

An introduction to cybersecurity

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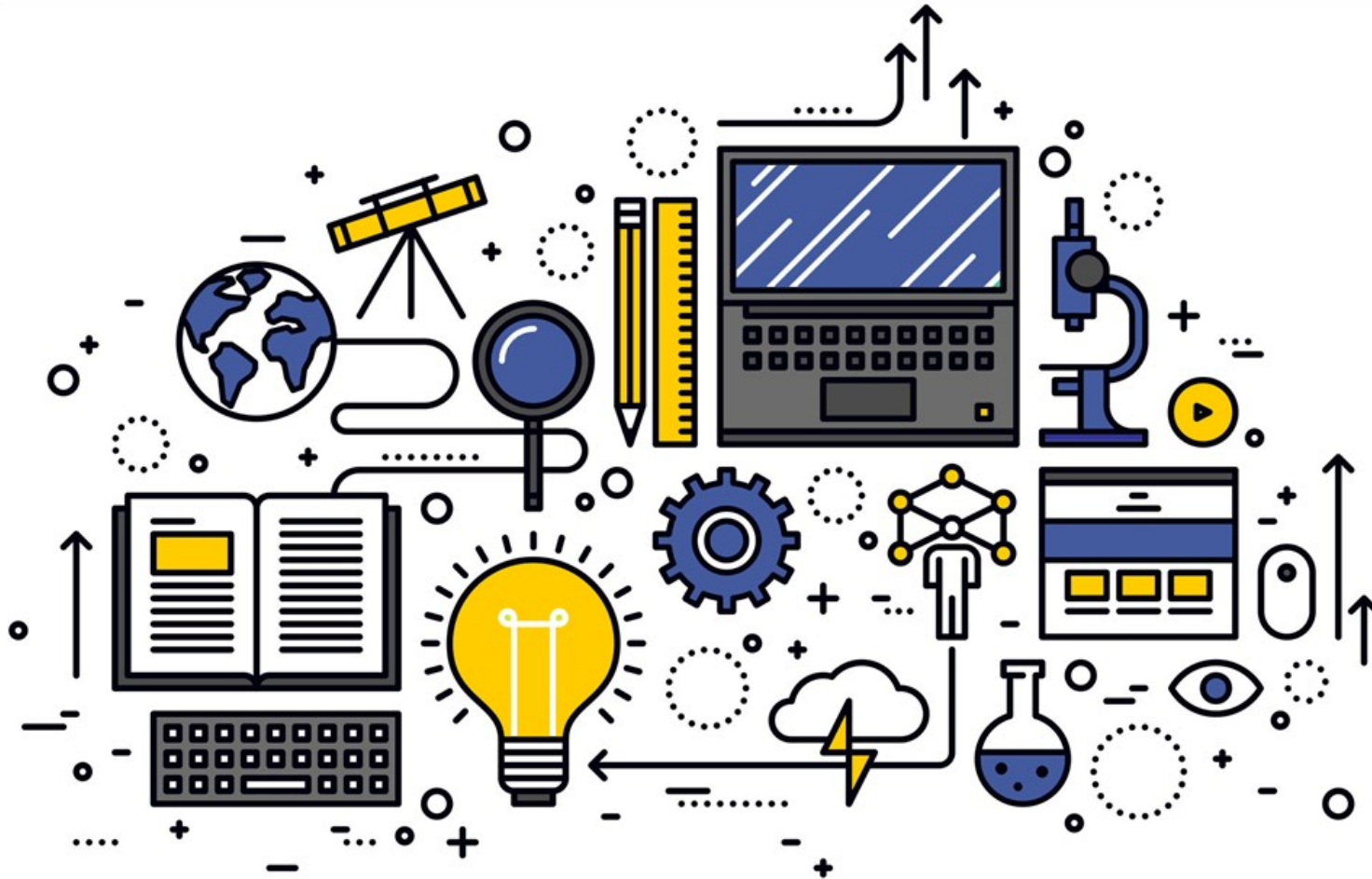
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Tell me a bit about yourself:

- ▶ What is your name?
- ▶ Where are you from?
- ▶ Why do you think cybersecurity is important?

