

synergis



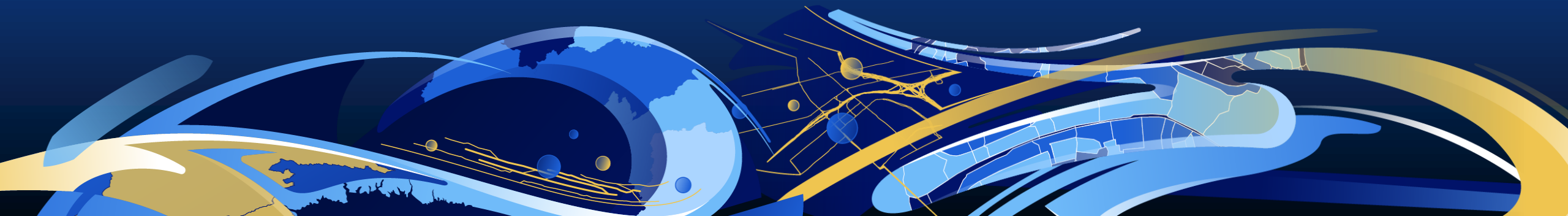
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Distributor

2022 ISO TC 211 Plenary

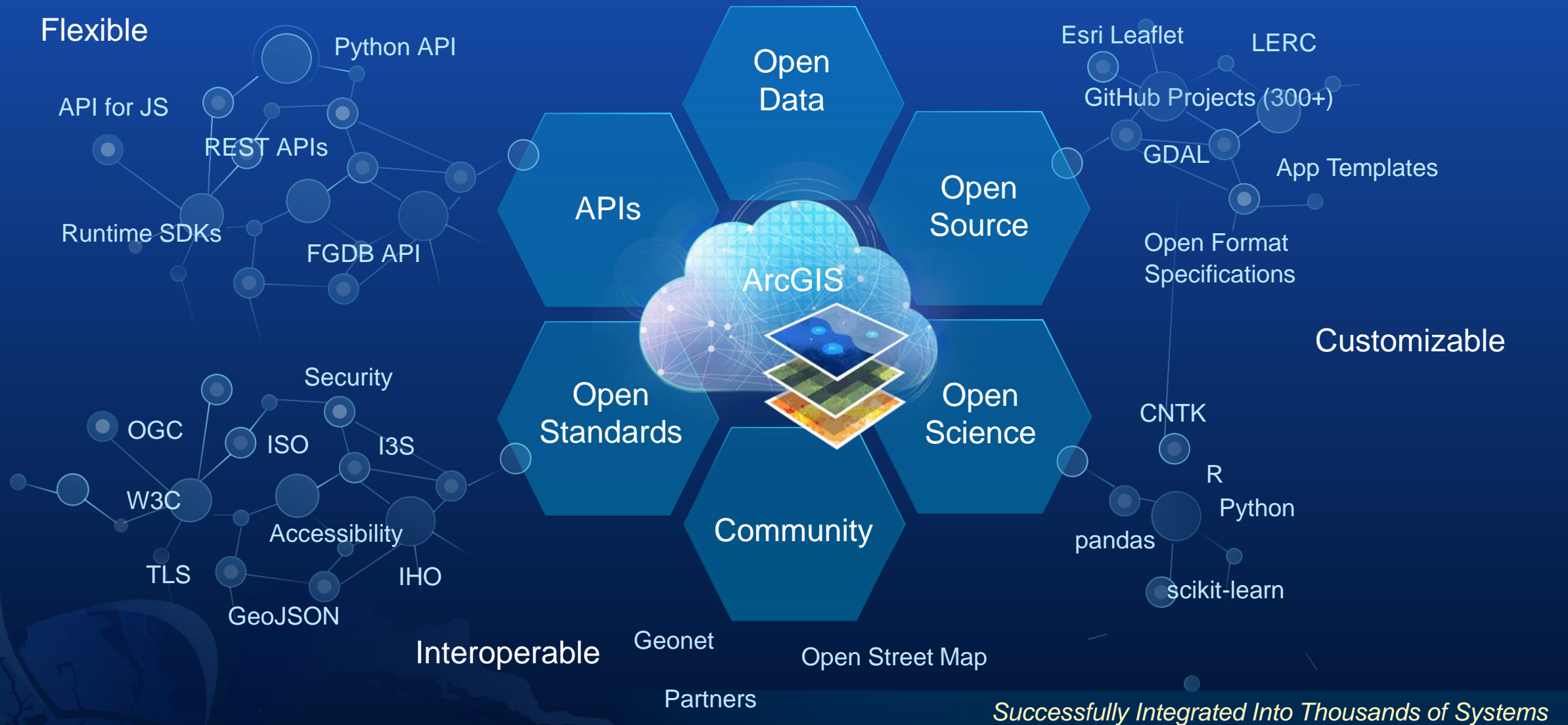
ArcGIS – An Open Platform

Stefan Jaquemar – s.jaquemar@mysynergis.com

Gernot Tutsch – g.tutsch@mysynergis.com

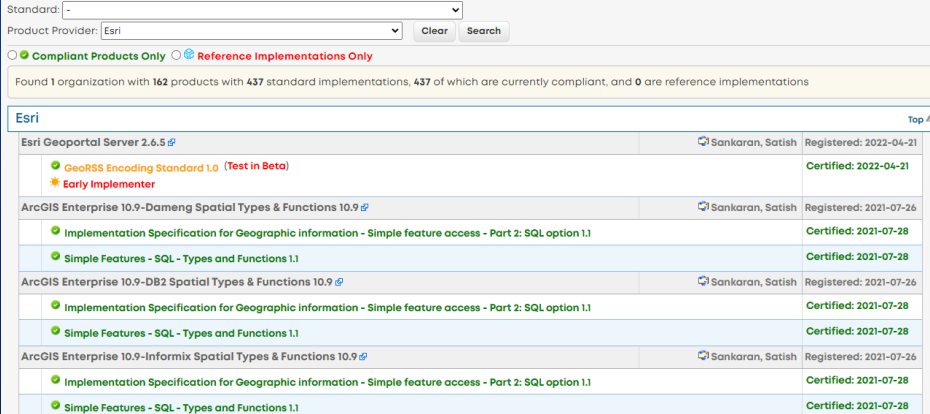


ArcGIS Is an Open Platform



Esri is playing an active role in ISO and OGC

- Active Membership in
 - ISO/TC 211 - International Organization for Standardization Technical Committee 211
 - OGC - Open Geospatial Consortium
 - W3C - World Wide Web Consortium
 - IHO - International Hydrographic Organization
- ArcGIS Product Suite has a long list of OGC certifications
 - 162 products
 - 437 standards implementations – 437 are currently compliant
 - 1st compliance certification – 23.12.1999
 - https://www.ogc.org/resource/products?display_opt=3&org_match=Esri



Standard: -	Product Provider: Esri	Clear	Search
<input type="radio"/> Compliant Products Only <input type="radio"/> Reference Implementations Only			
Found 1 organization with 162 products with 437 standard implementations, 437 of which are currently compliant, and 0 are reference implementations			
Esri			
Esri Geoportal Server 2.6.5	Sankaran, Satish	Registered: 2022-04-21	
GeoRSS Encoding Standard 1.0 (Test in Beta)		Certified: 2022-04-21	Early Implementer
ArcGIS Enterprise 10.9-Dameng Spatial Types & Functions 10.9	Sankaran, Satish	Registered: 2021-07-26	
