CompTIA Security+ Exam SY0-701

Lesson 2

Comparing Threat Types

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Objectives

- Compare and contrast attributes and motivations of threat actor types
- Explain common threat vectors and attack surfaces

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Topic 2A

Threat Actors

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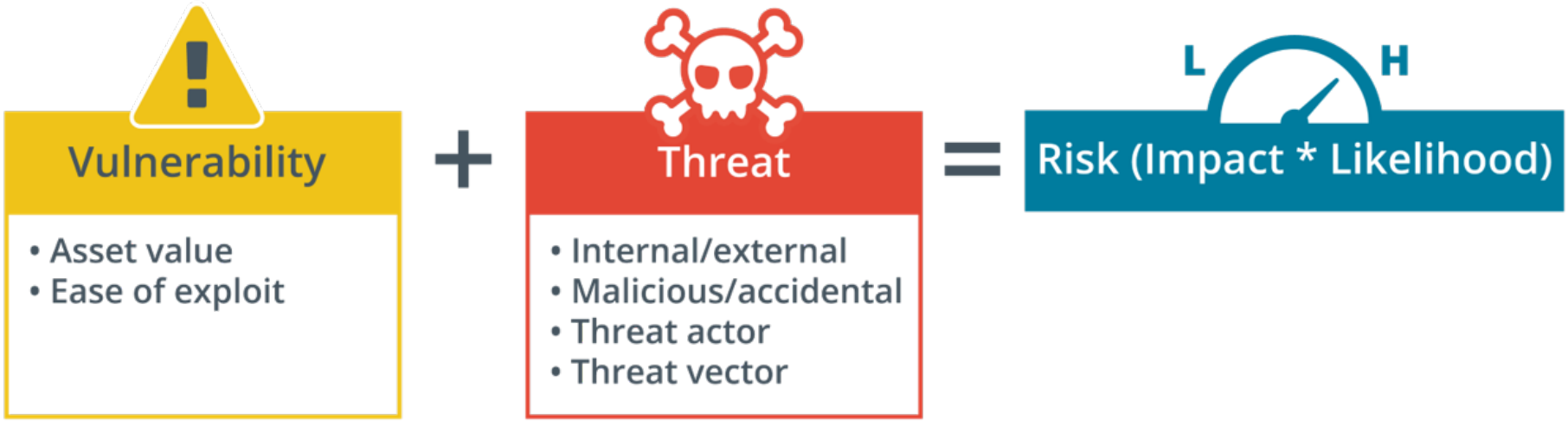
Vulnerability, Threat, and Risk



Attributes of Threat Actors

- Known threats versus adversary behaviors
- Internal/external
  - Internal threats have authorized access already
  - Attribute of threat actor, not where attack takes place
- Level of sophistication/capability
  - Low capability actors rely on commodity tools
  - High capability actors can develop new attacks
  - Access to political or military assets
- Resources/funding

Motivations of Threat Actors

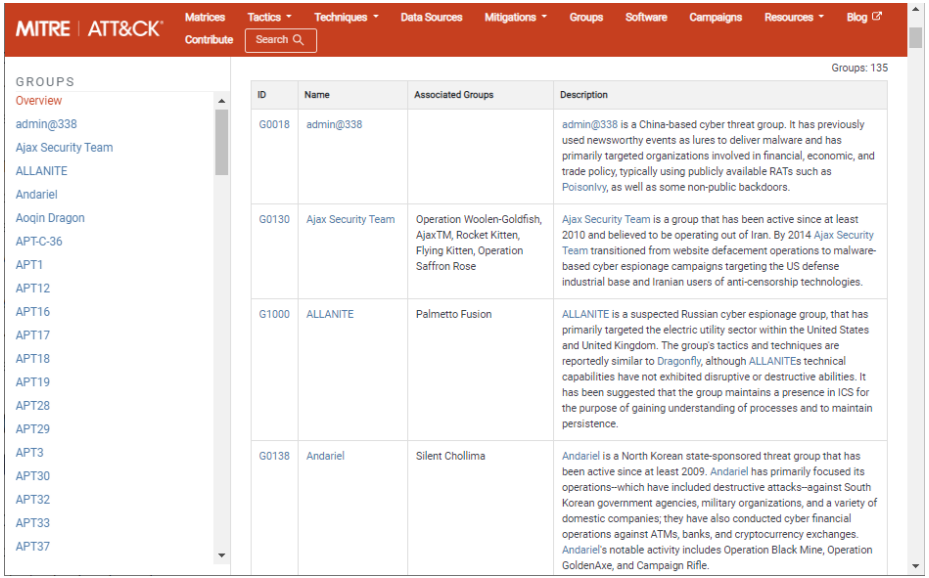
- Intent/motivation
  - Maliciously targeted versus opportunistic
  - Accidental/unintentional
- Strategies
  - Service disruption, data exfiltration, and disinformation
- Chaotic motivations
- Financial motivations
  - Blackmail, extortion, and fraud
- Political motivations
  - Whistleblowers, campaign groups, nation-state actors

