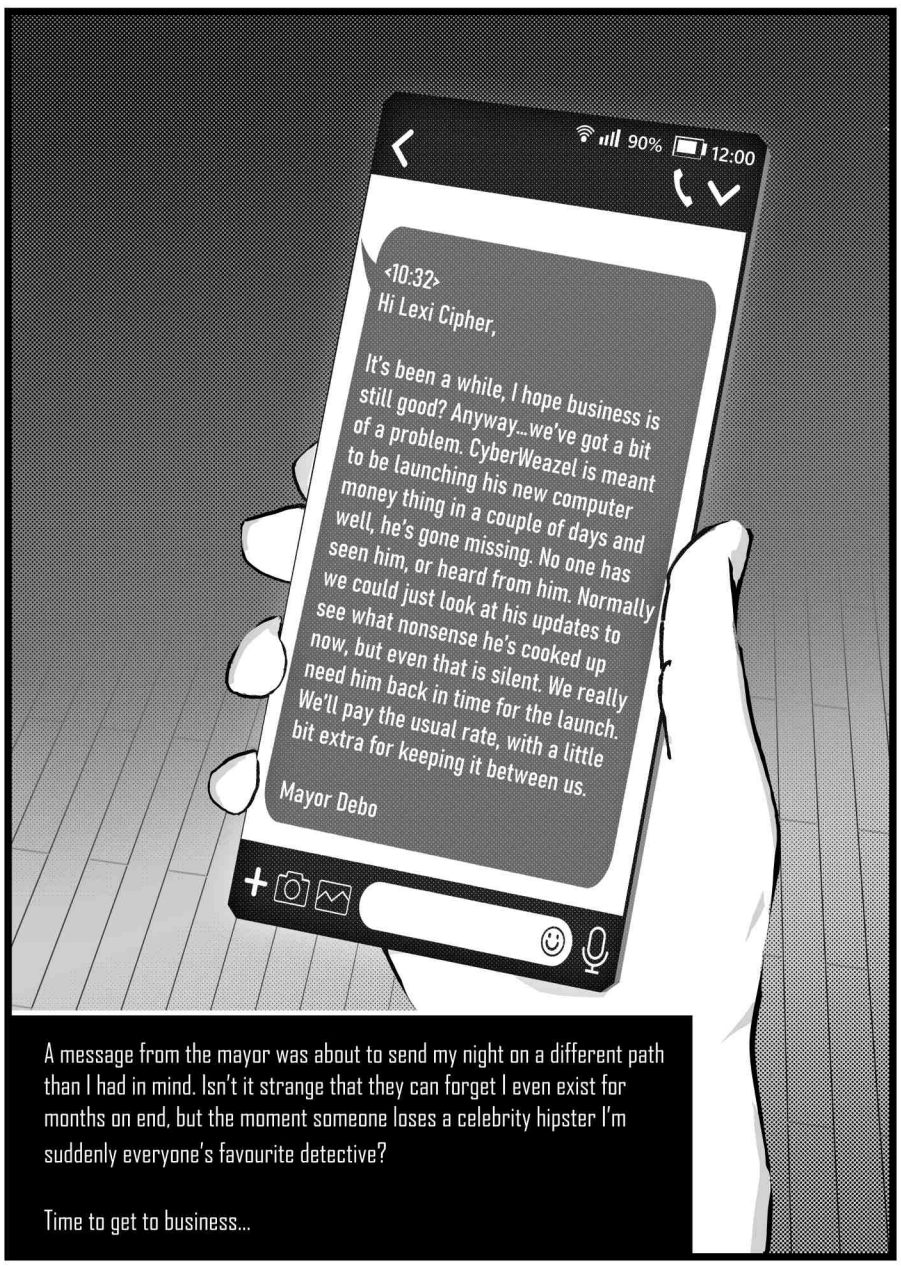
Freelance Detective



Tonight started out like any other night in Minerva City, quiet with the hint of something not quite right in the air.

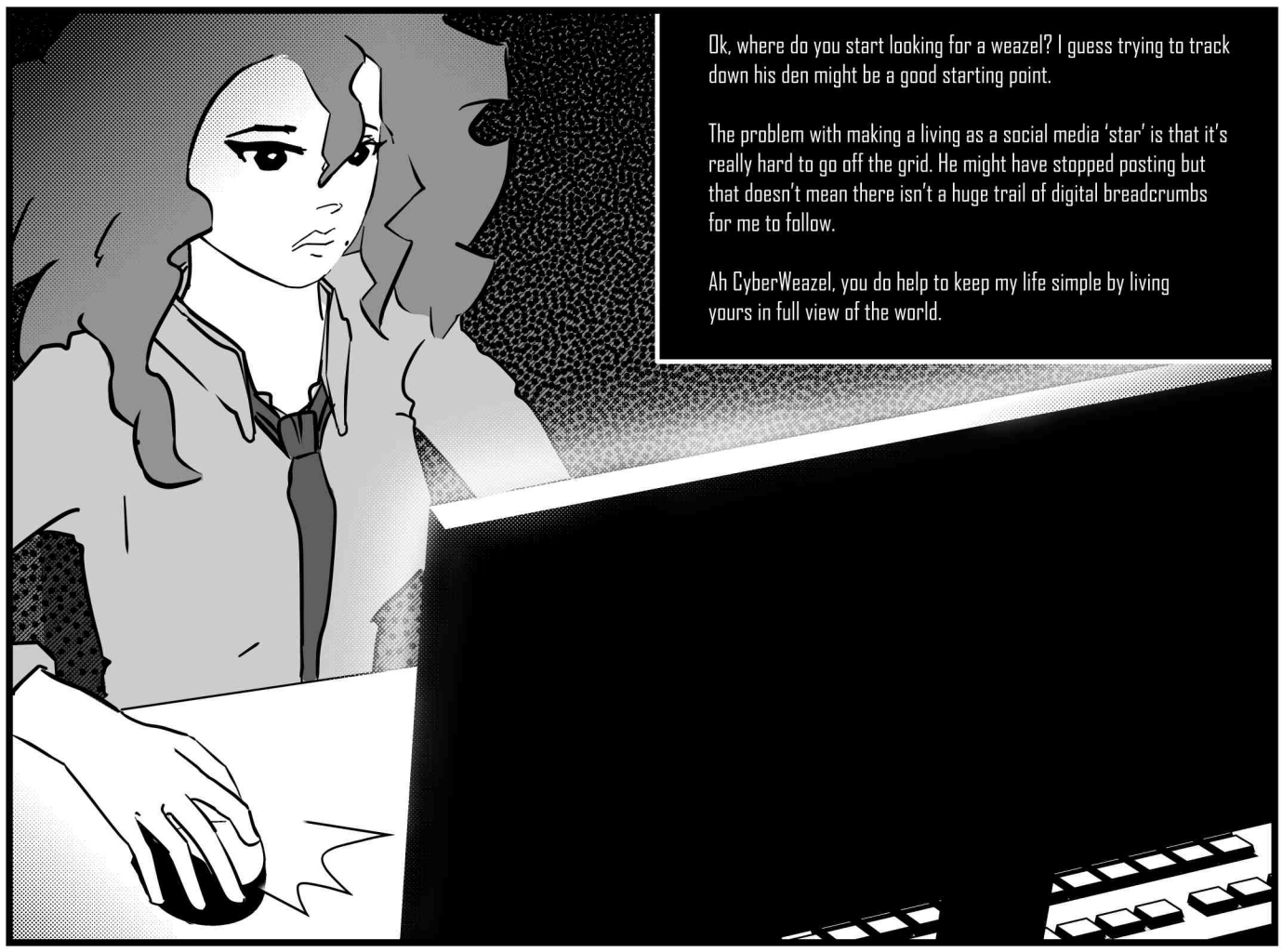
The City was abuzz with the launch of WeazelFuel, the brainchild of our very own celebrity influencer, one CyberWeazel (or Oscar Humphrey Regis to his mother). It might finally put Minerva on the map, and bring in some serious business.

