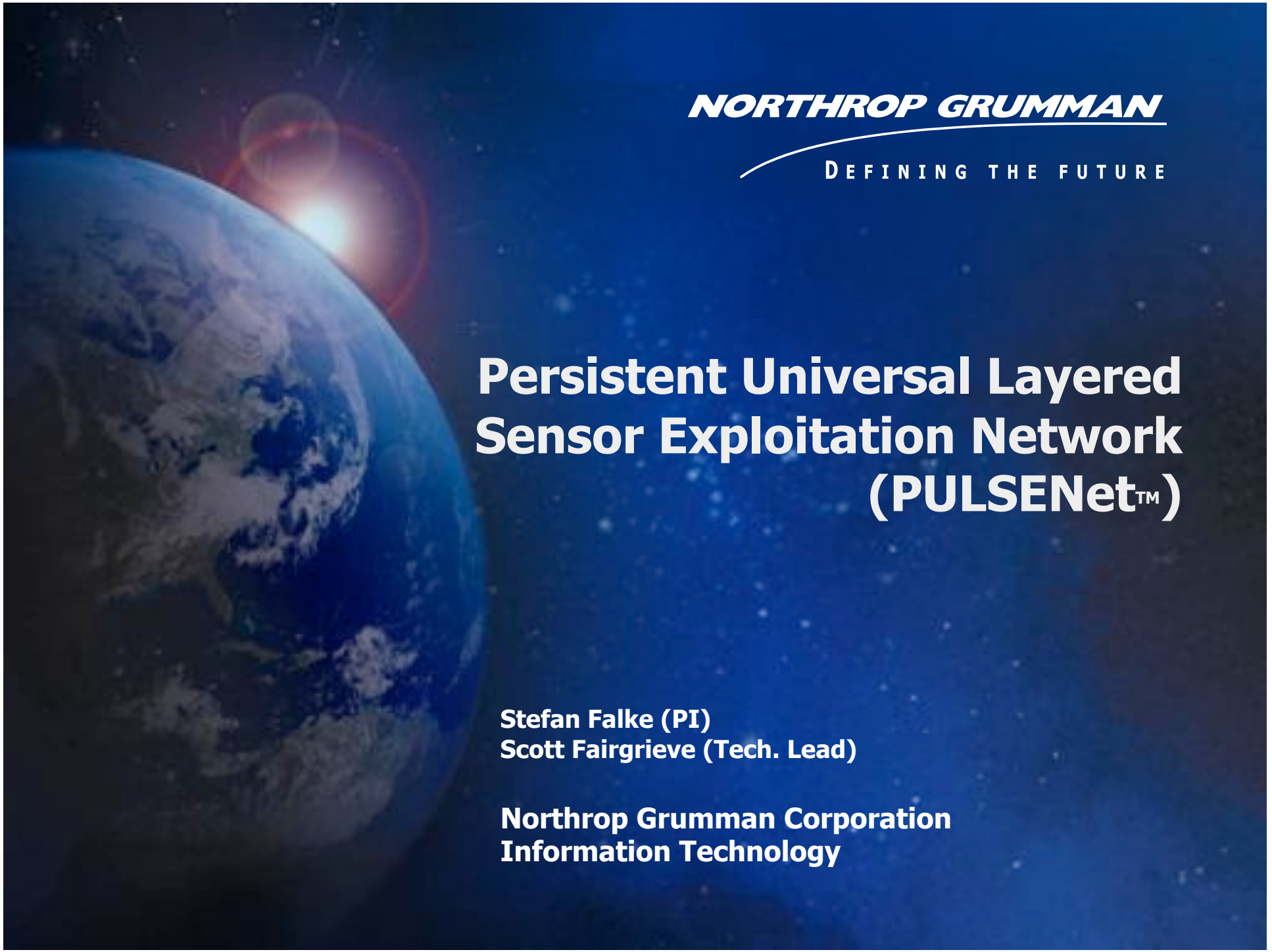


Persistent Universal Layered Sensor Exploitation Network (PULSENet™)

