2002

Modeling e-Risk: For Persistent Security the ROI is Trust

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Matson Merv. 2002. Modeling e-Risk: For Persistent Security the ROI is Trust. Calgary, AB: RightsMarket. Presented at the Canadian Society of Telehealth Annual Meeting held in Vancouver, British Columbia in October, 2002.

http://hdl.handle.net/1880/43128

Presentation

Modeling e-Risk

For Persistent Security the ROI is ***Trust***

Persistent security is always on, no matter where the EMR goes.

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Presentation Objectives

- Understand persistent information security
- Discuss elements of privacy risk model and effect of applying persistent security as counter measure
- Discuss assertion “For persistent security the ROI is *trust*”

Persistent Security

- Technology to authorize and track usage, every time, everywhere
  - Authorize: Always ask the question “Does this user have rights to this EMR?” Even after initial delivery. Even after pass-along to someone else. Even after theft.
  - Track: Always report use, no matter where use happens.
- Security goes with the record, always, like a turtle shell. It’s not dependent on time and place, like a chicken coop.

Some Scenarios of Use of EMR

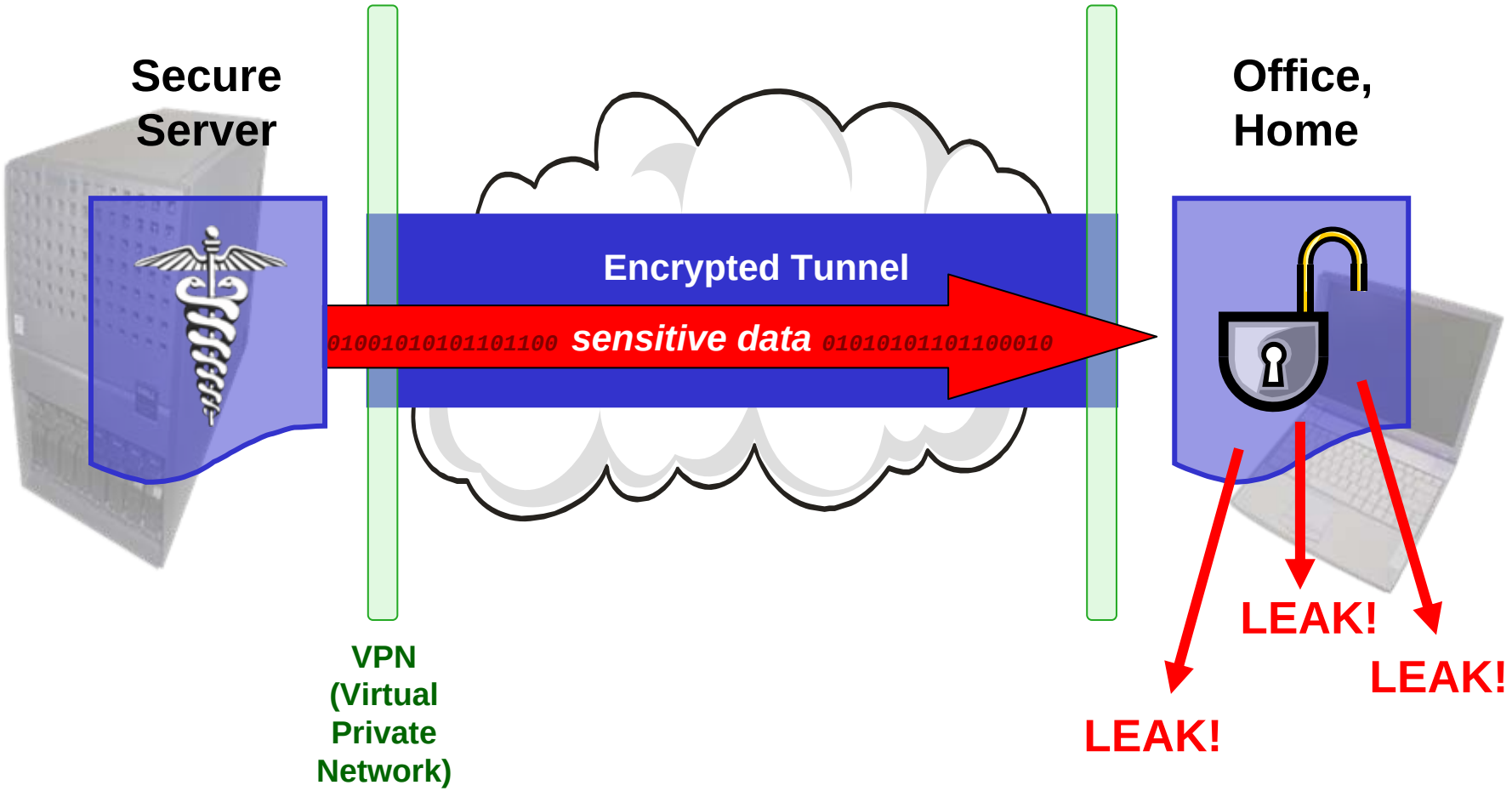
- Hospital sends discharge report to physician.
- Lab sends blood analysis report to physician.
- Web page EMR is saved for reference and sharing.
- On-screen report from clinical system is exported for sharing.
- Physician eMails EMR to specialist for consultation.

