

LOOKING (ROADNet)

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LOOKING

The Laboratory for Ocean Observatory Knowledge Integration Grid

- Large ITR – www.lookingtosea.org
- Groundwork for ORION
- Focus on dynamic/real-time aspects – command and control, real-time analysis and forecasting
- Cross-observatory integration (SIO, MBARI)
- Cyberinfrastructure Approach
 - Services-oriented architecture
 - Interoperability standards
 - Open interfaces
 - Build on existing cyberinfrastructure, esp. ROADNet technology (Real-time Observatories, Applications, and Data management Network)

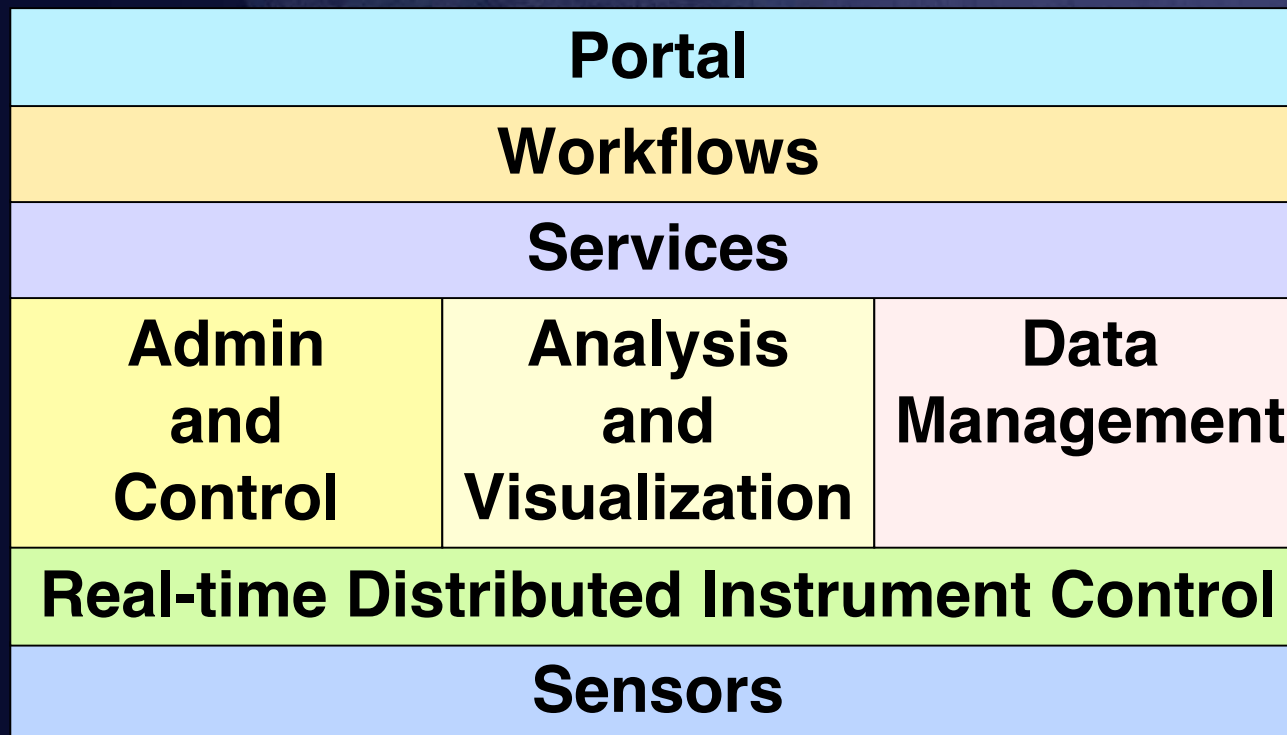