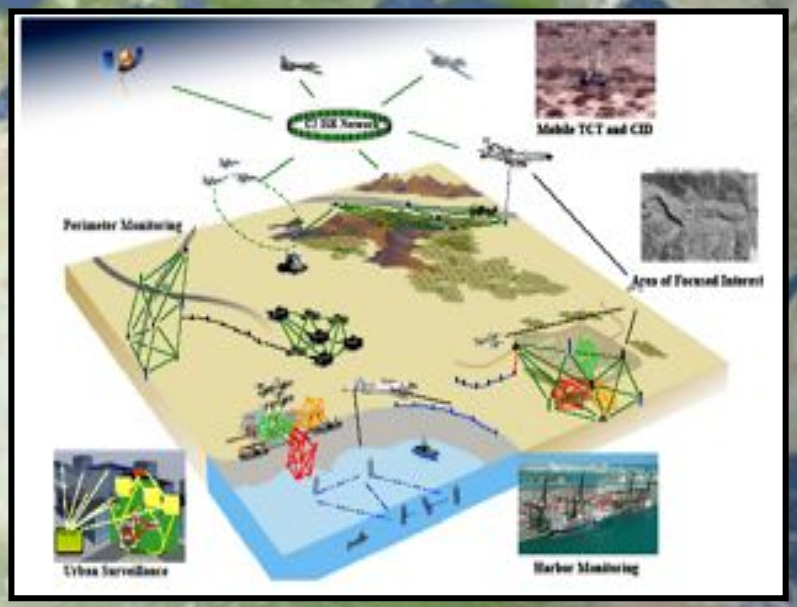
Stefan Falke (PI)
Scott Fairgrieve (Tech. Lead)

Northrop Grumman Corporation
Information Technology

PULSENet: Interoperable Sensor Networks

PULSENet provides a standards-based sensor web framework for discovery, access, display, dissemination and control of widely dispersed and disparate sensor assets and their data.

PULSENet is based on web service architecture principles and Open Geospatial Consortium (OGC) standards.



PULSENet enables:

- Remote discovery of sensors and capabilities
- Access, visualization and analysis of multiple sensor observation sources
- Subscription to desired sensor alerts
- Ability to remotely task sensors
- Working in temporal and geospatial dimensions
- Seamless interfaces to data processing and analysis services
- Integrate sensor observations with forecast modeling and decision support systems