Repository Security

Record is secure behind peripheral defense

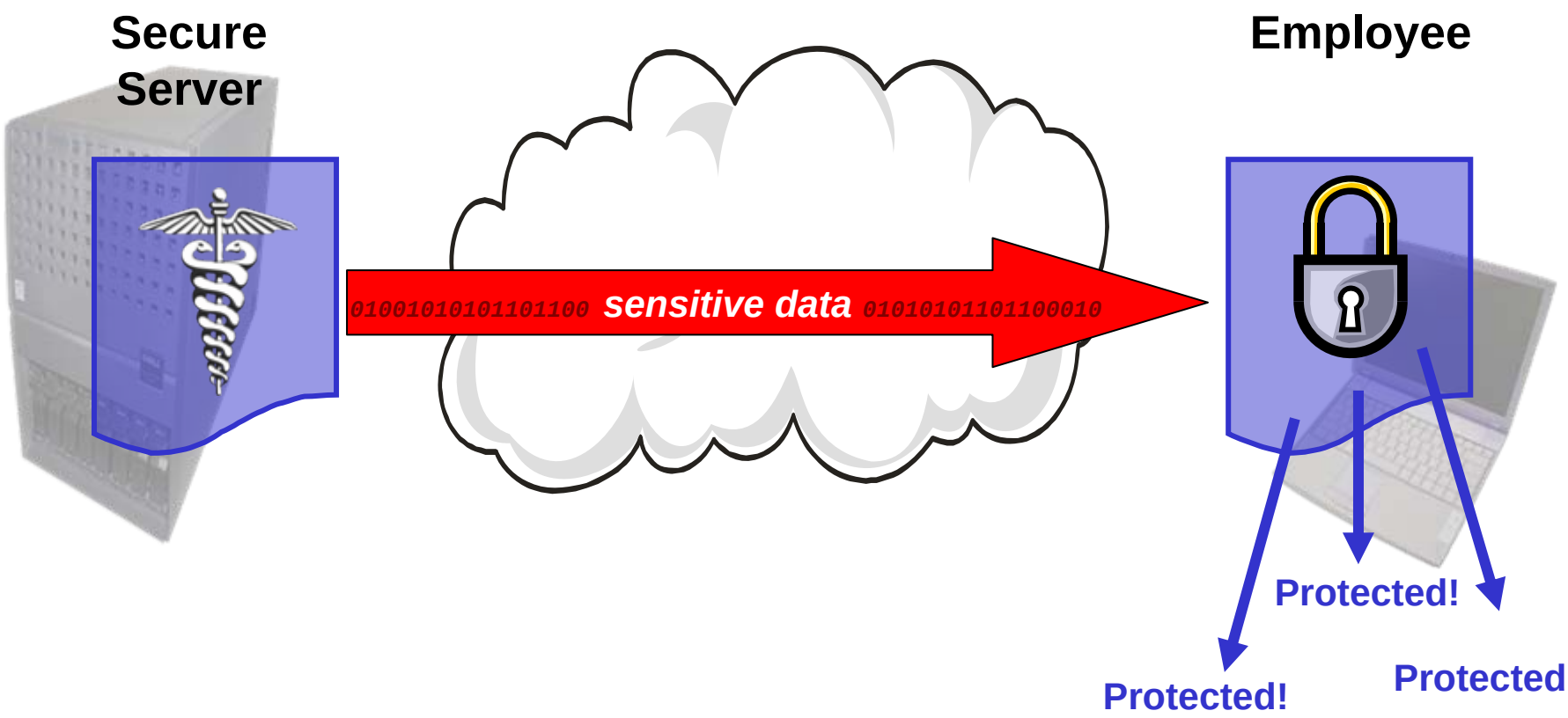
Channel Security

Record is safe during transit



Persistent Security

Record is safe at all times, everywhere



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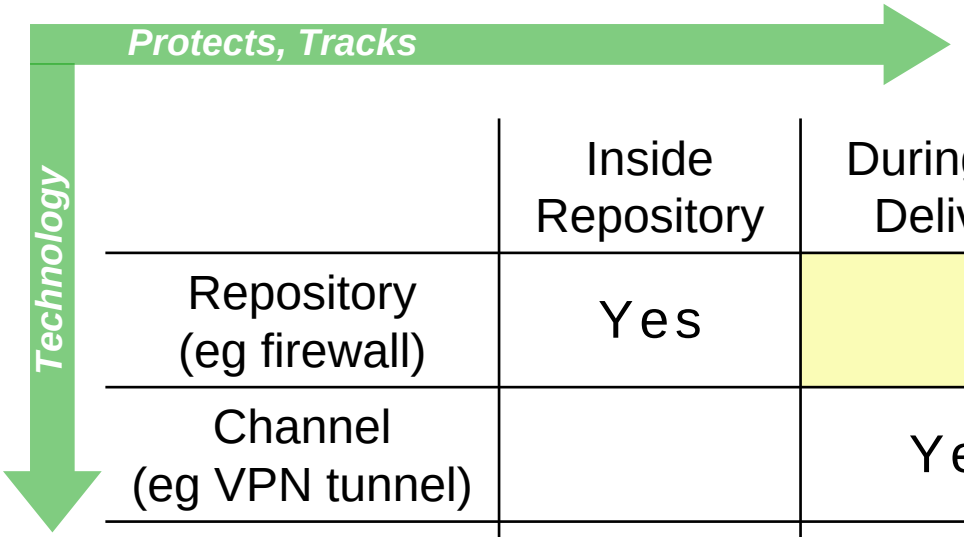
Not Just Delivery Security

EMR Security & Use Tracking



	Inside Repository	During Net Delivery	Every time, Everywhere
Repository (eg firewall)	Yes		
Channel (eg VPN tunnel)		Yes	
Persistent	Yes	Yes	Yes

Qualitative Risk Model

- Choose dimensions of study, analyze to populate/qualify/classify/type
  - System components and states
  - Human actors/roles
  - Risks
    - Mischief: attacks, motivations
    - Accident: modes
  - Defenses
    - Firewall, anti-virus, persistent security
- Attach ordinal scale or ranking probabilities
  - Analyze risk dimensions (esp opportunity-time)

Risks, Examples

- Information accident at
  - client (end user) site
  - server
- Hacker deliberately breaks into the system at
  - client (end user) site
  - server at specific component/state
  - communications node or link
- Legitimate user gone bad

Accident Modes

- eMail
  - Wrong attachment
  - Wrong addressee
  - Inclusive address lists
  - Wrong operation, e.g. ‘reply all’
  - Well-intentioned but misdirected forwarding
  - Legit forwarding, but then illegit re-forwarding
- Leaving EMR in exposed (decrypted) state

Biggest Risk - Insider Accident

- 70 to 80 percent of security breaches came from the internal network; only 6% were deliberate
  Business Information Security Survey 1998, by the National Computing Centre, UK.

ROI is Trust

- Privacy violations will always happen
  - Like airplane accidents
- The right technology greatly reduces them
  - Like radar, air traffic control, GPS (global positioning system)
- Deploy Persistent Information Security
  - Gain trust in telehealth / EHR systems: patients, healthcare workers, citizens/voters, politicians

Persistent Security Reduces Risk Opportunity at Point of Use

- The duration of exposure of EMR to accident is reduced drastically
  - Say four orders of magnitude:
    4 x 1/4 hour / 365 x 24 hour = 0.0001
- Same for exposure to hacking

Trust enables “Right info to right person at right time”

- Permits peer-to-peer (primary care physicians) safe sharing of EMRs, even without common clinical systems
- Primary care is custodian of most records
- Start small and grow - small telehealth projects
- The Internet and strong authentication is the infrastructure

Questions?

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