Antelope

and the

SDSC Storage Resource Broker

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IRIS Antelope User's Group Meeting

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Arcot Rajasekar, Frank L. Vernon, John Orcutt
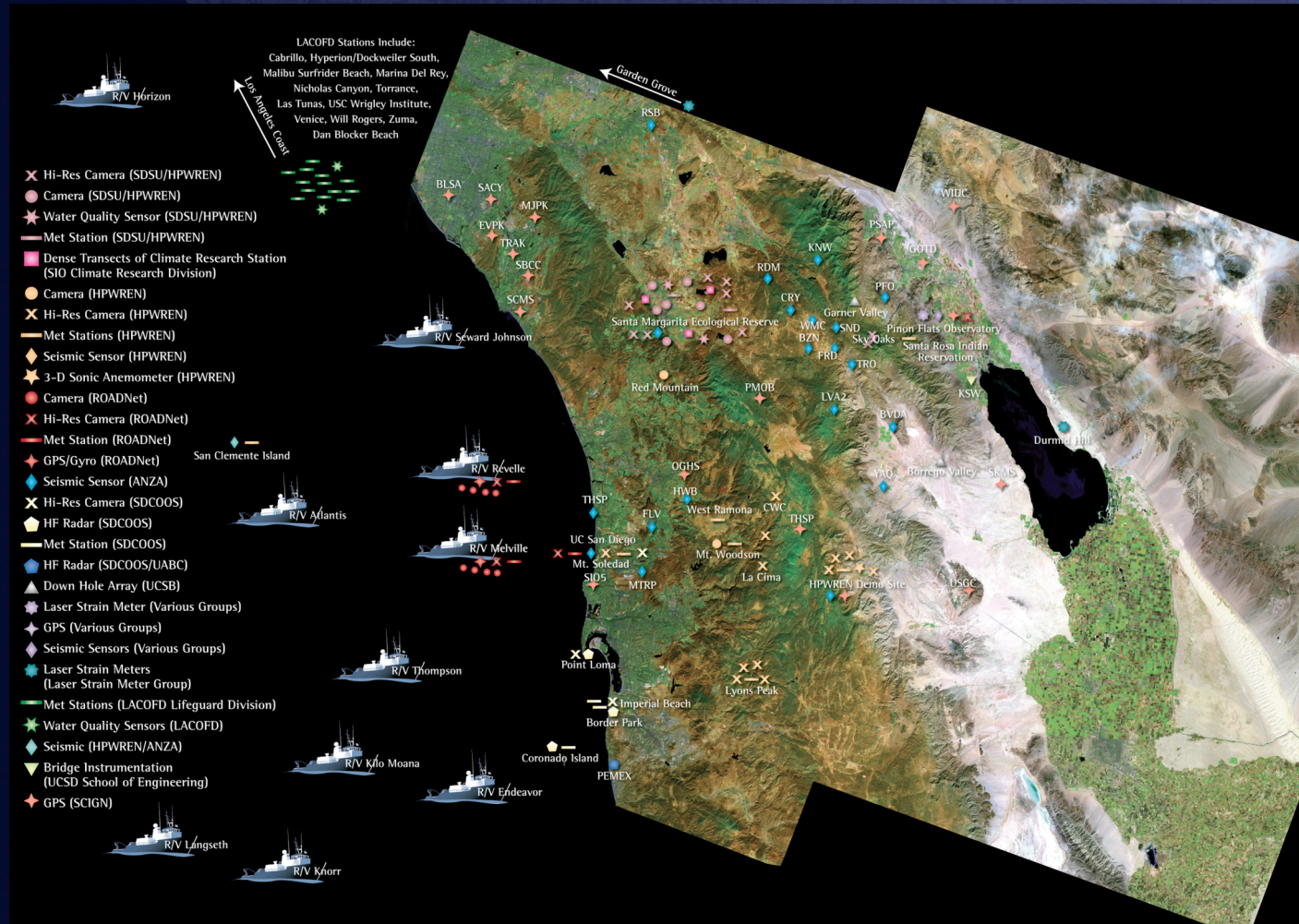
ROADNet

