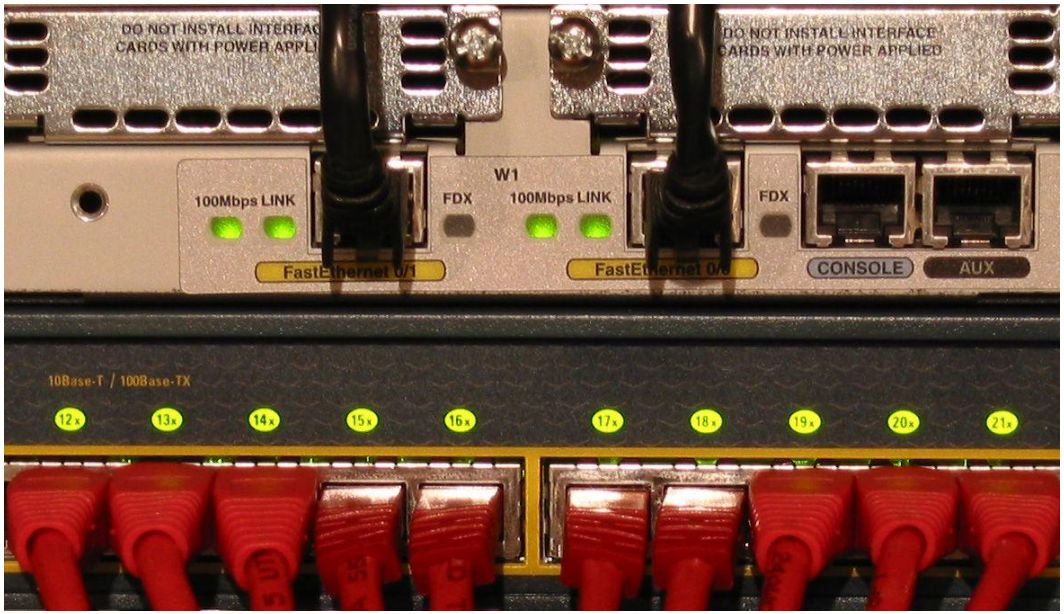
DIMVA 2008 Keynote



TAOSECURITY

THE WAY OF DIGITAL SECURITY

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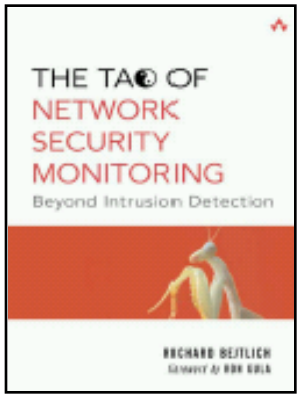
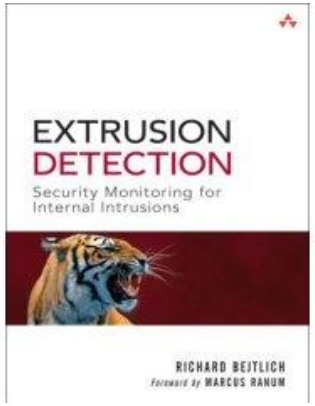
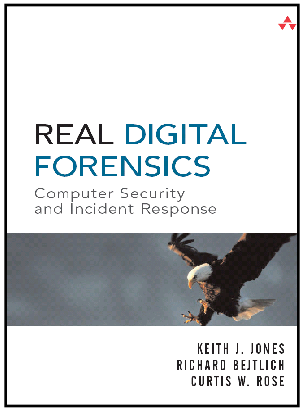
Introduction