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Supported Standards

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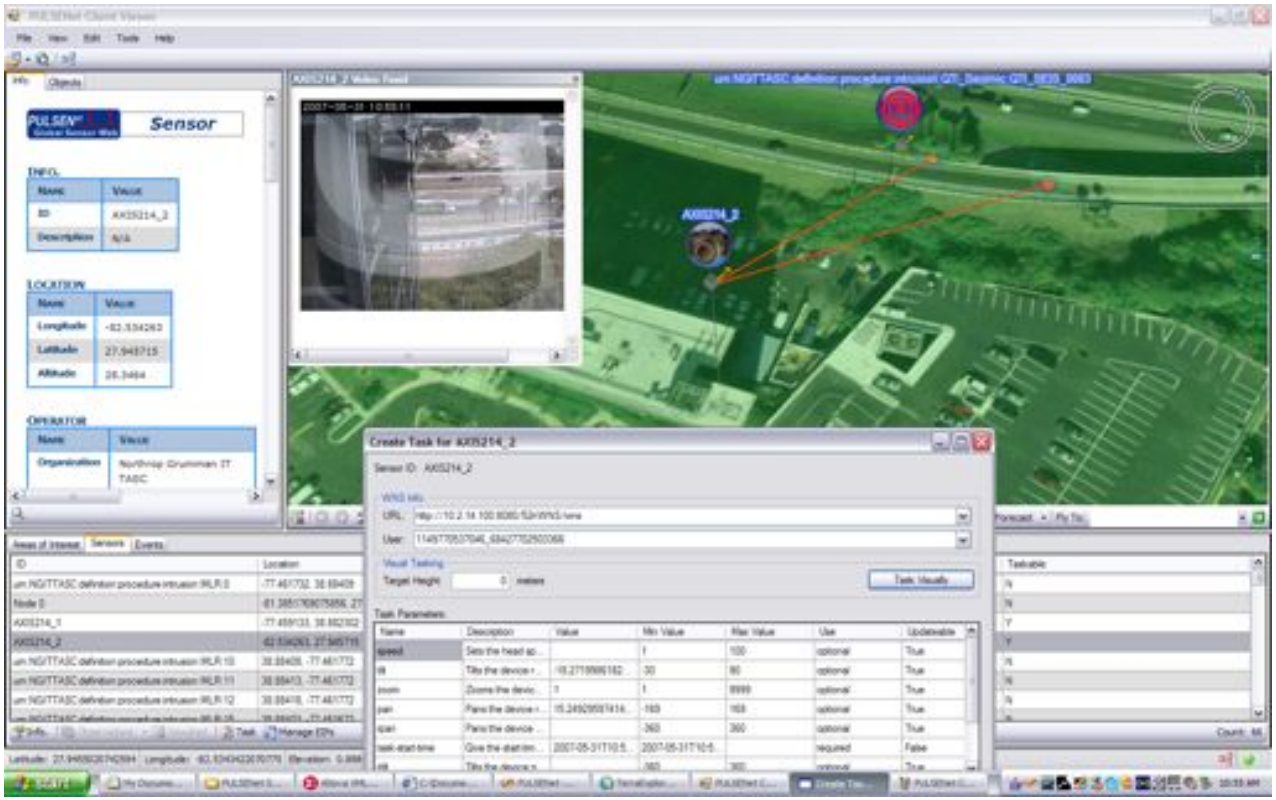
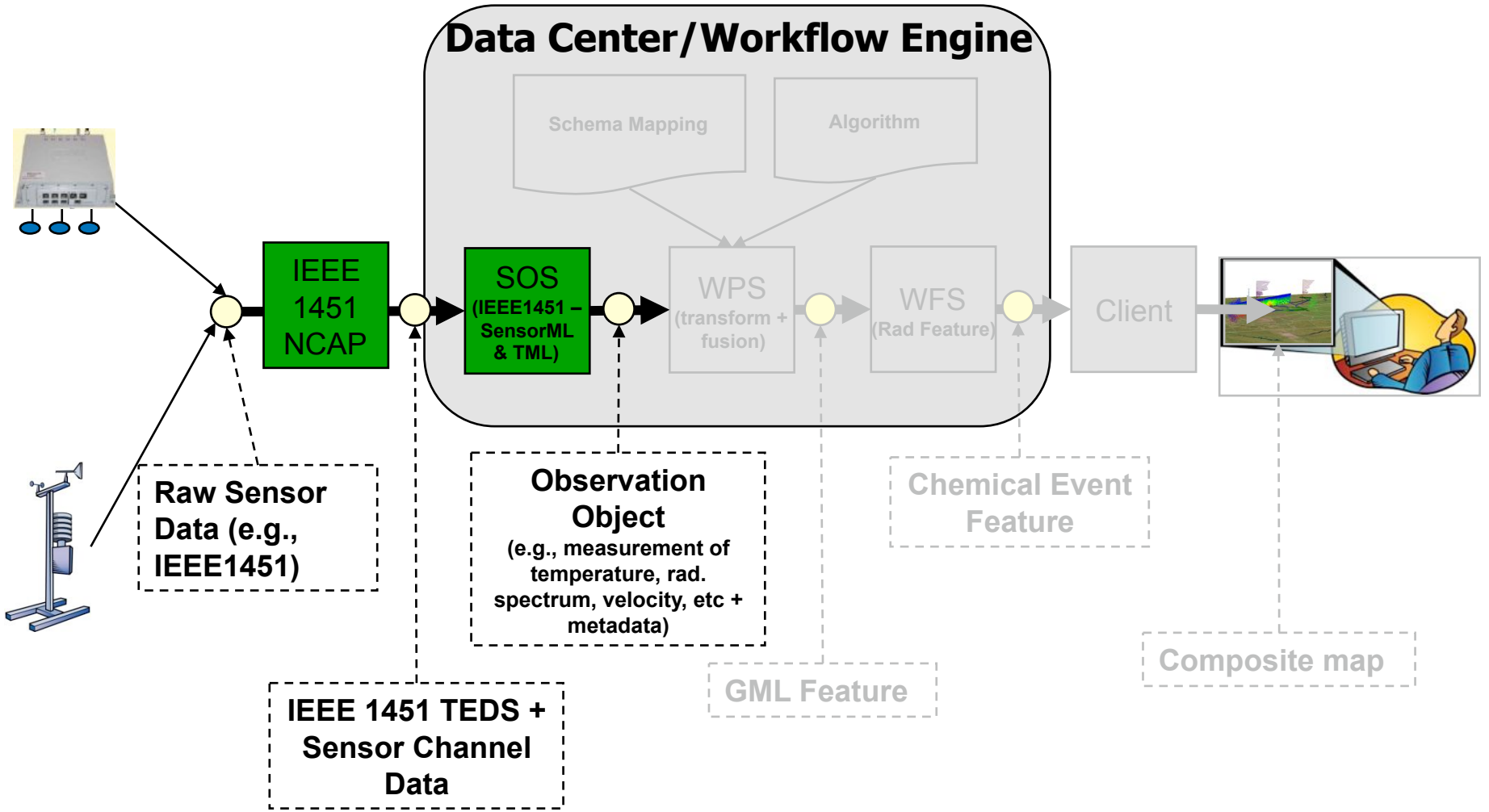
Service/Encoding	Supported Version(s)
SOS	0.0.31, 1.0
SPS	0.0.30, 1.0
SAS	0.2.0, 0.0
WNS	0.1.1, 0.0
WMS	1.1.1
WFS	1.0.0
CS-W	2.0.1
SensorML	1.0.30, 1.0, 1.0.1
O & M	0.11.0, 1.0
TML	1.0
GML	3.11
Common Alerting Protocol (CAP)	1.0, 1.1
Cursor on Target (CoT)	2.0

