RSA®Conference2022

Building a Security Program

(A Look in Four Dimensions)

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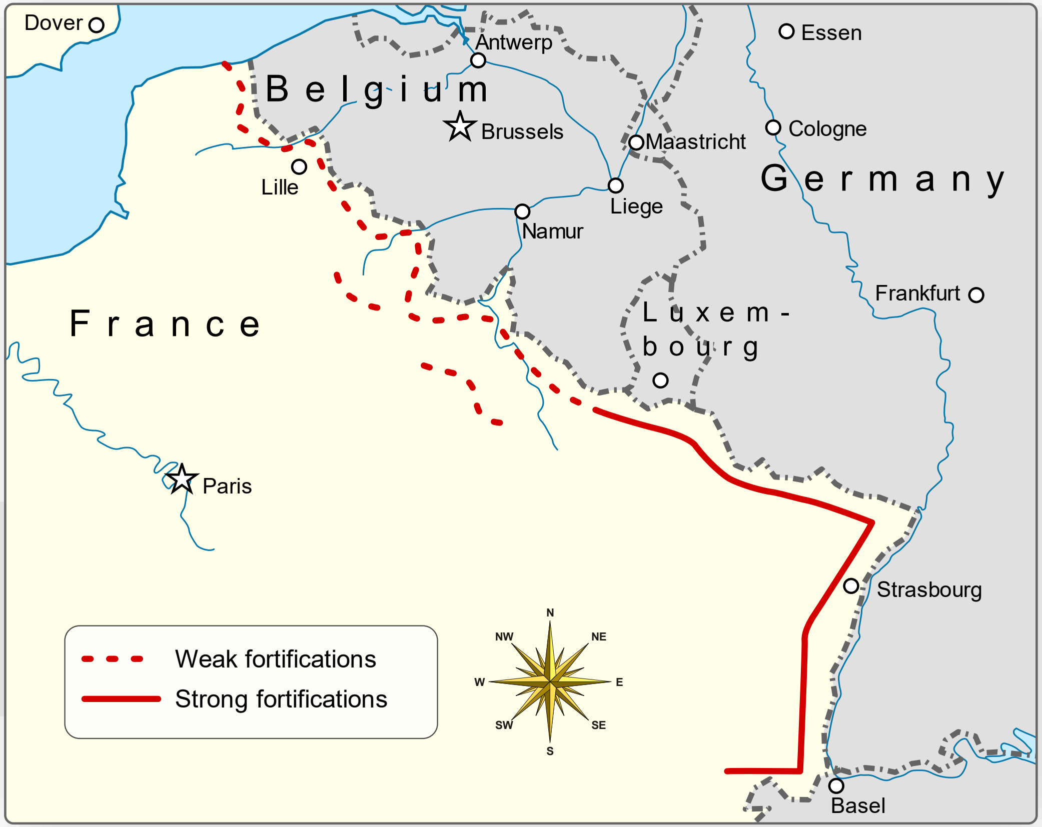
“Defense in Depth”