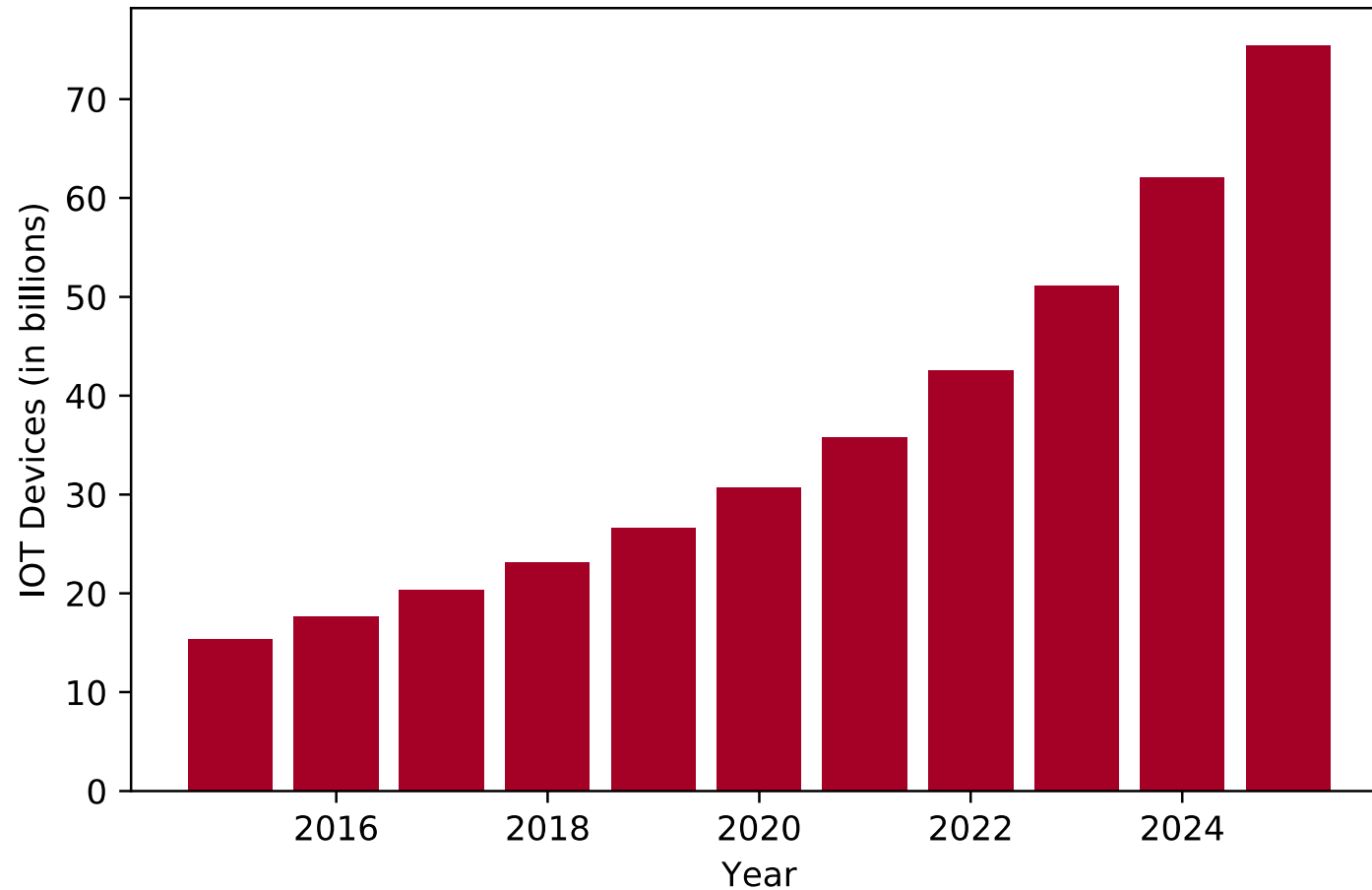
IT forms an important part of everyone's life...



Internet has truly changed our lives...