PULSENet Client Demo

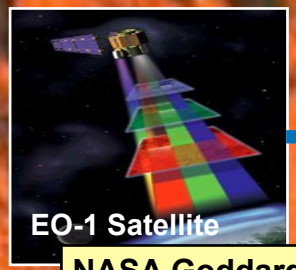


IEEE 1451 & SOS Interoperability



PULSENet:
Essential Data Integrated within a Sensor Web

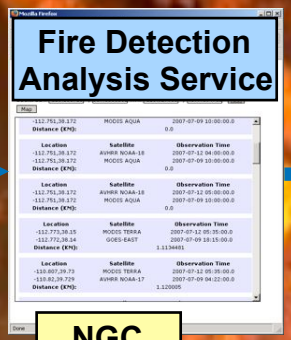
NOAA NESDIS



NASA Goddard

Fire Detections

NASA Ames



NGC

Initiate Model

NGC w/ Forest Service

Re-task Sensors for
- Updated Fires
- Model Validation
- Air Quality Impacts

GeoEnterprise Architecture

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Enterprise Management

Security/Access Control | Governance | Compliance

Enterprise Service Bus | Orchestration/Workflow | Performance Management

Enterprise Applications

Enterprise Services

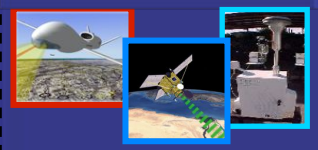
INFORMATION MANAGEMENT SERVICES | DISCOVERY SERVICES | PORTRAYAL SERVICES | PROCESSING SERVICES | APPLICATION SERVICES

