



Pushing the Standards Edge: Collaborative Testbeds to Accelerate Standards Development and Implementation

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31 October 2006

OGC – A Snapshot



- Not for profit international standards organization founded in 1994
- Over 330 industry, government and academic members worldwide – 35 countries & 6 continents
- Eighteen approved, publicly available Implementation Specifications implemented in hundreds of products
- 20+ candidate Implementation Specifications in work
- Broad participation with other industry and international standards organizations

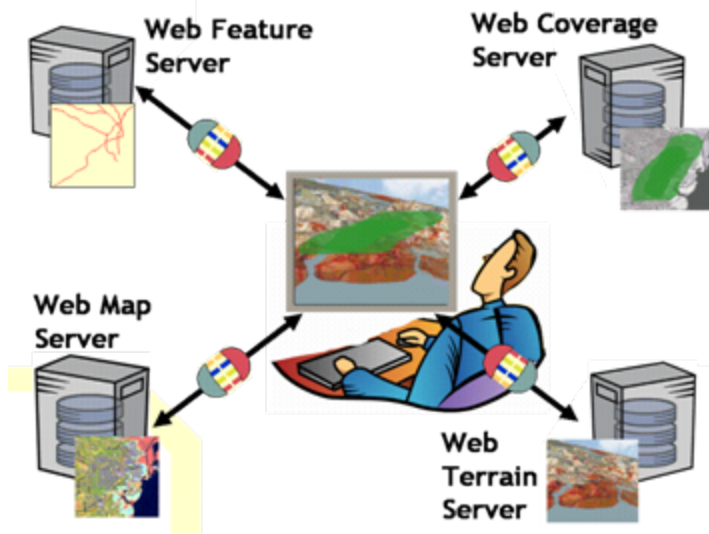
OGC Mission

***To lead in the
development,
promotion and
harmonization of
open spatial
standards***

Enabling a Geospatial Digital “Dial Tone” Across the Enterprise



Just as http:// is the dial tone of the World Wide Web, and html / xml are the standard encodings, **the spatial web** is enabled by OGC standards, such as...



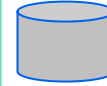
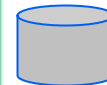
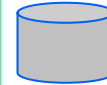
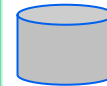
Web Map Service (OGC & ISO)
Style Layer Descriptor (OGC)
Feature Model & GML (OGC & ISO)
Web Feature Service (OGC)
Web Coverage Service (OGC)
Web Map Context (OGC)
Catalogue (OGC)
Metadata (ISO 19115 & OGC)
Others...

Geospatial information (e.g., vector, raster, gridded, and metadata) can be managed through OpenGIS web services in a Web Services context.

What Drives OGC Standards Development?



Tackling major interoperability challenges of next-generation data / service sharing and collaboration....



Developing new specifications for location-based services interoperability and spatially enabling the systems and enterprises

Working across standards consortia to accomplish mission objectives

Extending Our Standards Work To Address:



- Sensors and Sensor Networks
- Digital Rights Management
- Service Chaining
- 3D Visualization
- Location-based Decision Support
- Location Based Services
- AEC / CAD / Geospatial Integration

OGC's Approach for Advancing Interoperability



- **Interoperability Program (IP)** - a global, innovative, hands-on prototyping and testing program designed to accelerate interface development and validation, and bring interoperability to the market
 - Rapid Interface Development**
- **Specification Development Program**
 - Consensus processes similar to other Industry consortia (World Wide Web Consortium, OMA, OMG, etc)
 - Committees Working Groups**
- **Outreach and Community Adoption Program** – education and training, encourage take up of OGC specifications, business development, communications programs
 - Market Adoption**

The OGC Interoperability Program



- A global, collaborative, hands-on engineering, prototyping and testing program started in 1999, designed to rapidly deliver :
 - **candidate specifications** into the Specification Development Process
 - **product implementations** that use these candidate standards
 - **demonstrated capability** achieved through comprehensive testing, validation and public demonstrations
- Sponsors and Participants work together.
 - Sponsors provide requirements, ***use / business cases*** and funding
 - Participants work with sponsors to define and/or refine OGC interface specifications to solve a given interoperability problem



