Staying Safe Online

Montpelier Senior Center

Week #10

Avoiding Illegal Uses

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https://tinyurl.com/3b6p3h8s

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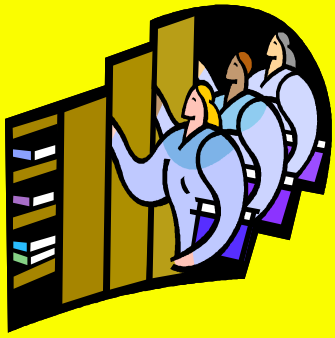
Topics

- Computers and Crime
- Fundamentals of IA
- Computers and Crime
- Terminology
- Criminal Hacker Propaganda



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Computers and Crime (1)

- Computers can play three roles in crime
  - Target
  - Tool
  - Repository of evidence
- Information assurance attempts to reduce vulnerabilities of systems to attacks
- Secure design and programming try to reduce vulnerabilities of code to misuse
- Cyberforensics provide methods for securing evidence from computers and networks

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Computers and Crime (2)

- *Computer crime* always is directed against a *computer* – everything else is *computer-related crime*
- Computers as the victim or target
  - Theft (as a byproduct of an attack against a computer)
  - Vandalism
  - Denial of service
  - Malware targets: viruses, worms, Trojans

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Computers and Crime (3)

- Computers as tools
  - Fraud
  - Identity theft
  - Industrial espionage
  - Information warfare
- Computers as repositories of evidence
  - Logs
  - Journals
  - Documents
    - ✓Michigan v Miller (see later in notes)

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What do Crimes Violate?

- The Classic Triad - CIA
- The Parkerian Hexad
  - Confidentiality
  - Possession
    - ✓Confidentiality & Possession Losses
  - Integrity
  - Authenticity
    - ✓Integrity & Authenticity Losses
  - Availability
  - Utility
    - ✓Availability & Utility Losses

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The Classic Triad

C – I – A

Confidentiality
Integrity
Availability

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The Parkerian Hexad

Protect the 6 *atomic elements* of INFOSEC:

- **Confidentiality**
- **Possession or control**
- **Integrity**
- **Authenticity**
- **Availability**
- **Utility**

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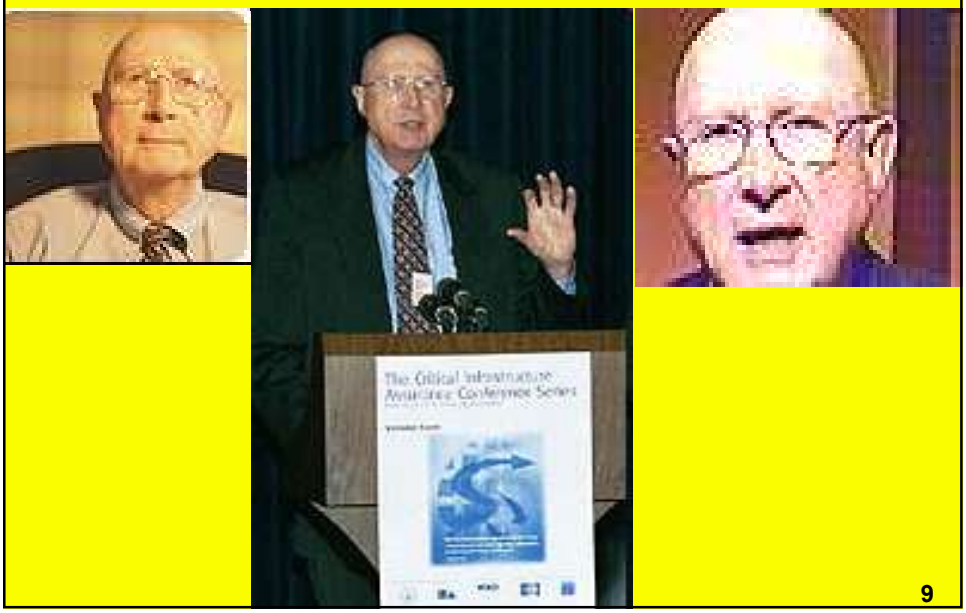
Why "Parkerian?"



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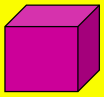
Confidentiality

Restricting access to data

- Protecting against unauthorized disclosure of *existence* of data
  - E.g., allowing industrial spy to deduce nature of clientele by looking at directory names
- Protecting against unauthorized disclosure of *details* of data
  - E.g., allowing 13-yr old girl to examine HIV+ records in Florida clinic



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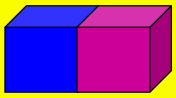
Possession

Control over information

- Preventing physical contact with data
  - E.g., case of thief who recorded ATM PINs by radio (but never looked at them)
- Preventing copying or unauthorized use of intellectual property
  - E.g., violations by software pirates



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Confidentiality & Possession Losses

