Implementing INSPIRE - Standards in Practice

Roberto Lucchi

INSPIRE EU directive

- *“The INSPIRE Directive aims to create a European Union spatial data infrastructure for the purposes of EU environmental policies and policies or activities which may have an impact on the environment.”*

- **Implementing rules (transposed to national regulations)**
  - **Metadata**
  - **Network services, SLA**
  - **Spatial data interoperability arrangements (data models)**
  - **Multilingual**

- **Technical guidance: the goal is to prove that implementing rules can be implemented, and provides a “standard-based” baseline for implementing INSPIRE**

INSPIRE technical guidance documents

Component & Requirements	Implementation option
Metadata	ISO 19115/19119/19139
Discovery service	Based on OGC CSW 2.0.2 ISO AP (+ multilingual metadata, additional indexed metadata attributes, …)
Data models	Only GML output encoding is provided
View service	Based on OGC WMS (+ multilingual metadata, …)
	Based on OGC WMTS (+ multilingual metadata, …)
Download service	Based on OGC WFS 2 and INSPIRE GML schemas
	Based on ATOM/OpenSearch
Service Level Agreement	High availability, response time, minimum capacity

ArcGIS for INSPIRE

Enabling users to achieve both immediate and long term INSPIRE goals

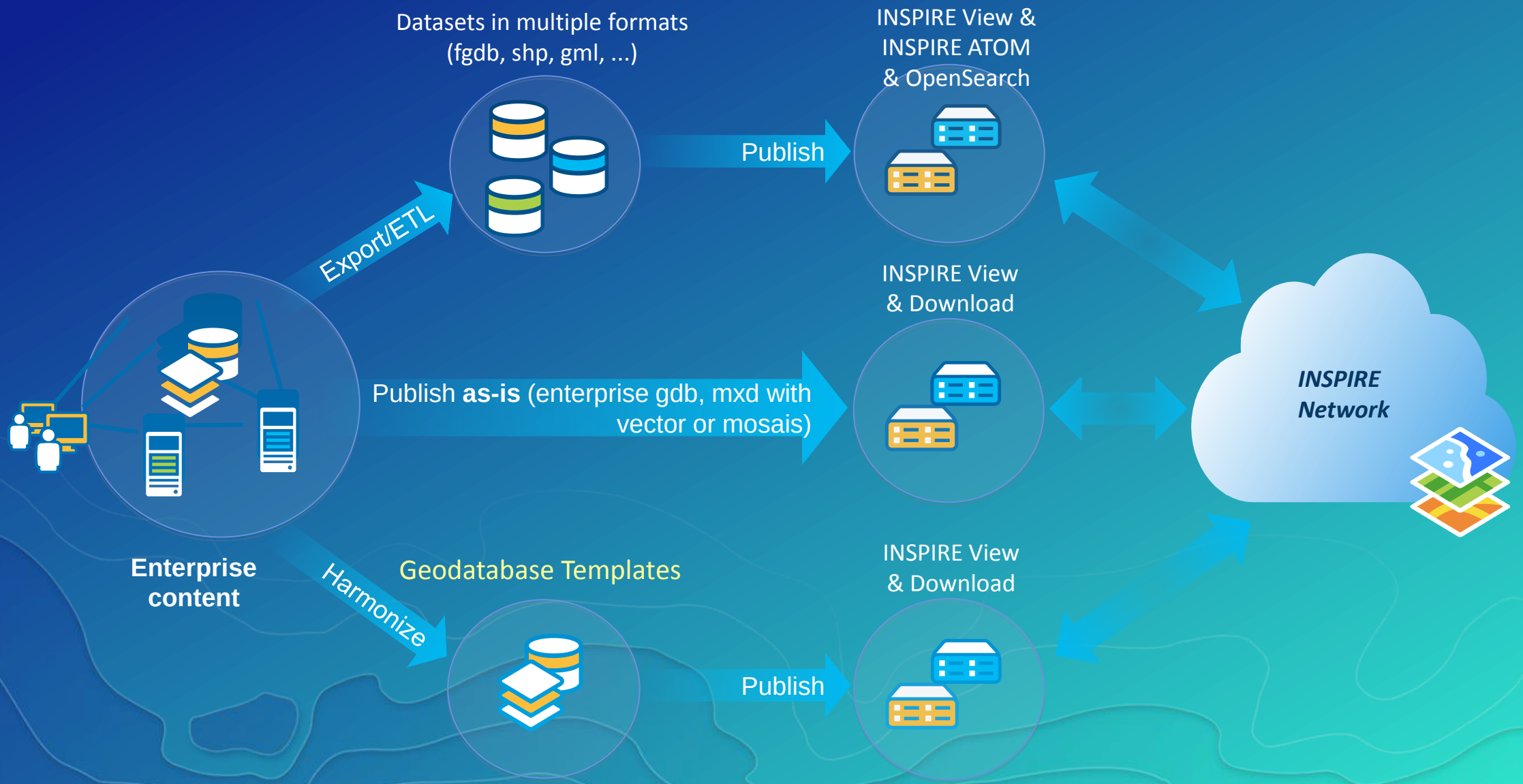
INSPIRE-compliant View, Discovery and Download services