- Bejtlich ("bate-lik") biography
  - General Electric, (07-present)
    - TaoSecurity (05-07)
    - ManTech (04-05)
    - Foundstone (02-04)
    - Ball Aerospace (01-02)
    - Captain at US Air Force CERT (98-01)
    - Lt at Air Intelligence Agency (97-98)
  - Author
    - Tao of Network Security Monitoring: Beyond Intrusion Detection (solo, Addison-Wesley, Jul 04)
    - Extrusion Detection: Security Monitoring for Internal Intrusions (solo, Addison-Wesley, Nov 05)
    - Real Digital Forensics (co-author, Addison-Wesley, Sep 05)
    - Contributed to Incident Response, 2nd Ed and Hacking Exposed, 4th Ed







Overview

- What do I do?
- What can we do to improve security?
- Definitions and measurement
- Evidence-based policy via trials
- How to obtain visibility?
- Soccer goal security
- Where to obtain visibility?
- Challenges to visibility
- Potential approaches
- Questions

What do I do?

- Director of incident response = as close to problem as could be
- Deal with failure, where theory meets reality
- Risk equations not needed; facts and evidence everywhere
- Worst possible place to perform “security” (or is it?)
- I would rather not work here -- “prevention is preferred”

What can we do to improve security?

- What is “security”?
- Consider “what is healthy?”
  - Blood pressure below 120/80
  - Cholesterol below 200
  - Body mass index below (some value)
  - Imagine other measurements... but you might still have cancer
- Lesson is you need to define *something*, and then measure it *somehow*

Definitions and measurement

- Input metrics:
  - AV running and current?
  - Patches applied?
  - Configured properly?
- Output metrics
  - Botnet participant
  - Disclosed earnings report earlier via exposed share
  - Unavailable due to ongoing DDoS attack
- Output metrics are often ignored, but they are crucial: What's the score of the game?
- What to measure?
  - Outputs: incidents (as identified in many different forms)
  - Inputs: controls whose application *affects the outputs*

Evidence-based policy via trials

- *Economist*, 14 June 2008 article on random trials to guide developmental aid policy in Africa
- Process as applied to digital security
  - Determine desired outcome and ways to measure it
  - Identify control group(s) and trial group(s)
  - Apply changes to trial group(s)
  - Compare results
- In most enterprises, defenses are unevenly applied, or deployed in stages, so control and trial groups can be identified
- Process encourages *management by fact, not by belief*
- Measurement requires visibility

How to obtain visibility?

- Visibility means being able to see what is happening inside the enterprise
- Visibility enables digital situational awareness
- Obtaining situational awareness is the first requirement for completing (and tightening) your OODA loop
- OODA loop
  - Observe
  - Orient
  - Decide
  - Act
- If you don't OO, any DA that results in improvement only occurs through luck
- Risk management without evidence is probably miseducated guesswork

Soccer goal security

- Is this your enterprise?
- How would you know?

Where to obtain visibility?

- Visibility should be obtained at trust boundaries, according to enterprise risk tolerance
- Here we come to Network Security Monitoring, which involves collecting, analyzing, and escalating traffic
- General process
  - Identify trust boundaries
  - Apply instrumentation
  - Develop collection, analysis, and escalation strategies
- Enterprise Visibility Architect works with Enterprise Security Architect
- “Building security in” is nice, but “building visibility in” should be more important
- Schneier said in 2001: “Monitor first”
- Usually feature -> management -> security -> visibility (backwards)

Challenges to visibility

- Cloud
- Virtualization
- Nontraditional platforms
- Privacy concerns and laws
- Lack of skilled resources
- Tools built for performance or development, not security or forensics

Potential approaches

- When you don't own, manage, or work inside the “factory,” but only consume products and services, on what do you rely?
  - Government regulation
  - Industry standards
  - Certifications and licenses
  - Inspections
  - Press and watchdog groups
  - Reputation, brand, and history
- Just beginning to realize that trusting endpoints is a bad idea – might have to be extended everywhere (Amazon S3 example)
- Cost rules all; precludes development of more trustworthy systems
- Need to fund and engage law enforcement and counterintelligence
- Where else do victims investigate their own crime scene?

Questions?

KNOW YOUR NETWORK BEFORE AN INTRUDER DOES

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