



# CYBER SECURITY CASE STUDIES

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# COURSE TOPICS RECAP

THREAT MODELING

CYBER KILL CHAIN

PHISHING ATTACKS

WEB SECURITY (OWASP  
TOP 10)

ENCRYPTION

PASSWORDS AND  
AUTHENTICATION



# WHY CASE STUDIES?

- DEPEND HEAVILY ON DIGITAL SYSTEMS
- LEARN FROM REAL FAILURES
- CONNECT THEORY WITH PRACTICE
- IDENTIFY COMMON PATTERNS
- IMPROVE RISK AWARENESS



# CASE STUDY 1

WannaCry  
Ransomware

## OVERVIEW

- GLOBAL CYBER ATTACK
- OVER 150 COUNTRIES
- MANY COMPANIES VICTIMIZED

## MALICIOUS PROGRAM

- LOCKED ALL FILES USING ENCRYPTION
- A MESSAGE ASKING FOR MONEY

## HOW SPREAD?

- OLD
- NOT UPDATED
- MISSING SECURITY PATCHES
- SPREAD AUTOMATICALLY ACROSS NETWORKS

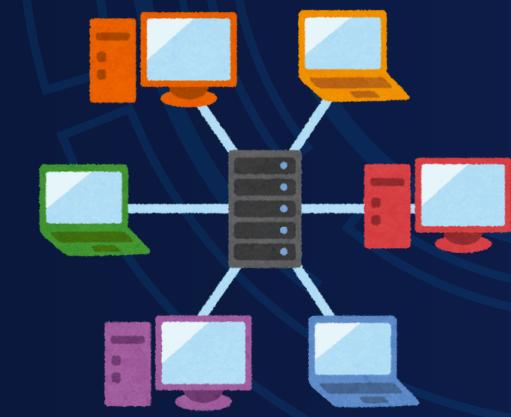
## HOW IT STOPED?

- WEBSITE: IUQERFSODP9IFJAPOSDFJHGOSURIJFAEWRWERGWEA.COM
- BOUGHT DOMAIN
- ACTIVATED HIDDEN KILL SWITCH

# PREVENTION



**Regular Software  
Updates**



**Network  
Segmentation**



**Strong Backup  
Strategy**



**Threat Modeling**



**Cyber Kill Chain**

# CASE STUDY 2



# TWITTER HACK OVERVIEW



**Barack Obama**  @BarackObama · 3m

I am giving back to my community due to Covid-19!

All Bitcoin sent to my address below will be sent back doubled.  
\$1,000, I will send back \$2,000!

bc1qxy2kgdygjrsqtzq2n0yrf2493p83kkfjhx0wlh

Only doing this for the next 30 minutes! Enjoy.

1.1K

2.6K

3.3K



Pinned Tweet

**Bill Gates**   
@BillGates

Everyone is asking me to give back, and now is the time.

I am doubling all payments sent to my BTC address for the next 30 minutes. You send \$1,000, I send you back \$2,000.

- **CONTROL ON HIGH-PROFILE ACCOUNTS**
- **PUBLIC TRUST**
- **FINANCIAL SCAMS**
- **FAKE MESSAGES FROM POPULAR ACCOUNTS**



# HOW THE ATTACK ESCALATED AND STOPPED

- SEARCHED LINKEDIN AND PUBLIC SOURCES
- IDENTIFIED TWITTER EMPLOYEES
- TARGETED EMPLOYEES WITH INTERNAL ACCESS

- CALLED EMPLOYEES PRETENDING TO BE IT SUPPORT
- SAID THERE WAS A VPN PROBLEM
- TRICKED EMPLOYEES INTO ENTERING CREDENTIALS

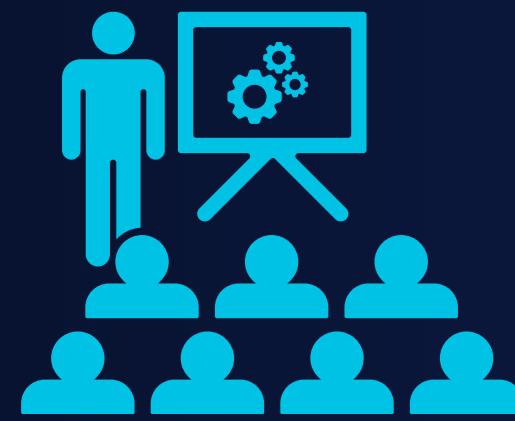
- ATTACKERS LOGGED INTO INTERNAL NETWORK
- ACCESSED ADMIN TOOLS
- CHANGED ACCOUNT SETTINGS

- LEARNED INTERNAL PROCESSES
- TARGETED EMPLOYEES WITH HIGHER PRIVILEGES
- EXPAND MORE CONTROL

- TOOK OVER FAMOUS ACCOUNTS
- POSTED BITCOIN SCAM MESSAGES
- DOUBLE RETURNS.

- LOCKED AFFECTED ACCOUNTS
- REMOVED ATTACKER ACCESS
- RESTRICTED INTERNAL TOOLS
- DISABLED TWEETING TEMPORARILY

# PREVENTION



**Employee Security  
Awareness Training**



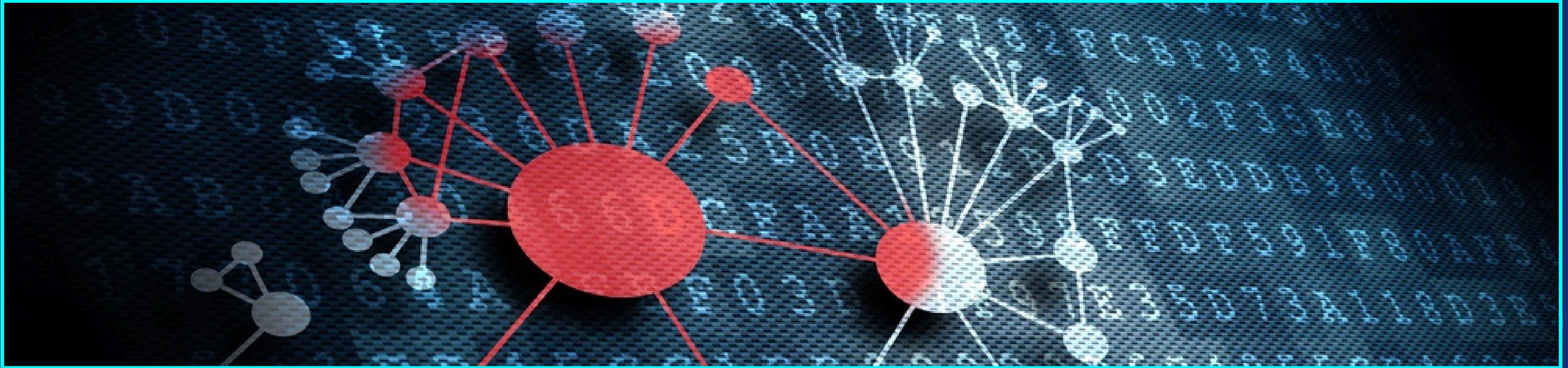
**Strong  
Authentication**



**Least Privilege  
Access**



**Monitoring and  
Detection**



# COMMON PATTERNS

- HUMAN MISTAKES
- UNPATCHED SYSTEMS
- POOR SECURITY MANAGEMENT
- WEAK GOVERNANCE
- PREDICTABLE ATTACKER STEPS

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# THANK YOU