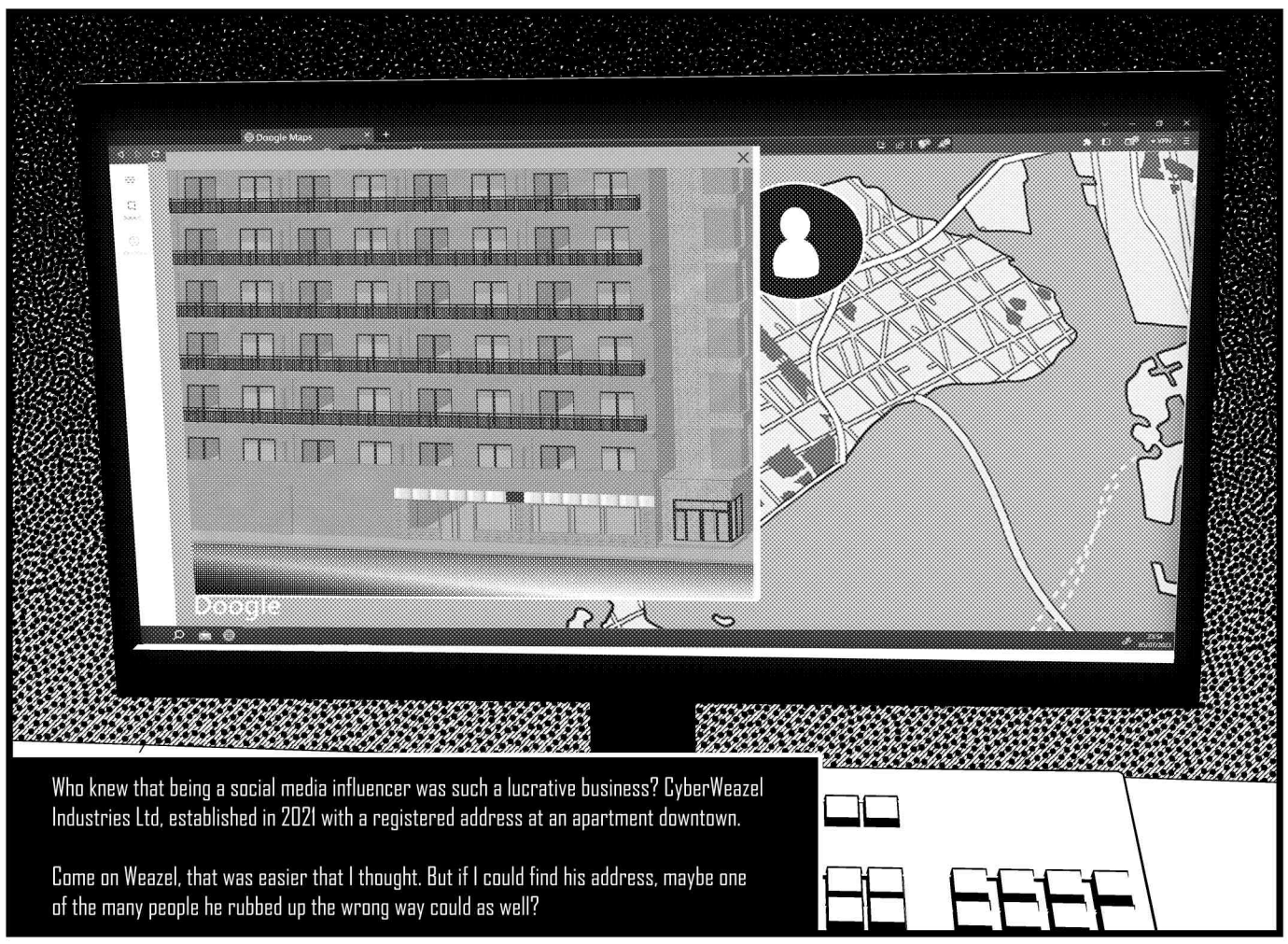
Personally, I try to avoid the Weazel and his groupies wherever possible but things don't always go to plan in this business.



A message from the mayor was about to send my night on a different path than I had in mind. Isn't it strange that they can forget I even exist for months on end, but the moment someone loses a celebrity hipster I'm suddenly everyone's favourite detective?

Time to get to business...