Enterprise Information & Data Management

Enterprise Information Exchange

GML | SensorML, O&M,TML | KML | Ontologies | Rules | GeoRSS/RSS

SENSORS



FORECAST MODELS

INTERNAL DATA STORES

Image Libraries | Geospatial Products | Environmental Data | Unstructured Text

SEMANTICALLY ENABLED DATA

Federated Access

EXTERNAL DATA STORES

Other Databases | Libraries | Web Reports

Enterprise Operational Support

PULSENet in GeoEnterprise Architecture

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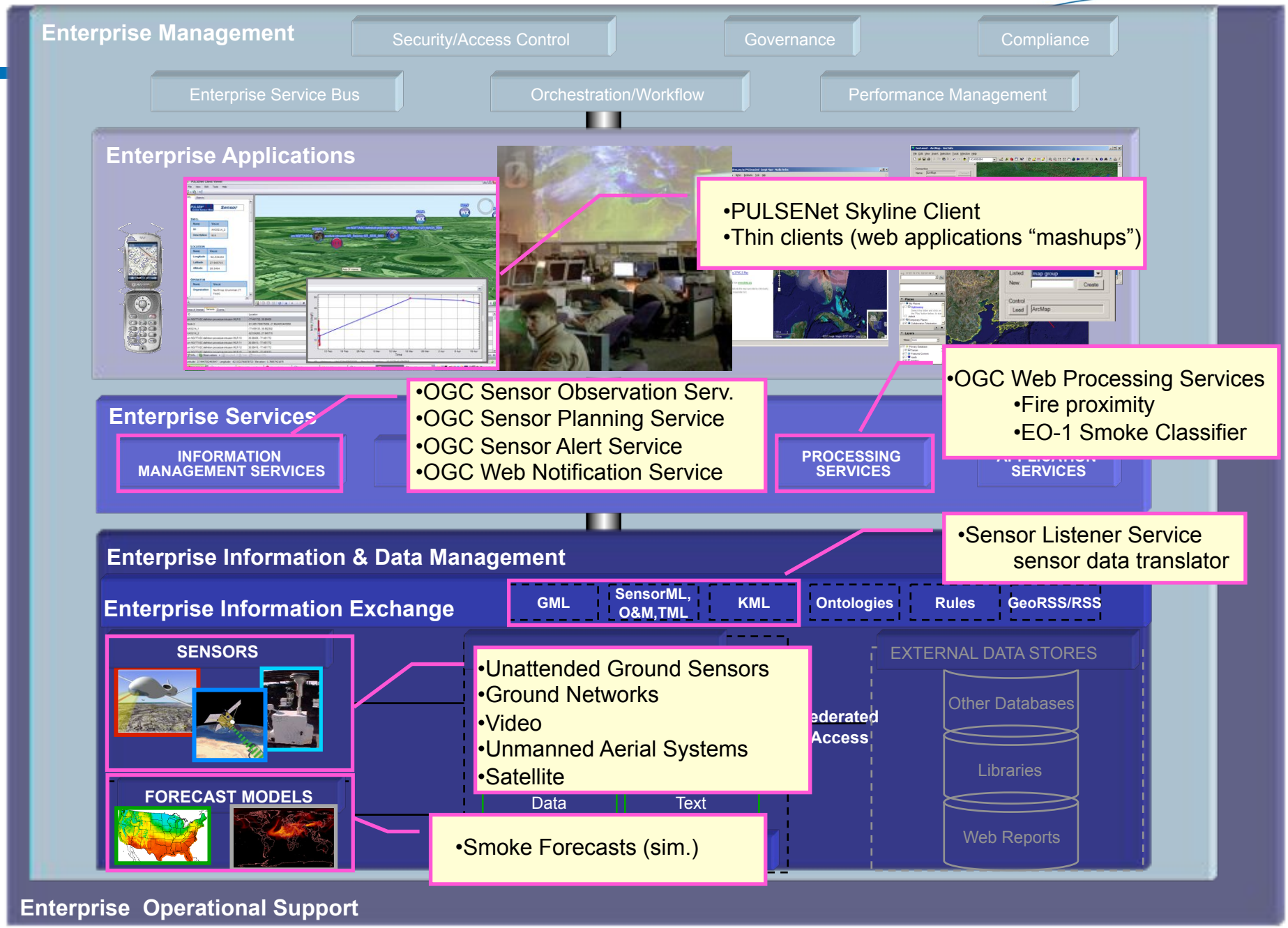


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DEFINING THE FUTURE