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OGC and Geographic SOA in Norwegian Defence

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T-Kartor Sweden AB

OGC Nordic Interoperability Day 3 Sept 2012

Norwegian Armed Forces

NORWEGIAN ARMED FORCES

- 23 000 peacetime strength
- 83 000 mobilization strength

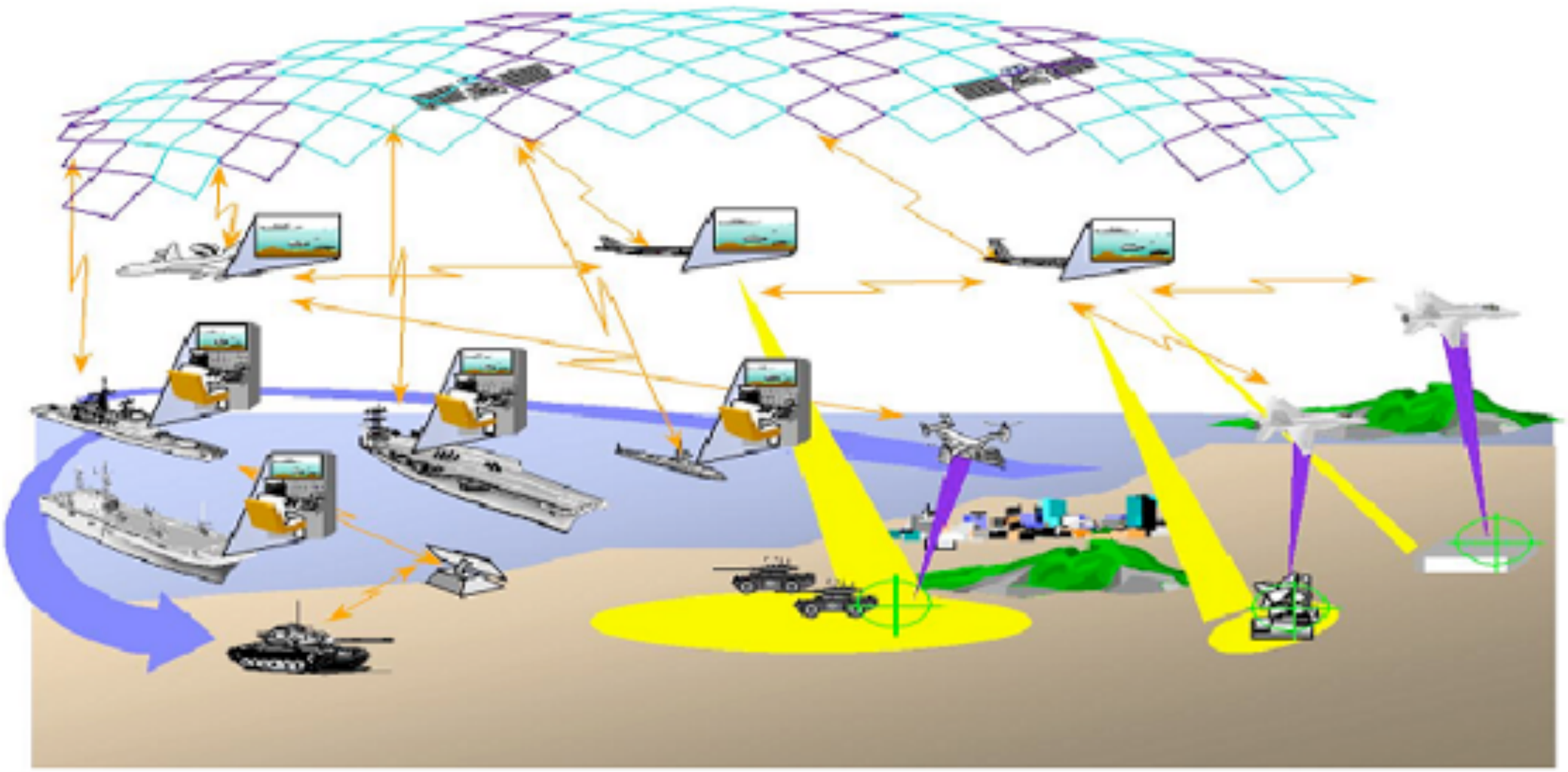
International contributions

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

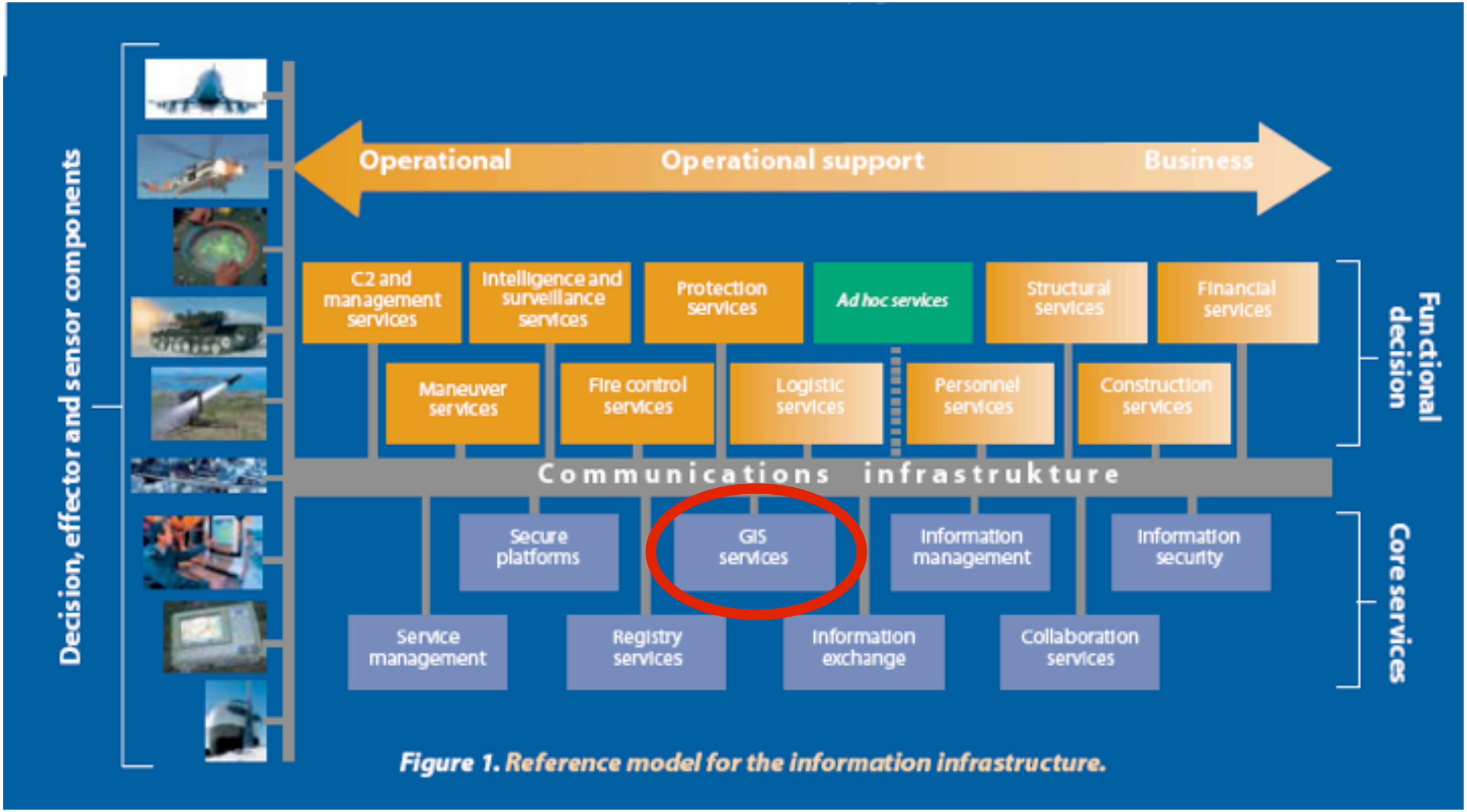


Figure 1. Reference model for the information infrastructure.

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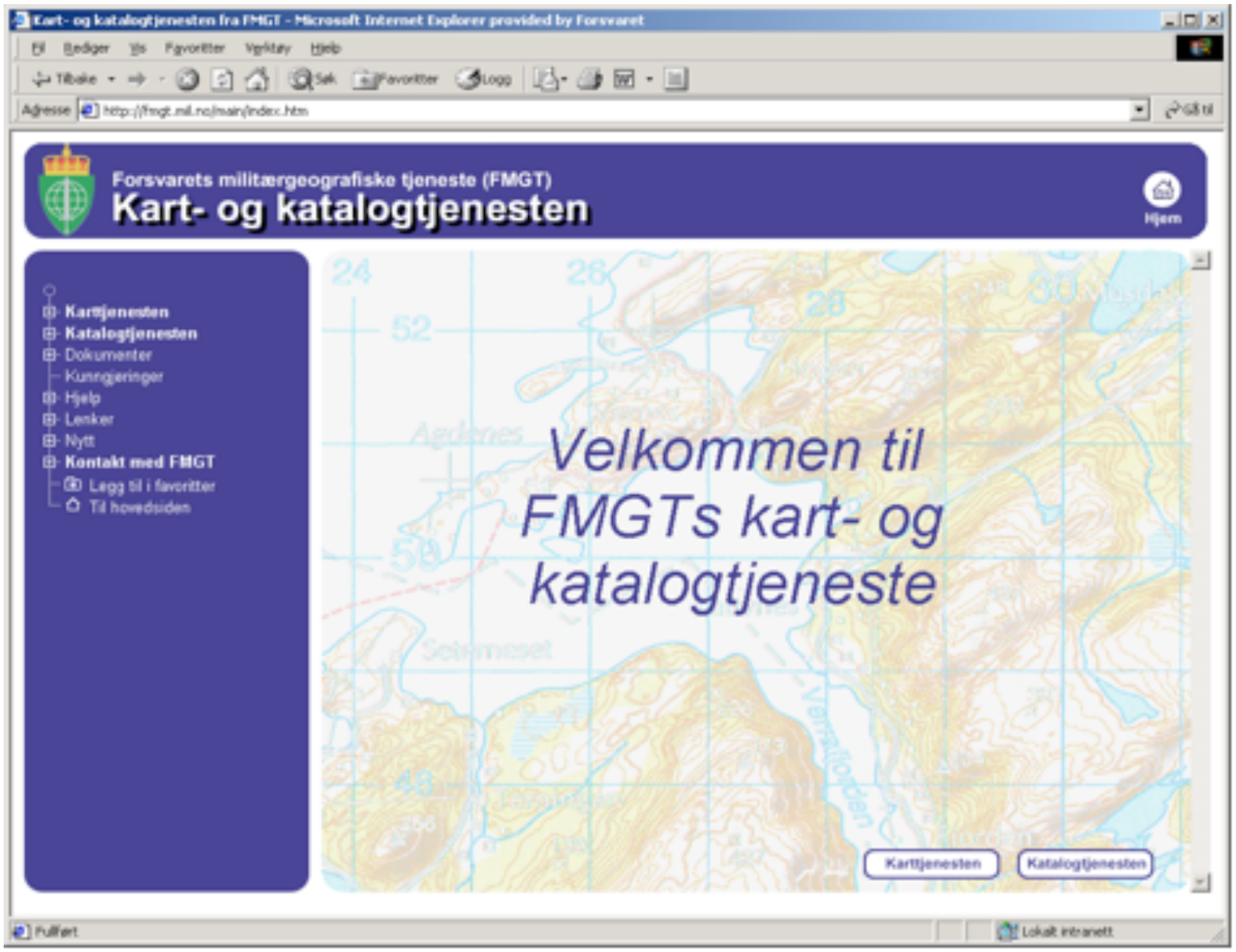
R1 Geographical Services