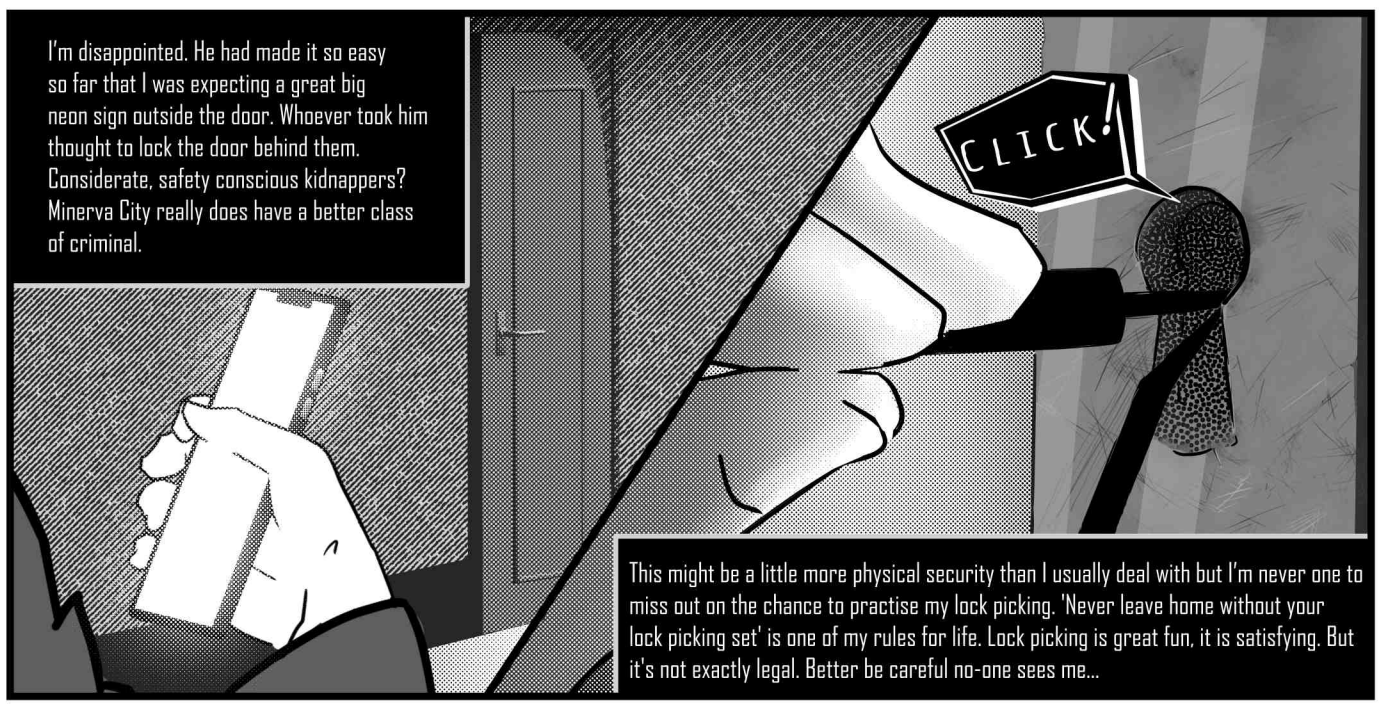

Ok, where do you start looking for a weazel? I guess trying to track down his den might be a good starting point.
The problem with making a living as a social media 'star' is that it's really hard to go off the grid. He might have stopped posting but that doesn't mean there isn't a huge trail of digital breadcrumbs for me to follow.
Ah CyberWeazel, you do help to keep my life simple by living yours in full view of the world.


Doogle Maps
Doogle
Who knew that being a social media influencer was such a lucrative business? CyberWeazel Industries Ltd, established in 2021 with a registered address at an apartment downtown.
Come on Weazel, that was easier that I thought. But if I could find his address, maybe one of the many people he rubbed up the wrong way could as well?

Well this a lot nicer than I was expecting, I am definitely in the wrong line of work. Should I be streaming all my cases on Twitch to make some extra cash?

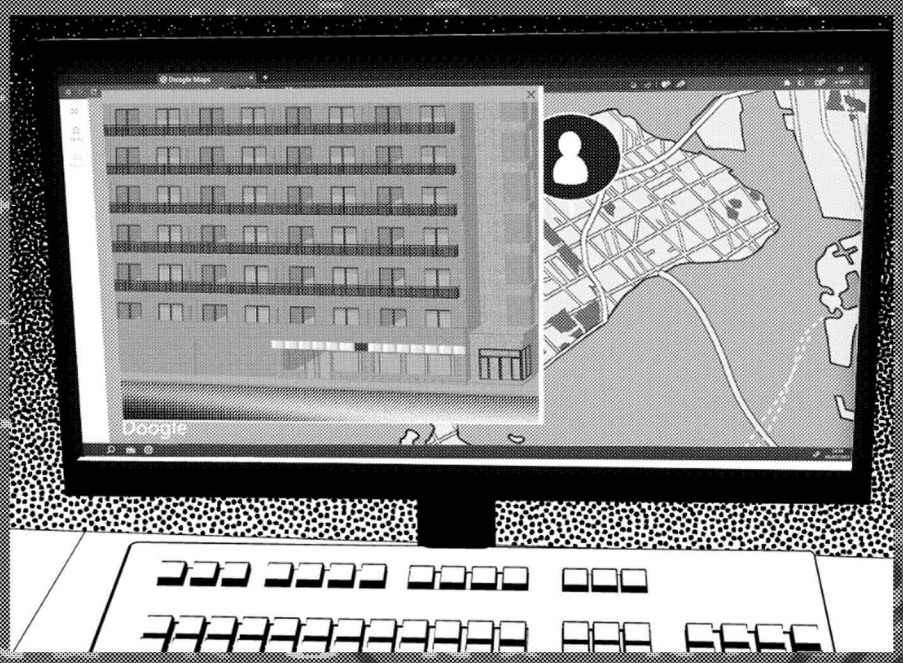
Everything looks quiet. No signs of a struggle or anything suspicious.

I'm disappointed. He had made it so easy so far that I was expecting a great big neon sign outside the door. Whoever took him thought to lock the door behind them. Considerate, safety conscious kidnappers? Minerva City really does have a better class of criminal.



This might be a little more physical security than I usually deal with but I'm never one to miss out on the chance to practise my lock picking. 'Never leave home without your lock picking set' is one of my rules for life. Lock picking is great fun, it is satisfying. But it's not exactly legal. Better be careful no-one sees me...

Techniques and technologies explained!



Open Source Intelligence (OSINT)

We share lots of information about ourselves as we go about our daily lives. It could be the websites that you use, the social media platforms that you look at, who you are friends with, or any other publicly available information. Open Source Intelligence or OSINT uses a wide range of skills - and a lot of patience - to find out everything you can about your target based on the information that is already out there in the public domain.

One of the examples that we've seen Lexi working on was trying to work out where the missing person lived. She eventually finds out his home address by looking for the registered address of his company. In the UK all limited companies have their details listed on the Companies House website. This provides details about the directors of the companies, their accounts and where the company is registered. It turned out that CyberWeazel has registered his company to his home address - something that is very common!

OSINT isn't just about looking up information, it sometimes requires you to use your detective skills to figure out where someone is. Later on you will see Lexi use some different OSINT skills to try and find a location based on a picture on a social media account...

Lock Picking

It might not seem to be directly related, but lock picking is often thought of as very relevant to cyber security!

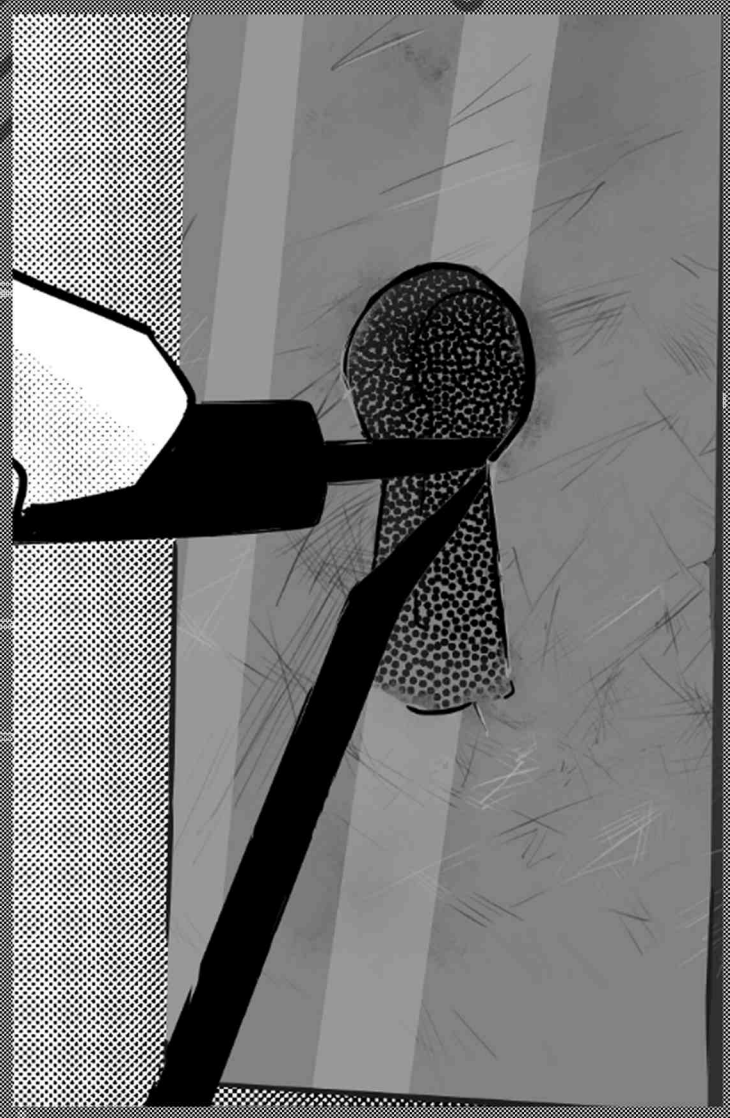
Lock picking itself might not apply directly to digital systems, but understanding the principles and techniques associated with it can provide some really valuable insights.