Scalability and Generalization in Observing System Management

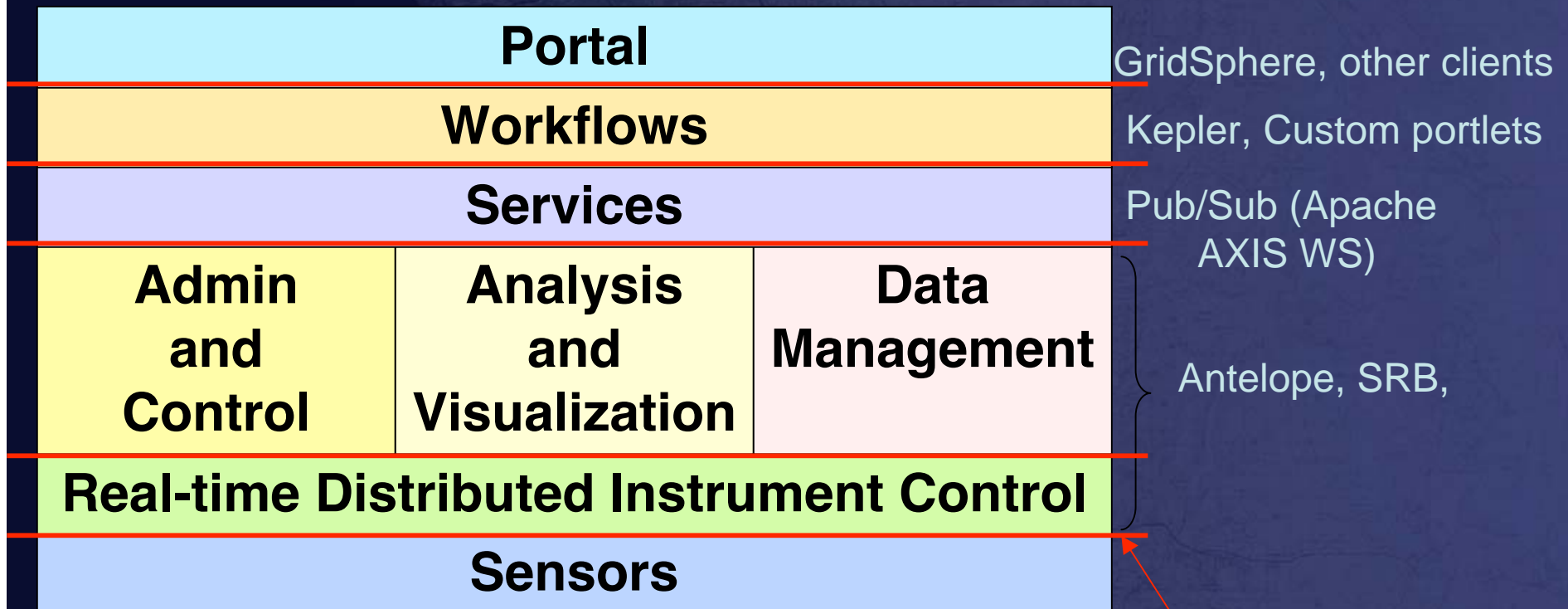
- Scalability
 - Manual configuration and management not practical as observing systems evolve into 100s and 1000s of sensors
 - Decouple management task from physical system
 - Don't have to log in to each host to effect changes
 - Requires programmable access to full instrument and data stream lifecycle & resource registry
- Generalization
 - Lots of big, distributed observing projects on the horizon (LOOKING, ORION, NEON, etc.)
 - Common needs: modularization, automation, resource registries and standardization of interfaces
 - Critical for **federation of observing systems**



