Understanding the Attackers and Their Methods

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“I don’t even call it violence when it’s self-defense, I call it intelligence.”

Malcolm X

Rapid Growth in Tech = Trouble

What ethical hackers do for companies

- Review systems and infrastructure
- Test current security
- Create solutions
- Retest

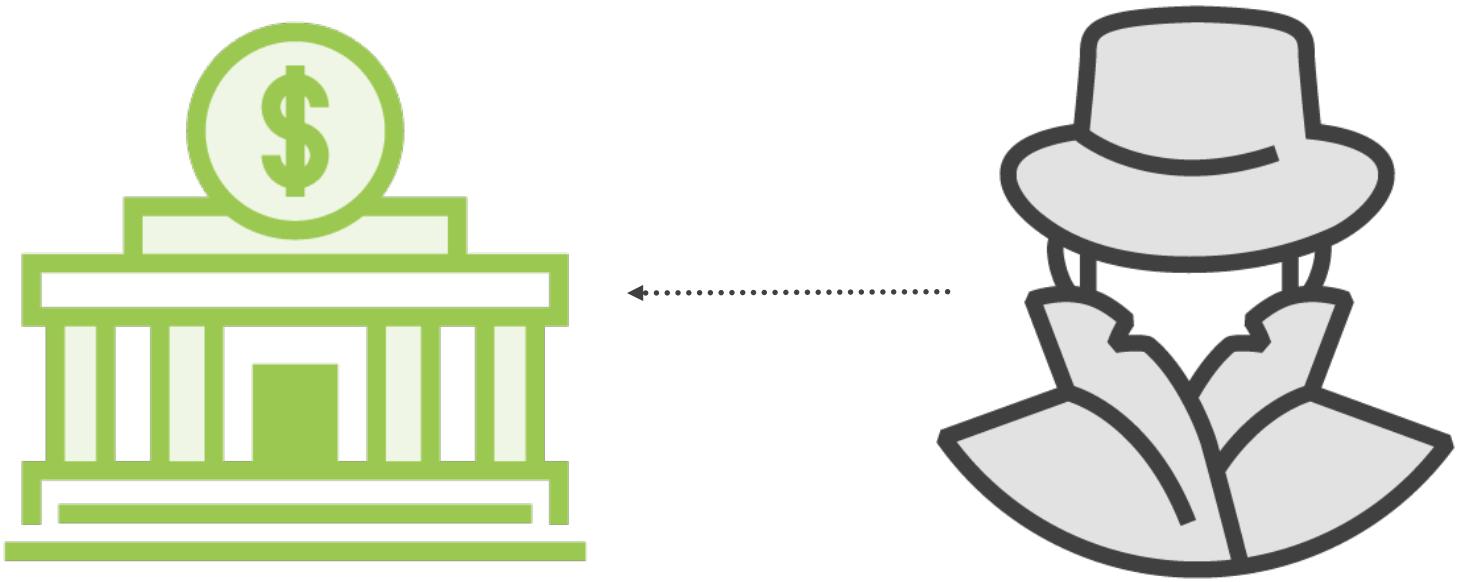
You HAVE to answer questions like:

- What can be seen?
- What is being monitored?
- What can be done?
- Is there adequate protection?
- Are compliances met?

Is Ethical Hacking necessary?

What Is “Defense in Depth”?

Let’s Put on Different Hats for a Second



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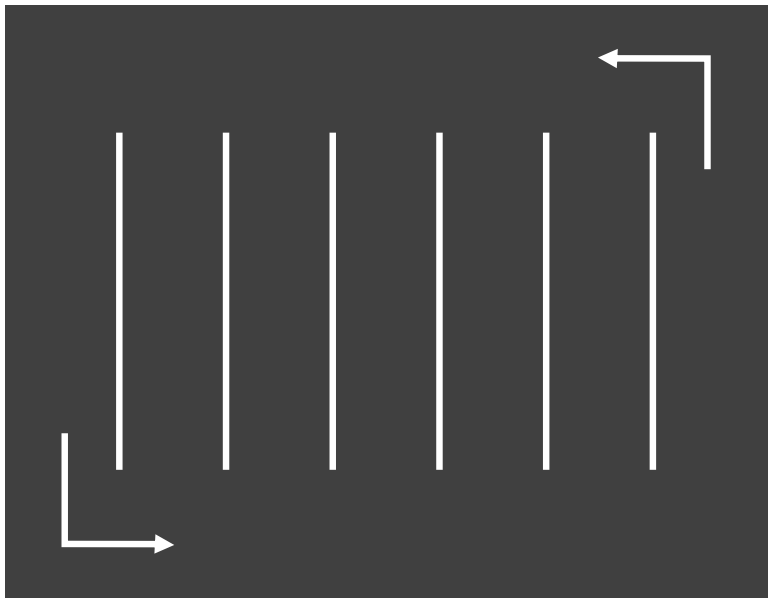

