

INSPIRE Architecture

D3.5 Network Services

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Outline

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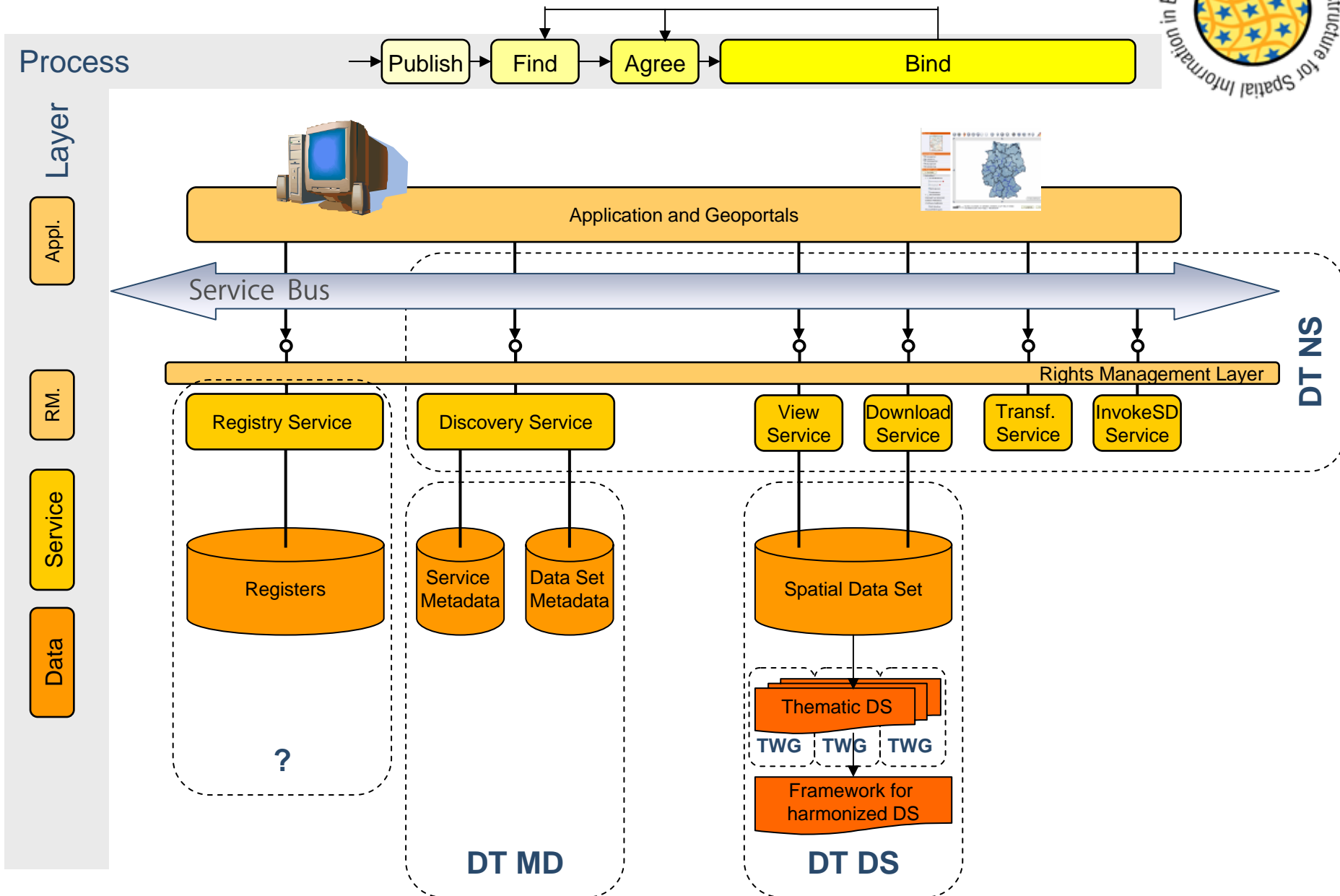
Motivation and Overview

- Term *(Software) Architecture* is not used in the Directive, but...

