OGC and Geographic SOA in Norwegian Defence
Andreas Oxenstierna
T-Kartor Sweden AB
OGC Nordic Interoperability Day 3 Sept 2012
Norwegian Armed Forces

- 23 000 peacetime strength
- 83 000 mobilization strength

International contributions
UN observers and staff personnel
- Afghanistan
- Libya
- Gulf of Aden (anti-piracy)
- Kosovo
- Iraq
- Lebanon
- Mediterranean
- Chad
- The Baltic States
- Iceland
Network-centric warfare

"Ability and willingness to share information"
Modernization of Norwegian Defence’s Core Services (P8009)

Support of Network based defence/NCW (No: NbF)

O1. Faster and more targeted decisions
O2. Enhanced information exchange between actors within and outside the armed forces
O3. Substantially increased basis for collaboration and info-sharing between the armed forces units
O4. More motivated and well-informed personnel
   Support of more effective information infrastructure (INI)
O5. Rational and more efficient management, maintenance and monitoring
O6. Faster implementation of new services and capacities
O7. Increased interoperability between national and international actors
Modernization of Norwegian Defence’s Core Services (P8009)

Eight sub-projects:

R1: Geographical services
R2: Information management
R3: Information exchange
R4: Registry services
R5: Collaboration services
R6: Service management
R7: Information security
R8: Organizational targets
Information structure - Reference model

Figure 1. Reference model for the information infrastructure.
R1 Geographical Services
Today’s solution

- Based on ESRI ArcIMS
- Not possible to update
- Capacity exceeded
Purpose of the acquisition

- Core geographical services
- Across different levels of security grading
- For all secure IT platforms
- Integrated security (authorisation etc.)
- Advanced web-based (geo)system
- Expose standardised (geo)services
- Ensure actual data and correct metadata
- Integrate GEO and METOC data & functions
- Provide needed geographical information for securing operational activity
- Move resources from customization of data/maps to centralized information management
Resulting in ...

- 843 functional requirements
- 198 technical requirements
- 74 support requirements
- 80 data formats to support
- 127 catalog metadata fields

an interoperable system based on open standards ISO, W3C, OGC and NATO
Interoperability

Use open standards to ensure interoperability:

› Internally (applications and systems)
› Externally (NATO)
› Support the national fulfillment of the NATO Force proposals – “E 2861 Network enabled services, Geospatial and METOC”
Interoperability

A pre-release of the system was deployed to CWIX in June 2012, to test interoperability against other (NATO and Partner) nations with 139 capability configurations

(CWIX 2012 = Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise 2012)

http://www.act.nato.int/transformer-2012-01/article-16
Tendering and delivery process

- Norwegian regulations for public procurement
- TED announcement 2010-06-16
- Tender qualification/selection
- 5 companies were invited to submit a tender
- Contract signed with T-Kartor Sweden AB 2011-05-05
- First call-off agreement signed 2011-09-30
- Deliveries October 2012 and March 2013
- Deployed to users Q3 2013
- 3D functionality and portlet integration is not called-off
Deliveries - standards

Establishing Core GIS Service on classified networks
(RESTRICTED / SECRET / NATO SECRET)

- Map services (WMS-SLD / WMS-T / WMTS)
- Catalogue services (CS-W - ebRIM and ISO AP)
- Download services (WCS / WFS / WPS)
- Gazetteer (WFS-G)
- Processing services (WPS)
- Notifications (GeoRSS)
- MyPage (user profile incl. WMC)

- Catalog all information valid in a geocontext: geodata, OGC-services, documents, SAP items, data packages, ...
- Data registration with advanced metadata profile: 127 fields based on ISO19139 and NATO profiles
Web client

- Dynamic interactive application "MyPage"
  - exposed functionality depends on AD role and saved user profile
- Integrated search: catalog and placenames
  - placename data from GeoNames, Norwegian names and addresses
- Ordering, subscriptions and notifications
- Process framework for: METOC, terrain, spatial, ...
  - weather forecasts, sonar predictions, line-of-sight, routing, buffers, downloads, ..
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**Admin**

Tittel

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Dato: Mon Jul 02 2012 15:10:44
Data Registration GUI
metadata is stored in the catalog as ebRIM and ISO AP

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**Metadata about Metadata**

- Metadata date stamp: 2012-09-03
- Metadata language: English
- Metadata point of contact: Andreas Oxenstierna

**Identification metadata**

- Resource title: Geographic SOA
- Resource abstract: Norwegian Defence
- Resource type: Dataset

**Spatiotemporal metadata**

- Resource reference system: EPSG:4326

**Management metadata**

- Resource designation type: Designated GI
- Resource creation date: 2012-08-31
System architecture

- Web-based
  AJAX, REST, HTML, Canvas, ...

- Service-oriented system
  based on but not limited to geography ("GeoSOA")

- Open interfaces
  REST, SOAP, JDBC, SQL, ...

- Standards
  ISO, OGC, W3C, NATO, ...
Software components

- Apache (webserver)
- JBoss (application server)
- ERDAS APOLLO (geospatial server, the only commercial component)
- PostgreSQL with PostGIS (spatial database)
- GDAL and OGR (data conversion libraries)
- Java code, Hibernate, Struts (business logic, ORM, MVC)
- GeoExt (web client, OpenLayers + extJS)
- MapFish (PDF creation)
- OpenReports (reporting)
Integrated security, incl. geospatial

- Single sign-on with smartcard (PKI)
- Role-based access, incl. spatial areas
Scalability and reliability

- Single sign-on with smartcard (PKI)
- Role-based access, incl. spatial areas
Waiting ... 3D

› OGC and NATO 3D viewing standards are not ready (W3DS / 3D-SE / WVS) (will need support ...)

› Needed support in web browsers are in early stages but in fast development (HTML5, WebGL, Direct3D)
Thanks for the attention

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