Integration of Devices and Things in Healthcare

Cooperation Lund Univ Hospital and CS@LTH

Boris Magnusson
Internet of Things

- Ericsson vision: there will be 50G communicating devices by 2020
  - How to manage them?

- Large hospital now: 30k communicating devices
  - How to manage them?
  - How to get more out of them?

A few examples …
Calculate the blood-flow in the brain on-line.

- The blood-pressure is already registered continuously (and thus variations in the pressure).
- Used to calculate the flow
- Important for optimized treatment

- Verified in clinical use at NIVA/SUS
Patient call system with attached patient information

- Radio-based call-system
- Integrate with existing adm systems
- Developed by Innovator Skåne, previous MSc thesis
Capture irregular pulse ("hjärtflimmer") with popular devices

- Cases of arrhythmia are often infrequent and hard to register.
- By using common, cheap, easy to carry devices one can register the pulse on a regular basis.
- A doctor can follow the patient remotely.
- With Sony Ericsson and SUS - see Björn J.
Support for cancer-treatment at home

- Medical equipment at home - remotely accessed from hospital.
  - But also from mobile teams

- Video-link Home - Hospital
  - But also to relatives
  - Mobile team

- Vinnova application with:
  - SUS - LTH - Sigrun
  - Securitas Direct, Hemocue, Sony Ericsson, STV, AXIS, LIKO, Module2
More projects

- MEWS Early Warning System for intensive care
- Mobil X-ray
- Integration of EKG-data from different devices
- Support heart-transplantation preparation
- Supporting Dose planing for Parkinson's disease
Pervasive systems in healthcare

• is different, its about:
  - Devices rather than just Services
  - Changing configurations
  - Mobility - users rarely sit at a desk

• Problems on different levels:
  - Dynamic configuration by the user - changes
  - Heterogeneous service protocols - combined
  - Heterogeneous networks - bridged

• Plattform needed