Implementation Specification for Geographic Information - Simple feature access - Part 2: SQL option 1.1		Certified: 2021-07-28	
Simple Features - SQL - Types and Functions 1.1		Certified: 2021-07-28	
ArcGIS Enterprise 10.9-DB2 Spatial Types & Functions 10.9	Sankaran, Satish	Registered: 2021-07-26	
Implementation Specification for Geographic Information - Simple feature access - Part 2: SQL option 1.1		Certified: 2021-07-28	
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ArcGIS Enterprise 10.9-Informix Spatial Types & Functions 10.9	Sankaran, Satish	Registered: 2021-07-26	
Implementation Specification for Geographic Information - Simple feature access - Part 2: SQL option 1.1		Certified: 2021-07-28	
Simple Features - SQL - Types and Functions 1.1		Certified: 2021-07-28	

Open Standards across the ArcGIS system

DOMAIN DATA MODELS

ISO LADM, ...
IHO S-57 / S-100 series
INSPIRE
FGDC
NENA
...

METADATA

ISO 19115 / 19139
FGDC CSDGM
INSPIRE
North Am. Profile
Dublin Core
...

WEB SERVICES/APIs

GeoServices REST
ISO/OGC WFS, WMS,
WMTS...
OGC API Features, Tiles,...
I3S
...

SECURITY

Data Sovereignty
Trust
Identity
...

ENCODINGS

JSON
XML
GML
RDF
...

CATALOG & SEARCH

DCAT
DCAT-AP
SEO practices
CSW
...

ACCESSIBILITY

WCAG
W3C
...



Data & Metadata



Web Services &
Metadata



Work with
Partners



Open &
Private Data



Hub Sites &
Catalog



Maps &
Apps

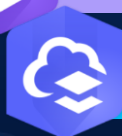
produce → *publish* → *collaborate* → *share* → *use (& reuse)*