Cooperative Standards Advancement Through Alliances / Partnerships



- World Wide Web Consortium (W3C)
- Digital Geospatial Information Working Group (DGIWG)
- International Organization for Standards (ISO)
- OASIS
- Object Management Group (OMG)
- National Institute of Building Sciences
- Open Mobile Alliance (OMA)
- Web3D
- Simulation Interoperability Standards Organization (SISO)
- International Alliance for Interoperability (IAI)
- IEEE Technical Committee 9 (Sensor Web)
- Open Geospatial Consortium, Inc (OGC)
- Others



CAD / Geospatial / 3D Integration



Open Standards approach to sharing of information and services between AEC / CAD and geospatial technologies

Critical for Urban Planning, Emergency Response, Homeland Security, Defense and Intelligence, site planning, Maintenance, Engineering...

CAD / Geospatial / 3D Integration



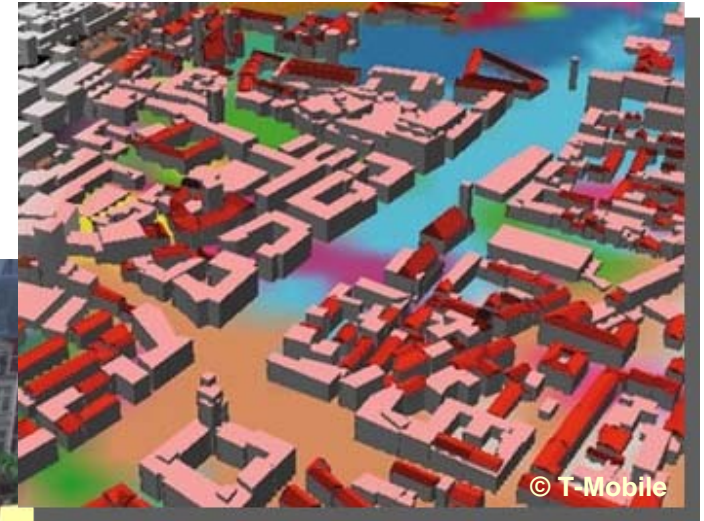
Courtesy Parsons Brinckerhoff



Open Standards approach to sharing of information and services between AEC / CAD and geospatial technologies

Critical for Urban Planning, Emergency Response, Homeland Security, Defense and Intelligence, Maintenance, Engineering...