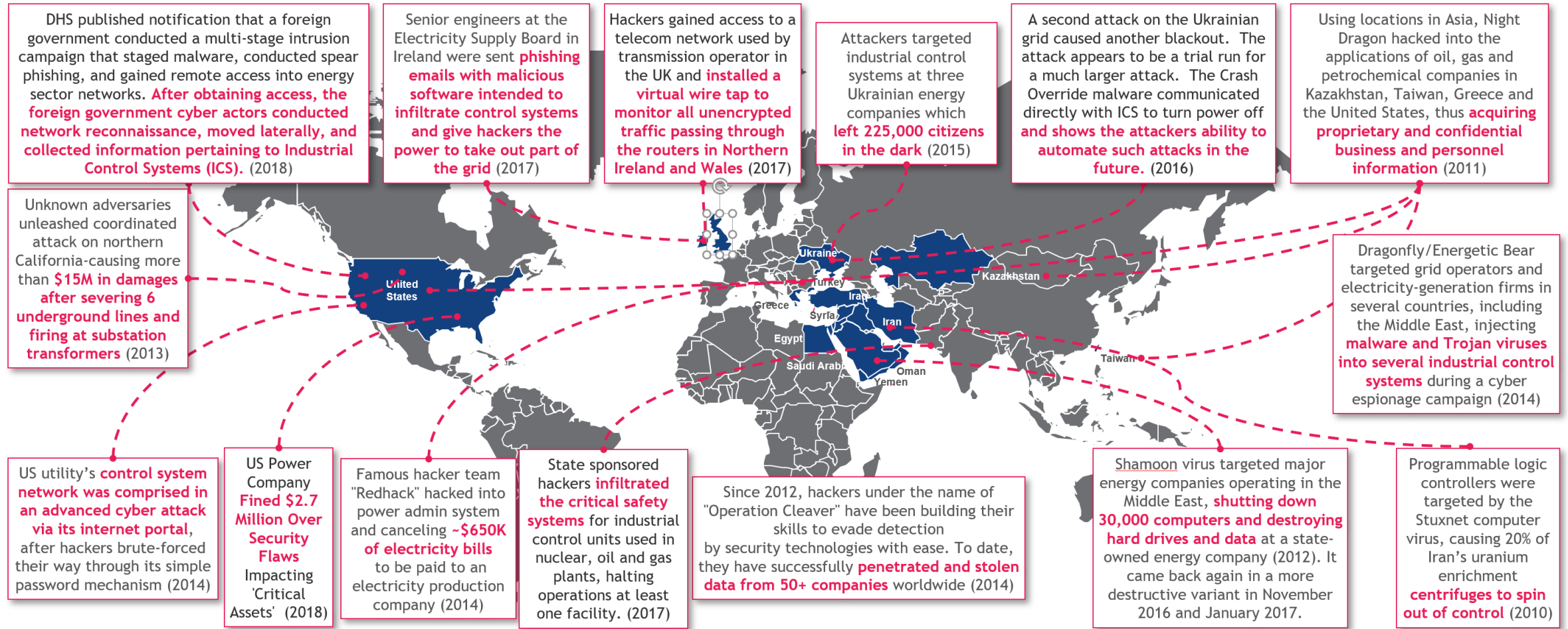


Growth of IoTs...



Source: <https://www.statista.com/statistics/471264/iot-number-of-connected-devices-worldwide/>

This dependency provides an opportunity for malicious actors.