ArcGIS Pro



ArcGIS Enterprise



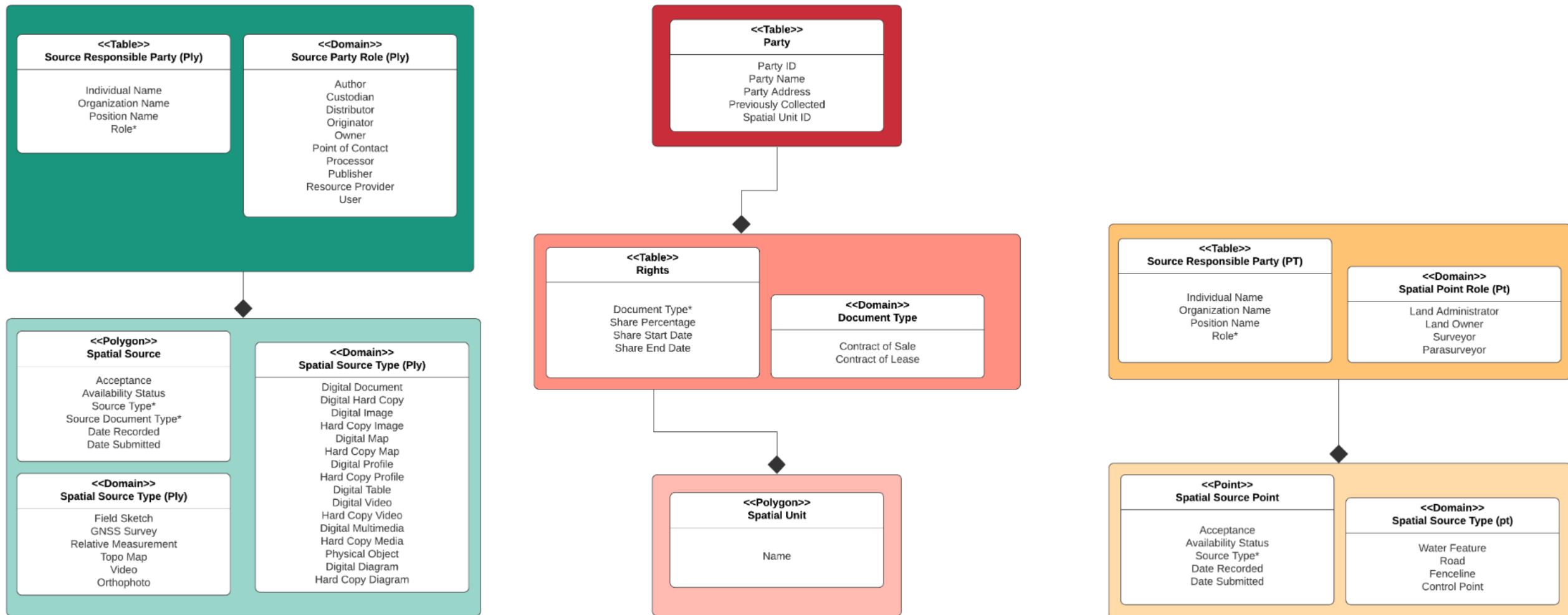
ArcGIS Online



ArcGIS Hub Basic

ArcGIS Hub Premium

ISO LADM Model

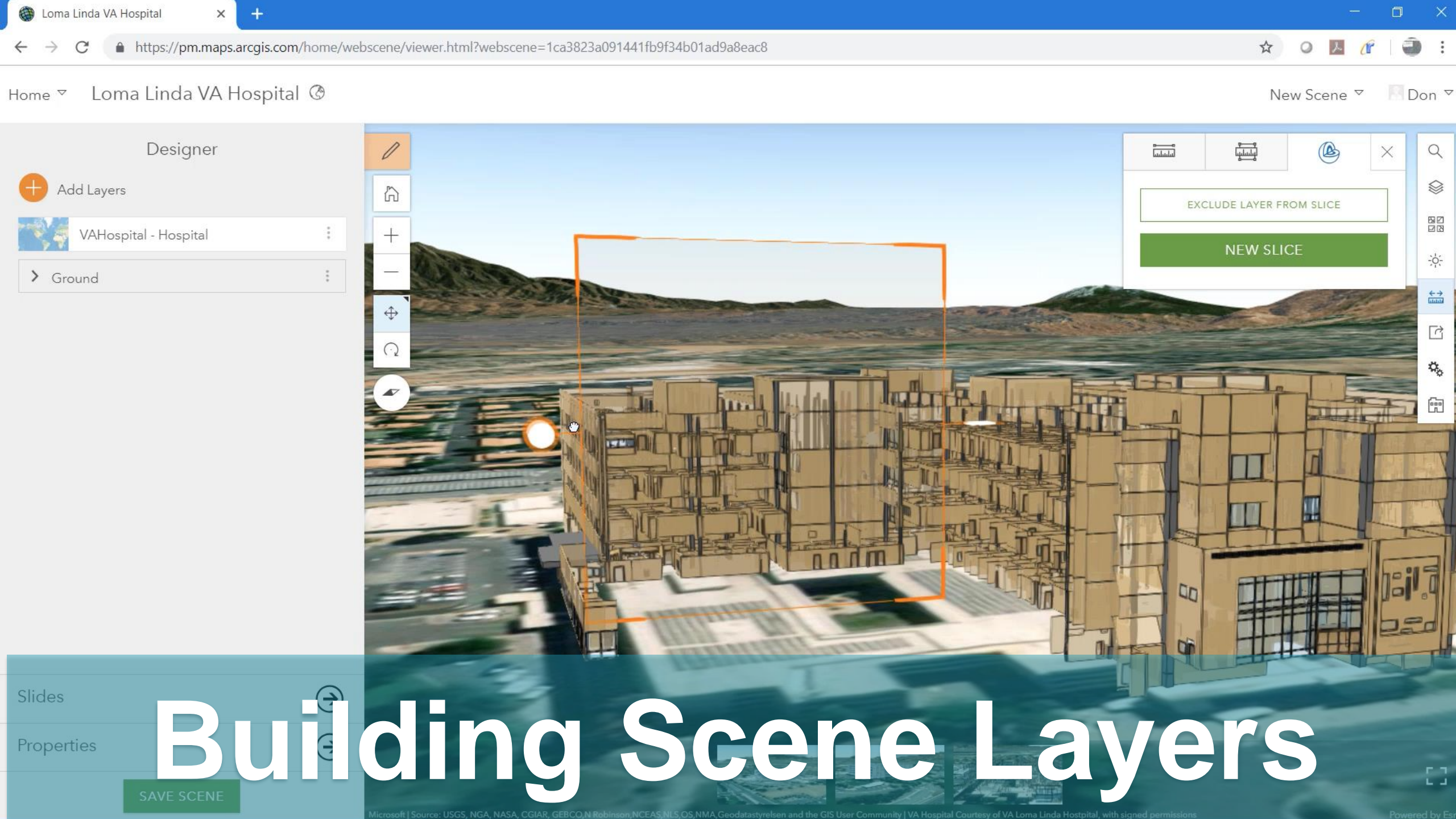


A core LADM implementation.

ISO LADM – Represented as Cadastral Fabric in ArcGIS

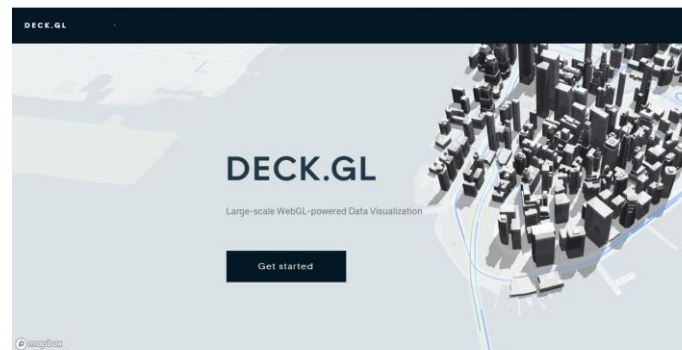
The screenshot displays the ArcGIS interface for representing ISO LADM as a Cadastral Fabric. The interface is divided into several sections:

- Layer List:** Located at the top left, it shows the following layers:
 - Land Administration Parcels of Rotterdam NL_demo
 - Connection Lines
 - SpatialUnit Lines
 - SpatialUnit
- Legend:** Located on the left side, it lists the following items:
 - ☒ Spatial Source Pt
 - ☒ Spatial Source
 - ☒ Spatial Unit
 - ☒ World Topographic Map
 - ☒ World Hillshade
 - Standalone Tables**
 - ☒ Rights
 - ☒ Party
 - ☒ Source Pt Party
 - ☒ Source Party
- Map Views:** The main map area is divided into two sections:
 - Top Map:** A cadastral fabric overlay on a topographic map, showing land parcels and boundaries. It is labeled with "3 Spatial Unit".
 - Bottom Map:** A topographic map showing a river, roads, and a village. It is labeled with "3 Spatial Source Point" and "3 Spatial Source".



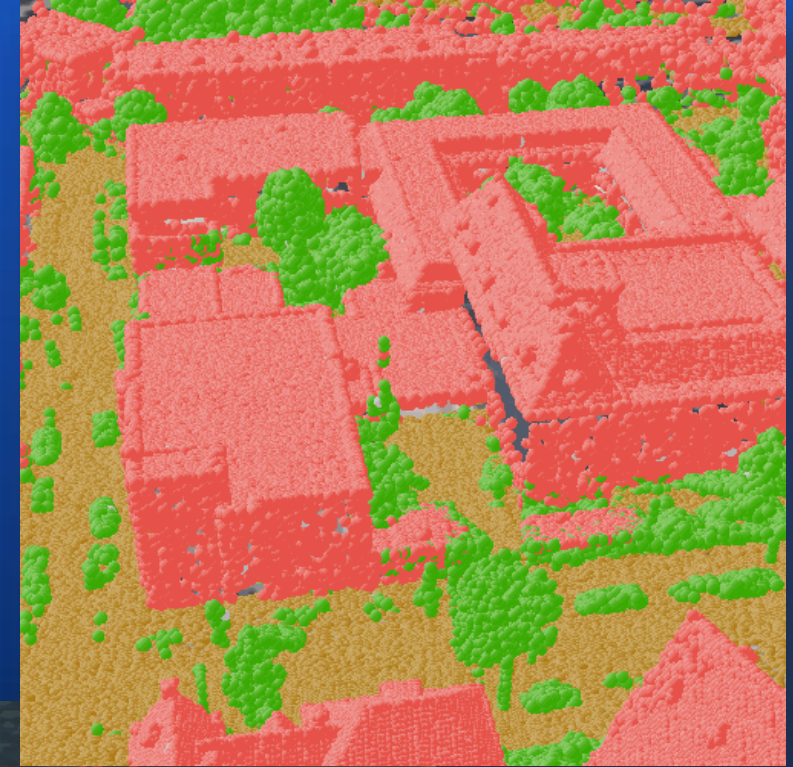
Building Scene Layers

Content Providers Generating/Using I3S content



I3S – AI and Deep Learning....