Virtual 3D City Models Based on CityGML

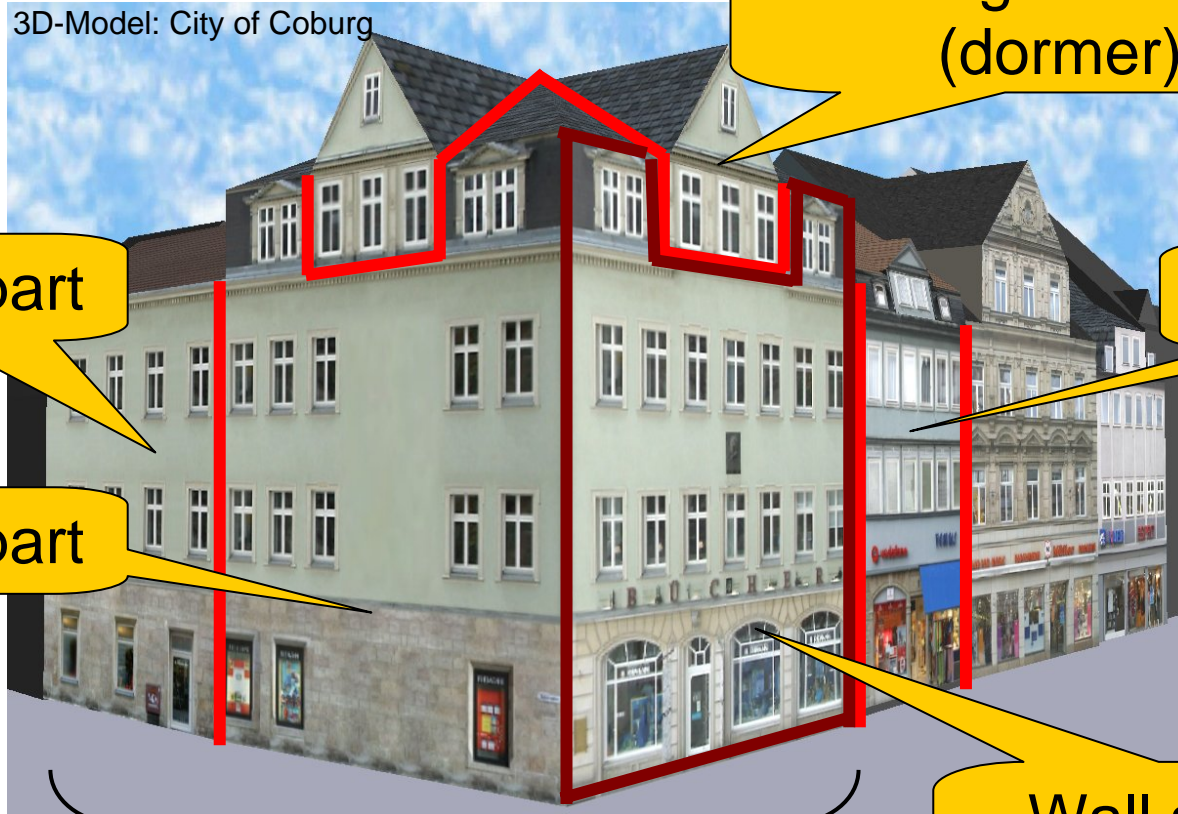


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Coherent spatial / semantic aggregation



3D-Model: City of Coburg



Building installation
(dormer)

Building part

Building

Building part

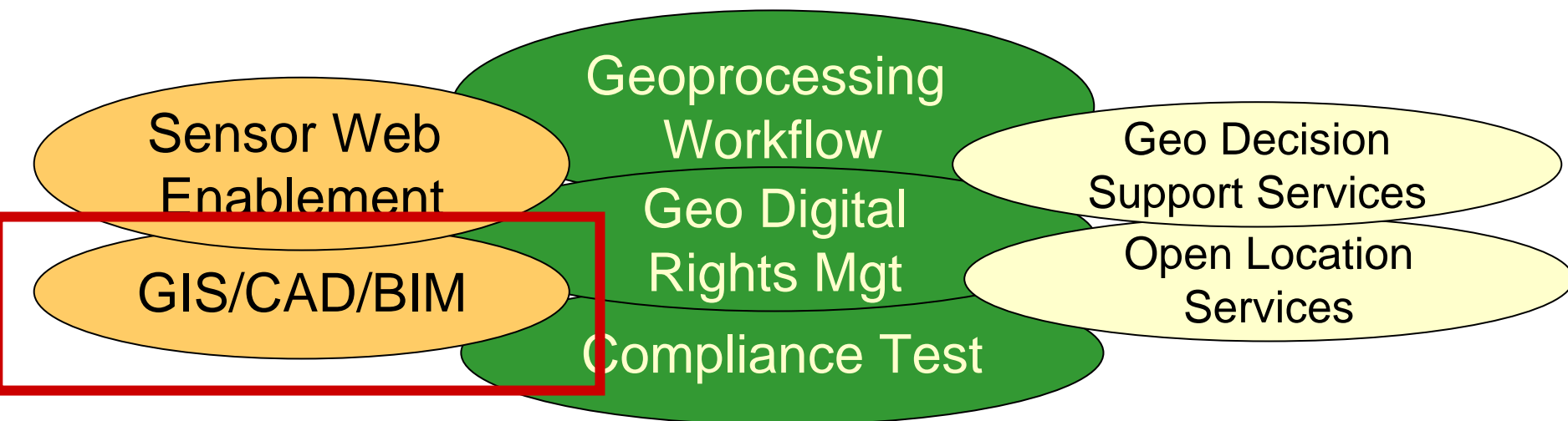
Wall surface
(exterior)