Understanding how you might pick a lock helps you to think about the weaknesses and vulnerabilities in a system, whether that is physical or digital. Studying the mechanics of a lock, and how you manipulate them, does have parallels in the digital world for things like access controls, authentication systems, and encryption.

Most people tend to think of cyber security as something that only relates to computers and technology. However, cyber security professionals, especially penetration testers, often need to evaluate the physical security of a company as well as the security of their digital assets. For instance, penetration testers often are tasked by a company to try and gain access to their buildings or facilities.

There are a range of tools and tutorials that you can use to learn how to pick a lock, like a transparent padlock allowing you to see the mechanisms in action.

Remember, it is important that you only practise your lock picking on your own locks, or those that you have explicit permission to experiment on!



For more information see the CyBOK Knowledge Areas on Privacy and Online Rights and Security Operations and Incident Management

Disconnected

??

Oh come on, Weazel. It's like you're not even trying to make things difficult for me. I like an easy job, but I do have professional pride and don't want you to just give me the answers! There are so many devices in this place that can tell me pretty much everything about you, your life and your friends. Let's see, we've got your robot servant, your TV and your smart speaker.

Disconnected

Settings

Audio

Output

Display

Each of these devices really help to tell me a story about who you are and what you get up to in your 'weazel' den, Oscar.

I'm glad I'm not billing by the hour, this is too easy. Let's take a look at your smart TV and see what devices last came into contact with it...

Techniques and technologies explained!

Data Acquisition

In order to help track down her runaway influencer Lexi takes a closer look at all of his smart technology. These kinds of devices can give you lots of information about the individual and the environment!

One of the most useful devices for Lexi is the smart vacuum cleaner, which is able to tell her when someone was last in the house and how many people were there.

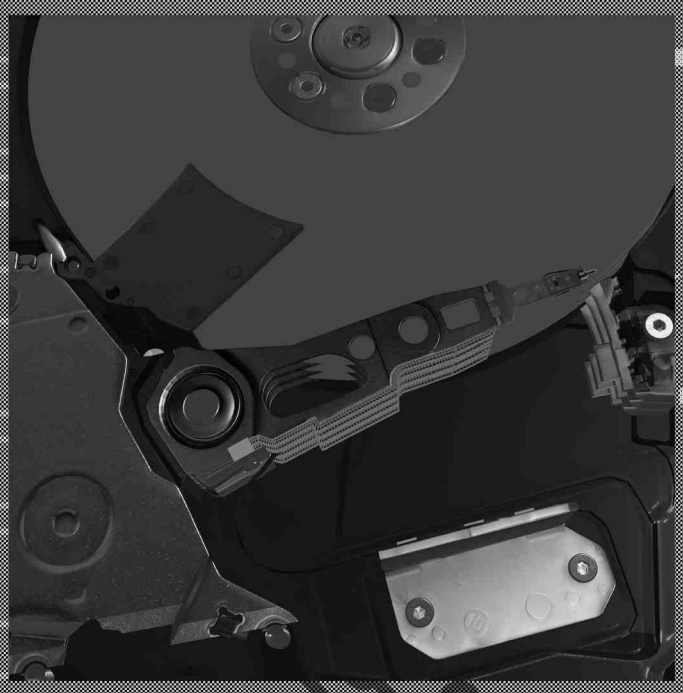
She was able to collect the data from the device by plugging in a cable directly to copy the log files stored on its internal memory. There are some important things to think about when trying to collect data from a device, as you need to be sure that you do not corrupt or damage the data. Typically, data will not be analysed as part of a live system. The target device would usually be powered down and an exact bit-wise copy of the storage media would be created. If this were a real police investigation then the original device, the vacuum cleaner, would be stored in an evidence locker and all of the analysis done on the copy.

Bit-wise Copy

Imagine we have a piece of paper with a sequence of 0s and 1s written on it. Each of these 0s or 1s represents a single bit. Now, let's say that we want to make an exact copy of that sequence onto another piece of paper.

A bit-wise copy means that we would just look at each of the bits on the original piece of paper and write the same thing onto our new piece of paper.

Essentially, this is what's going on behind the scenes when we do a bit-wise copy of computer data. We are aiming to copy the data as its individual bits. It's a way to make sure that we get an identical duplicate of the binary information, without worrying about the meaning or the structure of the data