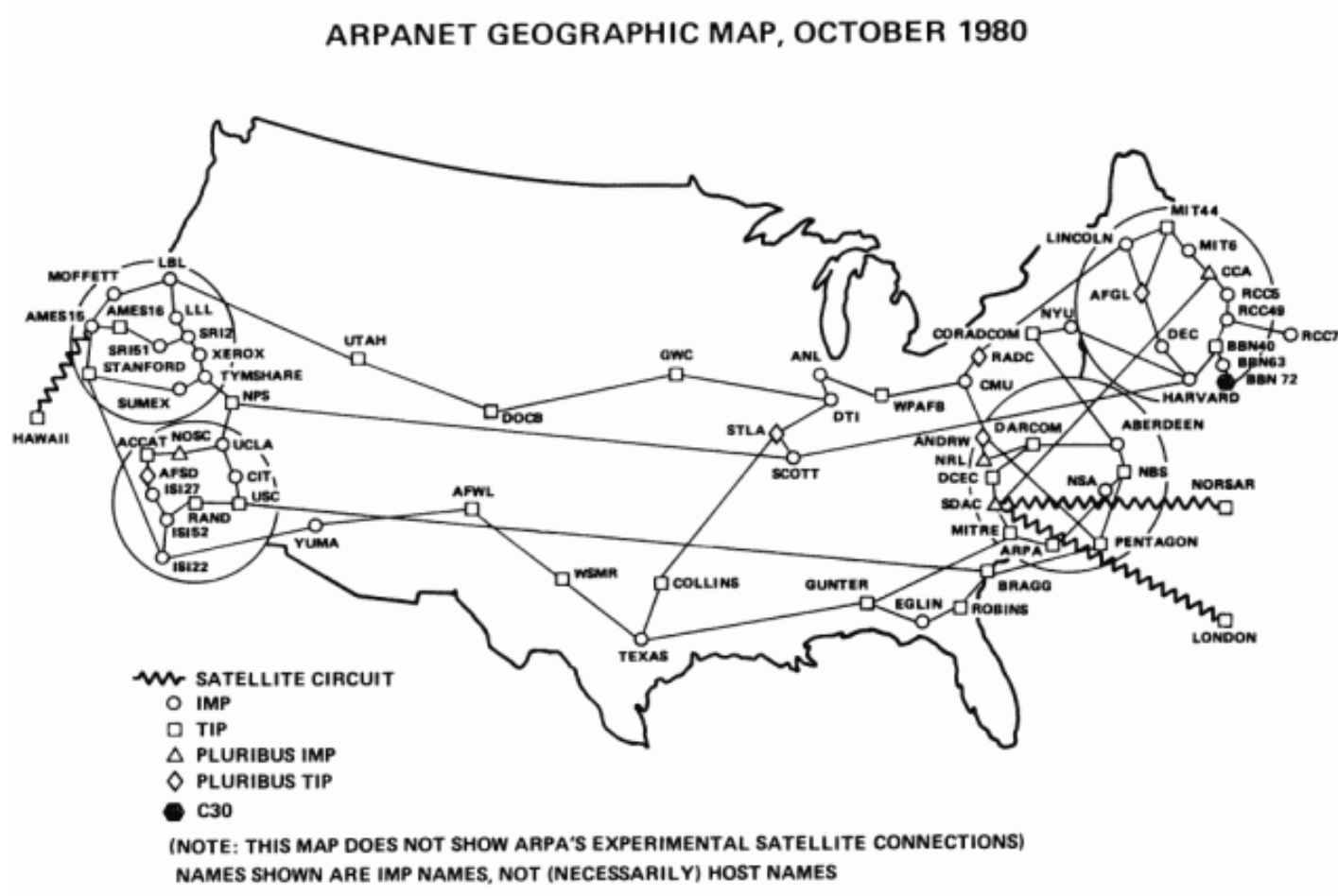


Source: World Economic Forum

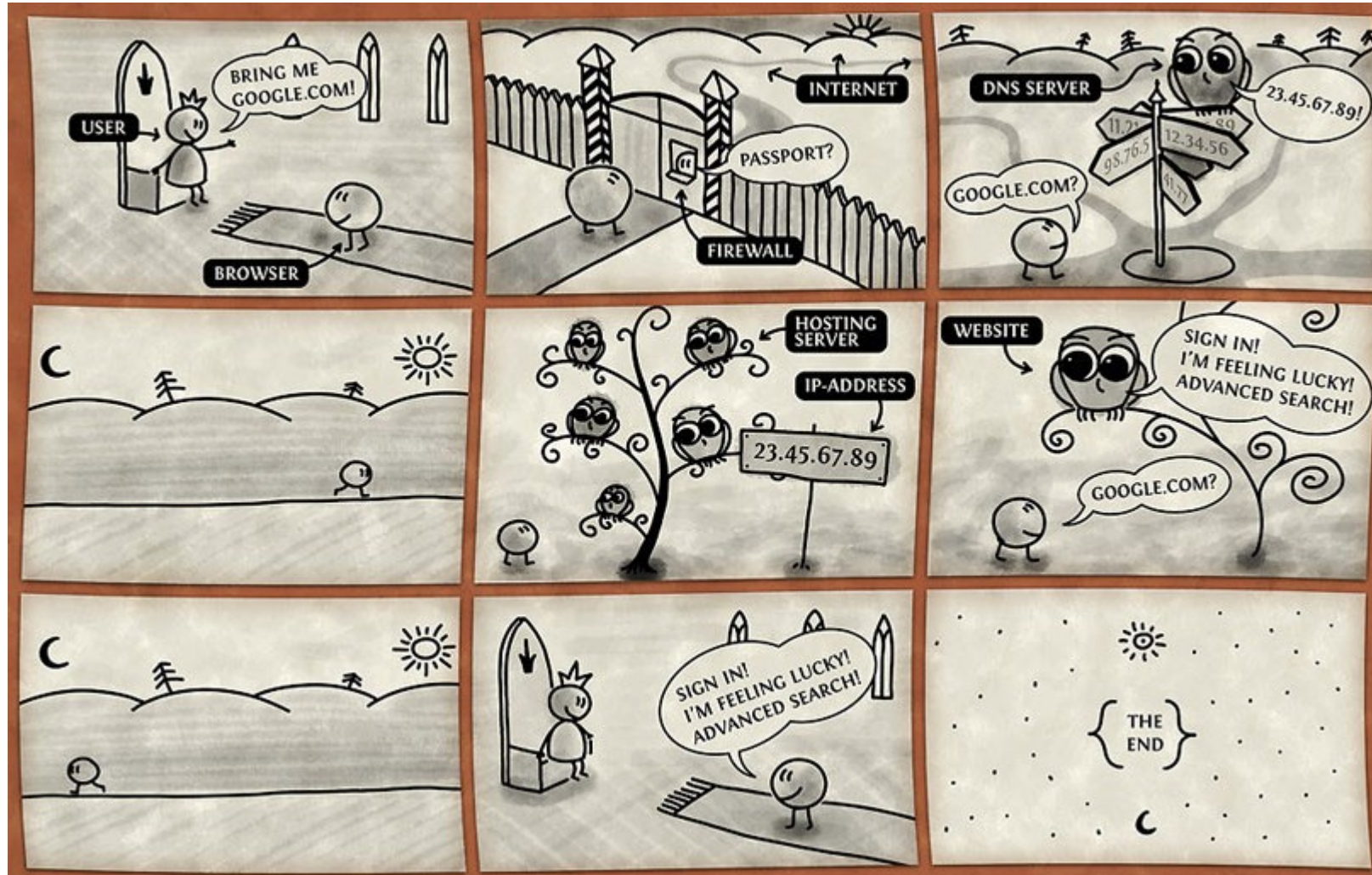
What am I going to talk about:

- ▶ Attacks
 - ▶ Types of Attackers
 - ▶ Types of Attacks
- ▶ Defenses
 - ▶ Technologies
 - ▶ Strategies
- ▶ Security Economics
 - ▶ How attackers make money?
 - ▶ Pricing of security products.
 - ▶ How to invest in security?

How many of us know how Internet works?



But is that it?