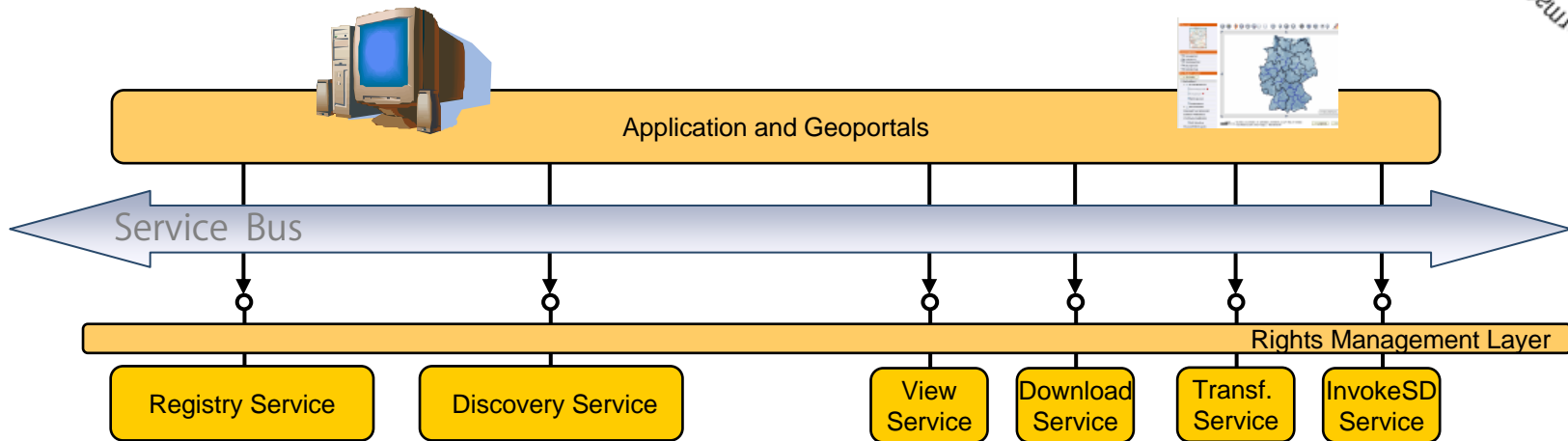
- An *informative document* on the INSPIRE Architecture was considered essential to
 - generate a common understanding
 - define responsibilities of the various drafting teams
 - illustrate on how the INSPIRE network will (inter-)operate
 - define commonalities of the INSPIRE network service types
 -

- ➔ Thus, perhaps not an Architecture in a *pure technical sense* but as a communication tool

Architecture Overview

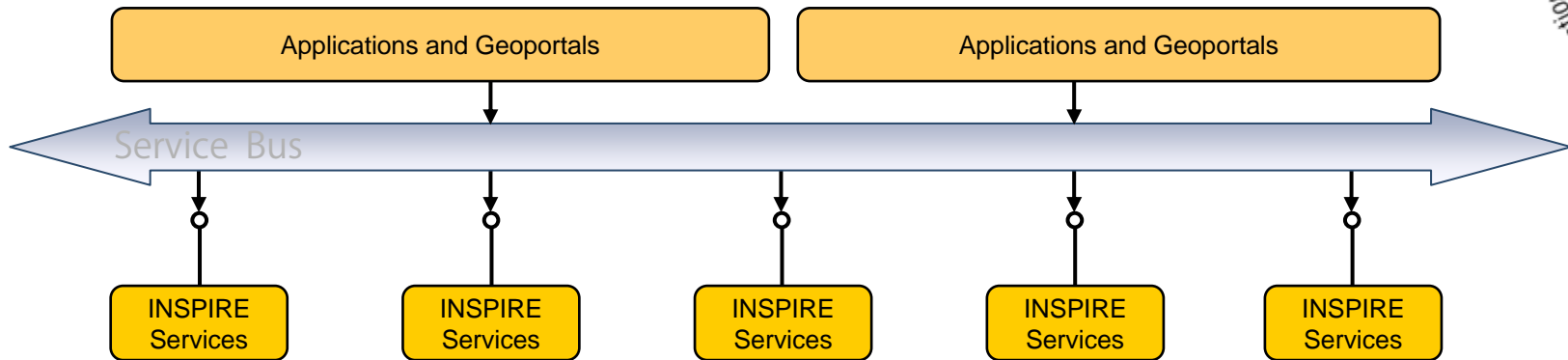


INSPIRE Service Types



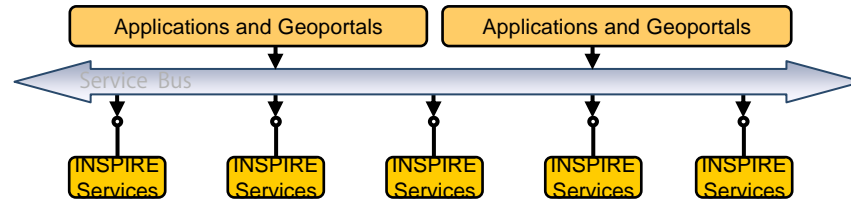
- *Discovery, View, Download, Transformation and Invoke Spatial Data Service* are mandated by the INSPIRE Directive
- *Registry Service* – an additional service type needed to run an interoperable spatial data infrastructure

