itACiH findings and agenda

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it-support for
Advanced Care in the Home

• UDI-project financed by VINNOVA, 2 years, extension

• LU + RS/SUS + 6 companies

• Support for advanced care at home
  - focus on palliative care of patients with cancer
  - enable more patients to be able to stay home longer

• Increasing form of care, fewer beds at hospitals
  - many more diagnosis
  - important to make this a viable
  - for the patients, to feel safe a home
  - for the hospital/communities - efficient
Home care - setup

- Equipment at home
- Communication
  - Patient - Ward - Mobile Nurse - Community Nurses
- Support for the home care process
at Home - Internet of Things!

• Equipment that needs to be integrated
  - From different vendors (med tech in this case)
  - Sporting a variety of protocols
  - Connected over a variety of networks/cable etc

• Vendors propose solutions:
  - Device → Vendor Server → Access over Web

• But: One solution for each device (all different)
  - How many different systems can you take?
  - How many SIM-cards?

- Infusion pump
- Blood Meters
- Pulse oximeters

- Puls
- Blood pressure
- Weight
- Temperature
Integrated solution in the Home

- **Hub for communication uplink**
  - can use different networks

- **Devices connected to the Hub**
  - discovery for simple configuration
  - downloadable software for control

- **Autonomous**
  - handle communication failures
  - buffering information, synching when back up.

- **Typical IoT situation, ”blend into the walls”, changes.**
Communication
Patient - Doctor - Nurse

- **Existing systems:**
  - Health systems
  - Phone
  - SMS
  - eMail
  - Pictures
  - Video

- **Supporting the nurse**
  - Integrated solution
  - Single way to access info

- **All different systems:**
  - Manage addresses
  - Security
  - Mobile situation
## At the hospital

- **Complex information situation**
  - Too many web-based hospital systems already.
  - Equipment at patients homes
  - Nurses, planning, reporting, ...
  - Patients, evaluation, communication
  - Community services

- **Integrated support system for the Home care situation!**
  - Old systems and New functions

### Hospital ward
- EHR - Melior
- Patients - PASIS
- X-ray - DICOM
- Medicin - APODOS
- Planing - MobilKlinik
- Work - TimeCare
- .....
itACiH - Integration in Open platform

Palcom - middleware for communication
How do you develop such a system?

Specification - Build - Done? -- not really

• New system changes how people (can) work
  - Not even professionals know how they work - much less how they want to work.
  - Requirements change by the day
  - New ideas are constantly popping up

• We work directly with the nurses/doctors
  - Agile: functions start simple, are then improved
  - Incremental: parts developed one at the time
  - Deployment: in use by professional users from day one.

• Need a flexible framework to limit engineering
Conclusions

• This is Cloud!
  - Servers, some new, some old in the background

• This is Mobile Cloud!
  - Mobile equipment, on-line, both providers and consumers of info

• This is MIST - Mobile Internet Systems of Things!
  - Integration close to the ground, autonomous operation