Hackers and Hacktivists

- The “Lone Hacker”
  - White hats versus black hats
  - Authorized versus non-authorized
- Unskilled attackers
  - “Script kiddies”
- Hacker teams and hacktivists

Nation-state Actors and Advanced Persistent Threats

- Attached to military/secret services
- High level of capability
- Advanced Persistent Threat (APT)
- Espionage and strategic advantage
- Deniability
- False flag operations



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Organized Crime and Competitors

- Organized crime
  - Operate across legal jurisdictions
  - Motivated by criminal profit
  - Can be very well resourced and funded
- Competitors
  - Cyber espionage and disinformation
  - Combine with insider threat

Internal Threat Actors

- Malicious internal threat
  - Has or has had authorized access
  - Employees, contractors, partners
  - Sabotage, financial gain, business advantage
- Unintentional insider threat
  - Weak policies and procedures
  - Weak adherence to policies and procedures
  - Lack of training/security awareness
  - Shadow IT

Review Activity: Threat Actors

- Vulnerability, threat, and risk
- Attributes of threat actors
  - Internal/external, level of sophistication/capability, resources/funding
- Motivations of threat actors
  - Service disruption, data exfiltration, disinformation
  - Chaotic, financial, political
- Hackers and hacktivists
- Nation-state actors and advanced persistent threats
- Organized crime and competitors
- Internal threat actors

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Topic 2B

Attack Surface

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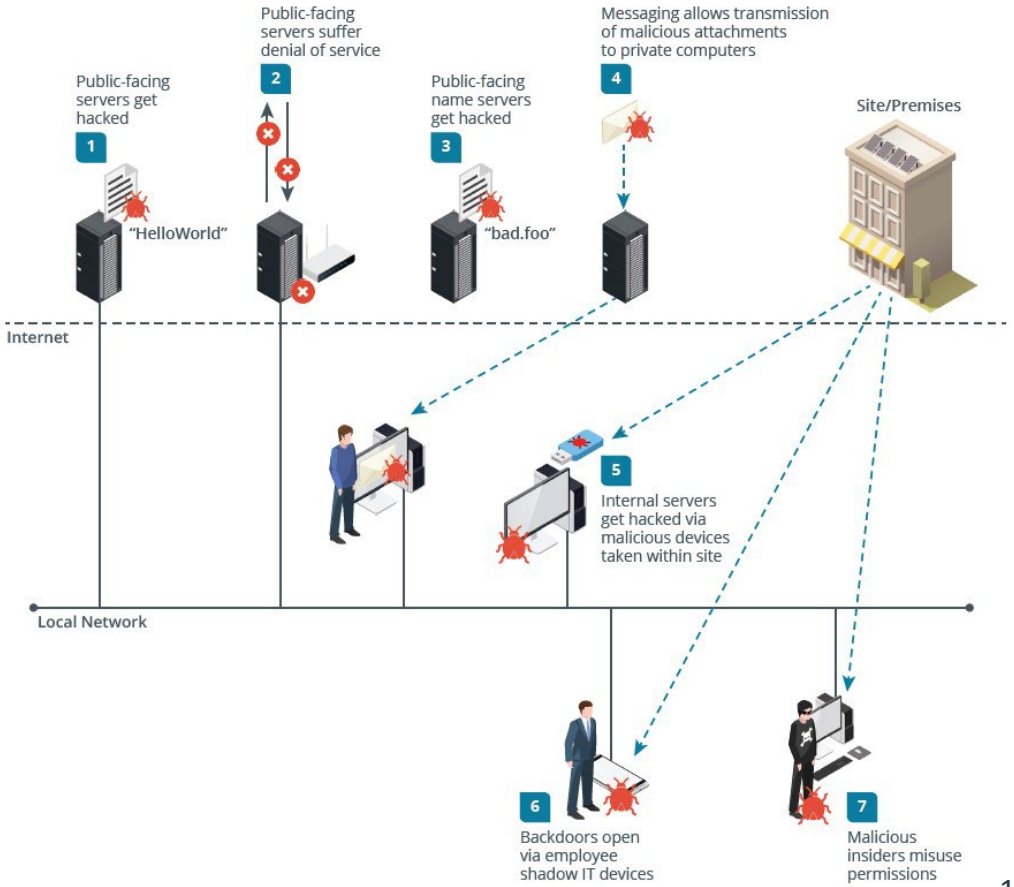
Attack Surface and Vectors

- Attack surface
  - Points where an attacker can discover/exploit vulnerabilities
  - Physical, network, application, and human surfaces
  - Whole organization or single system/app scope
- Threat vectors
  - High capability actors can expand attack surface by developing novel vectors