INSPIRE Network Services Infrastructure



- INSPIRE Network Services define interfaces to achieve Interoperability in a pan-European *geo spatial service bus*
 - Different *service providers* contribute INSPIRE-conforming services (access only)
 - INSPIRE Network Services expose services for machine-to-machine communication (*publish-find-bind* or *direct invocation*)
 - INSPIRE Applications involve INSPIRE services
 - INSPIRE geo-portal at Community level and further Member States access points offer INSPIRE functions to different user groups

INSPIRE Network Services Infrastructure

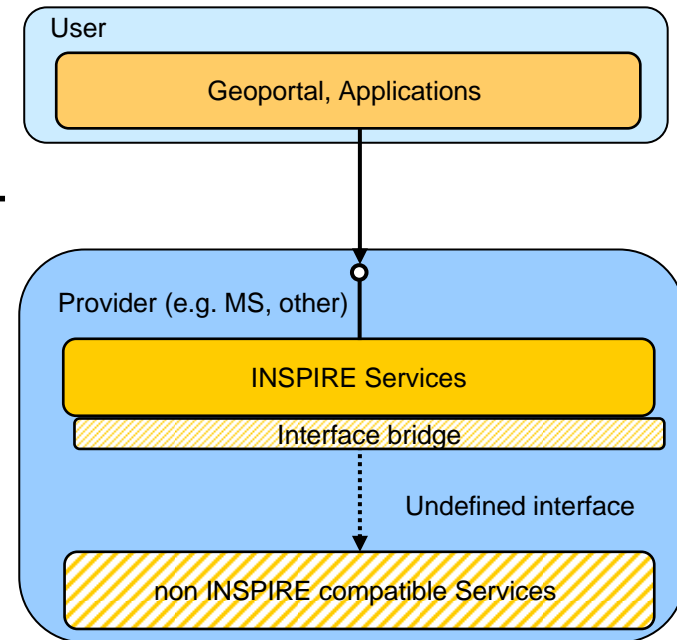


- The INSPIRE Network Services Infrastructure is understood as a *Services Oriented Architecture (SOA)*
 - INSPIRE Services Metadata (Metadata IR / Guidance) allows automatic service invocation
 - allows workflows utilizing services in a chained manner
 - provides additional management services like registries, authentication, and access control functionalities, eCommerce services, etc.
- Thus
 - INSPIRE Services are web services
 - communication-protocol and binding technology for INSPIRE services is SOAP

INSPIRE Network Services Infrastructure



- pro SOAP :
 - standard technology for SOA
 - sustainability
 - easy cross-technology integration, ...
 - OGC Interfaces can be SOAP wrapped
 - OGC recommends SOAP usage
 - can be extended by management functionalities (rights management)
 - support to chain services
- Only one(!) binding
- JRC conducts an INSPIRE-SOAP study
- A JRC Report examines applicability of Resource Oriented Architecture (ROA) and REST