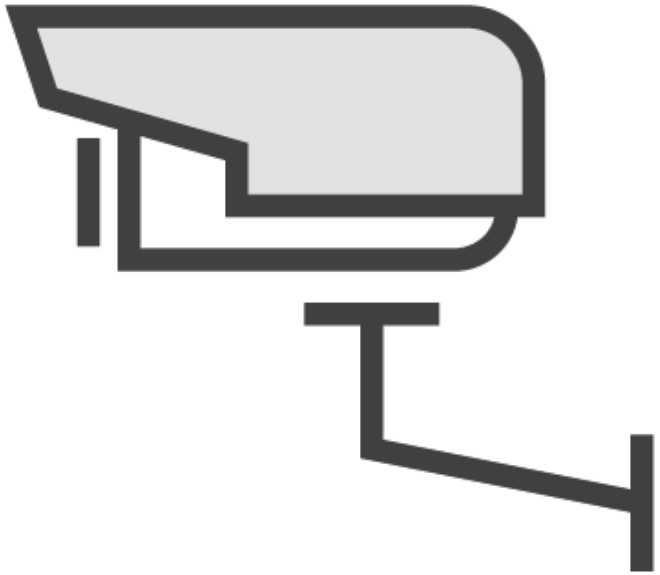

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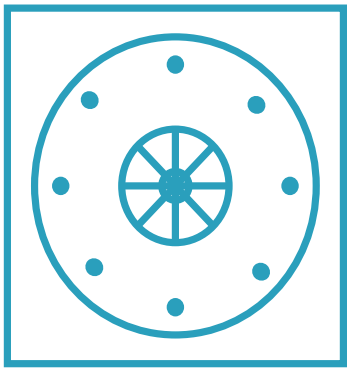
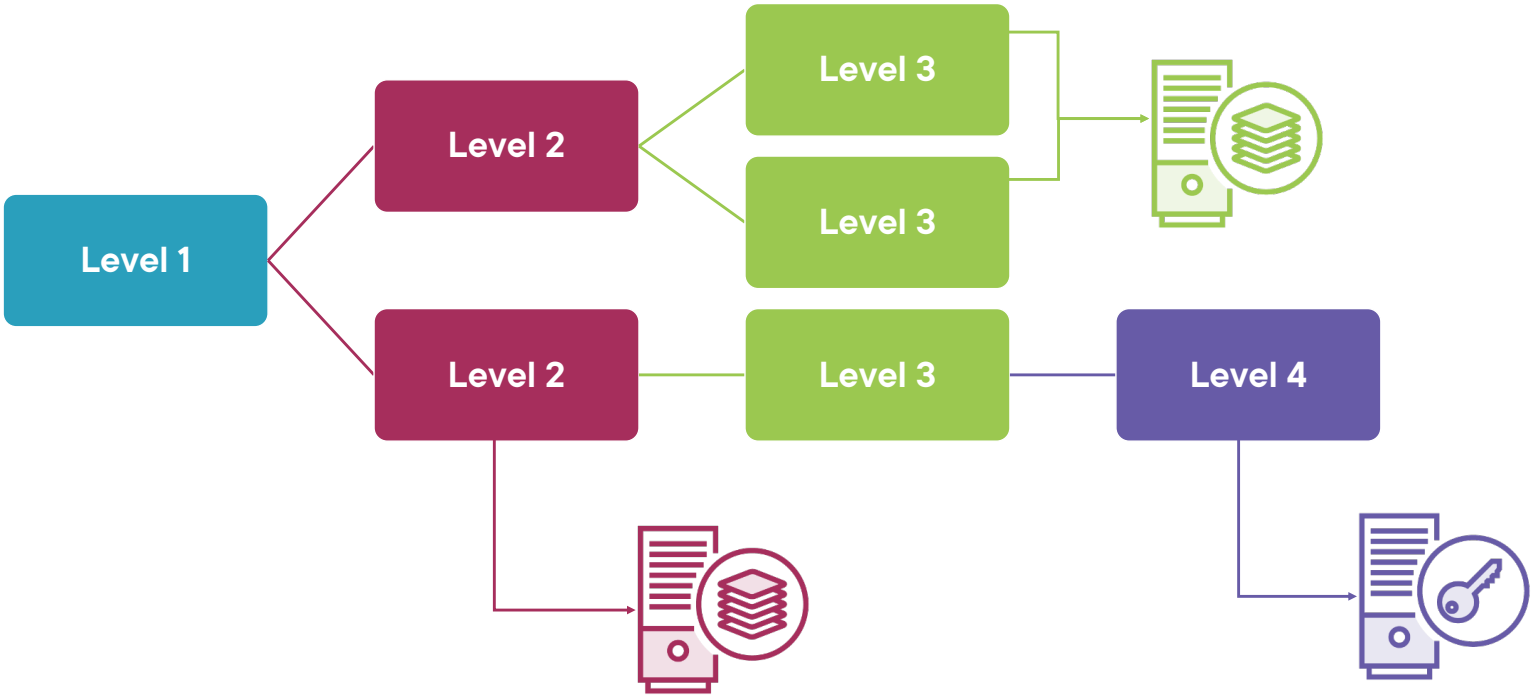