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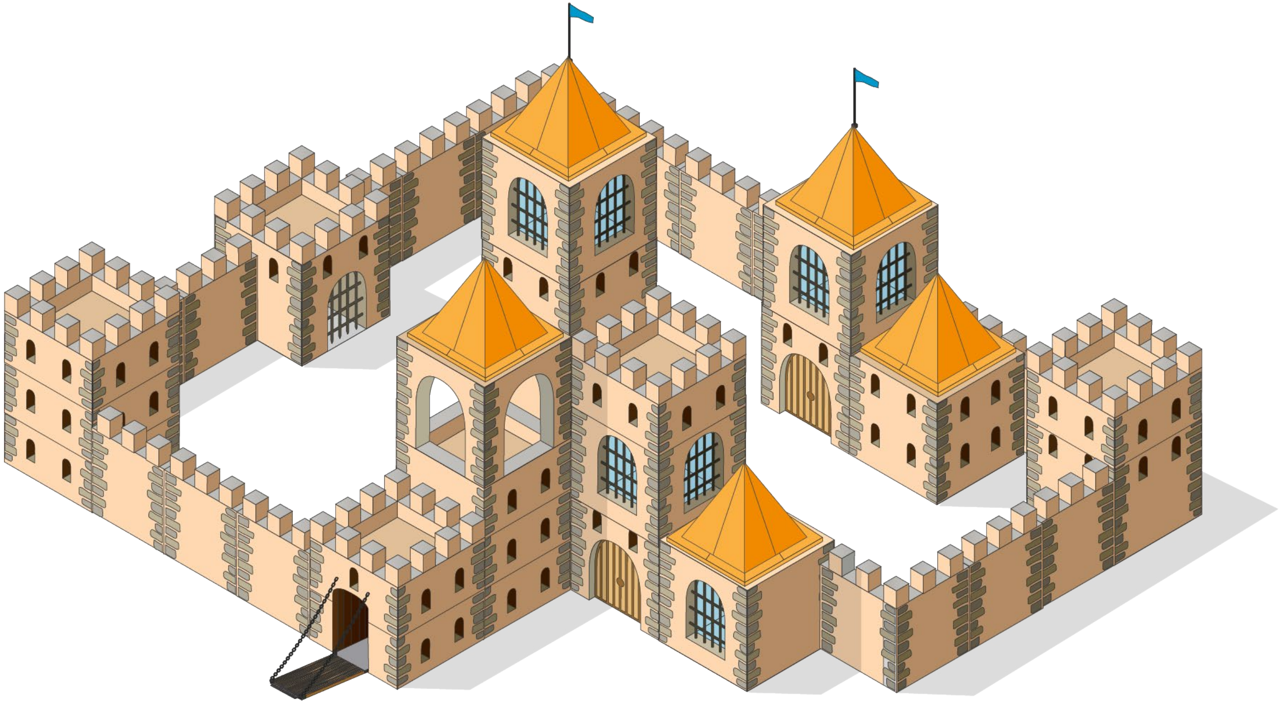
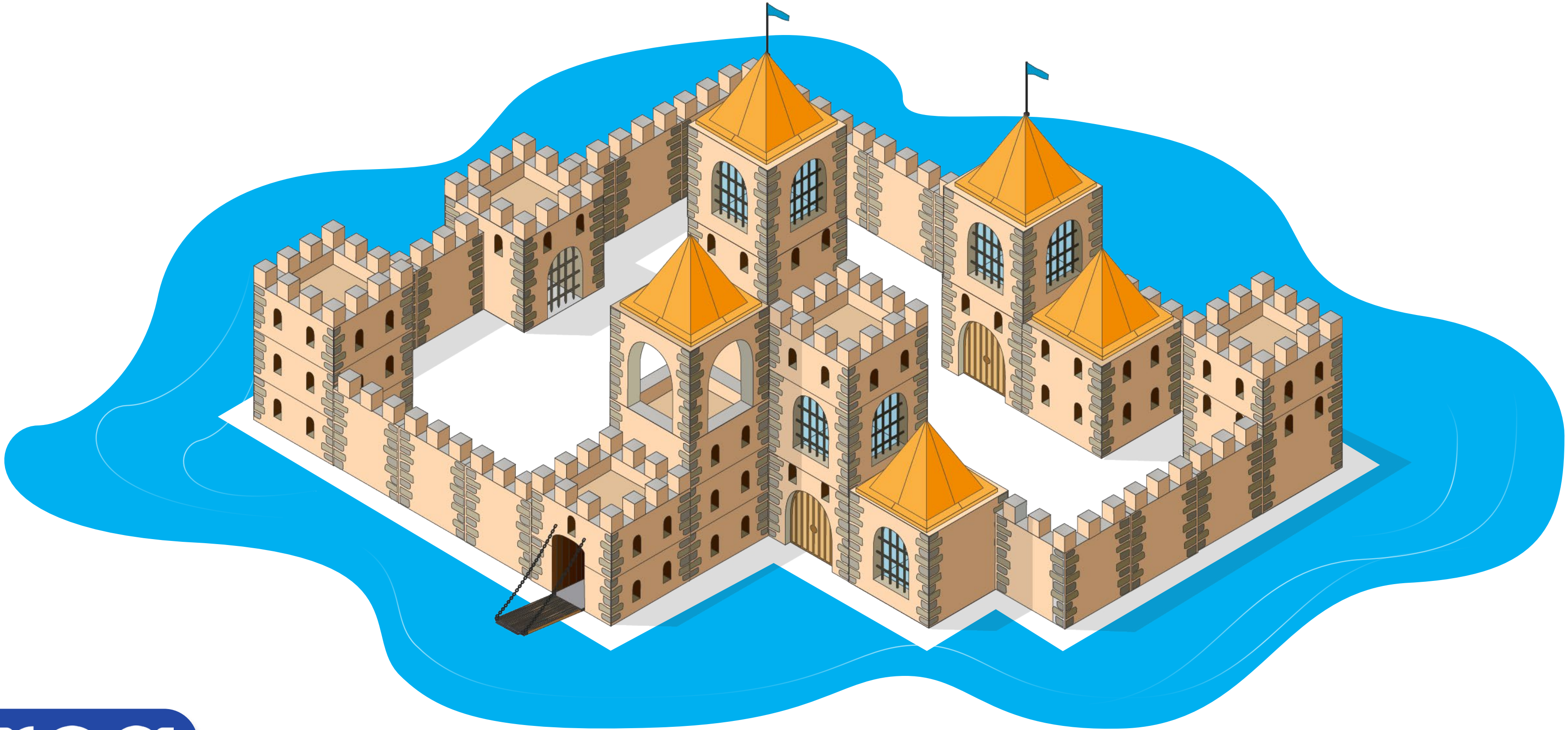
The Perimeter



