Webinar
Top 10 Signs Your Payment Network is Breached
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Agenda

- Payment System Compromise Trends
- The Top 10 Signs
- Best Practices for Breach Prevention
- Improved Threat Intelligence
- Questions
Payment Data Compromise Trends

**Card Present**
- ATM & POS skimming attacks on the rise
- Fewer large merchant breaches
- Most breaches (by %) involve unprotected small merchants
- Fewer breaches detected by conventional methods
- Repeat compromises and “re-breaches”

**Other Fraud**
- Increase in CNP merchant compromises
- Vulnerable web commerce applications being exploited
- Application fraud losses trending up
- Account takeover losses trending up
- CNP data contributing to other fraud types
The Top 10
10 – Login patterns outside normal activity

• Activity during off hours
• User login to resource with access to payment data from unexpected source
• Remember: anyone can be a phishing victim, so look for the activity, not the user
• Look for users abnormally accessing a device or system they normally would have a need to
9 – Lateral Movement Tools

• Sysinternals psexec is the tool of choice for hackers
• PsExec is an extremely powerful tool and is used commonly in enterprise networks, for remote system management
• It's not malware
• Alternate names FRAMEPKG.EXE, psex.exe
• Common component in many retail, restaurant, hospitality merchant breaches
8 – Credential Harvesting Tools

• Used to advance the attack beyond the first system
• Collect usernames and passwords
• Used for “privilege escalation”
• Record keyboard activity
• Examples are:
  • Windows Credential Editor
  • CAIN and Abel
  • Pass the hash
7 – Public-facing Network Connections to Internal Payment systems

- Connections from VPN network to a POS network
- Connections from a public-facing Citrix environment to payment / PCI networks
- Should be no direct connections from un-trusted networks to the PCI segment
- Very common attack scenario: VPN remote access
6 – Evidence of Anti-forensic Tools

- Sysinternals sdelete.exe and variations: “wipes” files
- Also not considered malware
- “Timestomp”: fake time & date stamp on files
- Log clearing & deletion of logs
- Occasional deception involving other activity like file-sharing used to mask hacker activity
• New files appearing on POS, base64 encoded
  • Database tools
  • Windows batch files
• Temporary local storage and consolidation of CC data (DLLs are a popular format)
• Hijacking of systems with broad access to PCI network to disseminate malware, collect and consolidate logs
  • Log servers
  • Windows SCCM servers
  • Anti-virus servers!
4 – Data Exfiltration Signs

• Outbound FTP connections
• Odd looking DNS requests
• Outbound connections to Ukraine, other foreign IP addresses (yes, this is obvious, but it still happens)
• Communication with "known bad" IP addresses
3 – Signs of Remote Access "backdoors"

• Reverse tunnel utility installed
• Recent cases involved Ukraine IPs, German IP addresses as sources of the attack
• Usage of VNC, RDP, TeamViewer, LogMeIn or other remote access utilities
• Connections from remote IP addresses using remote access tools
• “Persistent” connections from PCI network to external networks
2 – Memory Scraping Malware

- Criminals have to get to payment data where it's vulnerable (not encrypted)
- Malware has to be installed onto systems that process or store payment cards
- Almost always Windows systems that process payment (POS devices, payment switches, payment applications)
- Look for new processes, executables, scheduled tasks
- Look for POS systems slowing down and/or crashing
1 – Unusual Running Processes or New Scheduled Tasks

• Processes, services or applications set to run on system start-up
• Usually on Point of Sale devices
• Modify the registry keys so the service is started at boot
• One type of unusual process name to look for is a common system process name that has been misspelled
• Spelling is close, so will usually go unnoticed
• Also process with misspelled description or missing description
Best Practices for Breach Prevention
Fighting Fraud With Layers of Security

Counterfeit

EMV chip
- Creates a unique cryptogram for each transaction
- Not a silver bullet

Card not present

Tokenization
- Token replaces account number with unique digital token
- If payment token is used as the account number, it will be identified as stolen and rejected

Lost and stolen

PIN
- Fraudster must know PIN for card to work at the point of sale
- Static data set

Source: Visa Fraud Reporting System (FRS) and Enterprise Data Warehouse (EDW); CY 2013; U.S. domestic Visa debit and credit
Strategies for Small Merchants

**Merchants with limited resources**

- Protect Point of Sale at all costs
- Disallow remote access unless absolutely necessary
- Do not use Point of Sale devices for email, Web
- Install anti-virus **and** anti-malware
How important are IOCs to your business?

• More reliable and earlier breach detection
• Higher fidelity intelligence
• Streamlining incident management
• Operationalizing cyber intel and automation
• Reducing impact of a breach
• Proactive cyber defense
Improved Threat Intelligence

**Anticipate**
Anticipate attacks based on a deep understanding of who is attacking you

**Act**
Take action to prevent and prepare for known and emerging threats

**Respond**
React and prepare for threats, reducing the danger of breaches

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**Intel briefings**
Detailed, curated, current and expert intelligence regarding key cyber and payment threats, what they mean and how to take action

**Indicator fields**
Up-to-date and comprehensive intelligence on both established threats and high-risk behavior patterns. **85%** of our indicators are not available from other sources.

**Community circles**
Controlled, invite-only platform for company alliances and partnerships to share knowledge on threats and collaborate to better defend against attackers

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1 Source: Visa. Based on a sample of Visa Threat Intelligence Indicators compared against four commercial threat intelligence sources (2016)
Upcoming Events and Resources

Upcoming Webinars
https://visa.com/cisp
December 8th, 2016 – Preventing CNP Fraud and Compromise

Visa Data Security
https://visa.com/cisp

PCI Security Standards Council Website
https://pcissc.org

Visa Threat Intelligence, Powered by FireEye

See a demo:
https://www.youtube.com/watch?v=mqSx_6B18x0

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Questions?