Layers, Like Onions



The Last Stand

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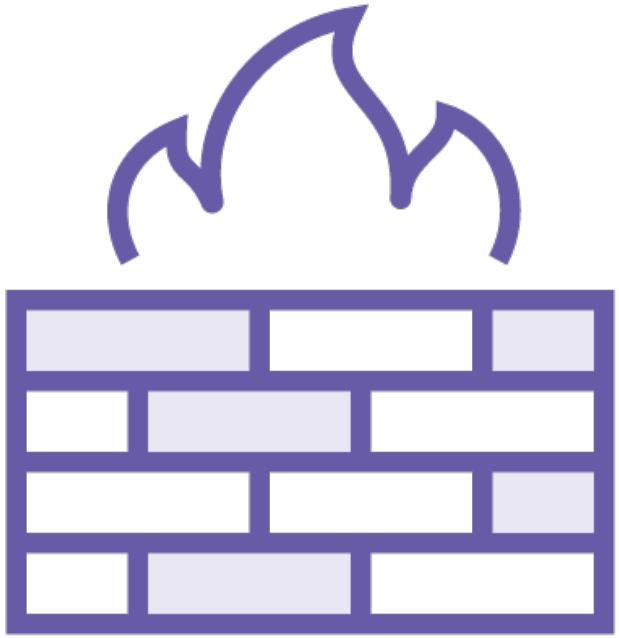
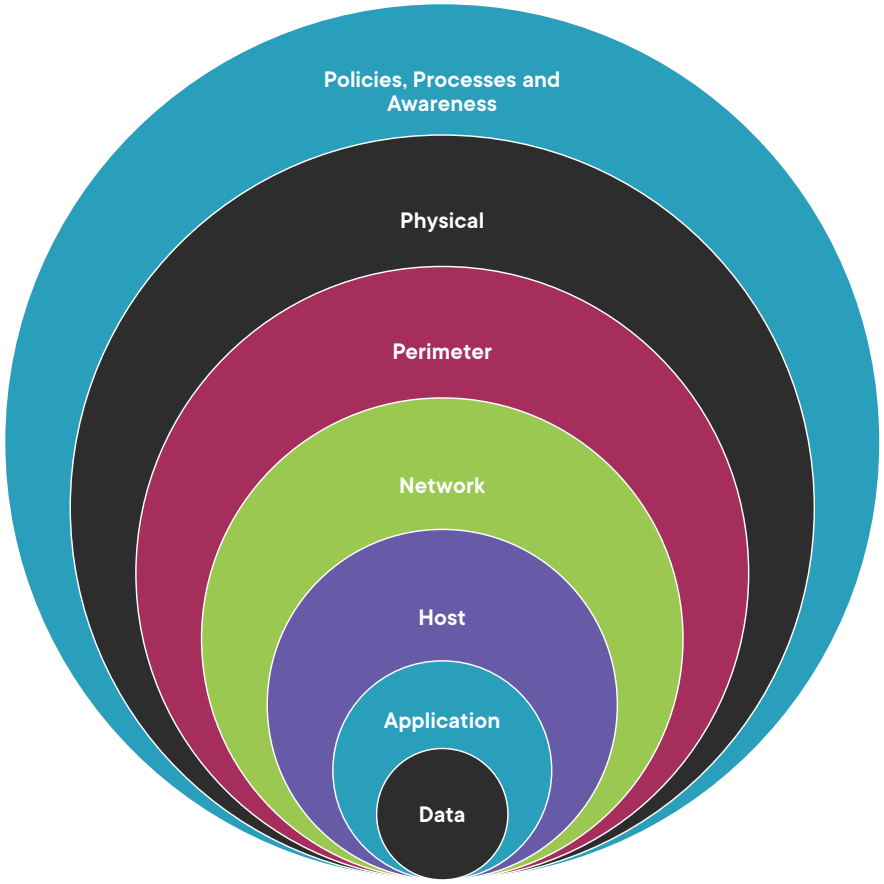