The Moat



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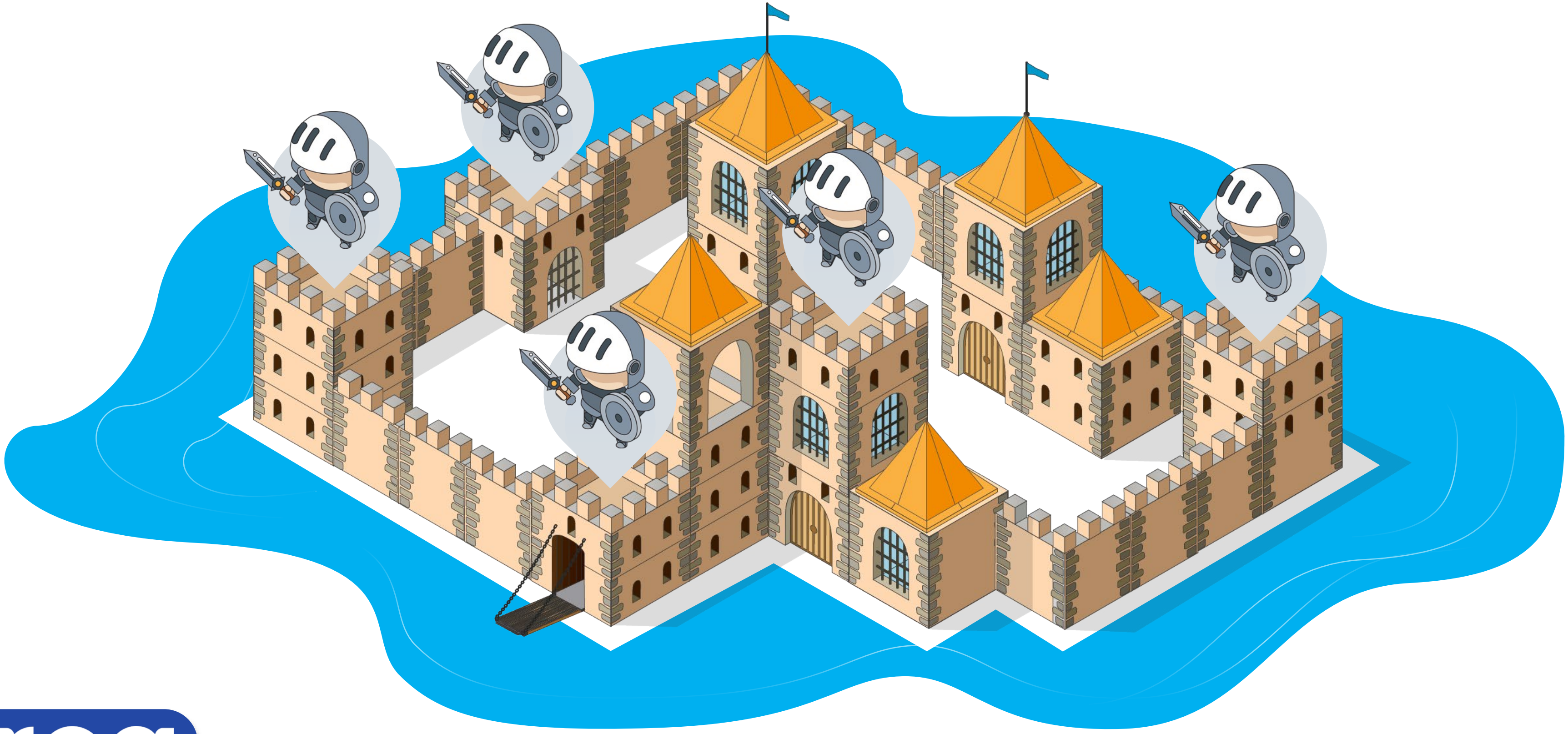
Defenders



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Even in “meatspace,” defense isn’t linear

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APPLY!

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Apply: Vulnerability Management

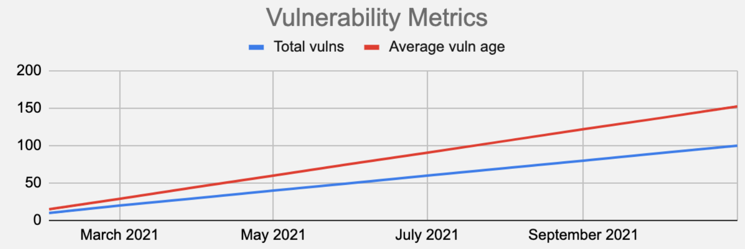
Review the current metric

Step 1: Challenge the Definition

- What systems aren't covered?
- What vulnerabilities aren't counted?
- What less relevant vulnerabilities are counted?

Patching Vulnerabilities

- **Average Age of Open Vulnerabilities**



- **Definition:** Defect measurement: How long have current vulnerabilities been unpatched

Charts from: https://www.csoonline.com/article/3648997/vulnerabilities-dont-count.html

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Patching Vulnerabilities

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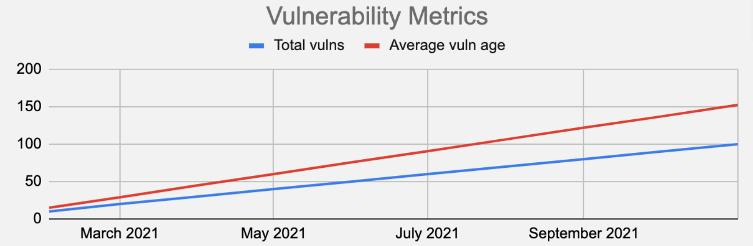

- **Definition:** Defect measurement: How long have current vulnerabilities been unpatched