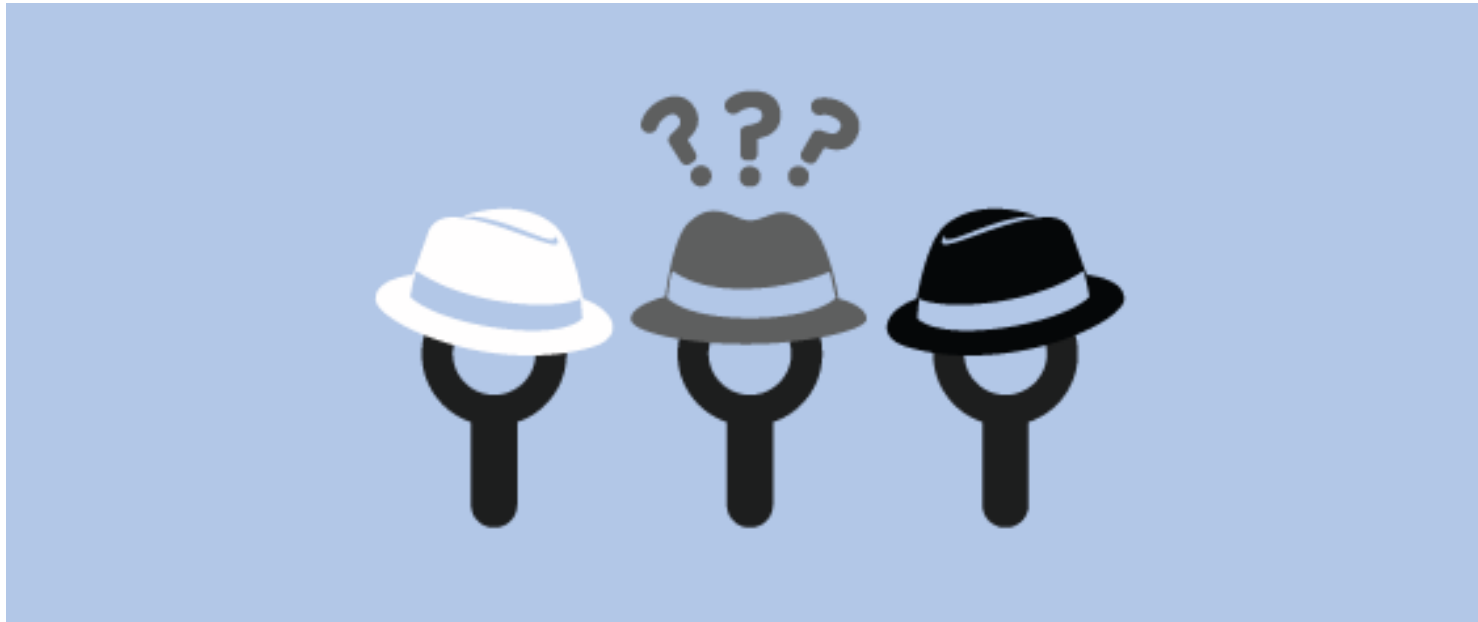


Attacks

Types of Attackers

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By ethical responsibility:



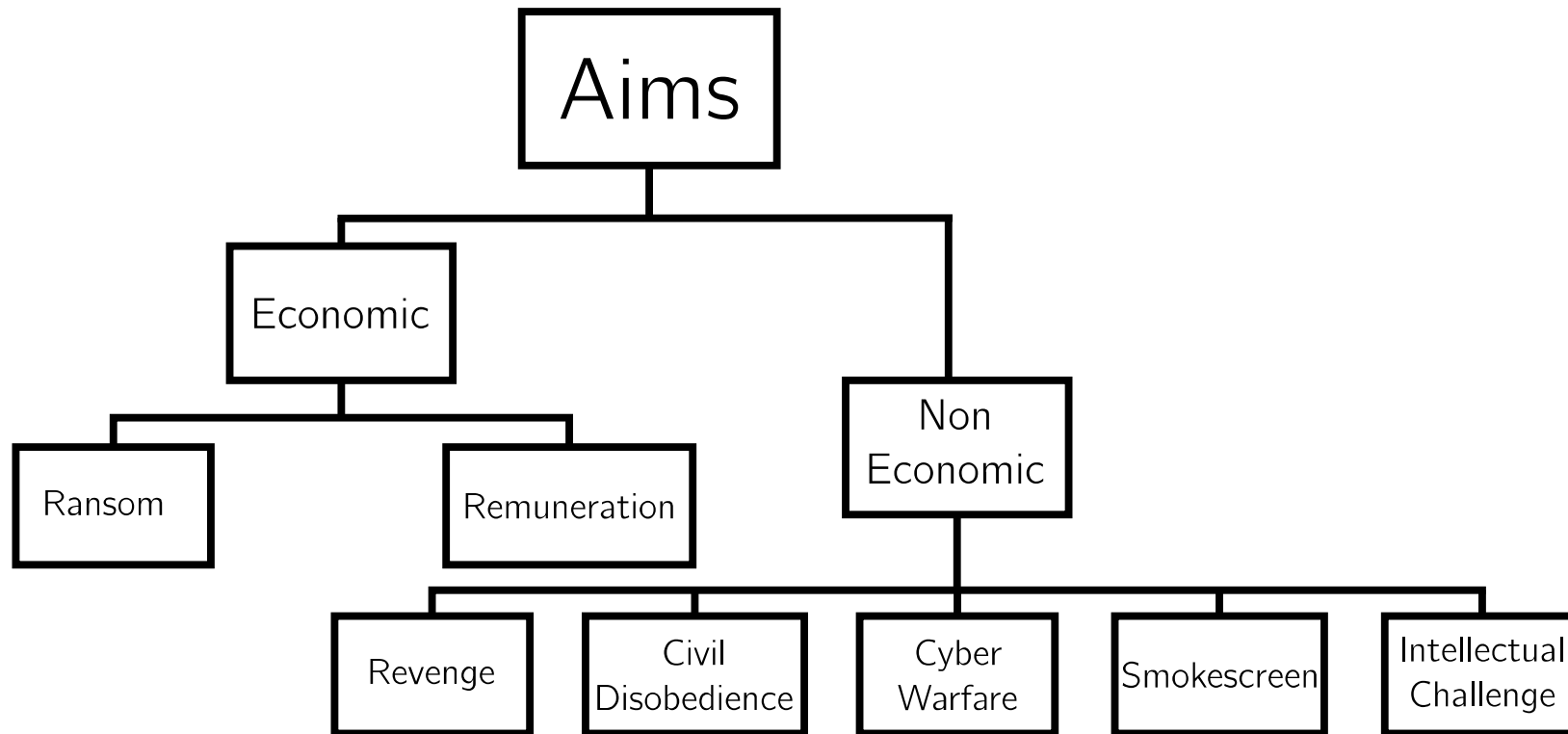
By technical expertise:

