CSC429 – Computer Security

LECTURE 11
MARKET FAILURE OF SECURE SOFTWARE

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Buggy Software

- Why does software has many bugs?

1. Software is complicated,

2. Software is created by human (error-prone),

3. Unique nature of software
   - Near-zero marginal cost

Market Failure

- Market failure:
  - Is a scenario in which individuals' pursuit of self-interest leads to bad results for society as a whole

- Why does software market is an example of market failure?
  - Users cannot just vote for security with their money.
    - lack of measurement for security

  - Vendor has no incentives to produce higher quality software.

Guy Kawasaki – "**The Art of Innovation**"

- Don't worry, be crappy.
  - An innovator doesn't worry about shipping an innovative product with elements of crappiness if it's truly innovative.

- Churn.
  - I'm saying it's okay to ship crap--I'm not saying that it's okay to stay crappy. A company must improve version 1.0 and create version 1.1, 1.2, ... 2.0.

Lack of Incentives to Produce Secure Software

- Ship quickly –Cash flows when product starts shipping.

- Dominate – Market dominance is key to success
  - being first often means becoming de facto standard

- No liability.

- Cheap Patching – Bugs can be patched with little cost.
  - No expensive recall.

- Free labor – Thorough testing is inefficient.
  - Let the users test it and fix only the bugs that affect users.

The Perversity of Patching

- Releasing a patch costs little.

- Buggy software can force users to upgrade
  - Achieving market dominance means competing with previous versions.
  - Stop releasing patches for old versions can force users to upgrade.

- Patching provide an opportunity of offering new licensing terms

Next Lecture

- Network Security

- Readings for next lecture:
  - Anderson's book – Sections 21.1, 21.2, 21.4.5.5 and 21.4.5.6