Building

OGC Web Services-Phase 4 (OWS-4) Testbed



- Objective: Collaboratively extend and demonstrate OGC baseline for interoperable, multi-source decision support
- June 2006 to December 2006



- 11 Sponsoring organizations
- 66 Participating organizations
As of September 2006

- Sponsorship total \$1.8M
- Deliverables
 - 56 Component implementations
 - 36 Reports/draft specifications

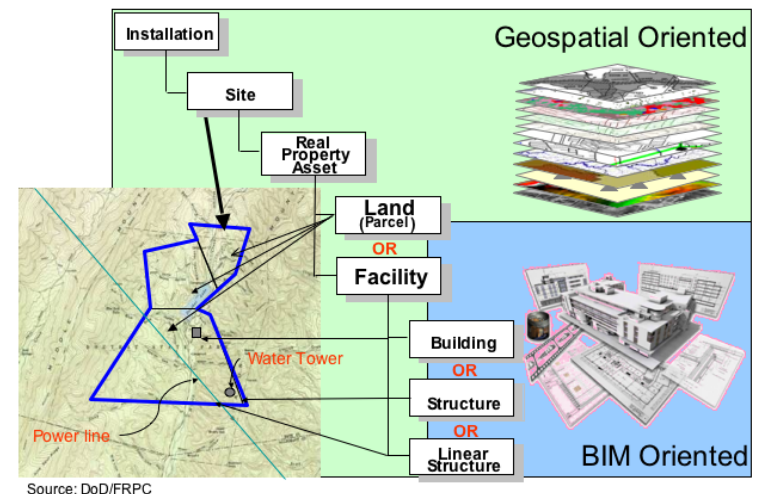
OWS-4 CAD / GIS BIM Integration

BIM In Context for Project Development



AEC Projects will benefit by integrating BIM in geospatial context throughout **project** lifecycle:

- Initial ground condition from OGC Standards Based systems will aid in initial site planning
- Existing and surrounding site buildings may be delivered as CityGML, an XML encoding based on OGC's Geography Markup Language
- Detailed engineering connections and conflicts may be understood and modeled by integration of BIMs of neighboring sites



Source: DoD/FRPC

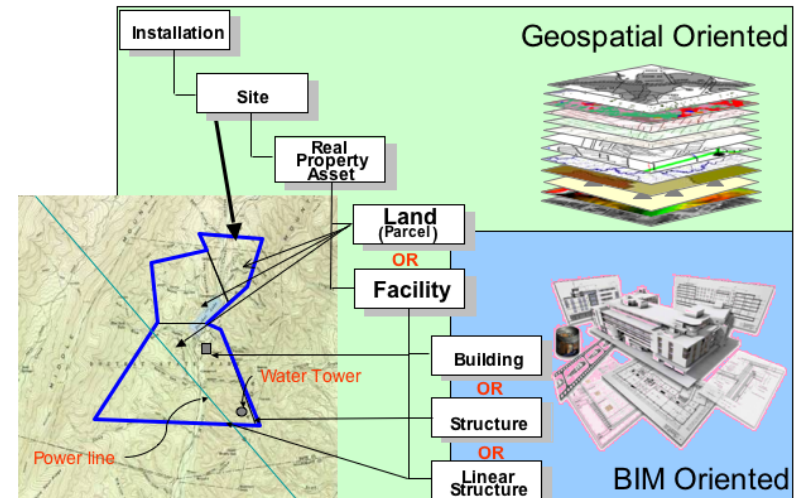
OWS-4 CAD / GIS BIM Integration

BIM In Context for Project Development



Broad-scale assessment will be facilitated by integration of information aggregated from **multiple** BIMs:

- Space Planning
- Facilities Management / Security
- Build-Out Analysis
- Emergency Planning/Management
- Detailed, 4-D Virtual City Application