Data Recovery

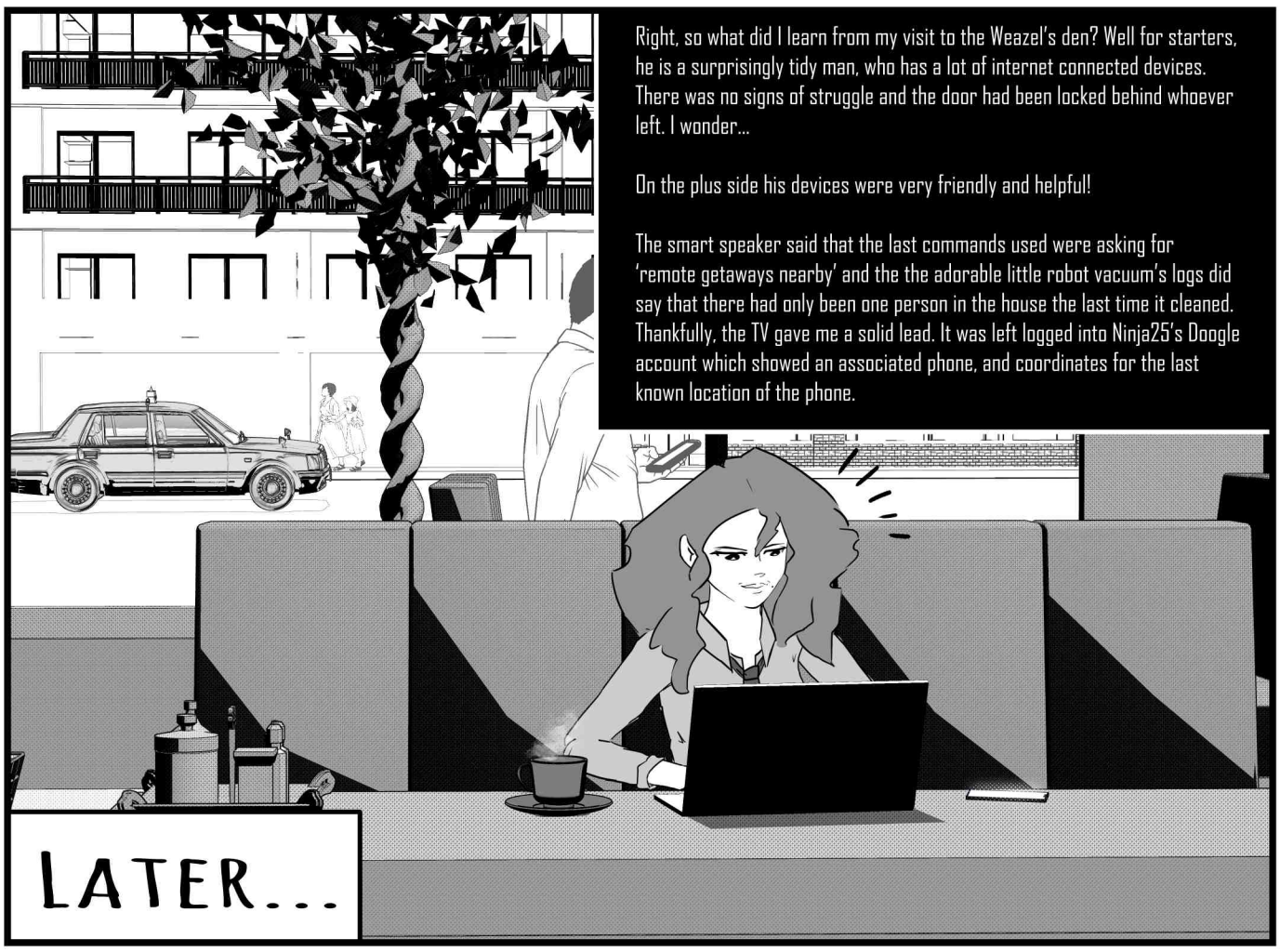
Sometimes the data that we need to get hold of has been lost, either because it was deleted or the device was damaged. Data recovery is a really important part of digital forensics, which aims to retrieve lost data with special tools and techniques.

When you delete a file on your computer, phone or other device it's not immediately gone forever. The device will just mark the space that was previously occupied by the file as available for reuse. If the space hasn't been reused yet then it is possible to recover the data before it gets overwritten.

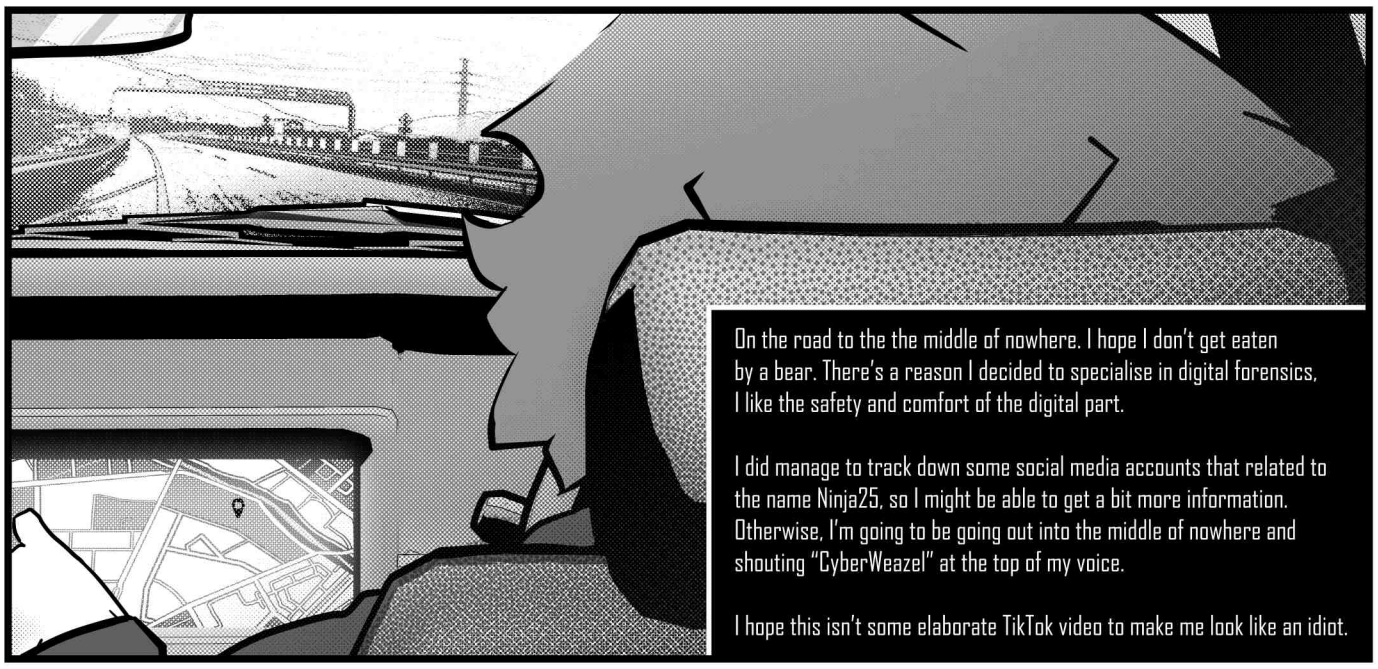
Even if the file has been deleted some pieces of it might still be there on the device. File carving is a technique used to search for any fragments of data and reconstruct the deleted file by piecing them back together.