Vulnerable Software Vectors

- Vulnerable software
  - Faults in code or design
  - Delays and difficulties in patching
- Unsupported systems and applications
- Client-based vs. agentless
  - Characteristic of automated vulnerability scanners

Network Vectors

- Remote versus local exploit techniques
- Unsecure networks
  - Lack of confidentiality, integrity, availability
- Specific vectors
  - Direct access and wired (physical ports)
  - Remote, wireless, cloud, and Bluetooth
  - Default credentials
  - Open service port (TCP and UDP ports)

Lure-based Vectors

- Bait that will tempt the target into opening it
- Removable device
  - Drop attack
- Executable file
  - Trojan Horse malware
- Document files
  - Macro and scripting technologies
- Image files
  - Viewer/browser vulnerabilities

Message-based Vectors

- Email
- Short Message Service (SMS)
- Instant messaging (IM)
- Web and social media
- Voice calls

Supply Chain Attack Surface

- End-to-end process of designing, manufacturing, and distributing goods and services to a customer
- Procurement management
- Suppliers, vendors, and business partners
- Whole supply chain can be highly complex
  - Deny threat actors opportunity, time, and resources
- Managed service providers (MSPs)

Review Activity: Attack Surface

- Attack surface and vectors
- Vulnerable software
- Network vectors
  - Remote versus local
  - Direct access, wired, remote/wireless, cloud, Bluetooth, default credentials, open ports
- Lure-based vectors
  - Devices, programs, documents, images
- Message-based vectors
  - Email, SMS, IM, web/social media
- Supply chain attack surface
  - Design, manufacture, distribution

Lab Activity

- Assisted Lab: Finding Open Service Ports

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Topic 2C

Social Engineering

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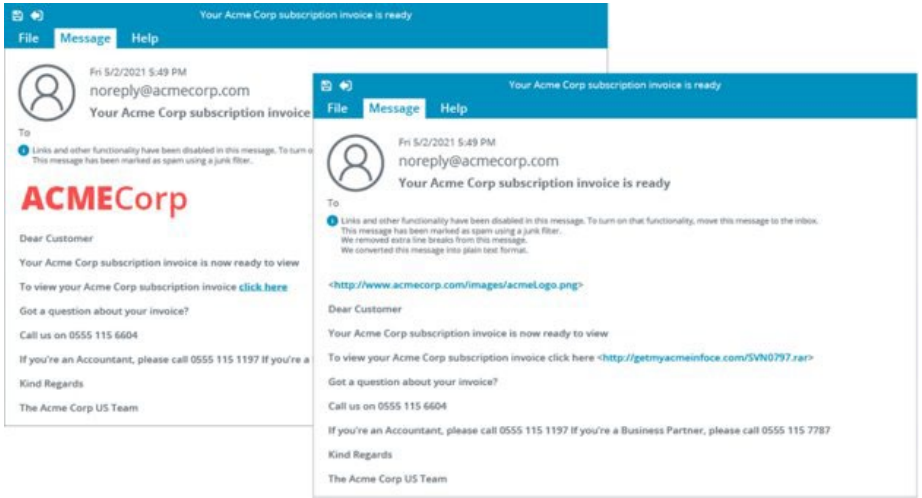
Human Vectors

- “Hacking the human”
- Purposes of social engineering
  - Reconnaissance and eliciting information
  - Intrusion and gaining unauthorized access
- Many possible scenarios
  - Persuade a user to run a malicious file
  - Contact a help desk and solicit information
  - Gain access to premises and install a monitoring device

Impersonation and Pretexting

- Impersonation means pretending to be someone else
  - Persuasiveness/consensus/liking approach
  - Coercion/threat/urgency approach
- Pretexting
  - Exploit situations where identity-proofing is difficult
  - Using a scenario with convincing additional detail
  - Obtain or spoof data that supports the identity claim

Phishing and Pharming



- Phishing
  - Trick target into using a malicious resource
  - Spoof legitimate communications and sites
- Vishing
  - Using a voice channel
- SMiShing
  - Using text messaging
- Passive techniques have less risk of detection
- Pharming
  - Redirection by DNS spoofing

Typosquatting

- Make phishing messages more convincing
- Email spoofing techniques
  - From field confusion
- Typosquatting
  - Cousin domains that look like a trusted domain

Business Email Compromise

- Target phishing/vishing/SMiShing to a specific individual
  - Pose as colleague, business partner, or vendor
  - Spear phishing, whaling, CEO fraud, angler phishing, …
- Brand impersonation and disinformation
  - Make convincing fake phishing messages, business correspondence, and pharming websites
  - Disinformation versus misinformation
- Watering hole attack
  - Compromise a third-party site that the threat actor knows is used by the target

Review Activity: Social Engineering

- Social engineering
- Human vectors
- Impersonation and pretexting
- Phishing and pharming
- Typosquatting
- Business email compromise

Lab Activity

- Assisted Lab: Using SET to Perform Social Engineering

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Summary

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