Incident Response & Evidence Management

CIPS Brandon Chapter
November 28 2002

Dr. Marc Rogers PhD, CISSP
Agenda

- Current State of the IT World
- What is Incident Response
- What is Evidence Management & Handling
- Tie into DRP/BCP
- Summary
BRINGING CIVILIZATION TO ITS KNEES...

Goths

Vandals

Huns

Geeks

Hack

Hack

Hack

Hack

Hack

Hack

Hack
PA Teenager Charged With 5 Counts of Hacking: Southwestern Bell, BellCore, Sprint, and SRI hit Costs to Southwestern Bell alone exceed $500,000

Computer Attack Knocks Out 3,000 Web Sites: 40 hour shutdown during busiest shopping season

De Beers security hole reveals customer information

By Stefanie Olsen
Staff Writer, CNET News.com
April 4, 2000, 4:45 p.m. PT

On the Web, diamonds can be a spammer's best friend.

About 35,000 customer email and home addresses were exposed on Adiamondsisforever.com, an informational site about diamonds.

Beers, CNET News.com has learned.

Virus Taints Big Japanese Debut
AOL outage brief but dangerous
By Janet Kornblum
Staff Writer, CNET NEWS.COM
February 24, 1998, 1:00 p.m. PT

news analysis The last time America Online (AOL) suffered a total blackout, members were knocked offline for 19 hours. Last night's outage by comparison, lasted a relatively painless 2-1/2 hours.

In the long run, however, the latest disruption underscores a more lasting problem for the online giant. An outage of any significant duration at a time when AOL so dominates the market may leave

Washingtonpost.com: Computer Glitch Halts NYSE Trading for One Hour - Netscape

9.9% Fixed (not an introductory rate!)
No Annual Fee

Computer Glitch Halts NYSE Trading for One Hour
By Ianthe Jeanne Dugan and Mark Leibovich
Washington Post Staff Writers
Tuesday, October 27, 1998; Page C01

Stocks froze in their tracks for an hour yesterday on the New York Stock Exchange after an unusual computer glitch forced exchange officials to shut...
Privacy/Security issues could potentially put an $18 billion dent in the projected $40 billion 2002 e-Commerce revenue (Jupiter Communications, 2000).
Attacks are becoming more sophisticated

Progressed from simple user command, script and password cracking (sniffers, crackers) in 1993-94, to intricate techniques that fooled the basic operations of IP (spoofing etc.)

But Attackers less skilled
CSI/FBI 2002 Survey

- 90% of respondents (primarily large corporations and government agencies) detected computer security breaches within the last twelve months.

- 80% acknowledged financial losses due to computer breaches.

- 223 respondents reported $455,848,000 in financial losses.

- 74% cited their Internet connection as a frequent point of attack than cited their internal systems as a frequent point of attack (33%).

- 34% percent reported the intrusions to law enforcement. (In 1996, only 16% acknowledged reporting intrusions to law enforcement.)
Incident Response Goals

- Provide an effective and efficient means of dealing with the situation in a manner that reduces the potential impact to the organization.
- Provide management with sufficient information in order to decide on an appropriate course of action.
- Maintain or restore business continuity.
- Defend against future attacks.
- Deter attacks through investigation and prosecution.
Relationship to InfoSec

- The IAC triad can be expanded to include:
  - Non-repudiation
  - Accountability
- Incident Response is directly linked to InfoSec goals
- It can help restore the IAC
Information Security Lifecycle

- Countermeasures
  - Defenses that counter threats
  - No defenses are fool proof
- Detection
  - Indicates that security has been breached
- Incident Response
  - After the incident has been noticed responding to it is critical
Information Security Lifecycle

Countermeasures

Detection

Incident Response
Seven-Stage Methodology

- Methodology has been around since about 1989
- DOE under Dr. Schultz matured the model
- Definitely not the only method
- Has become part of the Common Body of Knowledge
- Very pragmatic & logical approach
- Although presented as a linear model some stages may happen in parallel or like the “waterfall” method feedback into the previous stages
Response Methodology (PDCAERF)

Preparation -> Detection -> Containment -> Analysis -> Eradication -> Recovery -> Follow-up

Feed Back
Response Methodology

- Why use a methodology?
- Structure/Organization
  - Dealing with incidents can be chaotic
  - Simultaneous incidents occur
  - Having a predefined methodology lends structure to the chaos
- Efficiency
  - Time is often of the essence when dealing with incidents
  - Incidents can be costly both financially and organizationally
Response Methodology

- Process oriented approach
  - Breaks incidents into small manageable chunks
  - Logical order of dealing with issues
  - Includes methods for improving the overall process
- Dealing with the unexpected
  - Provides a mental framework for dealing with incidents in general
  - Promotes flexible thinking to deal with novel situations
Response Methodology

- Legal Considerations
  - Can demonstrate due care or due diligence
  - May limit liability
  - May reduce insurance premiums
Evidence Management

- During an incident, evidence may be collected during any of the 7 phases.
- In early stages we may not know what the final outcome might be (e.g., Job Termination, Civil or Criminal Litigation).
- Network/Computer Forensics may become an issue
- Must collect data in a “Forensically Friendly” manner
- Must maintain the chain of custody
- Important to understand the evidence lifecycle
Forensics

- **Computer Forensics**: The study of computer technology as it relates to the law.

- **Forensic Analysis**: Examination of material and/or data to determine its essential features and their relationship in an effort to discover evidence in a manner that is admissible in a court of law; post-mortem examination.
Forensics

- **Electronic Evidence**: Evidence relating to the issue that consists of computer files, or data, in their electronic state.

- **Electronic Media Discovery**: The discoverability of electronic data or files.
Forensics

- **Chain of Custody**: A means of accountability, that shows who obtained the evidence, where and when the evidence was obtained, who secured the evidence, who had control or possession of the evidence.

- **Rules of Evidence**: Evidence must be competent, relevant, and material to the issue.
Evidence Life Cycle

- Collection & identification
- Storage, preservation, and transportation
- Presentation in court
- Return to victim or court
IR & DRP/BCP

- Both IR & DRP/BCP use planning and preparation to mitigate the damage of an negative event after it occurs.
- Both require fore thought, formal written policies, procedures, and budgets.
- Both rely on periodic testing and maintenance of the plan.
- IR can be a subset of DRP/BCP process.
Summary

- The rate of network/computer intrusions is increasing
- Most companies/organizations have safeguards such as firewalls, Anti-virus, IDS
- We need to know what to do when the alarms go off
- Like DRP/BCP we must have a IR plan in place before hand
- Proper evidence management & handling procedures are important during the response escalation process
- IR is the next evolution of the IT Security Industry
Contact Information

Dr. Marc Rogers PhD., CISSP
Ph: 989-8750

E-mail: mkr@manageworx.com
Web: www.manageworx.com
Book References

Web References

- CERT/CC www.cert.org
- CERT/AU www.auscert.org.au
- OCIPEP wwwOCIPEP-bpiepc.gc.ca
- CERIAS www.cerias.purdue.edu
- FIRST www.first.org
- SANS www.sans.org
- INCIDENTS www.incidens.org
- CCIPS www.cybercrime.gov
- IIC www.iic.umanitoba.ca
- RCMP www.rcmp-grc.gc.ca
- FORENSICS www.incident-response.org