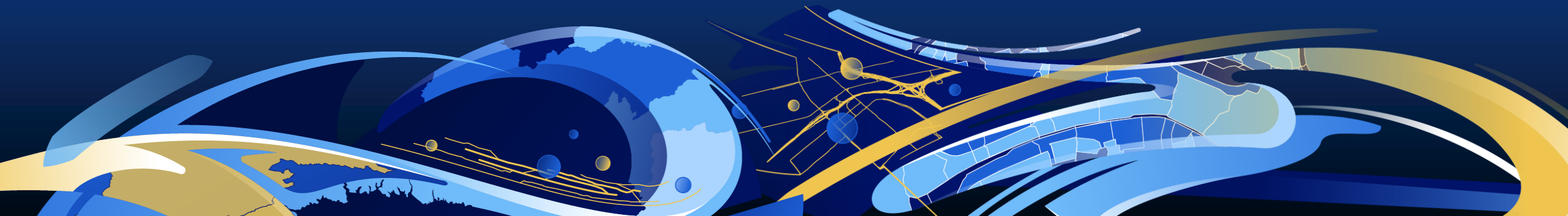
- Currently Esri is heavily investing in R&D of AI and Deep Learning in GIS context
 - Automatic mesh segmentation of an Integrated Mesh Layer
 - Point cloud classification
 - ...
- Provide tooling to create training datasets..
- Plug in GIS content easily into deep learning networks - TensorFlow or Pytorch frameworks



Action – Pluvial Flooding Information System

Stefan Jaquemar – s.jaquemar@mysynergis.com

Gernot Tutsch – g.tutsch@mysynergis.com



Pluvial Flooding Information for Upper Austria

- **Regional Government of Upper Austria**
 - DORIS - GIS department
- **EPZ - Elementarschaden Präventionszentrum**
 - Center for Disaster Prevention
 - The EPZ addresses all meteorological natural hazards with a primary focus on hail and flash flooding in terms of prevention.



Flash Floods - Pluvial Flooding

Surface Runoff

- **Pluvial Flooding / Flash Floods**
 - Also known as *surface runoff* is the flow of water occurring on the ground surface when excess rainwater, stormwater, meltwater, or other sources, can no longer sufficiently rapidly infiltrate in the soil.
 - To be distinguished from fluvial and coastal flooding



<https://www.land-oberoesterreich.gv.at/261441.htm>

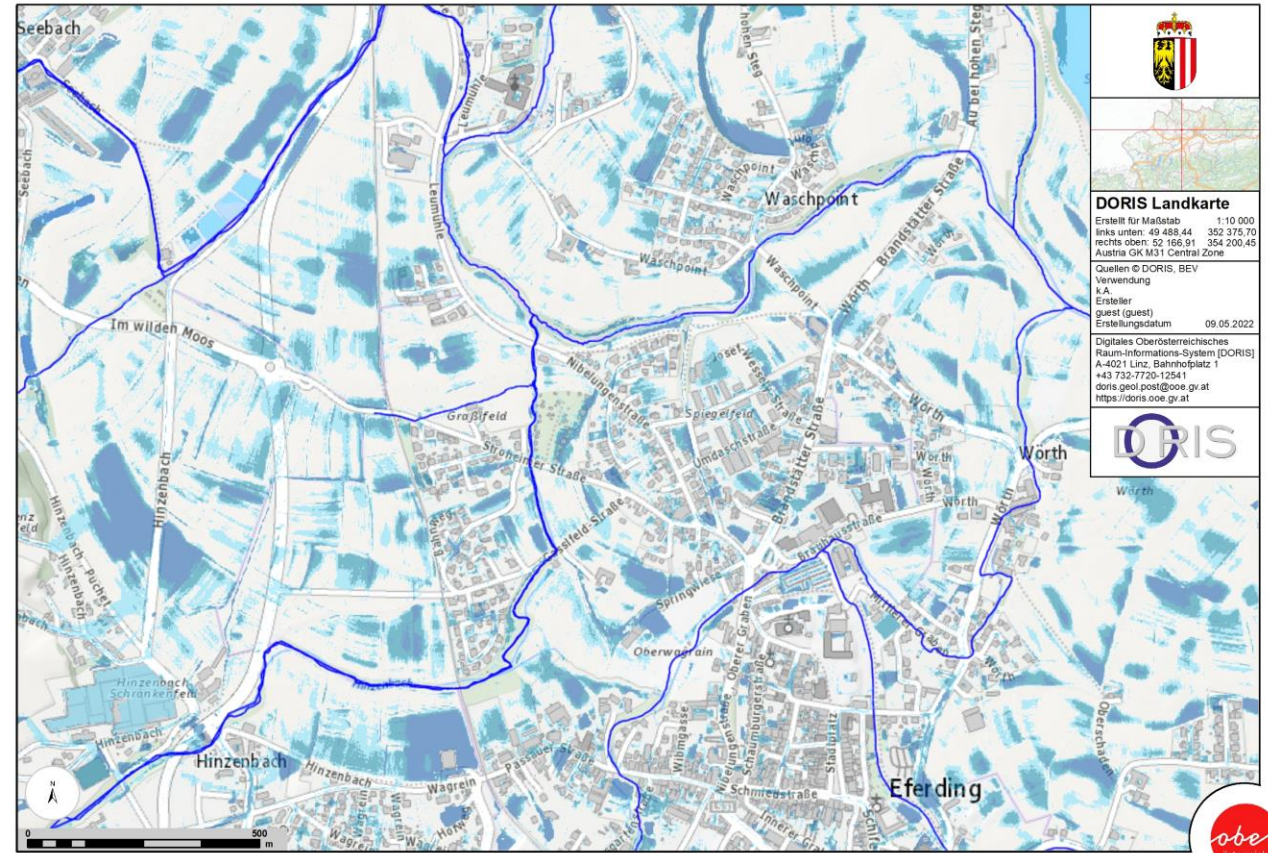
https://en.wikipedia.org/wiki/Surface_runoff