A Proposed Open Systems Sensor Network Software Stack



Sensor Network Stack Instantiated

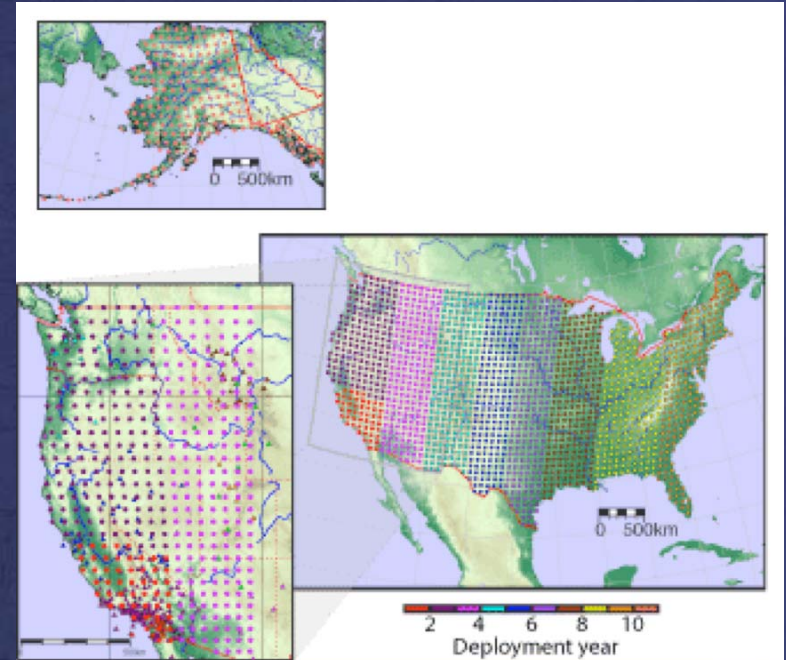


Definition of standard interfaces



USArray Application

- Overview
 - 12 year project; part of EarthScope
 - Continental-scale seismic observatory for lithosphere and deep Earth structure
 - Record local, regional and teleseismic earthquakes
- Major Components
 - A **transportable array** of 400 portable, unmanned three-component broadband seismometers deployed on a uniform grid that will systematically cover the US
 - A **flexible component** of 400 portable, three-component, short-period and broadband seismographs and 2000 single-channel high frequency recorders



Cyber-dashboard for Observing Systems Management

The image displays a composite interface for managing observing systems. On the left, a Google Earth window shows a 3D globe with a search bar and a 'Places' list. The 'Places' list includes several USArray sites:

- NOAA RHA overlays
- Roadside 311
- default
- Temporary Places
 - US ARRAY
 - MONP
 - MONP Station 6: MONP Onsite: 2004004 Onsite: -1 Lat: 33.6937
 - IHS
 - IHS Station 4: IHS Onsite: 2004001 Onsite: -1 Lat: 35.5117 Long:
 - BDM
 - BDM Station 4: BDM Onsite: 1950010 Onsite: -1 Lat: 37.5471 Long:

The 'Layers' list on the left includes various categories such as National Geographic Magazine, Roadside Community BBS, User-Supplied Collections, Dining, Lodging, Banks/ATMs, Bars/Clubs, Coffee Houses, Malls/Shopping Centers, Major Retail, Movie Rentals, Grocery Stores, Pharmacy, Gas Stations, Golf, Stadiums, Parks/Recreation Areas, and Non-Residential.

The central Google Earth window shows a 3D globe of North America. The status bar at the bottom indicates the pointer coordinates (0°00'00.00" N, 0°00'00.00" E), a streaming status, 100% zoom, and an eye alt of 5452.68 miles.

On the right, the USArray InSight Manager web interface is visible. It features a 'Welcome' tab and a 'Site Deployment' tab. The 'Site Deployment' tab is active, showing a 'Deployment Wizard' and a 'Define New Site' button. Below this, there is a table of sites with their current states:

Site	Current State
<input checked="" type="radio"/> XX_Sta1	Merge Metadata T...
<input checked="" type="radio"/> XX_Sta2	Initial Information
<input type="radio"/> XX_Sta3	Initial Information
<input checked="" type="radio"/> XX_texas	Create Metadata T...
<input type="radio"/> XX_DEMO	Configure Dataload
<input checked="" type="radio"/> CA_IHO	Initial Information

Each row in the table has a 'View / Update Parameters' button next to it.