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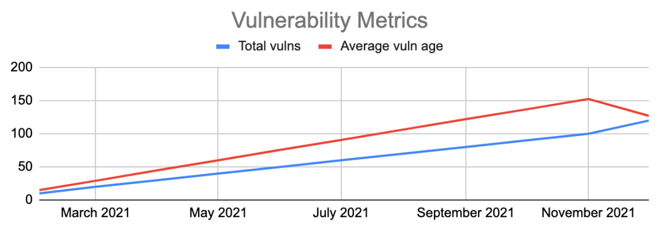
Apply: Vulnerability Management

Break the current metric

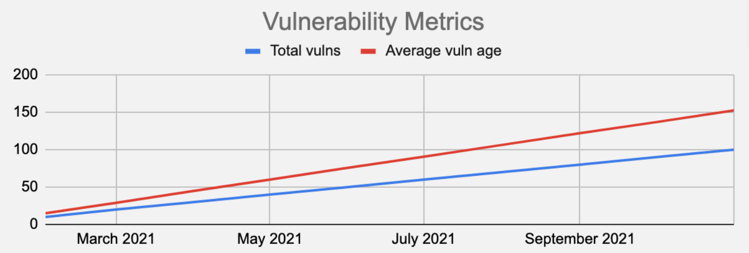
Step 1: Challenge the Definition

Step 2: Roundtable: What If?



Patching Vulnerabilities

Average Age of Open Vulnerabilities



Definition: Defect measurement: How long have current vulnerabilities been unpatched

What if we don't patch log4j?

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Apply: Vulnerability Management

Break the current metric

Step 1: Challenge the Definition

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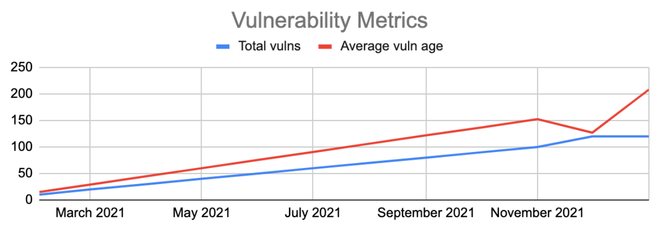
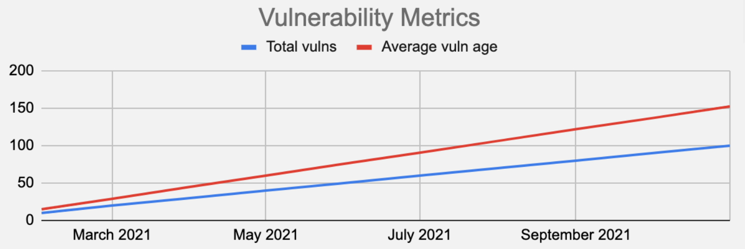


Patching Vulnerabilities

Average Age of Open Vulnerabilities



Definition: Defect measurement: How long have current vulnerabilities been unpatched

What if we patch log4j after a month?

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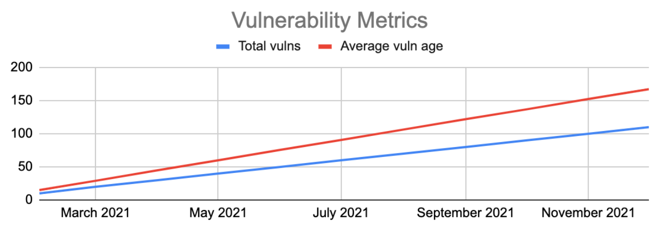
Apply: Vulnerability Management

Break the current metric

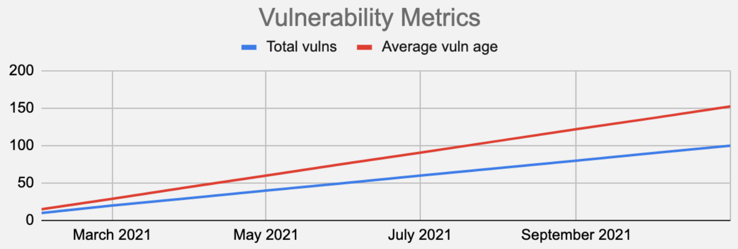
Step 1: Challenge the Definition

Step 2: Roundtable: What If?



Patching Vulnerabilities

Average Age of Open Vulnerabilities



Definition: Defect measurement:
How long have current
vulnerabilities been unpatched

What if we patch log4j between reporting intervals?

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Apply: Vulnerability Management

Consider new metric

Step 1: Challenge the Definition

Step 2: Roundtable: What If?