Today's solution



- Based on ESRI ArcIMS
- Not possible to update
- Capacity exceeded

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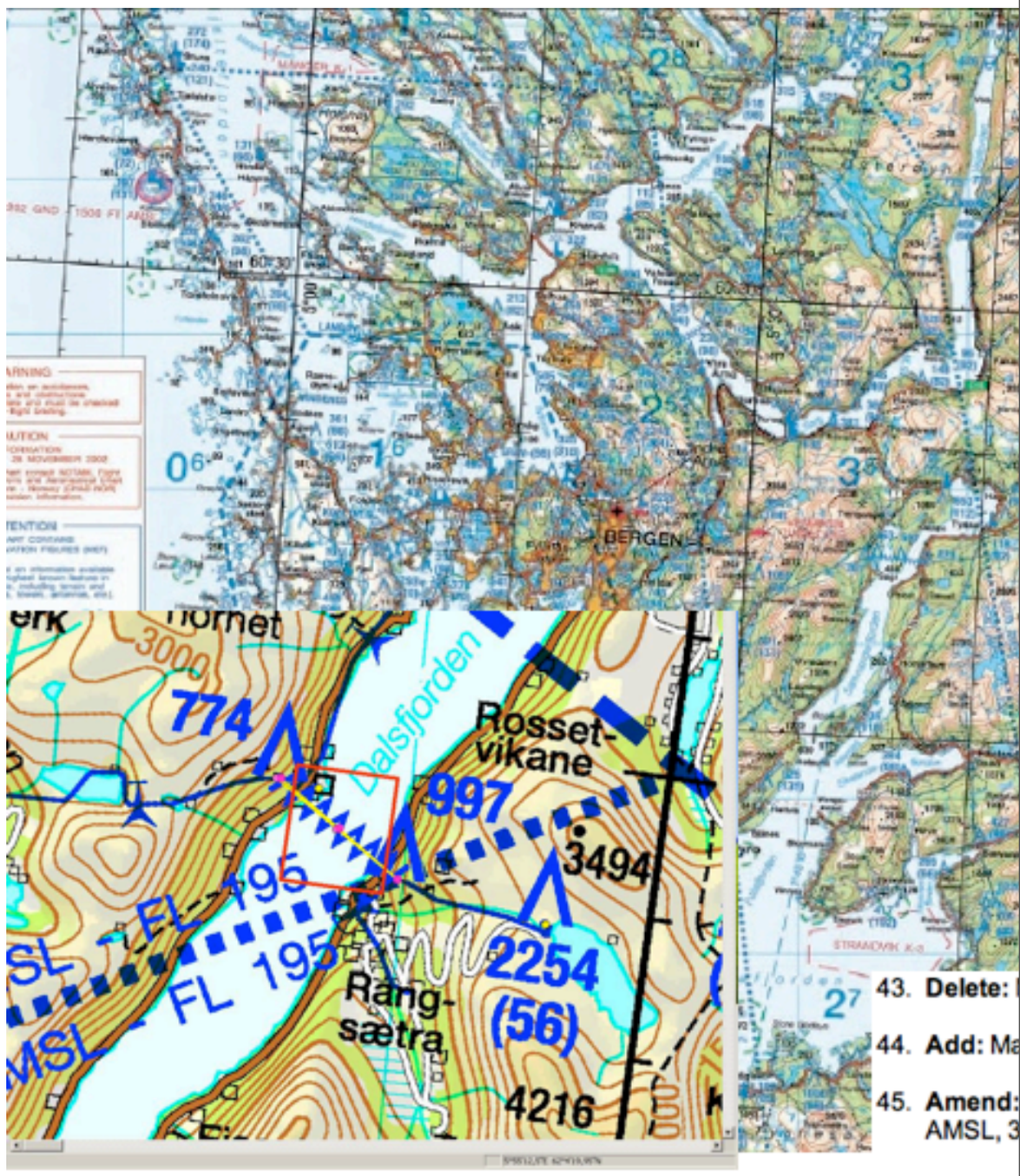
Purpose of the acquistion