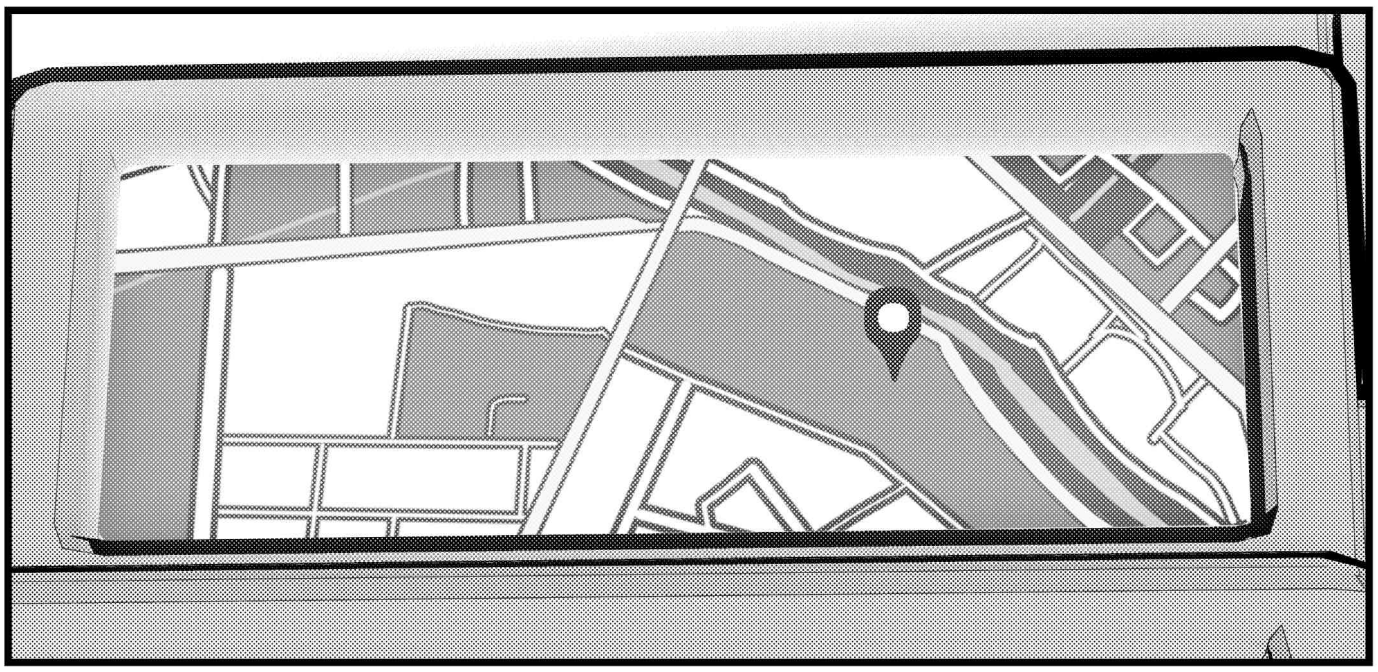
In some cases the device could be damaged making it impossible for someone to access it directly. If this happens it is possible to # create a complete copy of the device's storage, which is called a disk image. The image gives a complete copy of the original device so that a digital forensics practitioner can attempt data recovery without risking damage to any evidence.

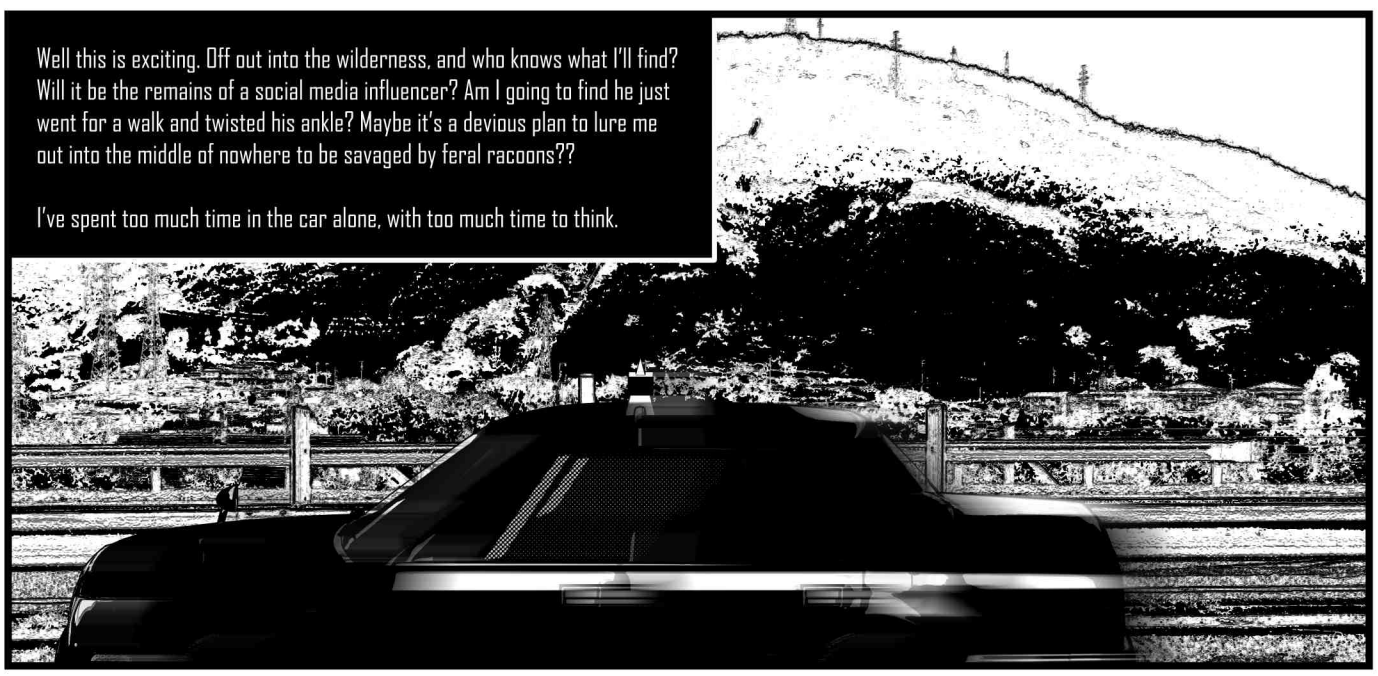
For more information see the CyBOK Knowledge Area on Forensics


Right, so what did I learn from my visit to the Weazel's den? Well for starters, he is a surprisingly tidy man, who has a lot of internet connected devices. There was no signs of struggle and the door had been locked behind whoever left. I wonder...
On the plus side his devices were very friendly and helpful!
The smart speaker said that the last commands used were asking for 'remote getaways nearby' and the the adorable little robot vacuum's logs did say that there had only been one person in the house the last time it cleaned. Thankfully, the TV gave me a solid lead. It was left logged into Ninja25's Doogle account which showed an associated phone, and coordinates for the last known location of the phone.
LATER...


Come on Doogle, don't fail me now! I have the name of a device, I have a last known location and I have a time that the phone was last seen in GPS and network range.
Let's take a look at those coordinates on Doogle Maps and see what that looks like. I really hope that it's somewhere nice, I could really do with a trip to the beach or a nice 5-star hotel.
Hmmmmm. That looks...remote? Great. I guess I had better dig out my mosquito spray.
Doogle Maps
Doogle.com/Maps
Doogle


On the road to the the middle of nowhere. I hope I don't get eaten by a bear. There's a reason I decided to specialise in digital forensics, I like the safety and comfort of the digital part.
I did manage to track down some social media accounts that related to the name Ninja25, so I might be able to get a bit more information. Otherwise, I'm going to be going out into the middle of nowhere and shouting "CyberWeazel" at the top of my voice.
I hope this isn't some elaborate TikTok video to make me look like an idiot.




Well this is exciting. Off out into the wilderness, and who knows what I'll find? Will it be the remains of a social media influencer? Am I going to find he just went for a walk and twisted his ankle? Maybe it's a devious plan to lure me out into the middle of nowhere to be savaged by feral racoons??
I've spent too much time in the car alone, with too much time to think.