Data models for 18 key themes

ArcGIS for INSPIRE implements technical guidance documents

Component & Requirements	Implementation option	ArcGIS for INSPIRE
Metadata	ISO 19115/19119/19139	X
Discovery service	Based on OGC CSW 2.0.2 ISO AP (+ multilingual metadata, additional indexed metadata attributes, …)	X
Data models	Only GML output encoding is provided	X
View service	Based on OGC WMS (+ multilingual metadata, …)	X
	Based on OGC WMTS (+ multilingual metadata, …)	X
Download service	Based on OGC WFS 2 and INSPIRE GML schemas	X
	Based on ATOM/OpenSearch	X
Service Level Agreement	High availability, response time, minimum capacity	X

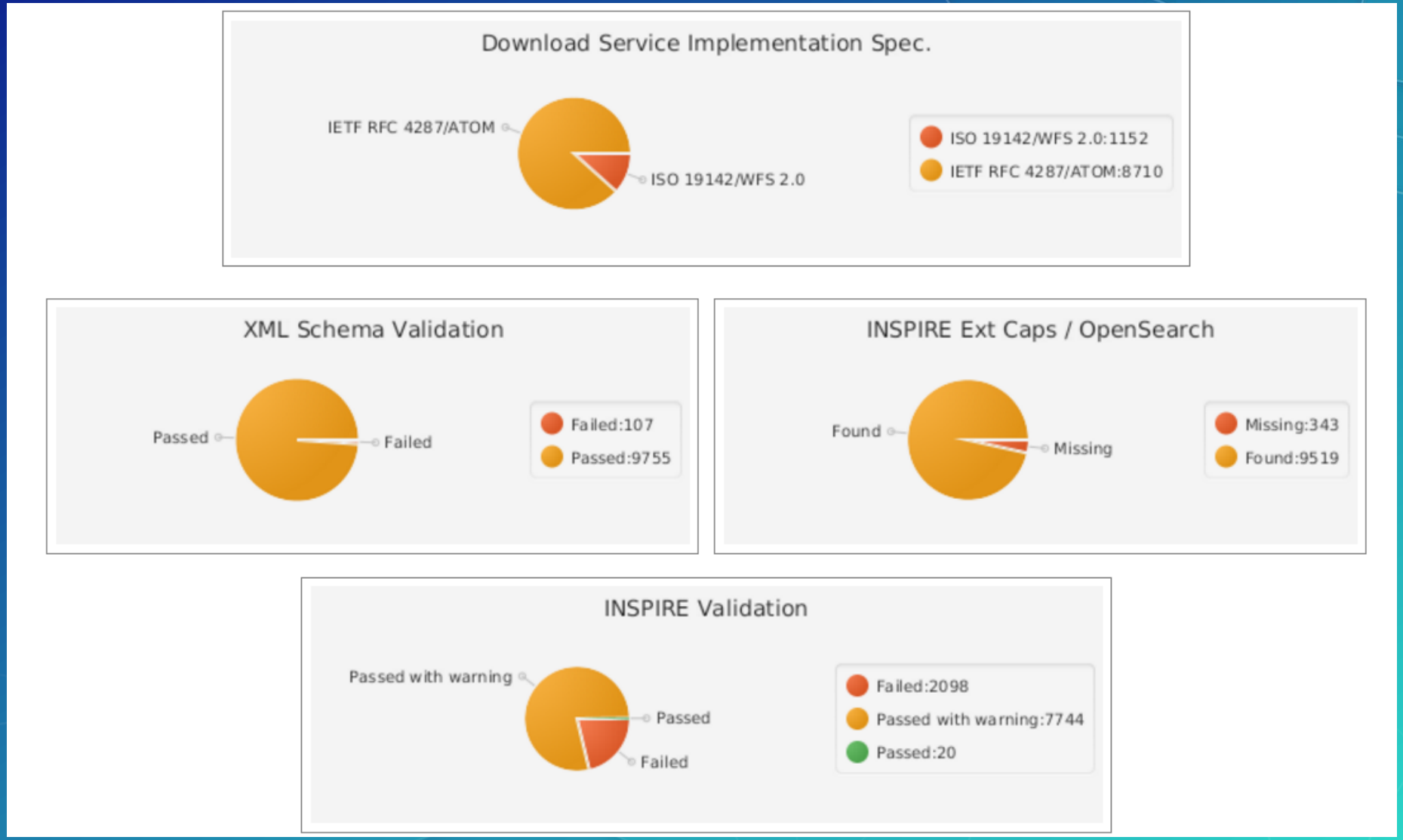
ArcGIS for INSPIRE Implementation Patterns