- 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

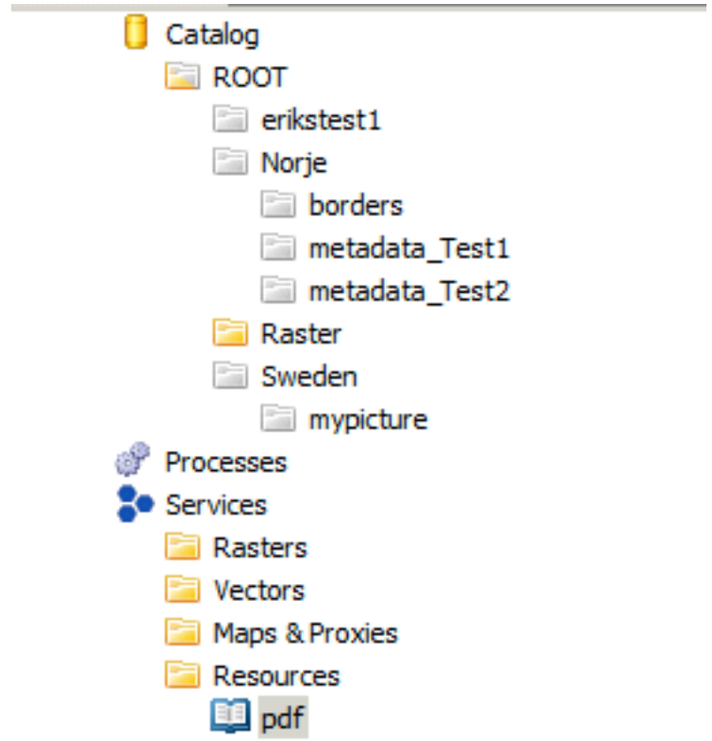
Tendering and delivery process

- 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

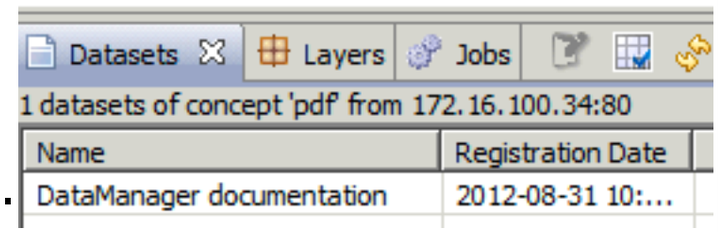
Establishing Core GIS Service on classified networks (RESTRICTED / SECRET / NATO SECRET)

- 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

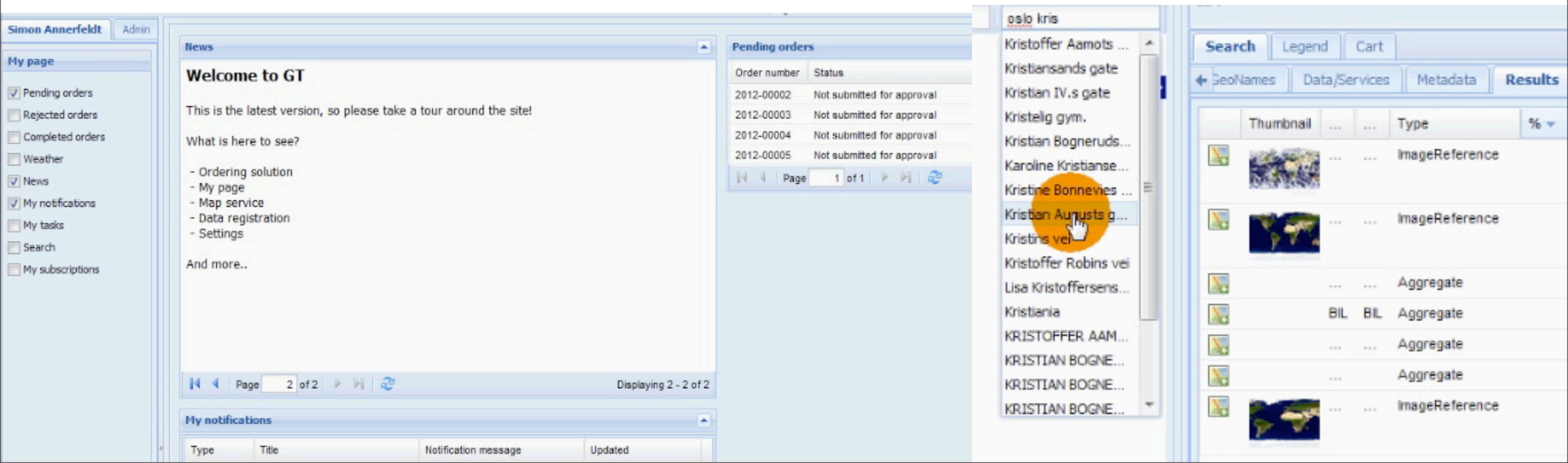
- Integrated search: catalog and placenames

