HACKED :

The case of a hospital's data held HOSTAGE

HALL RENDER
KILLIAN HEATH & LYMAN

Presented by

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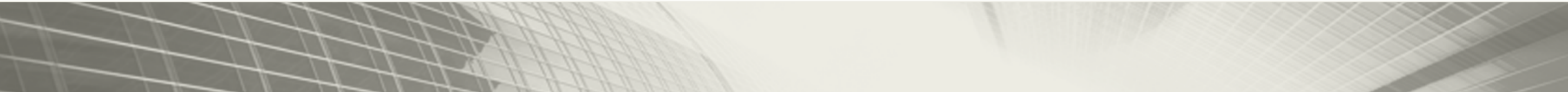
Overview

- Pre-Incident Conditions
- The Incident
- The Response
- The Legal Analysis
- Preparing for an Incident
- Preventing an Incident

Pre-Incident Conditions

- 20+ facility health system with over 1,200 staff that includes a 68-bed hospital, a multi-specialty physician practice, a women’s clinic, a cancer center, and a wellness center
- Comprehensive HIPAA privacy and security program
- Board and C-Suite support for privacy and security
- Area ERs on diversion due to high census of flu patients
- Inclement weather (ice storm)
- Heading into a long holiday weekend



The Incident

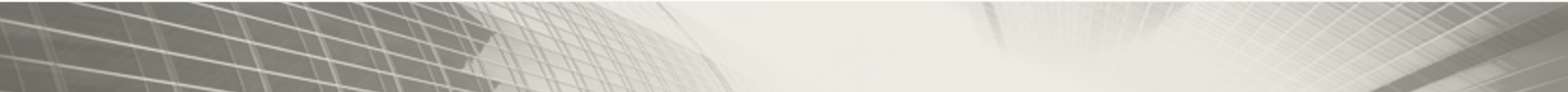
- Thursday at 9:30 PM: Messages began appearing on PC screens in the hospital indicating that the system was encrypted with SamSam ransomware and that decryption keys could be purchased four 4 Bitcoin.
  - One week deadline or data would be encrypted permanently
  - Message included step-by-step instructions for obtaining the decryption keys

The Response

- Activate Disaster Response Plan
- Initiate downtime procedures and stabilize patient care processes
- Contact key parties (legal counsel, IT forensics, FBI)
- Conduct IT forensic investigation
- To pay or not to pay?

The Response (cont.)

- Activate Disaster Response Plan
  - Immediate shut down of all network and desktop systems
    - Manual process involving approximately 1,200 units
    - Signs posted at all facilities noting all computers to remain off
  - Incident command center established by executive leadership
    - Communications by cell phone, text and non-system email

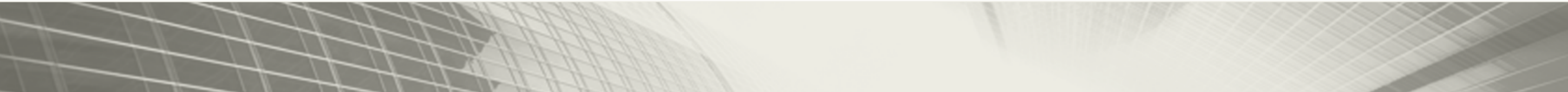


The Response (cont.)

- Downtime Procedures and Patient Care
  - Patient care staff moved to paper documentation
  - ER diversion only until processes established and stabilized
  - Patient care continued throughout the incident: Babies were born, surgeries were completed, patients were treated in ER and admitted, imaging and lab testing was performed.

The Response (cont.)

- Contact Key Parties
  - Friday at 4:00 AM: Leadership contacted legal counsel
  - Legal counsel engaged an experienced IT forensics firm
    - Will you be able to use your preferred firms?
  - Established schedule of calls to occur every two hours
    - Initial call cadence should be frequent, but can become less frequent as needs dictate.
  - FBI contacted and included on calls
    - FBI role is advisory and investigative

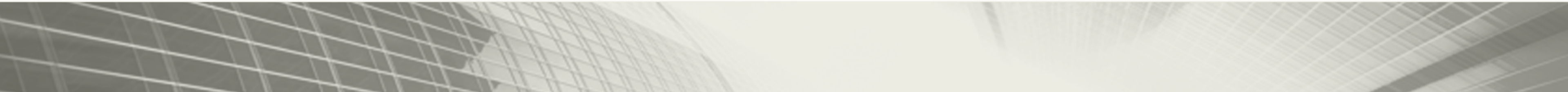


The Response (cont.)

- Conduct IT Forensic Investigation
  - Four stages:
    - Identification
    - Containment
    - Eradication
    - Remediation
  - Failure to follow this process could result in incomplete resolution and continuing incident.