Step 3: Ask what you're trying to measure

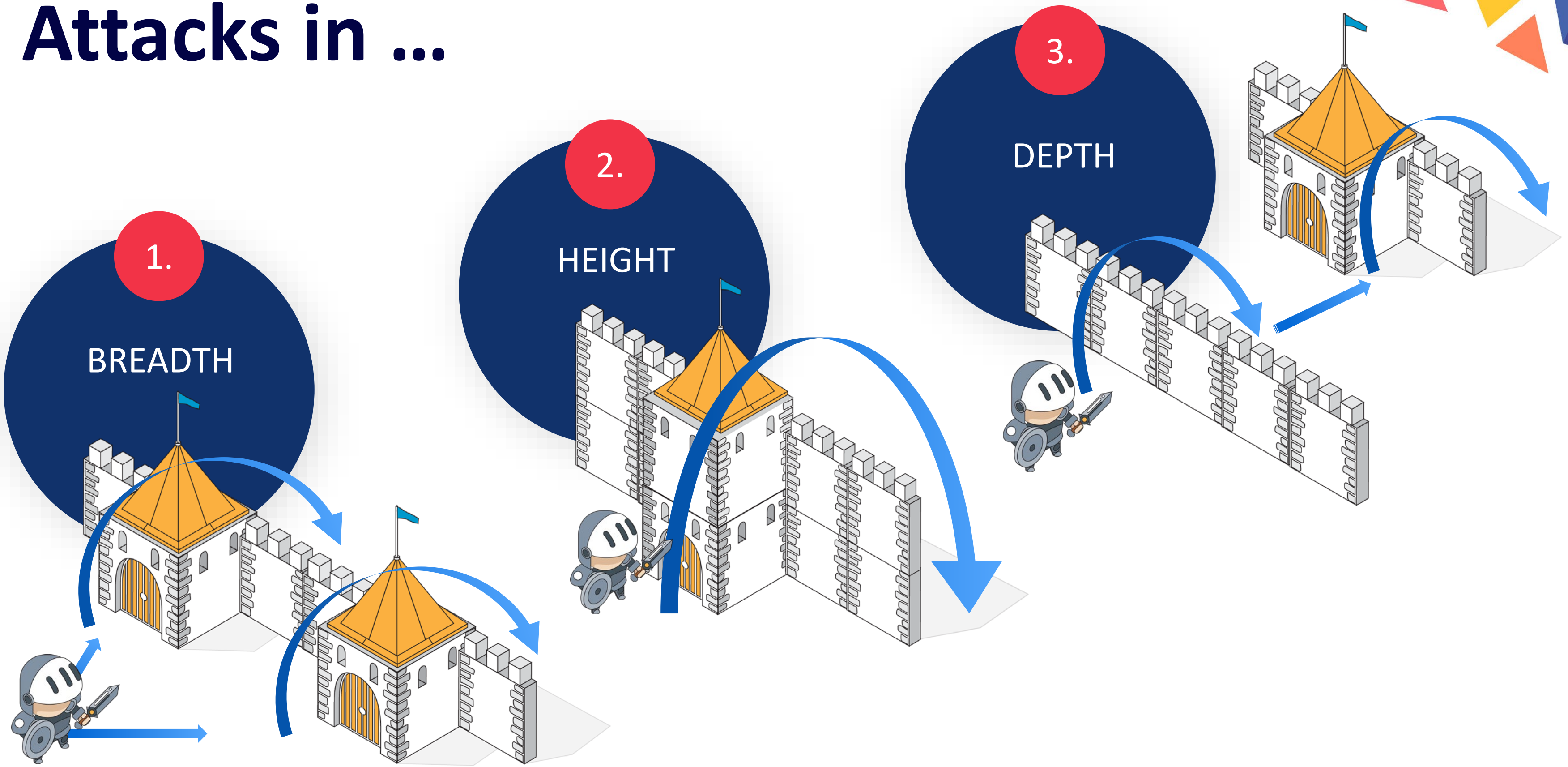
Vulnerabilities

Patch SLA measurement

Critical	High	Medium	Low
7 days	30 days	90 days	180 days
85%	70%	50%	40%

Definition: How many vulnerabilities are patched within expected window?

Attacks in …



Defenses need to meet attackers…

Building a security program without considering how an adversary will try to penetrate it?

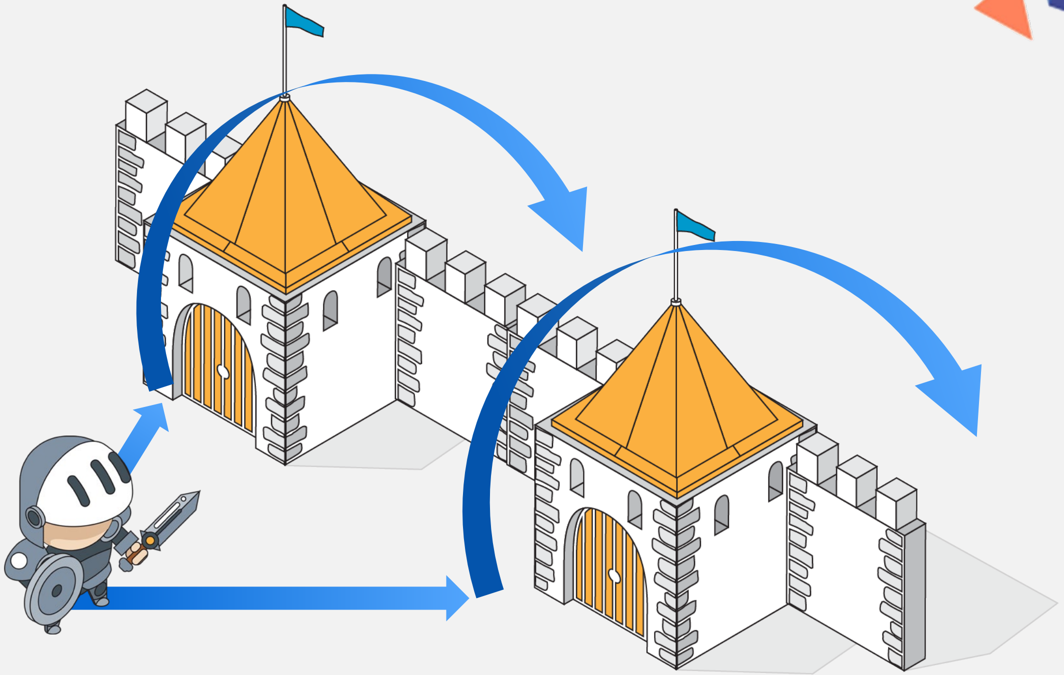
That's just a Cyber Maginot Line.