  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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Min Side

Katalogtjeneste

Dataregistrering

Søk

oslo

Navn	Land	Region	Plass	Husnum…	Postnu…	Kommune
OSLO GATE	Norway		OSLO	39	0192	Oslo
OSLO GATE	Norway		OSLO	23	0192	Oslo
OSLO GATE	Norway		OSLO	1	0192	Oslo
Oslo Lærerhøgskole	Norway	Oslo				
OSLOVEIEN	Norway		HØNEF…	32	3511	Ringerike
OSLOVEIEN	Norway		HØNEF…	67	3511	Ringerike
OSLOVEIEN	Norway		RØROS	2	7374	Røros

Geo Søk

1000 m
2000 ft

11°09'E 11°10'E 11°10'E 11°11'E 11°12'E 11°12'E 11°13'E 11°13'E 11°

Admin

Title
Oslo_2008_2_utm32_2.sid

Side 1 av 1

Viser 1 - 1 av 1

Oslo_2008_2_utm32_2.sid:

Dato: Mon Jul 02 2012 15:10:44

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Data Registration GUI

metadata is stored in the catalog as ebRIM and ISO AP

Template | **Data to register** | Geo extent | Mandatory metadata | Advanced metadata (Optional)

Status: Red Orange Yellow Green

Name: Presentations

Level on the dataset: Product

Format: Unspecified

Type: File

Recipient role:

- File
- GPS
- Photo
- Raster
- Terrain
- Vector

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

Resource Language: English

Resource Character Set: UCS Transformatior

Resource topic category: Intelligence / Milita

Spatiotemporal metadata

Resource reference system: EPSG:4326

Management metadata

Resource designation type: Designated GI

Resource creation date: 2012-08-31

NATO fields

- Metadata about Metadata
- Identification metadata
- Spatiotemporal metadata
- Management metadata
- Constraint metadata
- Quality metadata
- Distribution metadata

FMGT fields

- Date / Time
- Resolution and accuracy
- Reference system
- Contact information
- Attachments
- Solution-specific metadata

System architecture

- Web-based

  AJAX, REST, HTML, Canvas, ...

- Service-oriented system

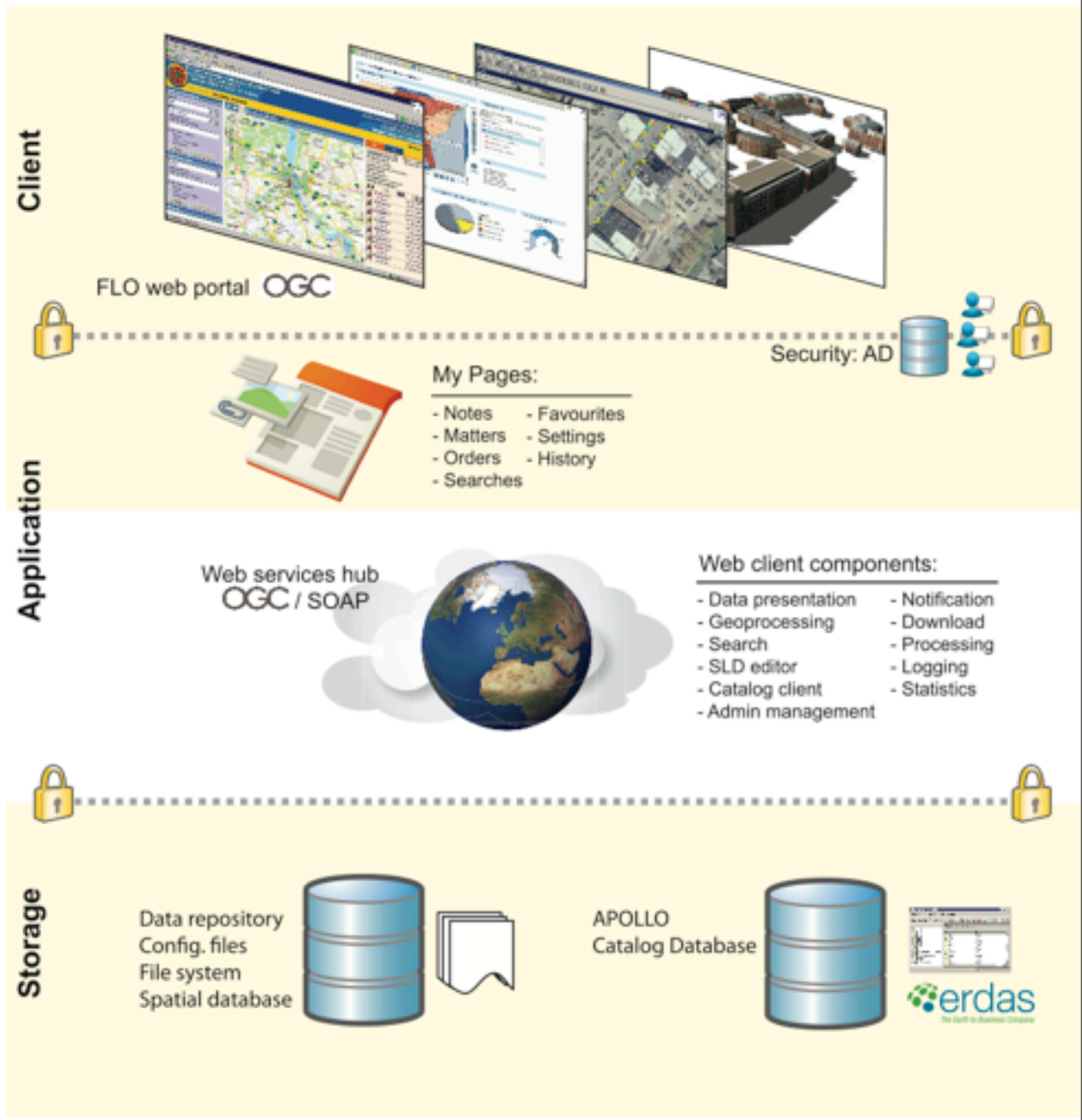
  based on but not limited to geography (”GeoSOA”)