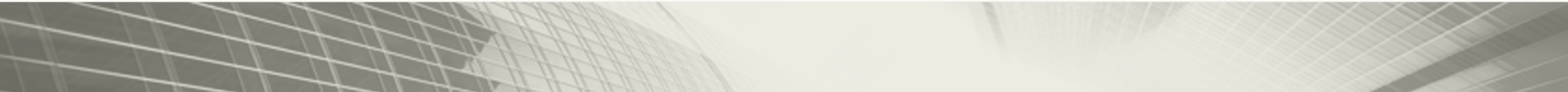
The Response (cont.)

- Conduct IT Forensic Investigation (cont.)
  - Review of logs determined that:
    - Attackers deployed ransomware through a vendor’s remote desktop protocol (RDP) access credentials
    - Limited amount of access time
    - No additional accounts created on network
    - No lateral movement within network
    - No evidence of ePHI exfiltration
  - Ransomware was SamSam variant, which intelligence indicated seeks ransom payment only, not data acquisition



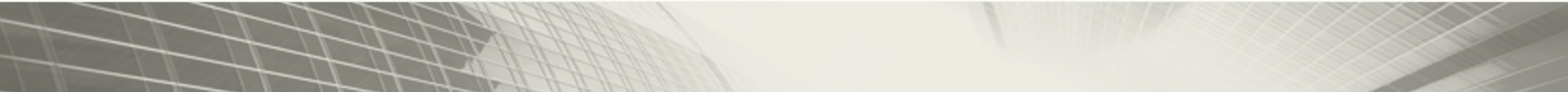
The Response (cont.)

- Ransom Demand: To pay or not to pay?
  - FBI recommends not paying, as a deterrent
  - Fact-sensitive determination
    - Do reliable backups of critical data exist?
    - How long will it take to restore from backups?
    - What is the value of time for the affected provider?
  - Risks of payment:
    - Make yourself a future target
    - Don’t get data back
    - The attackers ask for more money
  - Success of business model relies on “integrity” of attackers



The Response (cont.)

- Ransom Demand: To pay or not to pay?
  - Payment in form of Bitcoin
    - For most, it takes several hours to acquire Bitcoin.
    - Once Bitcoin is acquired, must go on the dark web to make payment to attackers.
      - Must follow instructions precisely
      - Use a secure device to conduct transaction
      - Bitcoin transactions are not instantaneous and can take an hour or more.
      - Then you wait for the attackers to provide the decryption keys



The Response (cont.)

- Ransom Demand: To pay or not to pay?
  - Decryption keys
    - Could be one key or many keys
    - Decryption process takes time also
- Restoring data and bringing systems back online is a slow and deliberate process

Legal Analysis

- State and federal laws potentially apply
- State laws often focus on risk of identity theft
- HIPAA presumes a breach when Privacy Rule is violated
  - Is all ransomware an unauthorized access/disclosure?
  - Can overcome presumption if able to document that there is a low probability that PHI has been compromised
- Key Factors for ransomware incident:
  - Was ePHI or PII acquired or viewed?
  - Was data availability compromised?

Preparing for an Incident

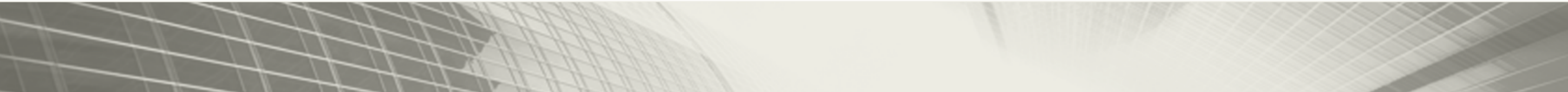
- Develop incident response plan
- Characteristics of an effective Incident Response Team:
  - Availability
    - Requires complete dedication to the task at hand
  - Selflessness
    - It’s not about you, it is about getting it right. No egos allowed.
  - Delegation
    - Trust your team. You can’t do it by yourself.
  - Honesty
    - Truth is integral to this process.

Preparing for an Incident (cont.)

- Practice implementing the response plan (table top exercise).
- Obtain cyberliability insurance.
  - Be sure you can utilize your preferred vendors for legal, forensics, credit monitoring, and mailing
  - Ensure coverage is adequate
- Ensure appropriate liability protections in vendor contracts.
- Enable detailed system and application logging.

Preventing an Incident

- Conduct enterprise-wide risk analysis
- Develop and implement remediation plan.
- Regularly update and patch software and systems
- Implement two factor authentication
- Implement a vendor management program
- Conduct regular workforce training
- Obtain independent third-party penetration testing
- Implement managed security services to monitor IT activity, vulnerabilities and risks



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