So how do we approach this challenge?

Dimension 1: Breadth / Width

Since the adversary can choose their point of entry:

Defenders must have complete *coverage* of all of their assets, *especially* if they aren't well maintained.



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Coverage: Asset Classes

- Step 1: **List types of Assets**
- Step 2: **Count your Assets**
- Step 3: **Document ease of data collection**

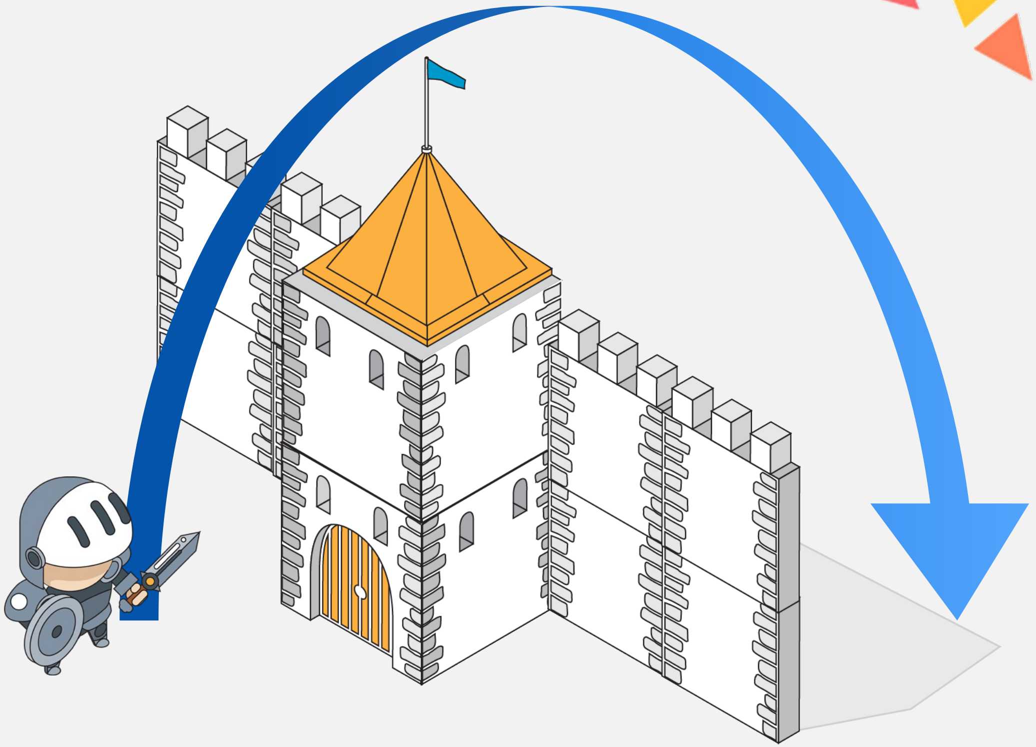
○: Easy, automated
◐: Some manual effort
●: Lots of human effort

Public Cloud	**152,435**	○
Production Servers	**3,000**	◐
Dev/Build Servers	**????**	●
Enterprise Endpoints	**9,267**	◐
Enterprise Servers	**352**	○
SaaS Services	**500+**	●

Dimension 2: Height

Since the adversary can quickly jump through security systems:

Defenders must know how *comprehensive* their defenses are, and how they "stack."



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APPLY!

Comprehensive: Defenses

For each asset:

- Step 1: **Define Controls**
- Step 2: **Define process measurements**
- Step 3: **Document process maturity**