- ▶ Tier 1: Practitioners who rely on others to develop malicious code, delivery mechanism and execution strategy.
- ▶ Tier 2: Practitioners who have a great depth of experience, with the ability to develop their own tools.
- ▶ Tier 3: Practitioners who focus on the discovery and use of unknown malicious code.
- ▶ Tier 4: Practitioners who are organized, highly technical, proficient and well funded to discover new vulnerabilities and develop exploits.

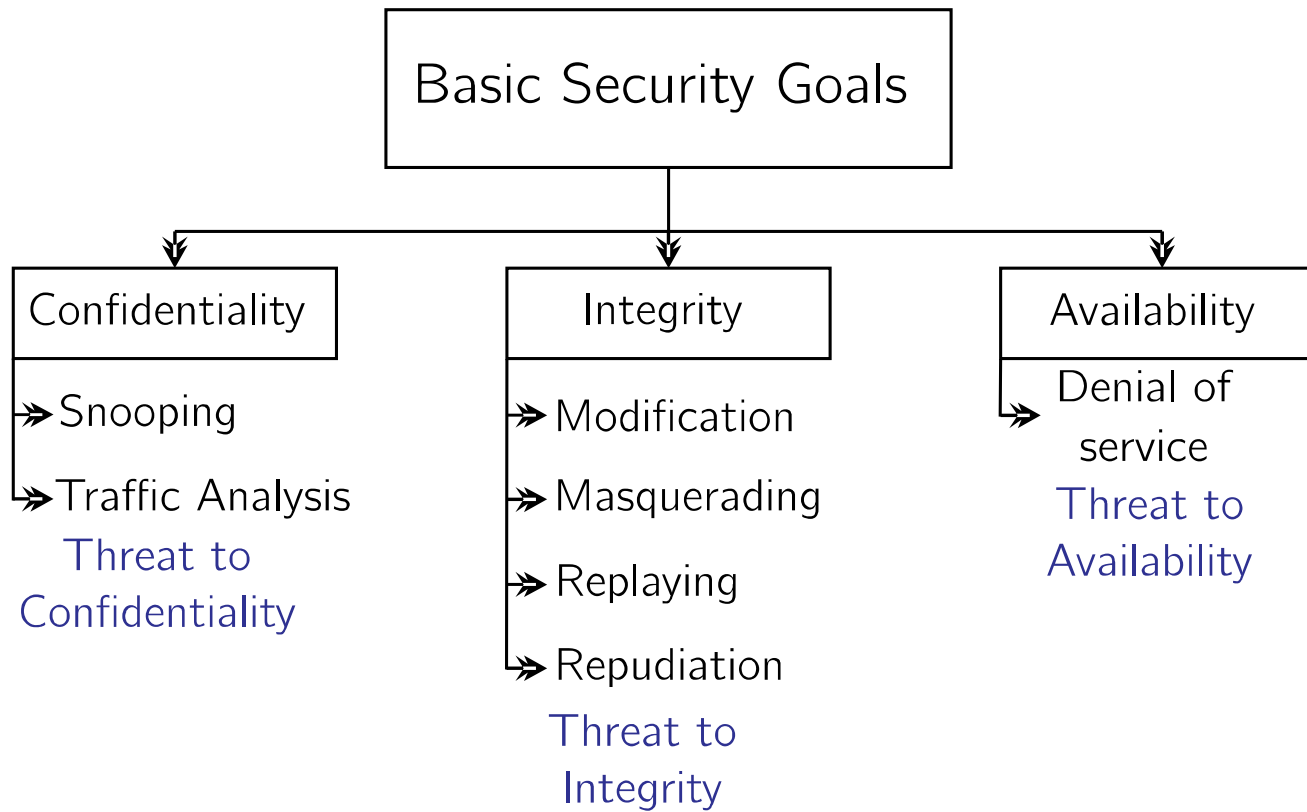
The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the slide, creating a modern, layered effect. The text is positioned on the left side of the slide, set against a plain white background.