https://en.wikipedia.org/wiki/Urban_flooding

Fluvial Flooding Risk Information Map

a comprehensive and high-resolution map

- **2D hydraulic-model**
- **1m resolution**
- **Areas with increased risk**
- **Basis for urban planing and actions**
- **Interesting data for insurances**
- **Data was creatd by EPZ for the local government with public-private partnership.**



Für die inhaltliche Richtigkeit, Vollständigkeit oder für Fehlerfreiheit der Landkarte schließt das Land Oberösterreich eine Gewähr aus und übernimmt keine Haftung jeglicher Art. Des Weiteren ist die Haftung für Folgeschäden, die aus der unsachgemäßen und falschen Interpretation der Inhalte resultieren, ausgeschlossen.

WMTS based System-Architecture

EPZ - Infrastructure

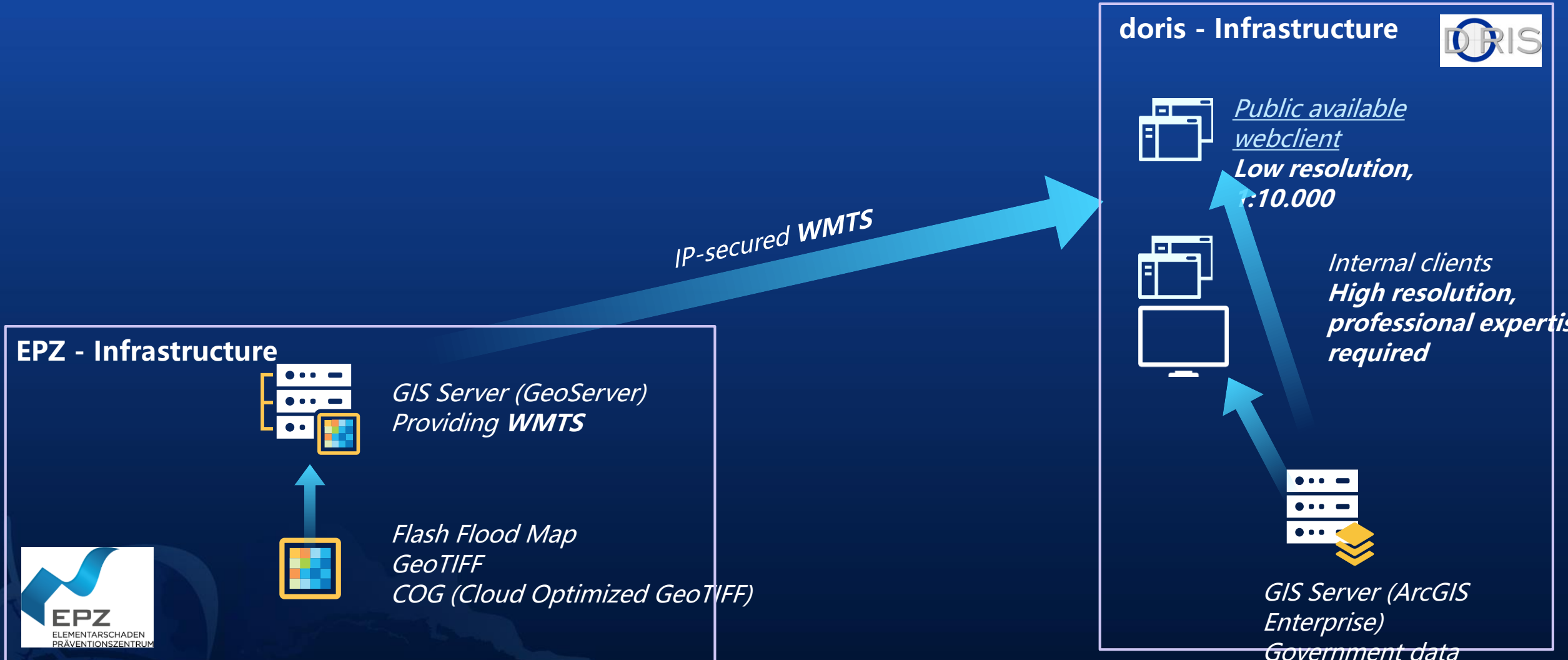


*GIS Server (GeoServer)
Providing **WMTS***

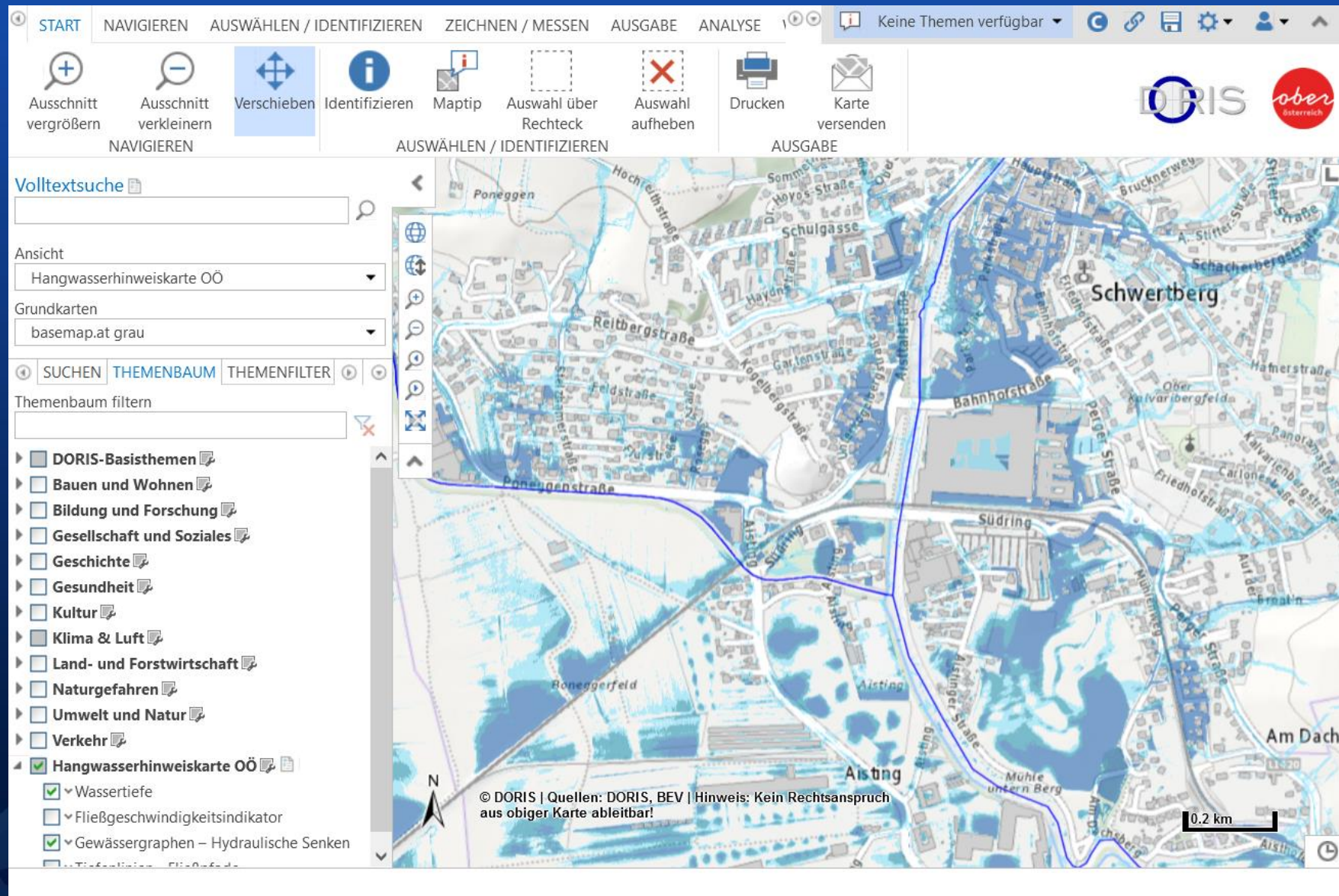
*Flash Flood Map
GeoTIFF
COG (Cloud Optimized GeoTIFF)*