○: No executive required
◐: Some executive oversight
●: No process

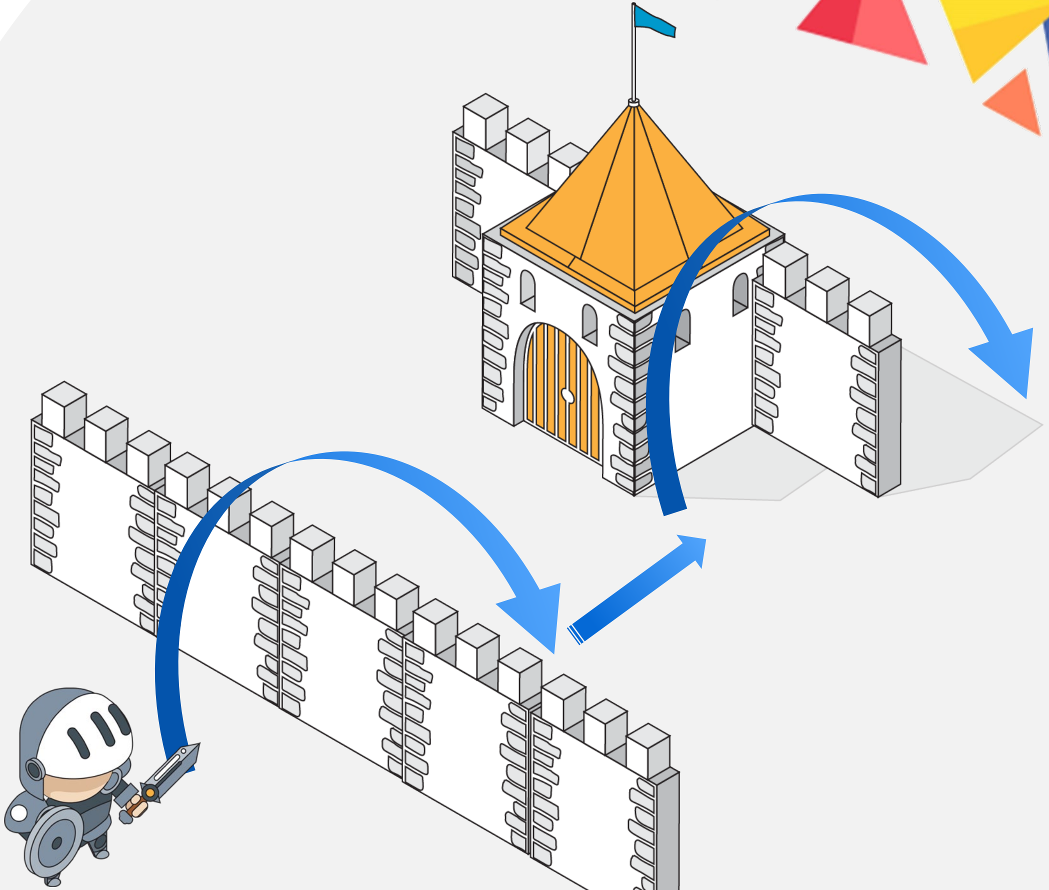
Public Cloud

Inventory	**152,435**	○
Vulnerability Mgmt	**@SLA 10%** **H/M/L: 7/30/90 days**	●
Config Hygiene	**High: 0** **Med: 50** **Low: 18,889**	◐
Authentication	**User MFA: 100%** **Machine IDs: 50%**	◐
Access Control	**Grants utilized: 82%**	○
Exploit Monitoring	**Dwell Time: 82 days**	●
Data Protection	**????**	

Dimension 3: Depth

Since the adversary will laterally move in your environment:

Defenders need the *context* of what is accessible to your front-end systems.



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Context: Attack Scenarios

For any attack type:

Step 1: Define effective defenses

Step 2: Define incident response needs

Step 3: Narrate existing controls in this context

Ransomware

Stopped by:

- MFA
- Removal of lateral admin privileges

Mitigated by:

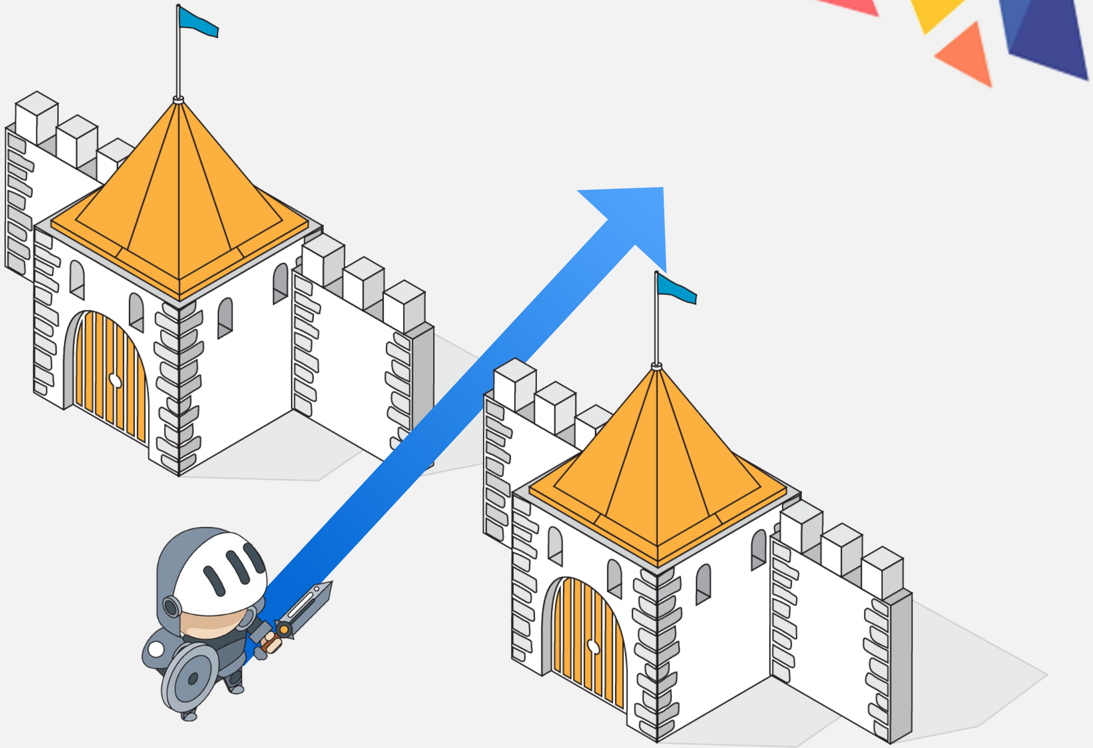
- Data backups

"We use FIDO-MFA, we've implemented three-tiered AD administration, and we've eliminated central jump servers."