Can you think of another way of
classifying attackers?

Aims of Attackers



Types of Attacks



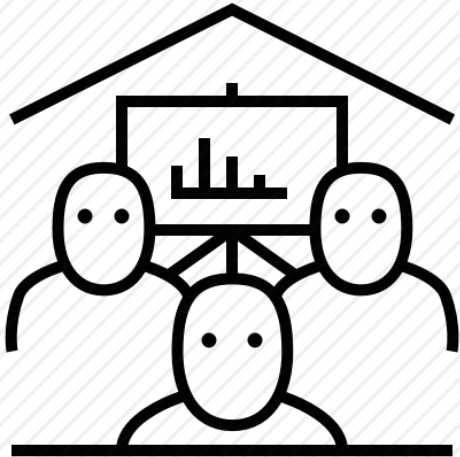
Defense

Technologies

- ▶ Access Control
- ▶ Trainings and Workshops for employees
- ▶ Follow BCPs
- ▶ Cloud based solutions
- ▶ Encryption
- ▶ ...

Strategy

In-house



Outsourcing

KASPERSKY lab



CLOUDFLARE



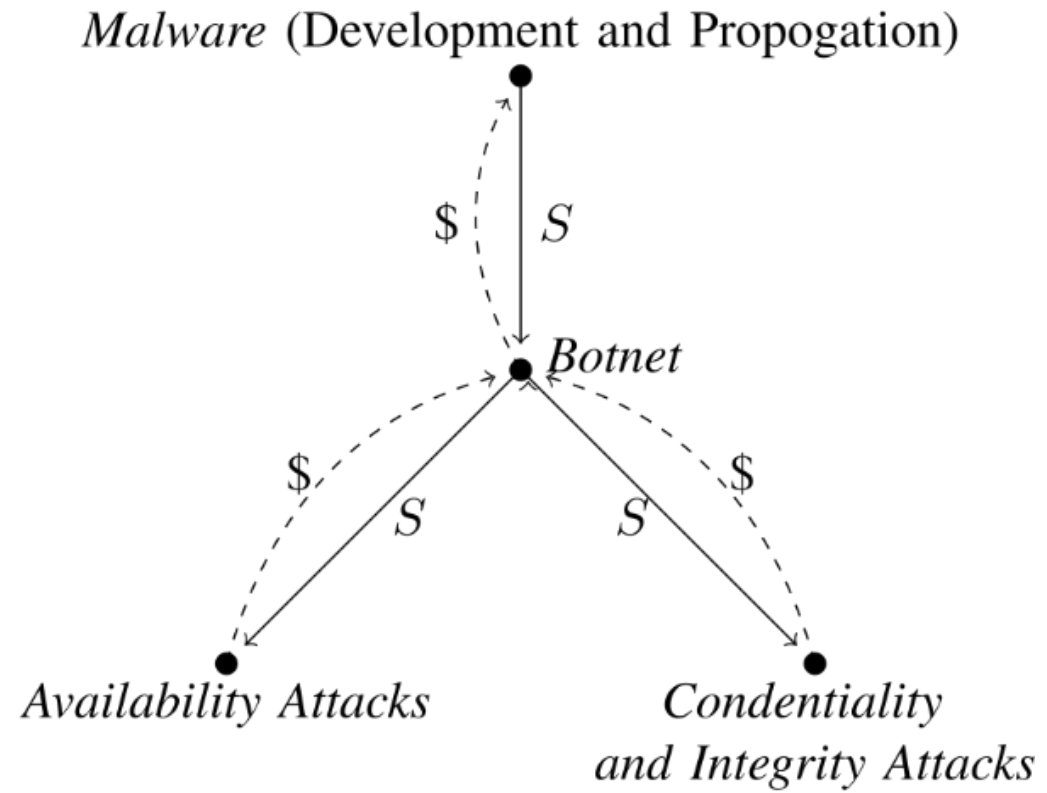
FOX IT

Security Economics

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How attackers make money?

