Deliverable 1
Project proposals

Project requirements

- Size: Min 1 man/year
- Complexity & integrations
- Multiple aspects (and stakeholders)
- Interesting!!

Project proposals

- IoT sensors stored to the cloud
  - E.g. Smartcity traffic sensor data collected to improve traffic patterns
- High-performance distributed collaboration
  - E.g. traffic-heavy online computer game
- Integration of general practitioner medical data with AI and mobile apps
- Car emergency and traffic collection system
- DevOps and SCM system for highly regulated industry
  - E.g. healthcare, automotive etc

Exercise
Quality Attribute Workshop

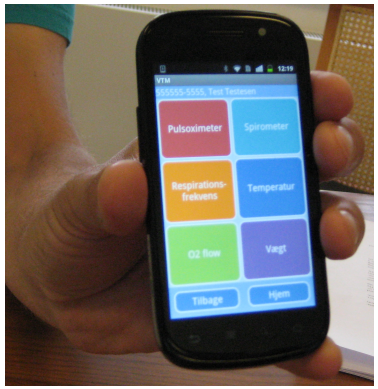
Case: Net4Care

Provide a platform for (tele)medical applications to:

- Store data
- Interoperate with medical records
- Interoperate with medicine cards
- Authenticate users based on CPR register

Used by

- (External) developers
- Patients
- Healthcare professionals



Architectural concerns

Mission-critical: external application failing can have consequences. From personal data leak to human harm.

Rule by popularity: if the platform is not attracting applications the hospitals/regions will not support it.

Requirements for this workshop

Create quality attribute scenarios for Net4Care

Stakeholder roles

- Platform developers,
- SMB (external) companies developers/CTOs etc
- Hospital-region managers
- Patients

Following a specified process
(Part of the Quality Attribute Workshops (QAW) technique from SEI)

Quality Attribute Workshop (QAW) steps

1. Identification of Architectural Drivers

   = most critical software architecture quality requirements

   Will be a given in this workshop

2. Scenario Brainstorming

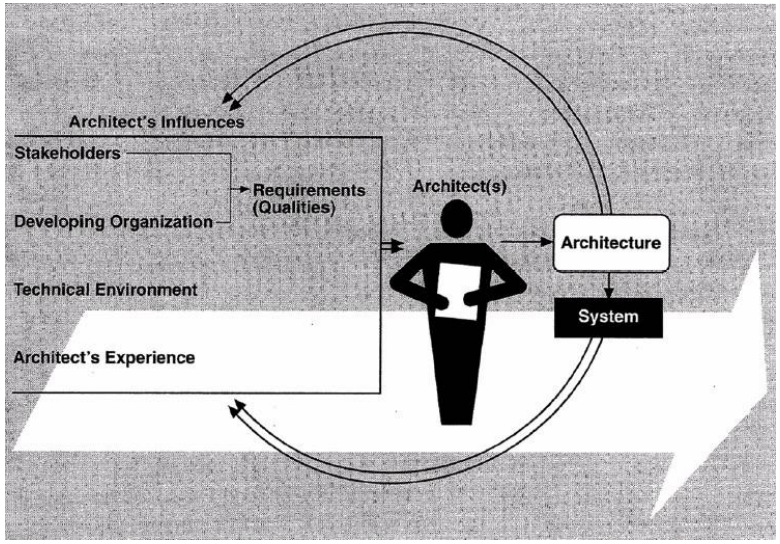
   Find quality attribute scenarios in a brainstorming process

3. Scenario Prioritization

   Vote on scenarios

4. Scenario Refinement

   Refine most important scenarios to be on the quality attribute scenario format of [Bass et al, 2003]



1. Net4Care Architectural Drivers

Security

The system should be resistant to external attacks and fail in a secure way.

Modifiability

The system should be structured in such a way that would allow the easy extension and further development.

Testability

The system should be easy to test and control quality. The design and implementation elements should be structured in such a way that would allow the application of QA elements

Others?

2. Scenario Brainstorm

Goal

Come up with as many well-formed quality attribute scenarios as possible

Stimulus, environment, response

Participants

Come up with quality attribute scenarios

No critique as such, only clarification questions

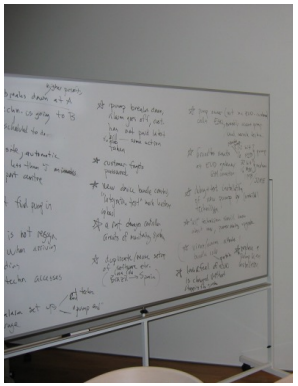
Facilitator (i.e., TA)

Write scenarios on whiteboard

Ensure that scenarios are usable

- "The system shall be modifiable" vs. "The user interface of the monitoring program is changed to different look & feel in two person days"

Make sure architectural drivers are covered



Either fixed time period or whenever participants run out of good ideas

Usually easy to create 20+ scenarios

3. Scenario Priorization

Each stakeholder has 30%*number of scenarios votes

- Standard brainstorming stuff
- Remember stakeholder roles!

Round-robin voting

- Two passes
- Each pass: allocate half of votes

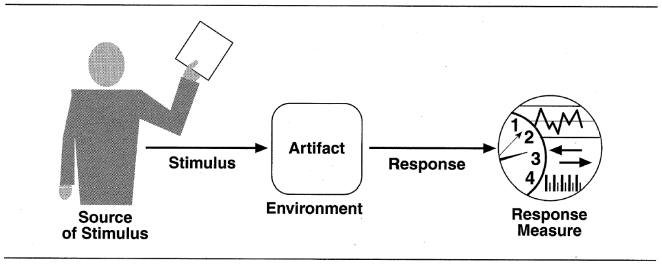
Resulting count = prioritization

- High
- Medium
- Low priority

4. Scenario Refinement

Develop high priority scenarios according to scheme of [Bass et al., 2003]

- Describe relevant quality attributes
- Find questions and issues



POS – Quality Attribute Scenario 1

	Scenario(s):	The barcode scanner fails; failure is detected, signalled to user at terminal; continue in degraded mode
	Relevant Quality Attributes:	Availability
Scenario Components	*Stimulus Source:*	Internal to system
	Stimulus:	Fails
	Environment:	Normal operation
	Artefact (If Known):	Barcode scanner
	Response:	Failure detected, shown to user, continue to operate
	Response Measure:	No downtime React in 2 seconds