Dimension 4: Time

Since the adversary can wait until you aren’t watching:

Defenders need to ensure the *continuity* of all defensive controls.



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Continuity: Do your processes mature?

For any security control:

Step 1: Define and measure over-time efficacy

Step 2: Define improvement “missions” to mature the controls

Step 3: Track responsiveness to deviations from norms

Vulnerability

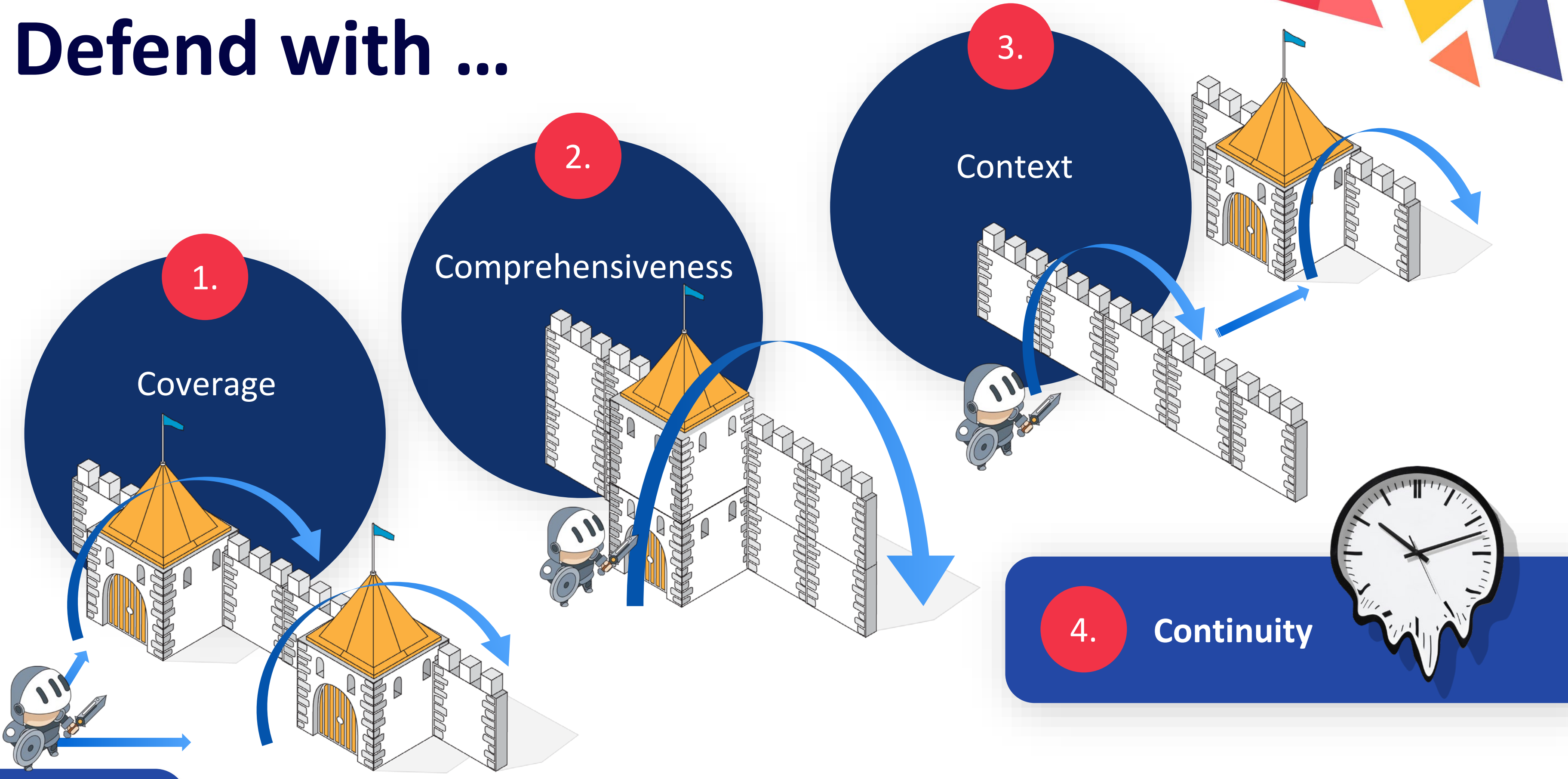
- **Patch SLAs:**

Critical	High	Medium	Low
7 days	30 days	90 days	180 days
85%	70%	50%	40%

- **Mission:** Improve build process to reduce software rollout latency by 5 days.

How many SLA violations were escalated before SLA was broken?

Defend with ...



1. Coverage

2. Comprehensiveness

3. Context

4. Continuity

APPLY!

Apply: Assess your metrics

Stop measuring activity, and start measuring *effectiveness over time*

Identify the assets that your metrics don't apply to!

Find the "unimportant" assets connected to important assets

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