CSE543 - Introduction to Computer and Network Security

Module: Wrapup

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Wrapup

• So, what does it all mean?
The state of security …

• … issues are in public consciousness
  ‣ Press coverage is increasing …
  ‣ Losses mounting … (billions and billions)
  ‣ Affect increasing …… (ATMs, commerce)
  ‣ Public is at risk ….

• What are we doing?

  “… sound and fury signifying nothing …”

  – W. Shakespeare

  (well, its not quite that bad)
The problems ...

• What is the root cause?
  ‣ Security is not a key goal ...
    ... and it never has been...
    ... so, we need to figure out how to
    change the way we do engineering
    (and science) ...
    ... to make computers secure.

• Far too much misunderstanding about basic security
  and the use of technology
• This is also true of physical security (think TSA)
The current solutions ...

• Make better software
  ‣ “we mean it” - B. Gates (2002)
  ‣ “Linux/OS X/Sun OS etc. is bad too …” - B. Gates (2005)
  ‣ “Vista will fix everything” - B. Gates (2006)
  ‣ “Sorry about Vista ….” - B. Gates (2007.5)
  ‣ “Windows 7.0 will fix everything” - B. Gates (2008)

• CERT/SANS-based problem/event tracking
  ‣ Experts tracking vulnerabilities
  ‣ Patch system completely broken

• Destructive research
  ‣ Back-pressure on product developers
  ‣ Arms-race with bad guys

• Problem: reactive, rather than proactive
The real solutions ...

- Fix the economic incentive equation ...
  - Eventually, MS/Google/Apple/*** will be in enough pain that they change the way they make software

- Education
  - Things will get better when people understand when how to use technology

- Fix engineering practices
  - Design for security (vs)
  - Tools to retrofit code

- Apply technology
  - What we have been talking about
The bottom line

• The Web/Internet and new technologies have limited ability to address security and privacy concerns …

• … computer science is making the world less safe!!

• … it is incumbent in us as scientists to meet these challenges.
  ‣ Evangelize importance of security …
  ‣ Provide sound technologies …
  ‣ Define better practices …
Thank You!!!

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