About Me

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Current Status

- On admin leave 2016-2017
- Will be Chair in July 2017

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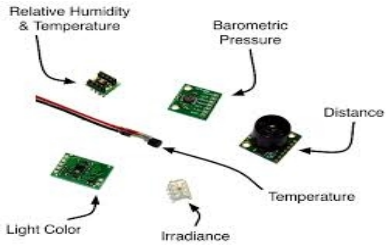
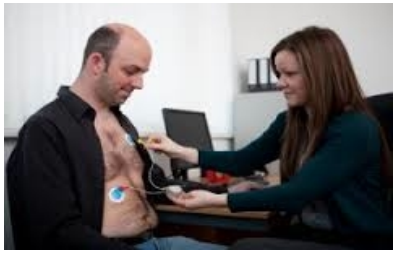
My Research Interests

- Distributed Systems/Cloud Computing
- Software Engineering
- Adaptive Systems
- Resource Allocation
- Mobile Computing
- Fault Management

Sensors



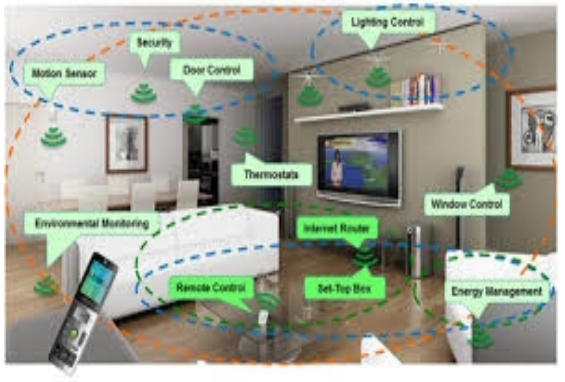


- A sensor is a device that measures a physical property e.g., heat, light, moti
- Actuators can control some aspect of physical entities
- Sensors/Actuators can be embedded in our bodies, environment, cities, , etc resulting in an Internet of Things