Source: DoD/FRPC

OWS-4 CAD/GIS/BIM Participants

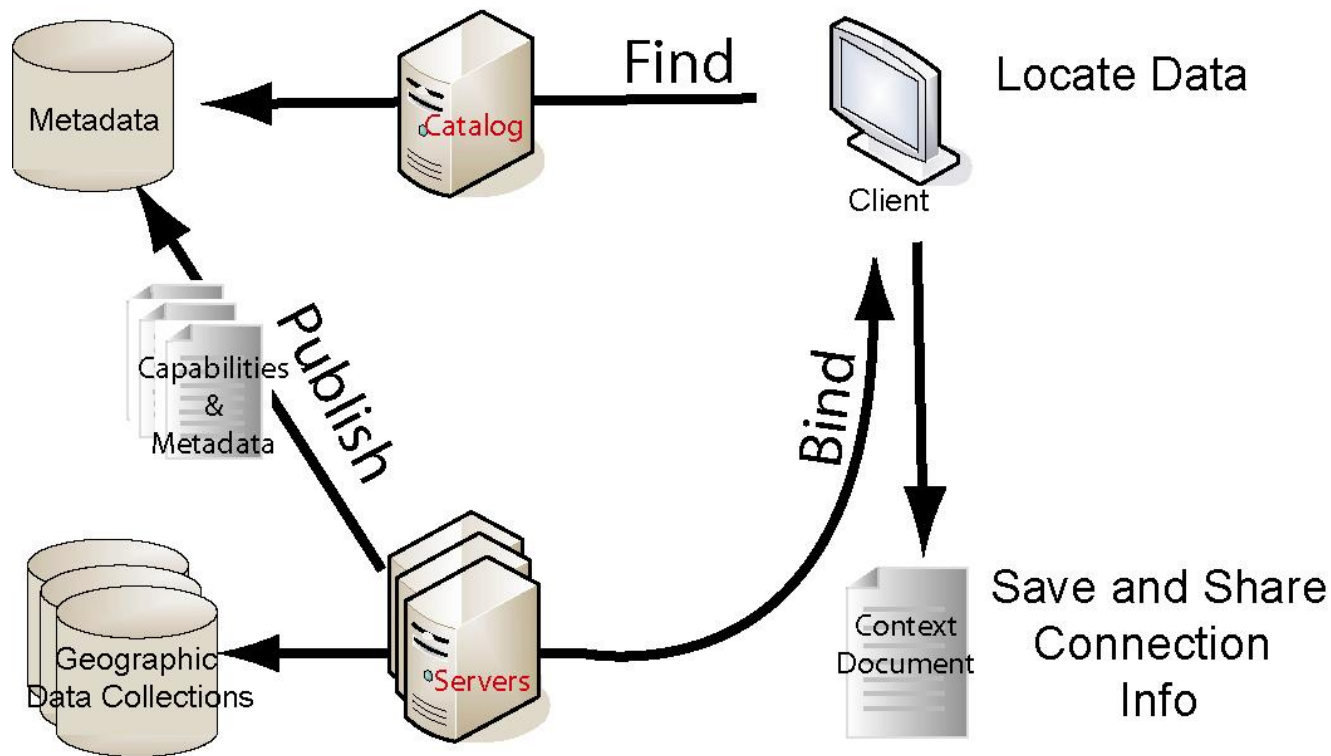


- Thread Sponsors:
 - GSA
 - DOD
- Alliance Partners
 - IAI International
 - National Institute of Building Sciences / National BIM Standard
- Participants
 - GSA
 - DOD
 - Autodesk
 - CityGML.org
 - AEC Infosystems
 - AEC3
 - Parsons Brinckerhoff
 - Bentley Systems
 - Hasso-Plattner Institute
 - Snowflake Software
 - Lat-Lon
 - Harvard University
 - Onuma Inc.
 - NIST
 - Forschungszentrum Karlsruhe