Gentlemen, prepare to defend yourselves!

-Sergeant Major Plumley (We Were Soldiers 2002)

The Levels of Defense in Depth

“You’ve Leveled Up”



Consider This

Never ignore the edge

Follow the workflow

Zero Trust Security Posture

What Is the Risk?

Risk = Threats x Vulnerabilities x Impact

Level	Consequence	Action
Extreme / High	Serious	Immediate action is required
Medium	Moderate	Action should be prioritized
Low	Negligible	Preventive steps

Risk Levels

Probability		Consequences				
		Insignificant	Minor	Moderate	Major	Severe
81 - 100%	Very High Probability	Low	Medium	High	Extreme	Extreme
61 - 80%	High Probability	Low	Medium	High	High	Extreme
41 - 60%	Equal Probability	Low	Medium	Medium	High	High
21 - 40%	Low Probability	Low	Low	Medium	Medium	High
1 - 20%	Very Low Probability	Low	Low	Medium	Medium	High

Risk Matrix

Threat Modeling

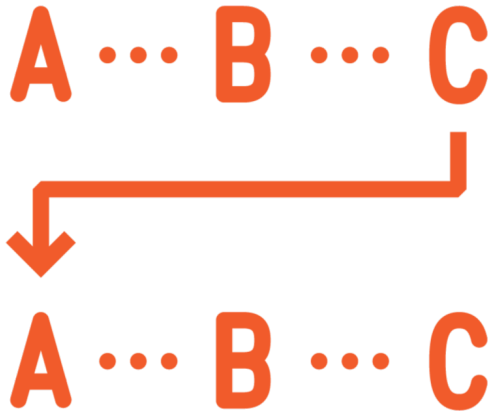
Threat Modeling Adversary Capability

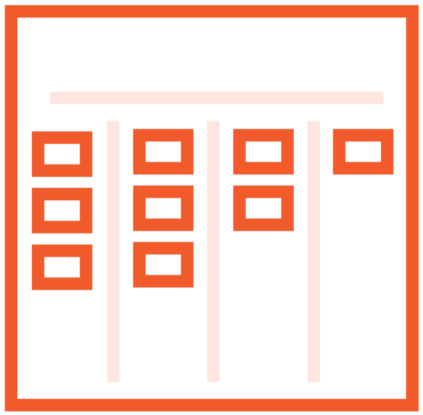
Identify threats

Identify vulnerabilities

Improve your security designs

Things to Keep in Mind





Adversary Capability

Identify security objectives

Application overview

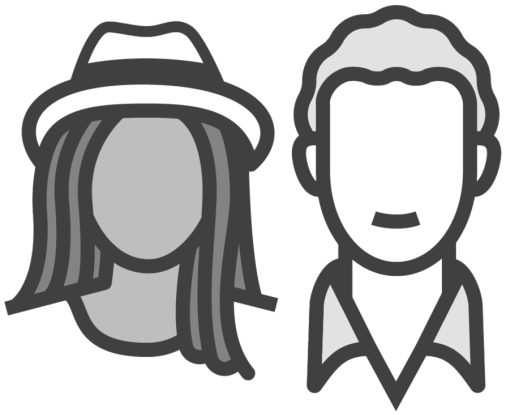
Decompose the application

Identify threats

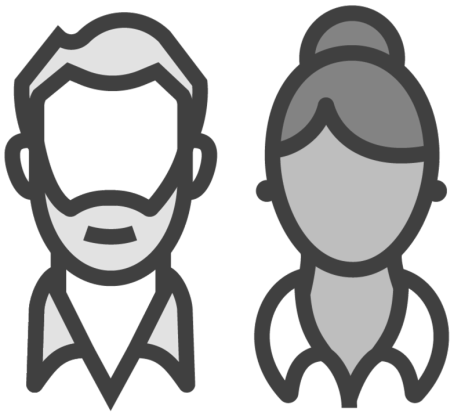
Identify vulnerabilities

Identify Roles

Read



Update



Delete

Probability		Consequences				
		Insignificant	Minor	Moderate	Major	Severe
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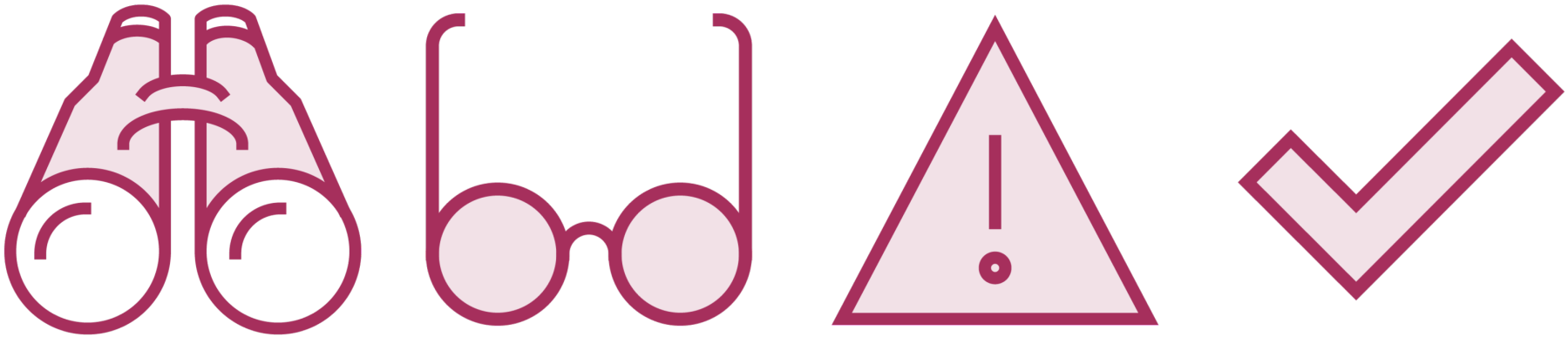
Incident Management