- Open interfaces

  REST, SOAP, JDBC, SQL, ...

- Standards

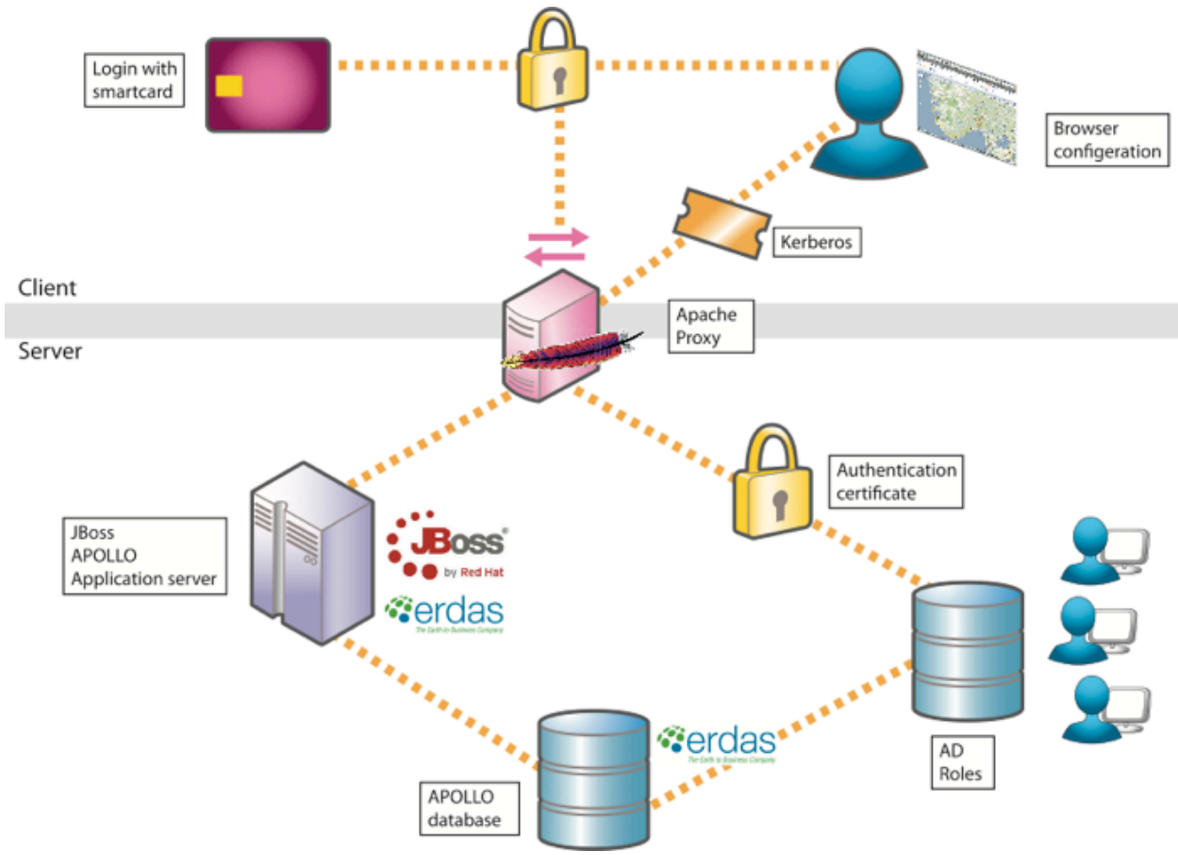
  ISO, OGC, W3C, NATO, ...