- Locating
- Disclosing
- Observing, monitoring, and acquiring
- Copying
- Taking or controlling
- Claiming ownership or custodianship
- Inferring
- Exposing to all of the other losses
- Endangering by exposing to any of the other losses
- Failure to engage in or to allow any of the other losses to occur when instructed to do so

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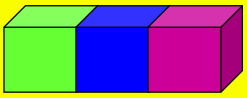
Integrity

Internal consistency, validity, fitness for use

- Avoiding physical corruption
  - E.g., database pointers trashed or data garbled
- Avoiding logical corruption
  - E.g., inconsistencies between order header total sale & sum of costs of details



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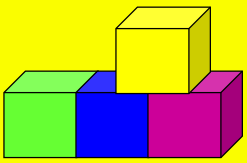
Authenticity

Correspondence to intended meaning

- Avoiding nonsense
  - E.g., part number field actually contains cost
- Avoiding fraud
  - E.g., sender's name on e-mail is changed to someone else's



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Integrity & Authenticity Losses

- Insertion, use, or production of false or unacceptable data
- Modification, replacement, removal, appending, aggregating, separating, or reordering
- Misrepresentation
- Repudiation (rejecting as untrue)
- Misuse or failure to use as required

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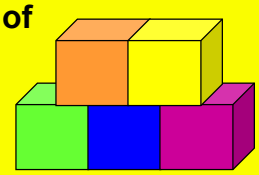
Availability

Timely access to data

- Avoid delays
  - E.g., prevent system crashes & arrange for recovery plans
  - Denial-of-service (DoS) attacks can be ruinous
  - High-volume commercial sites can lose $M
- Avoid inconvenience
  - E.g., prevent mislabeling of files



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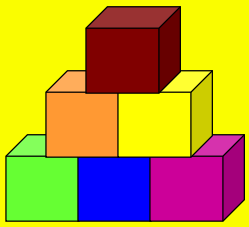
Utility

Usefulness for specific purposes

- Avoid conversion to less useful form
  - E.g., replacing dollar amounts by foreign currency equivalent
- Prevent impenetrable coding
  - E.g., employee encrypts source code and "forgets" decryption key



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Availability & Utility Losses

- Destruction , damage, or contamination
- Denial, prolongation, acceleration, or delay in use or acquisition
- Movement or misplacement
- Conversion or obscuration

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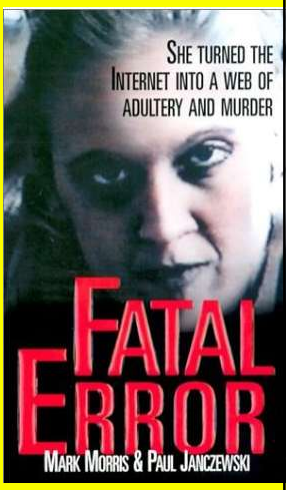
Michigan v. Miller (2001)*

- Michigan housewife Sharee Miller
  - Pathological liar, schemer, sociopath
  - Met Missouri man Jerry Cassaday in Internet chat room
  - Miller concocted tales of abuse by her husband
  - Met and had sex with Cassaday
  - Told him she was carrying his child
  - But actually had tubal ligation
  - Claimed husband Bruce was in organized crime (really ran salvage yard)
- Cassaday killed her husband (Bruce Miller) with a shotgun.
  - Sharee Miller dropped Cassaday after murder
  - Cassaday shot himself
  - *Left logs of e-mails and IM*



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Michigan v. Miller* (cont'd)

"Michigan vs Miller is a classic murder triangle that was planned over the Internet. The news media at the time was claiming that this was the first prosecution where the Internet was key in the planning of a murder. . . . The case itself was made from a briefcase left behind by a jilted lover, an ex homicide detective, who committed suicide. Jerry Cassaday had driven to Michigan and killed Bruce Miller, Sharee Miller's husband.

Computer Forensics played a major part in building the history of the seduction and validating evidence left by Jerry Cassaday. Prosecutors clearly state that without the computer forensic evidence, no prosecution would have been possible.

Sharee Miller [went to] prison for Conspiracy to Commit First Degree Murder – Life Sentence and Second Degree Murder – 54-82 years. . . ."

* http://www.secureworldexpo.com/events/conference-details.php?cid=446

Also http://www.examiner.com/list/sharee-miller-where-she-is-now-timeline

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Criminal Hacker Propaganda

1. "I don't know why you system guys are getting your shorts in a knot: we're just looking around – we're not doing any harm." – *Eric Corley ~1996 at a panel discussion organized by the NCSA*
2. "Breaking into your systems is doing you a favor by showing you your vulnerabilities so you can fix them."
3. "Vandalizing Web sites / writing viruses / creating denial-of-service attacks improves security by forcing manufacturers to improve their products."
4. "Information wants to be free."

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Summary

- Don't violate other people's rights to maintain the Parkerian Hexad for their data

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OK, STAY SAFE!

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