Let's get this over with as quickly as possible, I really don't want to be out here any longer than I need to be.

Ok, where was the last position of that device? Oh what's this? Ninja25 has posted a picture of a spooky looking cabin. Wow. Potential kidnappers, and creepy cabins all in the middle of nowhere. Delightful.

Location of last device user

@Ninja25

Likes 23

Forest cabins are my vibe man! Remote so no one can hassle or find me. #cabininthewoodlands #livefree #offgrid

Now I just need to wander around the forest trying to match up the landmarks on that picture Ninja25 posted with things that I can see around me.

Hmmmmm. Tree. Tree. Another tree. More trees.

Ah hold on a second. I think I might have found something...

Here we go, I knew that tree line looked familiar.

This seems to be the place. It's dark. it's creepy and it's looking promising so far. I can't see any signs of a horrific crime taking place.

I did try to knock, but the door just swung open. That is exactly not what I needed at this moment in time, the ominous creek of door slowly opening.

This place seems like it might be completely deserted, I'm not really even seeing any Wi-Fi networks to join.

This does seem rather low-tech for some one who is connected all day, every day.

I feel like I have just stepped into the set of a horror film. I'm yet to hear any blood curdling screams, I really have to hope that I'm not going to be the first to start screaming.

I can't see any signs of technology anywhere in here. I've scanned for Wi-Fi networks, I've looked for nearby Bluetooth enabled devices and I don't think I can even see any plug sockets at this point.

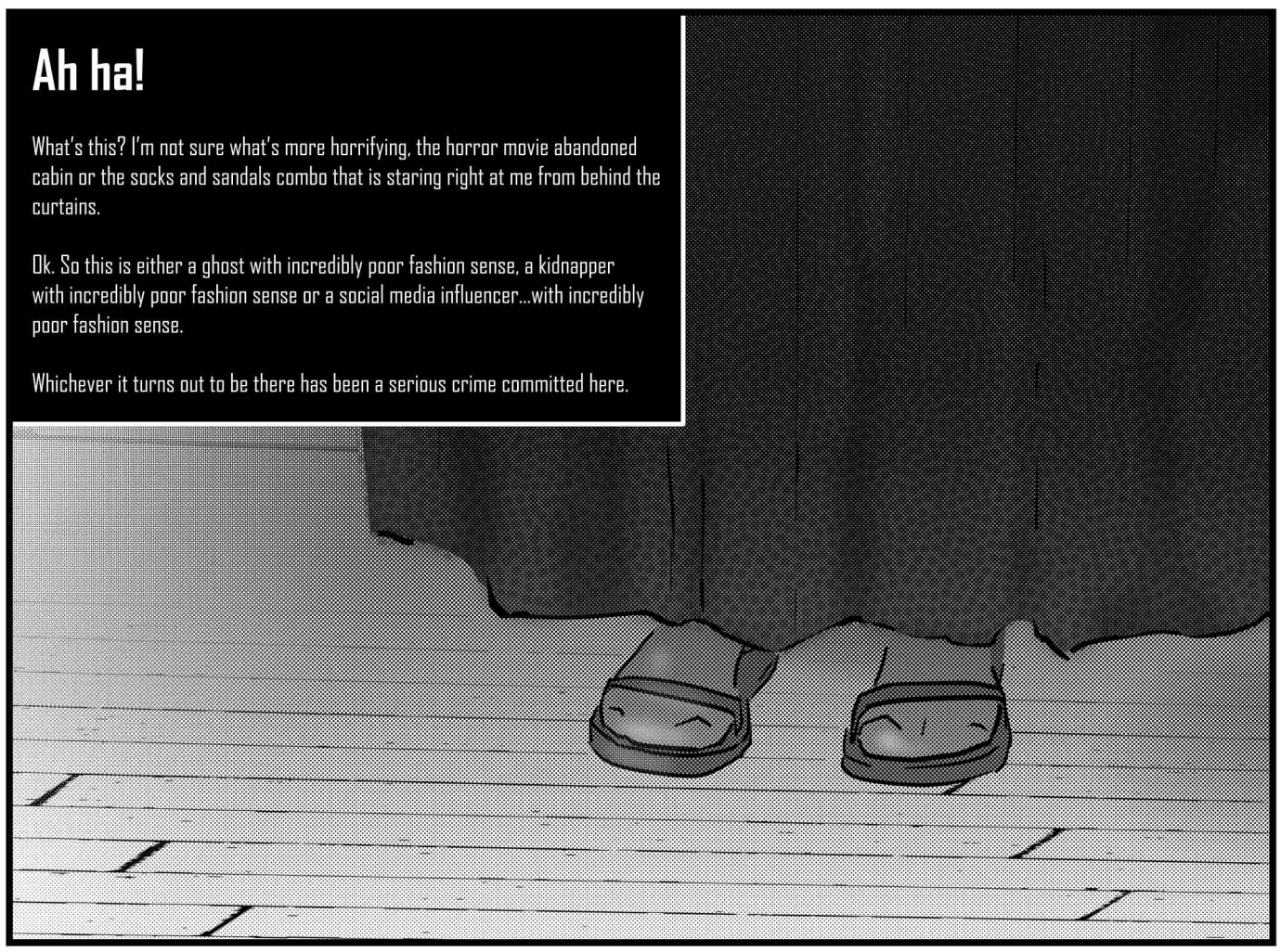
I can't even see what is in that picture frame, unless it is just a nice photo of some dust. The fire doesn't look like it has been lit this century and the less I think about that rocking chair, the better. That little smart vacuum would have a field day in here.

Ah ha!

What's this? I'm not sure what's more horrifying, the horror movie abandoned cabin or the socks and sandals combo that is staring right at me from behind the curtains.

Ok. So this is either a ghost with incredibly poor fashion sense, a kidnapper with incredibly poor fashion sense or a social media influencer...with incredibly poor fashion sense.

Whichever it turns out to be there has been a serious crime committed here.



Now it's time for the big reveal.