WMTS based System-Architecture



WMTS based System-Architecture



doris - Infrastructure



*Public available
webclient
Low resolution,
1:10.000*

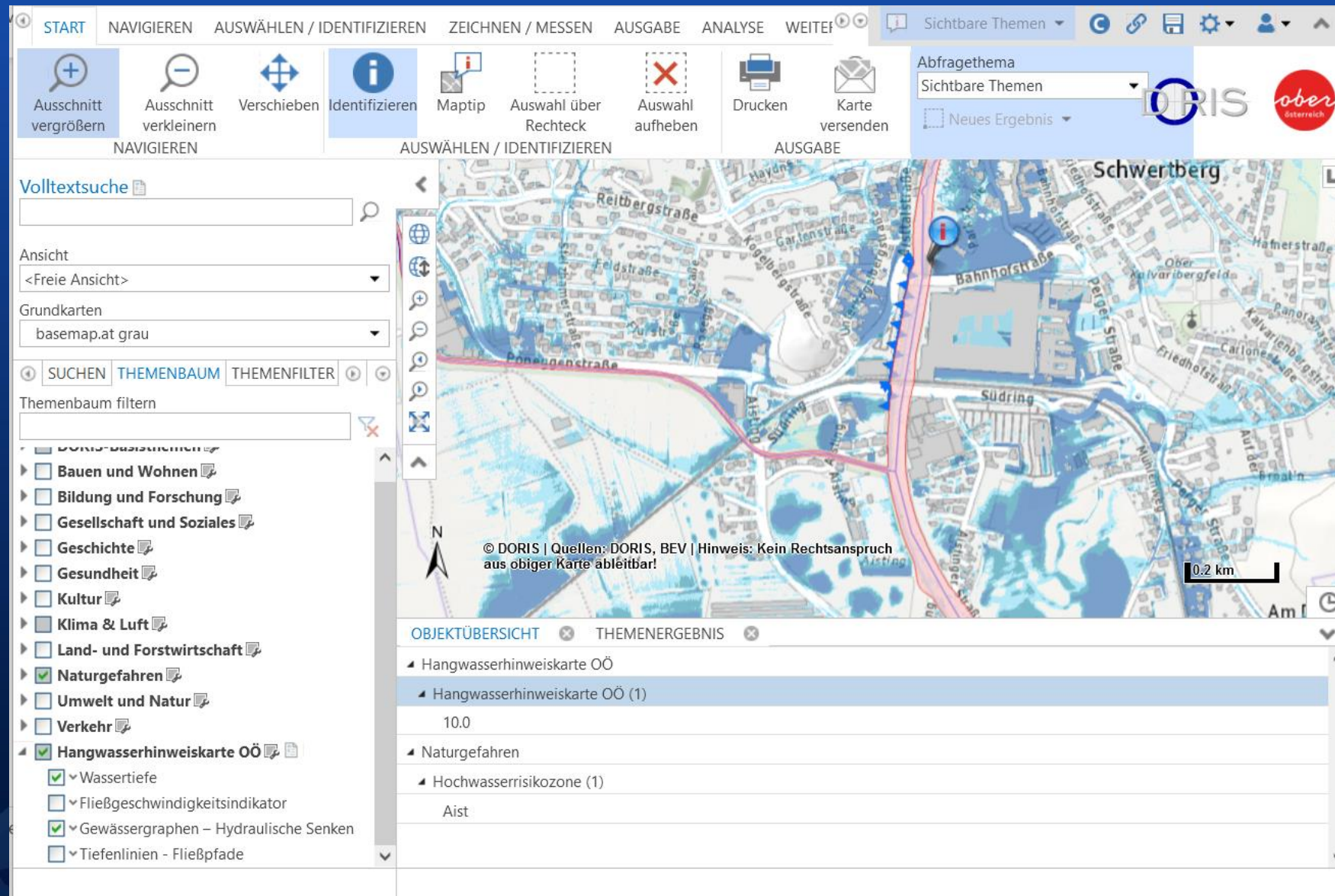


*Internal clients
High resolution,
professional expertise
required*



*GIS Server (ArcGIS
Enterprise)
Government data*

WMTS based System-Architecture



doris - Infrastructure



*Public available
webclient
Low resolution,
1:10.000*



*Internal clients
High resolution,
professional expertise
required*



*GIS Server (ArcGIS
Enterprise)
Government data*

WMTS based System-Architecture

EPZ – Cloud – Infrastructure



*Webclient for Business
Customers
with costs
**High resolution for specific
areas***

***professional expertise
required***

WMTS

*Secure
connection*

EPZ - Infrastructure



*GIS Server (GeoServer)
Providing **WMTS***



*Flash Flood Map
GeoTIFF
COG (Cloud Optimized GeoTIFF)*

IP-secured WMTS

doris - Infrastructure



*Public available
webclient
**Low resolution,
1:10.000***



*Internal clients
**High resolution,
professional expertise
required***



*GIS Server (ArcGIS
Enterprise)
Government data*