Botnet Ecosystem



S: Service Provided

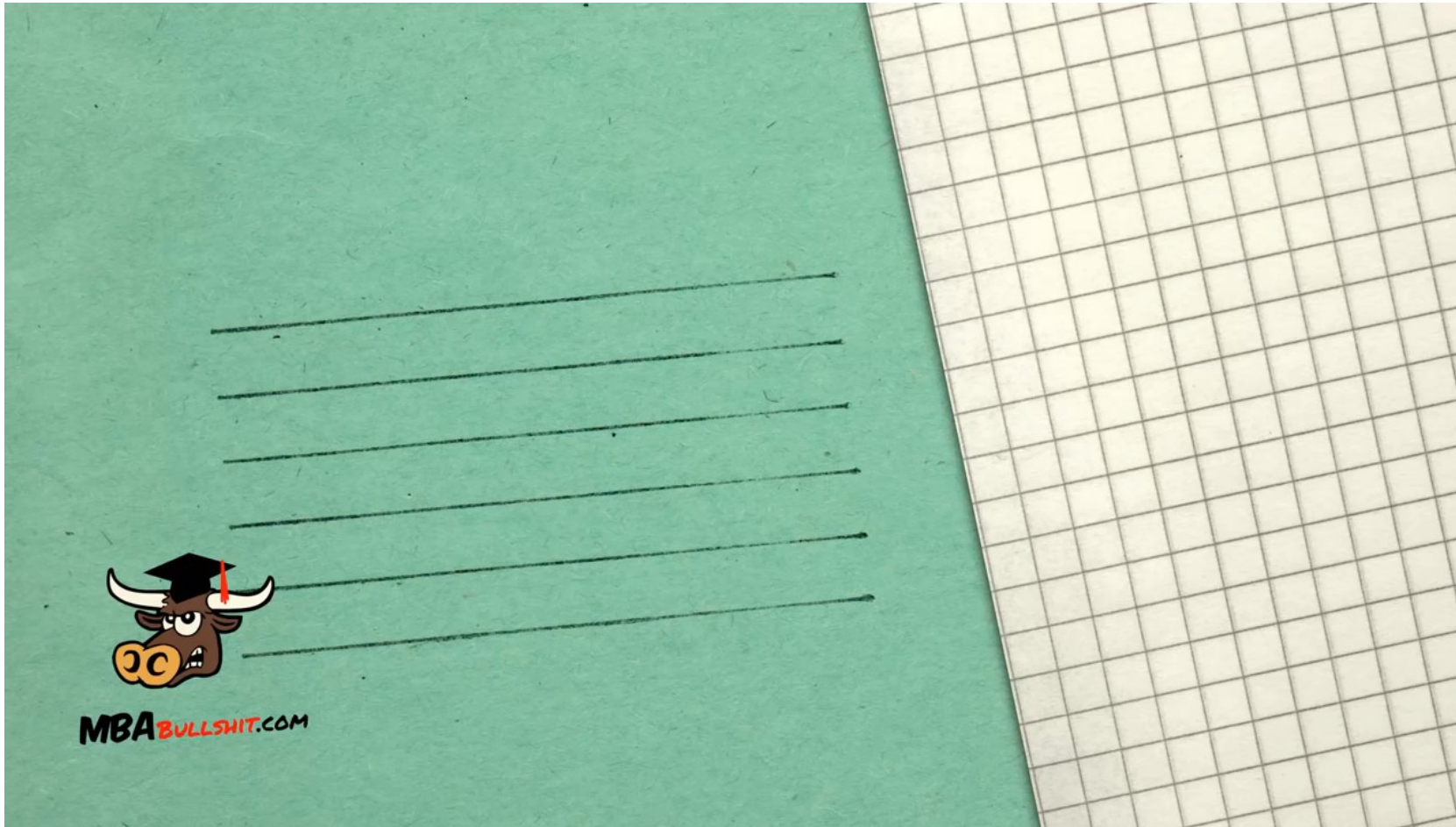
Business Model of a Botnet

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Malware Developers [3, 20] Money Handlers [3, 4] Bulletproof Hosting Provider [3, 4] Malware Distributors [3, 20, 19] Dark Web Market Places [28] Government Intelligence Agencies [25]	Botnet Maintenance [18, 20] Managing Botnet Infrastructure [20] Perform Attacks [3, 8]	Advertising products [12] Stealing Money [3] Creating Fraudulent ad-clicks [3] Shutting Down Websites [4, 25] Cryptocurrency Mining [25]	Automation Forums [9] Internet Relay Chat [15] Email [4]	Governments [25] Malicious Parties Website/Server Administrators [4, 14]
	Key Resources		Channels	
	Bots Identity Protection Software Network Connectivity		Dark Web Marketplaces [28] Hacker Forums [9] Emails [4] Websites [4]	
Cost Structure		Revenue Streams		
Malware Development [3, 20] Infections [3, 20, 19] Hosting [4] Bandwidth Transaction Fees [4] Customer Service [4]		Stolen Bank Account Money [3] Click Fraud [3] Sale of Botter Services [4, 25] Sale of Spam Services [12]		

Source: <https://doi.org/10.1109/PDP2018.2018.00077>

Pricing of security products

How can costing be done?



Information Asymmetry



How is pricing done?



<http://people.ischool.berkeley.edu/~hal/Papers/mattioli/mattioli.pdf>

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the image, creating a modern, architectural feel. The left side of the image is a solid, very light blue, providing a clean backdrop for the text.

How to invest in security?

Gordon and Loeb Model



Thanks

www.abhishta.org