E-Government Integration

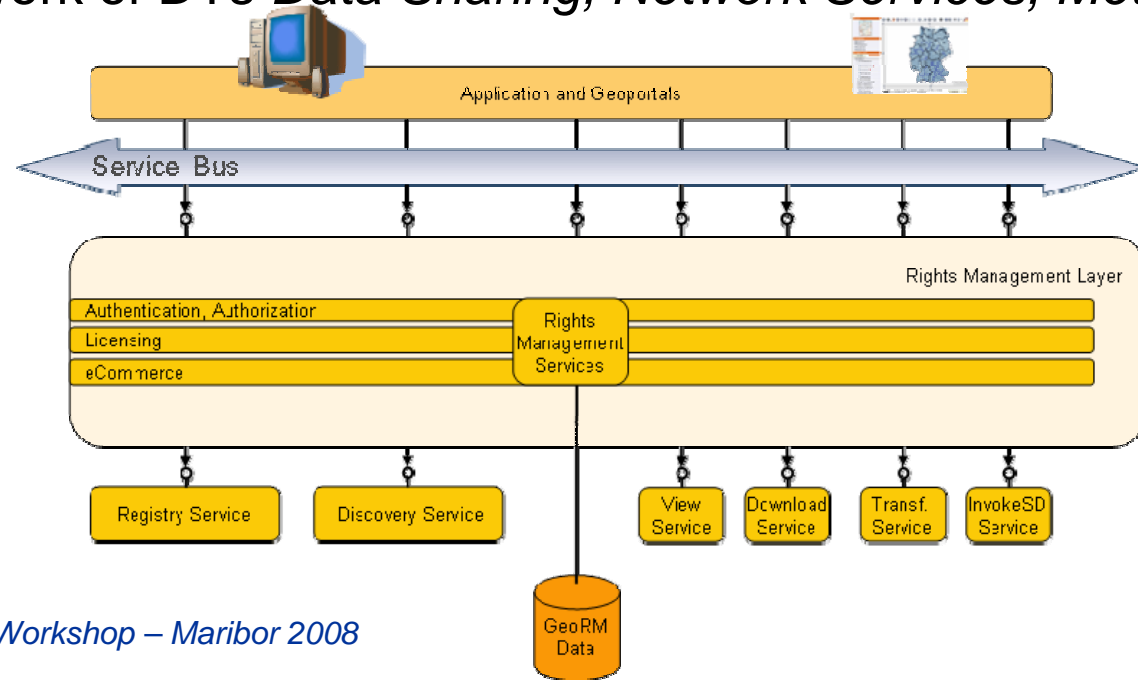


- INSPIRE Directive does not directly refer to eGovernment,
 - clearly INSPIRE architecture should align with general frameworks of eGovernment services
- European Interoperability Framework (EIF) defines such a general framework
- EIF will provide standards and guidelines for the implementation of (European) interoperability frameworks
- INSPIRE Network Services are well aligned with the ongoing work on the new EIF.



Rights Management (RM)

- Conceptually, if rights management is required:
 - access control functions are independent of the INSPIRE service type
 - A rights management layer is passed for an INSPIRE service access
 - a *rightsManagementKey* is attached to the SOAP header
 - acts as container
 - future work of DTs *Data Sharing, Network Services, Metadata*



Multilingual Aspects



- No mandatory language (support)!
 - But a recommendation (following the European Interoperability Framework Study) to support providing at least parts of the service in English
 - Services should give metadata about languages they support (using ISO language codes)
 - Services do normally reply in their default language (typically one of the European Member State Languages)
- Services shall support a **language code** to allow clients to request a service response in a preferred language

Performance Requirements

- The Directive asks for minimum criteria to ensure *Quality of Services*
 - Minimal number
 - Minimal measurement effort

- INSPIRE Architecture defines the *criteria framework* for the dedicated INSPIRE Network Services Implementing Rules:
 1. Performance criteria
 2. Service maintenance criteria
 3. Other QoS criteria

Performance Requirements



1. Performance criteria

Performance

The performance of an INSPIRE service represents the service response time, which must be kept for the given capacity.

Capacity

The capacity of an INSPIRE service is the limit of the number of regularly sent requests, which can be responded by a service in a way, that the single response time is not greater than the performance indicator.

2. Service maintenance criteria

Availability

The availability of an INSPIRE service is the probability that the system is up and running.

Reliability

The reliability of an INSPIRE service represents the ability of a web service to perform its required functions under stated conditions for a specified time interval.

3. Other QoS criteria

Security

The security of an INSPIRE service is the quality aspect of the web service of providing confidentiality and non-repudiation by authenticating the parties involved, encrypting messages and providing access control

Compliance

The compliance of an INSPIRE service is the quality aspect of the Web service in conformance with the rules, the law, compliance with standards, and the established service level agreement.



Thank you !

Questions ?

Lars Bernard

<http://tu-dresden.de/fgh/geo/gis>

INSPIRE Network Service Types

1. Discovery Services → *following presentation*
2. View Services → *following presentation*
3. Download Services
 - *“enabling copies of spatial data sets, or **parts of such sets**, to be downloaded and, where practicable, accessed directly”*
4. Transformation Services
 - *“enabling spatial data sets to be transformed with a view to achieving interoperability”*
 - interpreted as a real-time Coordinate Transformation Service
5. Invoke Spatial Data Services
 - *“allowing spatial data services to be invoked”*
 - **workflow enablement service versus publish-find-bind**