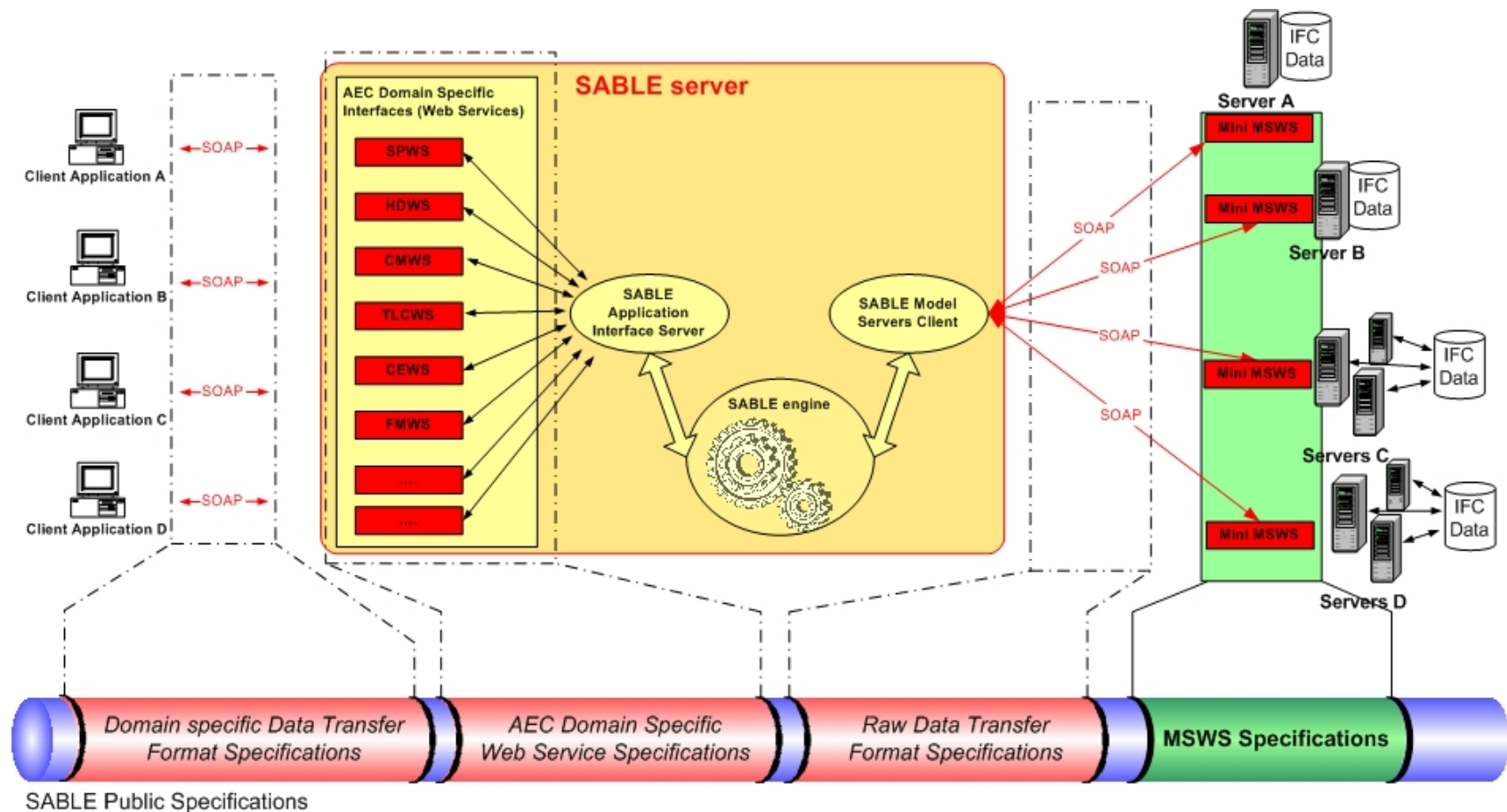
OGC Web Services Architecture



OGC Web Services Architecture: Publish Find Bind Pattern

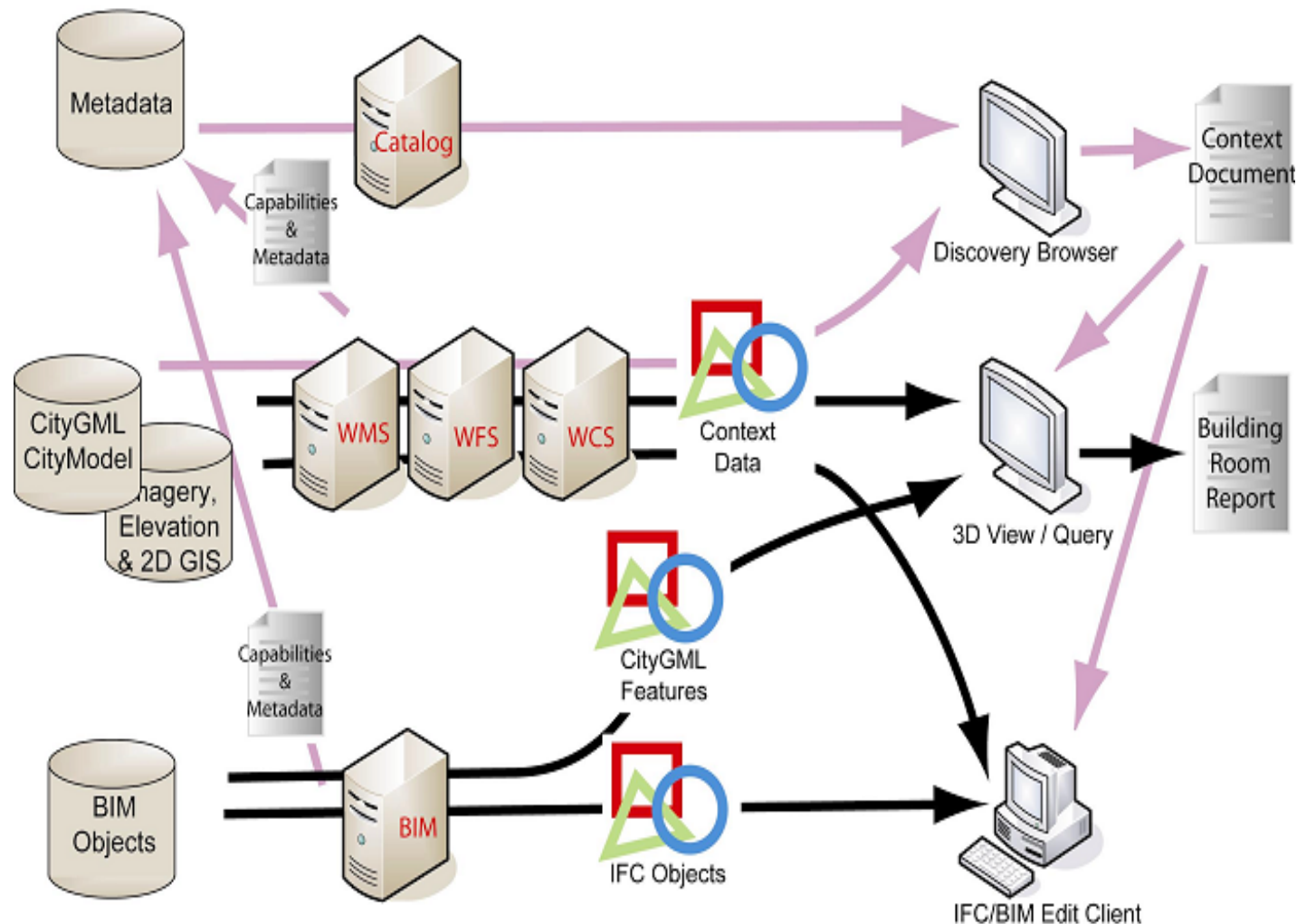


IAI SABLE Web Services Architecture



Architecture Overview

Demonstration – December 2006



Expected Results



- Web Services implementation produced to validate a standards-based architecture and :
 - Provide feedback IAI International IFC work
 - compliment National BIM Standard development activity
- December 2006 Demonstration – Location of Field Hospital as part of regional emergency event
 - BIM, Geospatial, and real time (sensor) integration / fusion
 - Newark Airport
 - Port Authority of NY / NJ hosting



Questions?



Open Geospatial
Consortium, Inc. (OGC)
www.opengeospatial.org

