Architecting long lived systems
SATURN 2013 – Minneapolis – May 1st 2013
Harald Wesenberg, Statoil and Arne Wiklund, Kongsberg
A step change in environmental monitoring

From “expeditionary” offline sampling

Licence to operate demonstrating prudent operations in sensitive areas

To continuous environmental monitoring
Architecting agile projects
Architecting innovation
Stacking Capabilities
Business Capabilities are...

- Driven by value
- Measurable
- Action Oriented
Business capabilities combines

People
Technology
Processes
Governance
IEM capability stack

Business Operations
- Planning
- Decision making
- Workflow

Knowledge Sharing & Analytics
- Learning
- Analysis
- Sense making

Information & Collaboration
- Virtual interaction
- Coordination
- Shared awareness

Intelligent Infrastructure
- Access
- Connect
- Sense

Asset control room
- Central support functions
- Emergency response

Domain experts
- Information & work processes

Sensors & sensor platforms
- External organisations

Existing sensors & sources
- Stationary ocean observatory

Mobile

Background photo: Harald Pettersen
Managing Complexity
Bounded Context

Delimits the applicability of a model
Unified concept definitions
Keep unified within
Don’t worry about the outside
Architecting for change
Freedom to develop

- Interfaces follow natural boundaries
- Focus on Identifiers, Formats and Protocols
  - E.g. TCP/IP, shipping
Giving data context

- ADCP
- cm/s
- UTM
- 32V
  - 7032787
  - 570089
- 8
- 120
- deg
Giving data context (cont’d)

- WGS84 Geopositioning
- Environmental Monitoring
- Measures and units
- Semantic Sensor Networks
Architecture for IEM

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Applications

Networks

Application Services
- Access control

Services

Data Stores

Networks

Sensors

Publishing

Subscription

Services

Access control
- External info services

Access control
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Access control
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Documenting architectures
There’s never been a better time for good ideas