Applications

HealthCare

Manufacturing



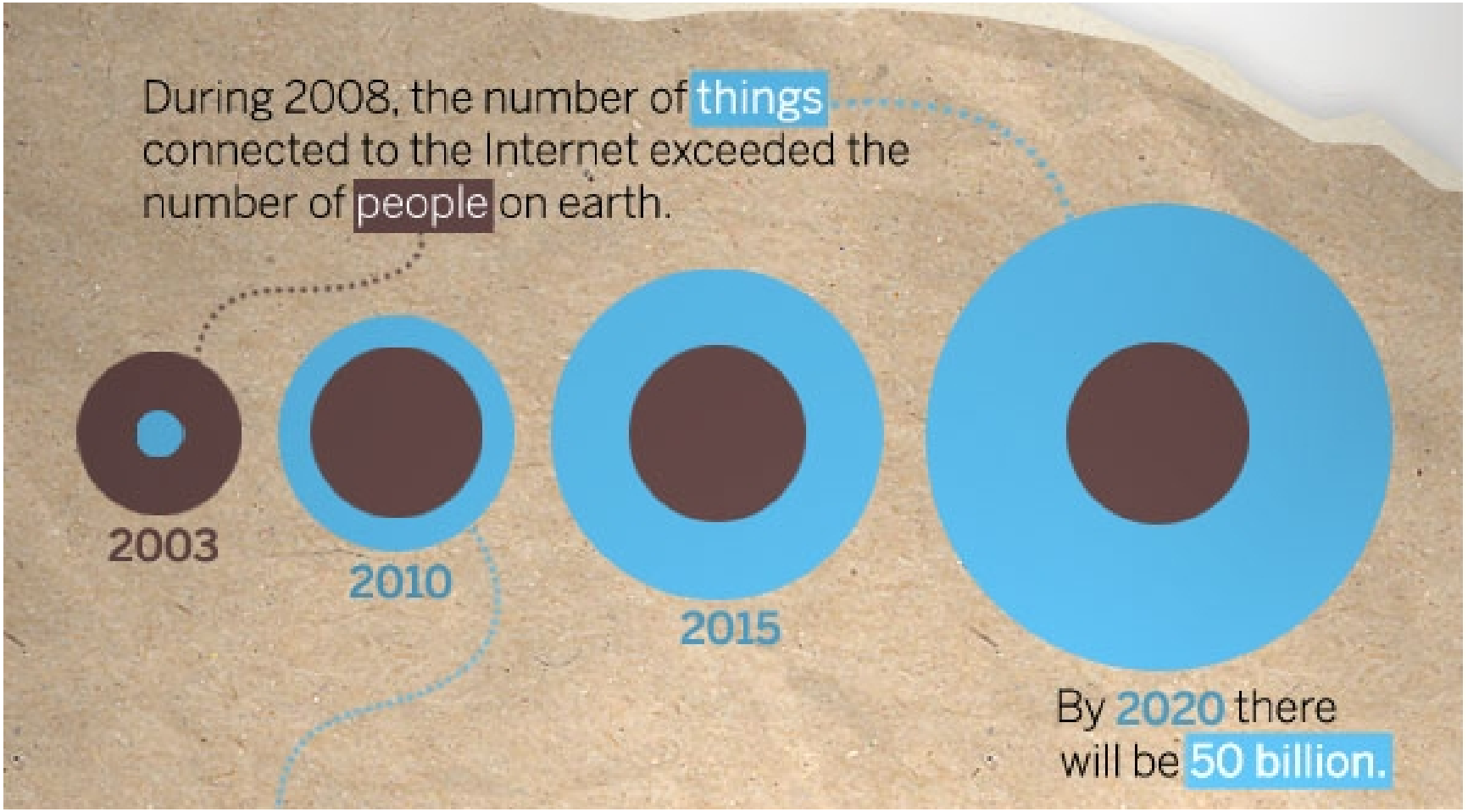
Home

Disaster Response

Energy management

Traffic

Expected Growth of Connected Devices

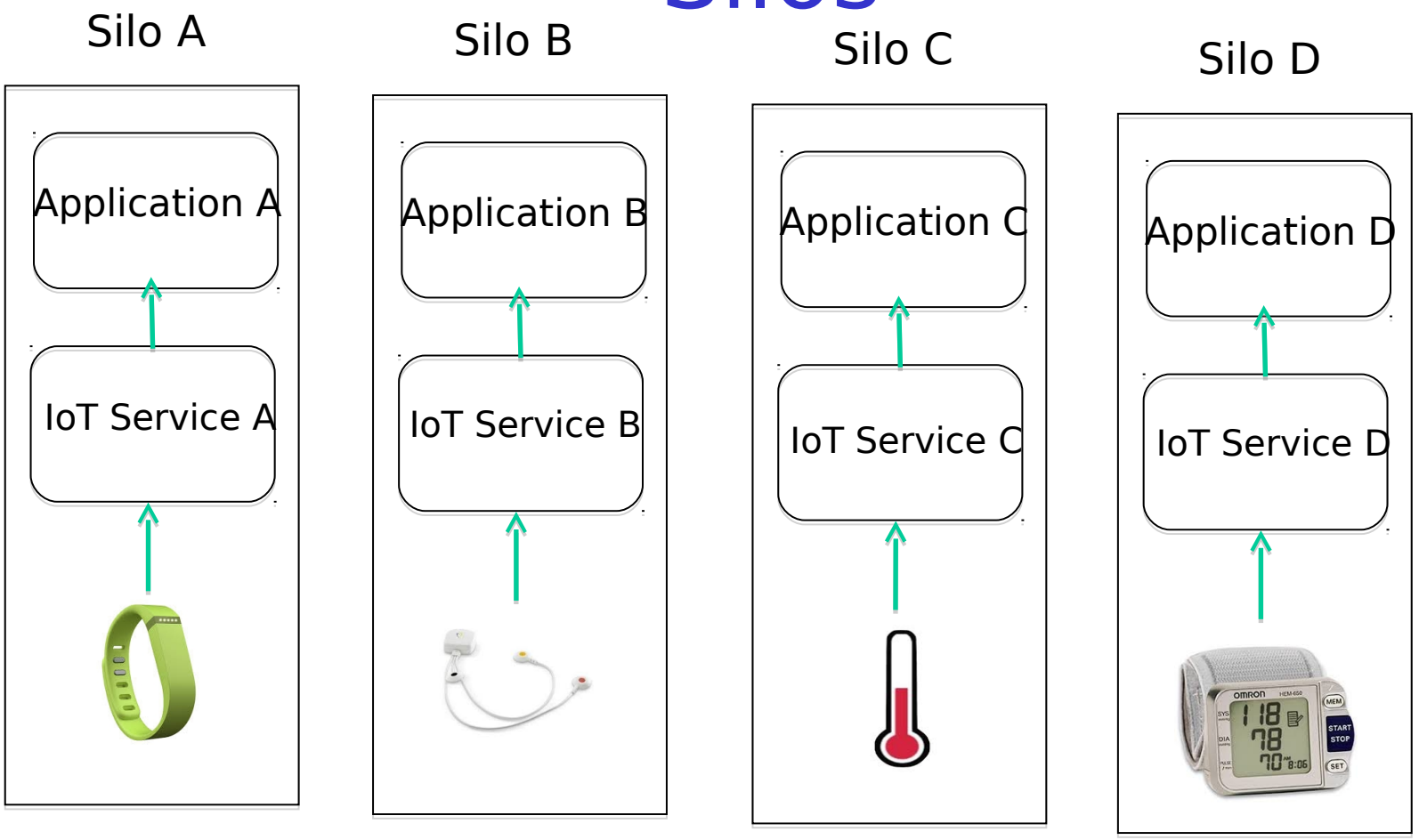


- Source: Cisco

Aren’t there already products?

Yes… but limited

Existing IoT Applications are Silos



- Sensor owner is the same as consumer
- 1 sensor per device

Smart Appliances

- A refrigerator with sensors that determine if a product needs to be replenished
- Owner could allow the sensor information to be sent to third parties in exchange for deals on food products

Research

- Think of “market of sensors”
- Many challenges in being able to support this

Example: Research

- Mobile Computing and Internet of Things
  - Today most smartphone apps communicate with a remote service in a cloud in the Internet core
  - Not suitable for real-time apps because of network distance
  - Move “cloud” to network edge
  - Challenge
    - Coordination of applications and data
    - Coordination of resources
  - Funding: Ontario government

Research

- Cloud Resource Management
  - Energy inefficiency
  - Applications are assigned resources for peak demand
  - Why not assign resources as needed?
    - Challenge: May impact performance
    - Challenge: An comprehensive view of CPU, storage and network
  - Funding
    - SAMSUNG, NSERC Strategic, Ericcson