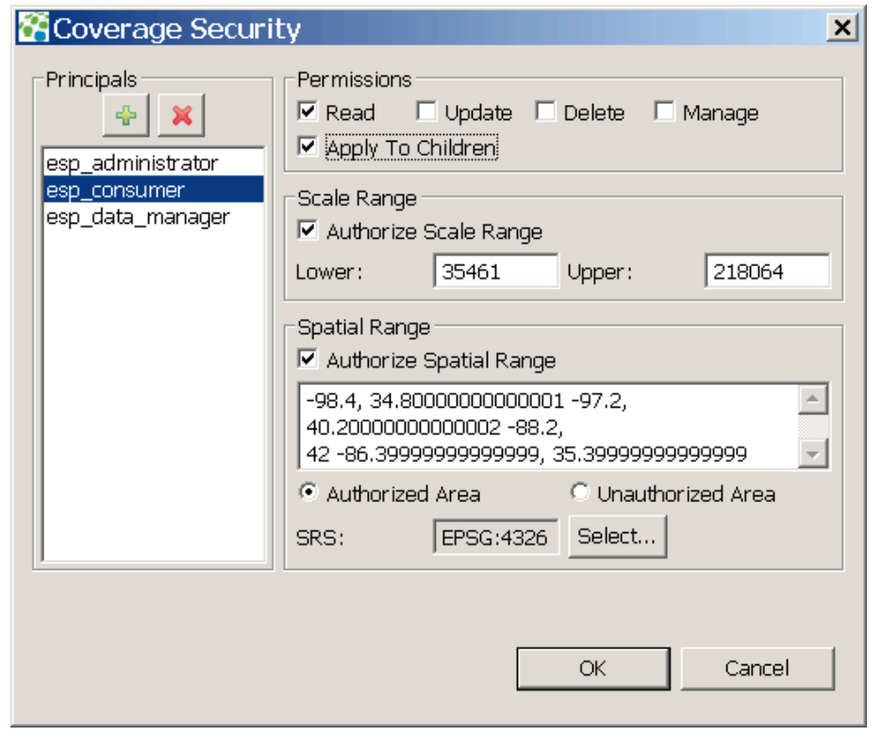


Software components

- 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)