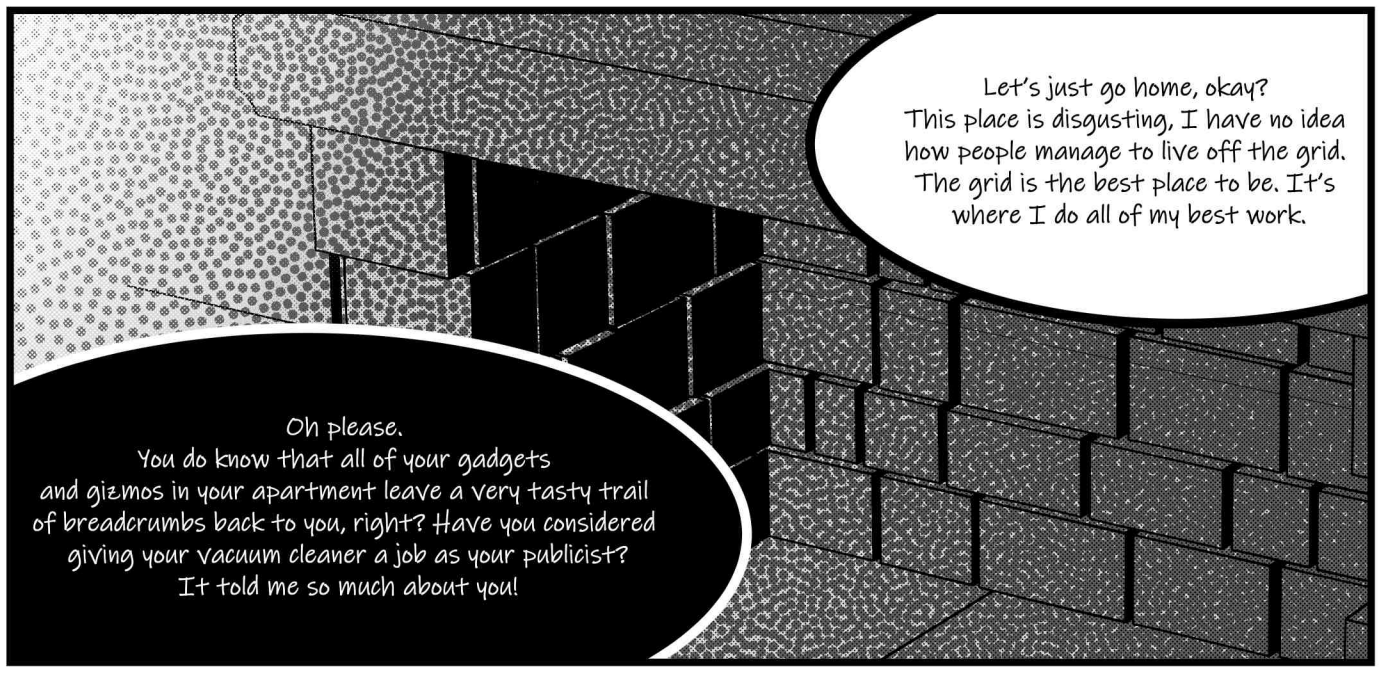
Well there we have it, it's CyberWeazel himself. I have so many questions.

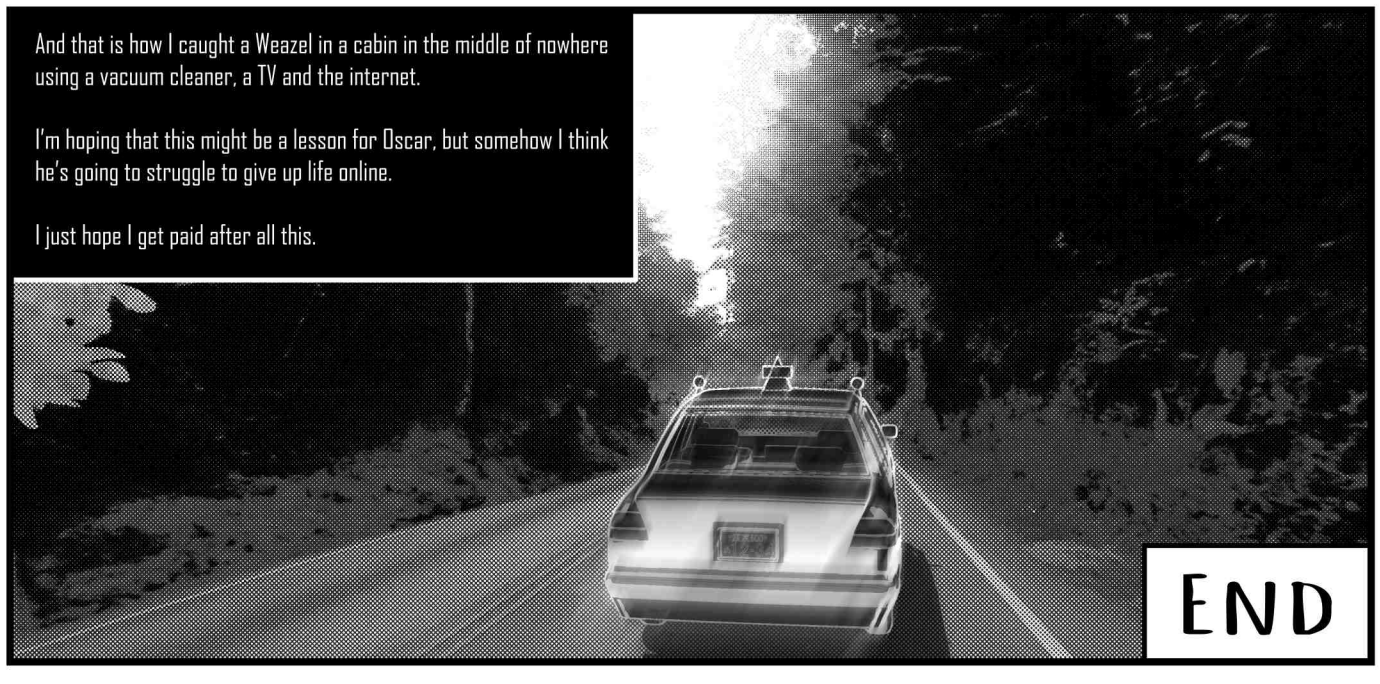
What on earth is he doing here?

Why is he in the middle of nowhere off-grid?

Why is he dressed like that?


Ok ok, you found me. Jeez, you didn't have to scare me like that.
How did you even find me?
I was so careful, I tried to go off grid like in the movies. I haven't seen a TikTok in days!


Let's just go home, okay? This place is disgusting, I have no idea how people manage to live off the grid. The grid is the best place to be. It's where I do all of my best work.
Oh please. You do know that all of your gadgets and gizmos in your apartment leave a very tasty trail of breadcrumbs back to you, right? Have you considered giving your vacuum cleaner a job as your publicist? It told me so much about you!


And that is how I caught a Weazel in a cabin in the middle of nowhere using a vacuum cleaner, a TV and the internet.
I'm hoping that this might be a lesson for Oscar, but somehow I think he's going to struggle to give up life online.
I just hope I get paid after all this.
END

Throughout the story we see Lexi Cipher employ a range of digital forensics and cyber security techniques. You can find more information about the different knowledge and expertise that she used in the Cyber Security Body of Knowledge (CyBOK), as detailed below:

Knowledge Area: Forensics
(https://www.cybok.org/media/downloads/Forensics_v1.0.1.pdf)
- Section 1 Introduction
  - 1.2 Definitions
  - 1.3 Conceptual Models
- Section 2 Operating System Analysis
  - 2.1 Storage Forensics
  - 2.2 Data Acquisition
- Section 4 Application Forensics
  - 4.1 Case Study: the Web Browser

Knowledge Area: Privacy & Online Rights
(https://www.cybok.org/media/downloads/Privacy_Online_Rights_v1.0.2.pdf)
- Section 1 Privacy as Confidentiality
  - 1.1 Data Confidentiality

Knowledge Area: Security Operations and Incident Management
(https://www.cybok.org/media/downloads/Security_Operations_Incident_Management_v1.0.2.pdf)
- Section 1 Fundamental Principles