Annex I	Annex II	Annex III
Coordinate Reference System	Land Cover	Statistical Units
Geographical Grid System	Geology	Land Use
Geographical Names	Elevation	Mineral Resources
Administrative Units	Orthoimagery	Buildings
Addresses		Soil
Cadastral Parcels		Habitats and Biotopes
Transport Networks		Species Distribution
Hydrography		Population Distribution - Demography
Protected Sites		Environmental Monitoring Facilities
		Natural Risk Zones
		Human Health and Safety
		Utility and Governmental Services
		Production and Industrial Facilities
		Agricultural and Aquacultural Facilities
		Area Managements/Restriction/Regulation Zones and Reporting Units
		Atmospheric Conditions, Meteorological Geographical Features
		Oceanographic Geographical Features
		Sea Regions
		Bio-geographical Regions
		Energy Resources

Additional geodatabase templates at each release

Expectations: is compliance enough? What are the right metrics?



Can you make this real?

14 INSPIRE Themes for Global Sustainable Development Goals

- **GIM International on “14 INSPIRE Themes for Global Sustainable Development Goals”**
  - http://bit.ly/2aNrhnv

It is time to shift emphasis to “adoption” and “use”

Source: GIM International, Issue 9, Volume 30, September 2016

ATOM/OpenSearch and WFS implementation options

ATOM was introduced to respond to users asking for simpler and more modern ways of sharing data

- **WFS output are GML only, can be queried – using INSPIRE GML schema**

- **ATOM/OpenSearch is usually implemented with more output formats**
  - **Allowed outputs:**
    - **GML**
    - **KML**
    - **SHP**
    - **FGDB**
    - **…**