Think Outside the Box



Identify **Analyze** **Prioritize** **Resolve**

The “Why” of Incident Management

Better service quality

Proactive

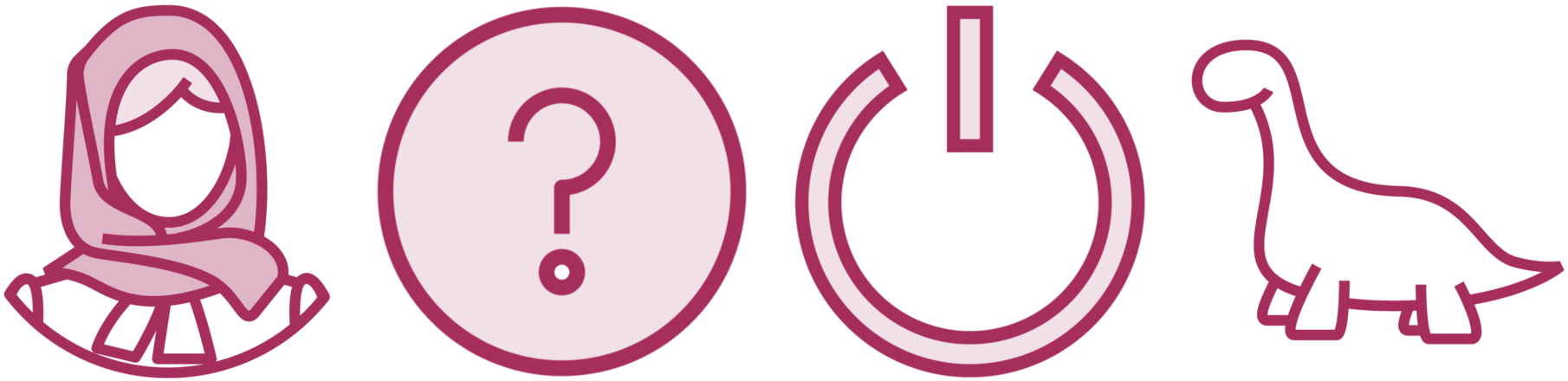
Reduces impact

Meets availability

More efficient and productive

Customer/user satisfaction

Proactive



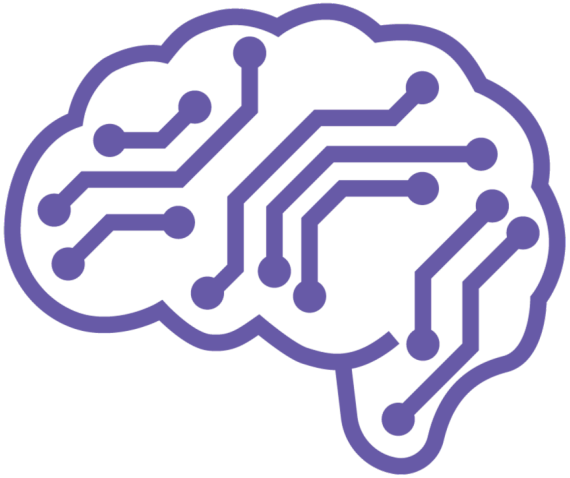
The Incident Handling and Response (IH&R)

IH&R Process

1. **Prepare for Event Handling and Reaction**
2. **Incident Recording and Assignment**
3. **Triage**
4. **Notification**
5. **Containment**
6. **Forensic Examination**
7. **Eradication**
8. **Recovery**
9. **Post-incident Actions**

The Role of AI/ML

“I’m Sorry Dale, I’m Afraid I Can’t Do That”



Not just for cars

Beware

Machine Learning

We’re #4

AI is Appearing Everywhere