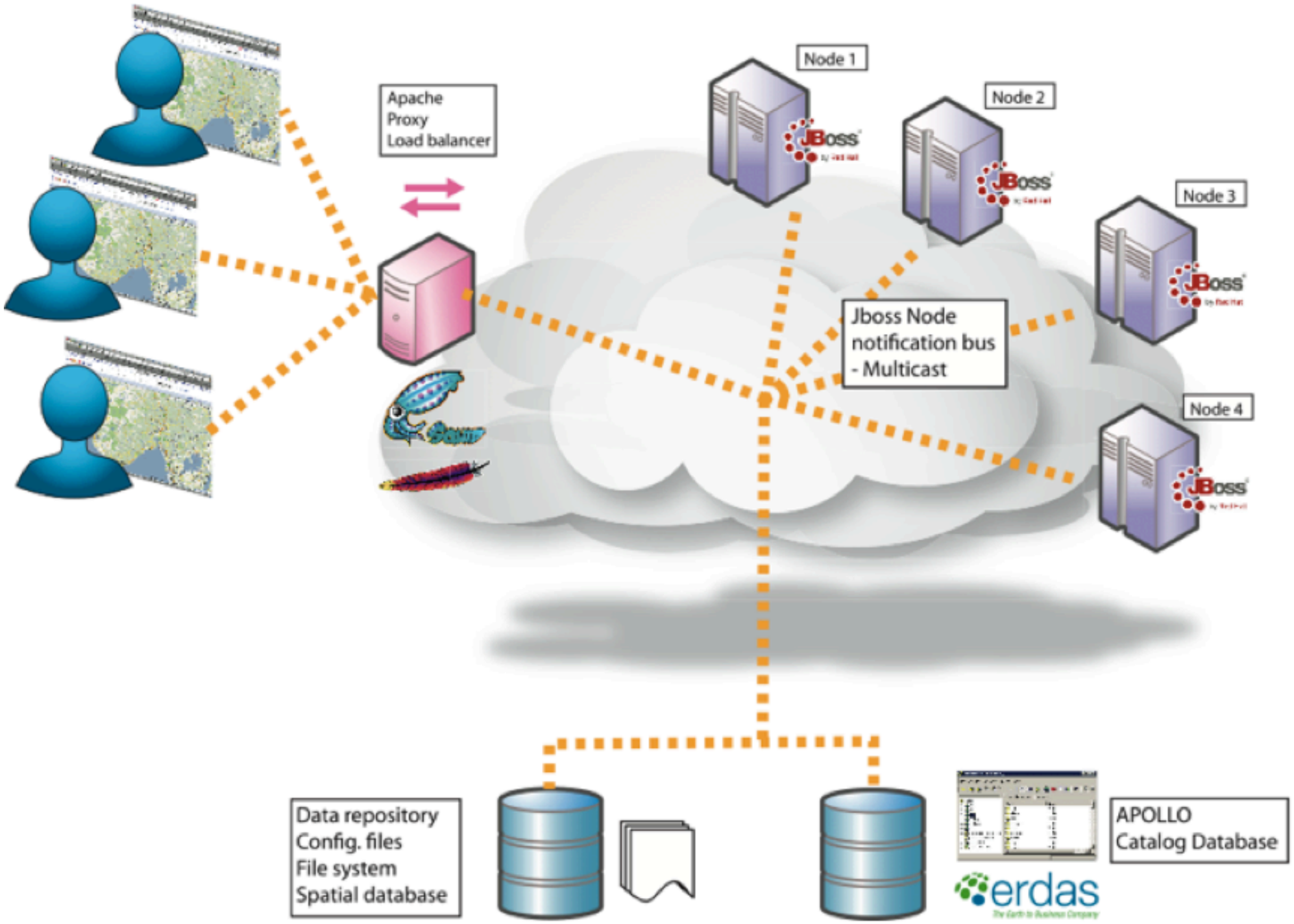
Integrated security, incl. geospatial





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

Scalability and reliability



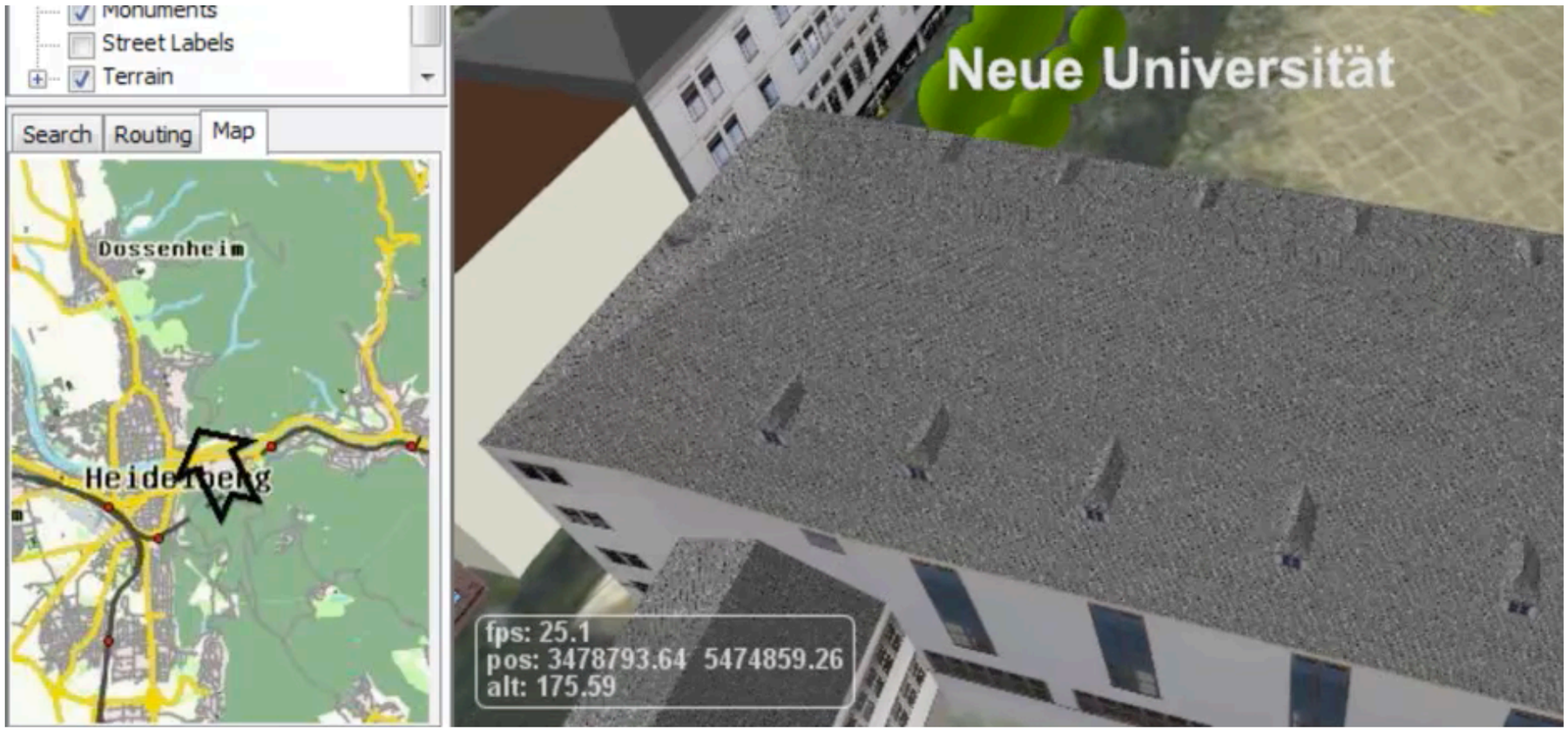
Waiting ... 3D

- 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)



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Thanks for the attention

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