5.2.5 Dataset Feed: guidance on media types

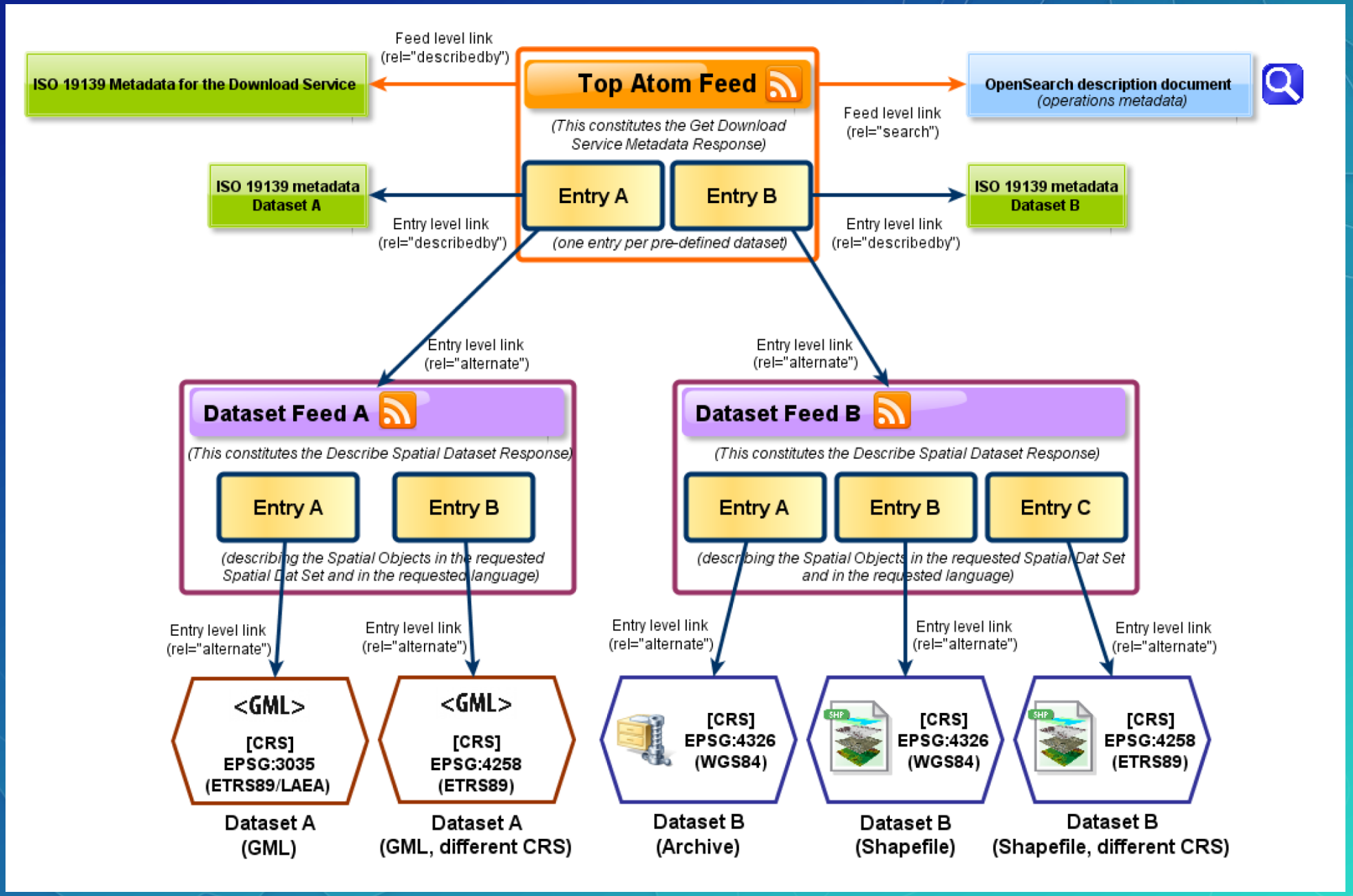
The media type of a spatial data file referenced in a (atom) link shall be indicated in the type attribute of the link (as per TG Requirement 30).

To facilitate interoperability in INSPIRE, only media types listed in the INSPIRE media type registry shall be used. This registry will be maintained at the following URI:

http://inspire.ec.europa.eu/media-types

TG Requirement 34	Only media types listed in the INSPIRE media-types register shall be used.

Output files could also be generated out of service requests


ISO 19139 Metadata for the Download Service
Feed level link
(rel="describedby")
Top Atom Feed
(This constitutes the Get Download Service Metadata Response)
Feed level link
(rel="search")
OpenSearch description document
(operations metadata)
ISO 19139 metadata
Dataset A
Entry level link
(rel="describedby")
Entry A
Entry B
(one entry per pre-defined dataset)
Entry level link
(rel="describedby")
ISO 19139 metadata
Dataset B
Entry level link
(rel="alternate")
Entry level link
(rel="alternate")
Dataset Feed A
(This constitutes the Describe Spatial Dataset Response)
Entry A
Entry B
(describing the Spatial Objects in the requested Spatial Dat Set and in the requested language)
Dataset Feed B
(This constitutes the Describe Spatial Dataset Response)
Entry A
Entry B
Entry C
(describing the Spatial Objects in the requested Spatial Dat Set and in the requested language)
Entry level link
(rel="alternate")
Entry level link
(rel="alternate")
Entry level link
(rel="alternate")
Entry level link
(rel="alternate")
Entry level link
(rel="alternate")
<GML>
[CRS]
EPSG:3035
(ETRS89/LAEA)
<GML>
[CRS]
EPSG:4258
(ETRS89)
[CRS]
EPSG:4326
(WGS84)
[CRS]
EPSG:4326
(WGS84)
[CRS]
EPSG:4258
(ETRS89)
Dataset A
(GML)
Dataset A
(GML, different CRS)
Dataset B
(Archive)
Dataset B
(Shapefile)
Dataset B
(Shapefile, different CRS)


esri
THE
SCIENCE
OF
WHERE