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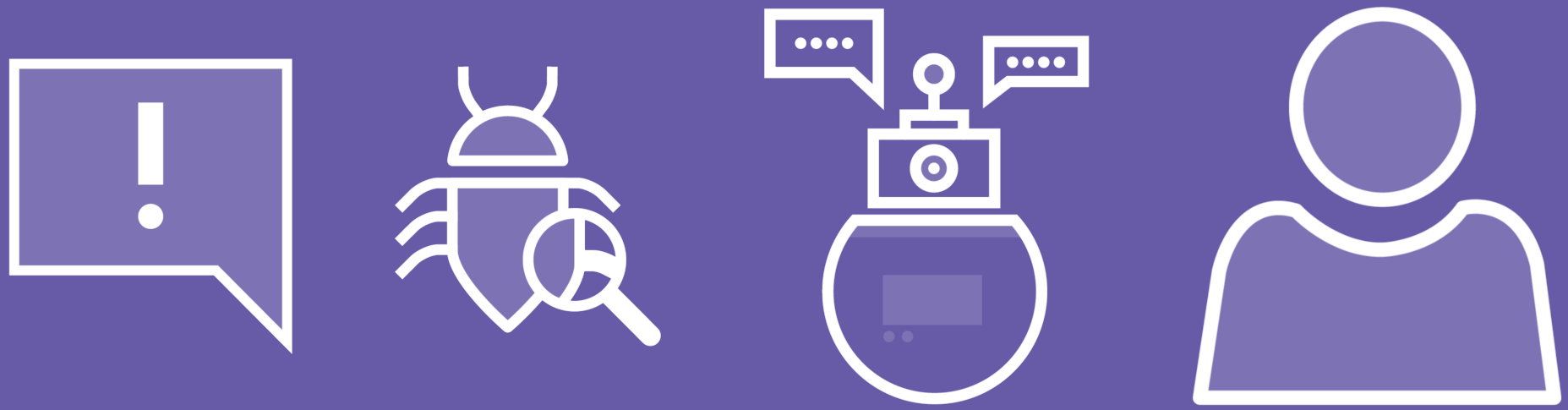
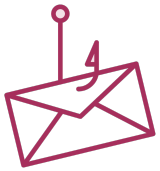


Know the Concept of AI and Machine Learning

Can AI and ML Stop Attacks?

Authentication and password protection



Phishing

Threat detection

Vulnerability management

Behavioral analysis

Can AI and ML Stop Attacks?

AI-based antivirus

Botnets

Fraud

Network security

AI vs. AI

Learning Check

Learning Check

- [x] **Risk**
- [x] **Risk matrix**
- [x] **Decompose the application**
- [x] **Machine Learning**
- [x] **Containment**
- [x] **Eradication**

Key Terms

- **Ways AI and ML prevent attacks**
- **Incident Handling and Response**
- **Risk**

Up Next:
Differentiate Information Security Laws and Standards