Challenges for Humans and their Inter-networked Toys

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The Driving Force: Miniaturization

• Miniaturization of computer systems is driving the penetration of intelligent appliances in every human activity
  – Server room -> office -> home -> lap -> pocket -> body

• Two interesting dimensions:
  – Increasing percentage of ordinary people use “computers” in their every day activities
  – “Computers” will greatly outnumber the number of people on earth

• An increasing number of non-specialists will be called to handle a very large number of “computers”
The Result: Smart Appliances

• Smart appliances have evolved into complex devices which store personal and professional confidential information:
  – Easy to lose or steal
  – Loss of privacy
  – Stalking

• We should think of smart appliances as terminal devices to various Internet transactions
  – With all the associated risks of attacks that have been successfully carried out in past environments
  – But new attacks as well
The Threat: New Environment to Attack Humans and their Devices

- New landscape opens new possibilities for attackers
  - Target “users on the go”
- Attacks can be more successful
  - Users constantly carry their devices
  - Environments differ from the familiar desktop
  - Users have a different mindset
- We are entering/have entered the “continuously digital” world
  - We must reconsider assumptions
  - Build systems that are resilient to these types of attacks