Summary: ROADNet and SRB

- Confluence of Cyberinfrastructure Technologies
  - Antelope
  - Storage Resource Broker
  - Ptolemy/Kepler
  - Web-services
- Deployed Multidisciplinary testbed
  - Sensor grid
  - Data grid
  - Real-time acquisition and distribution
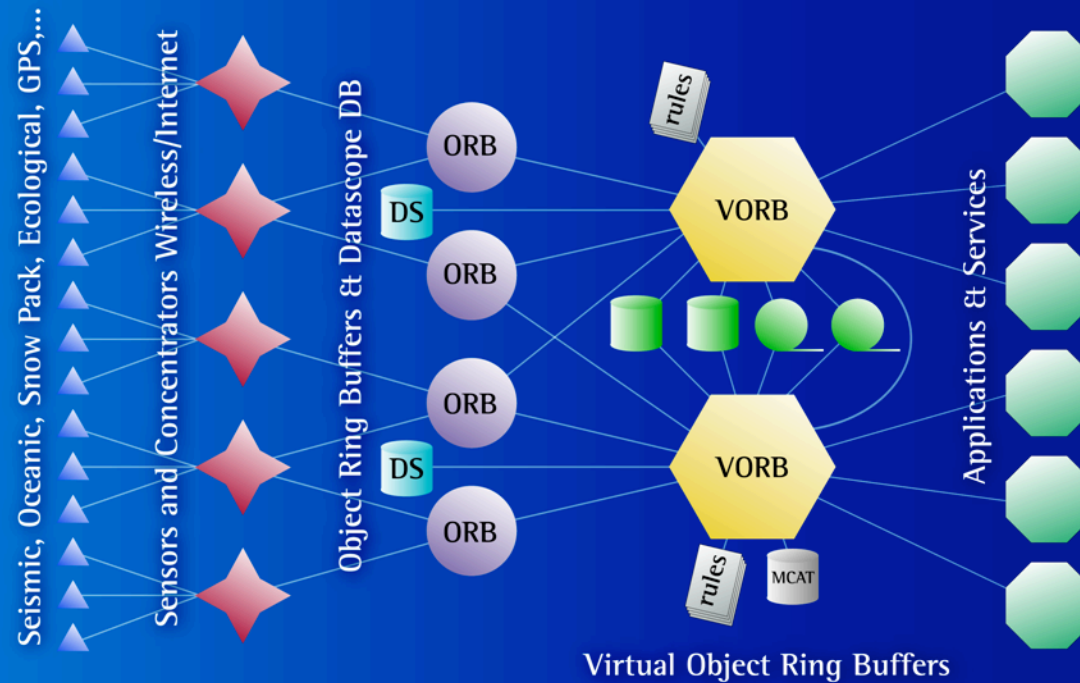- Grid architecture facilitated by SRB drivers for Antelope/Datascope

ROADNet

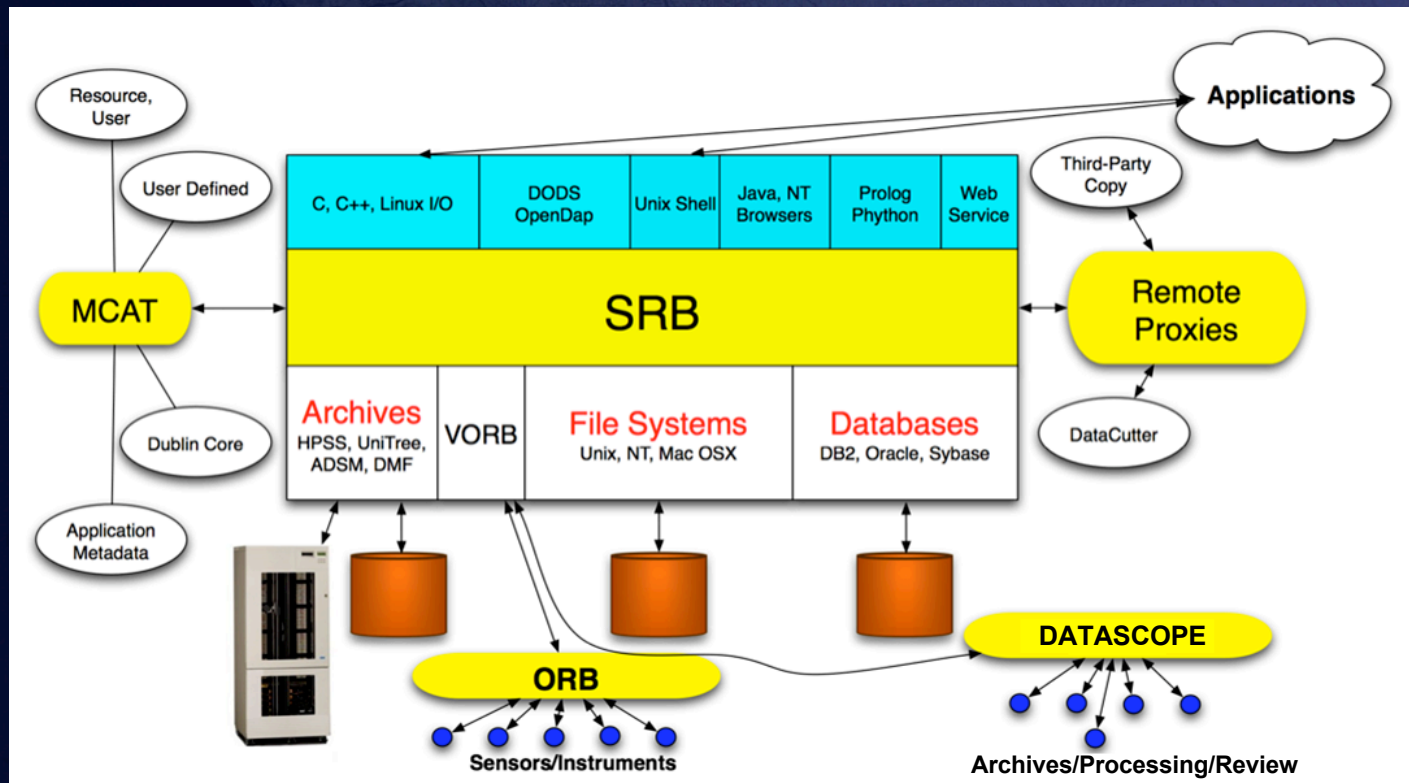# ROADNet Sensors

ROADNet Architecture

SRB Antelope Drivers

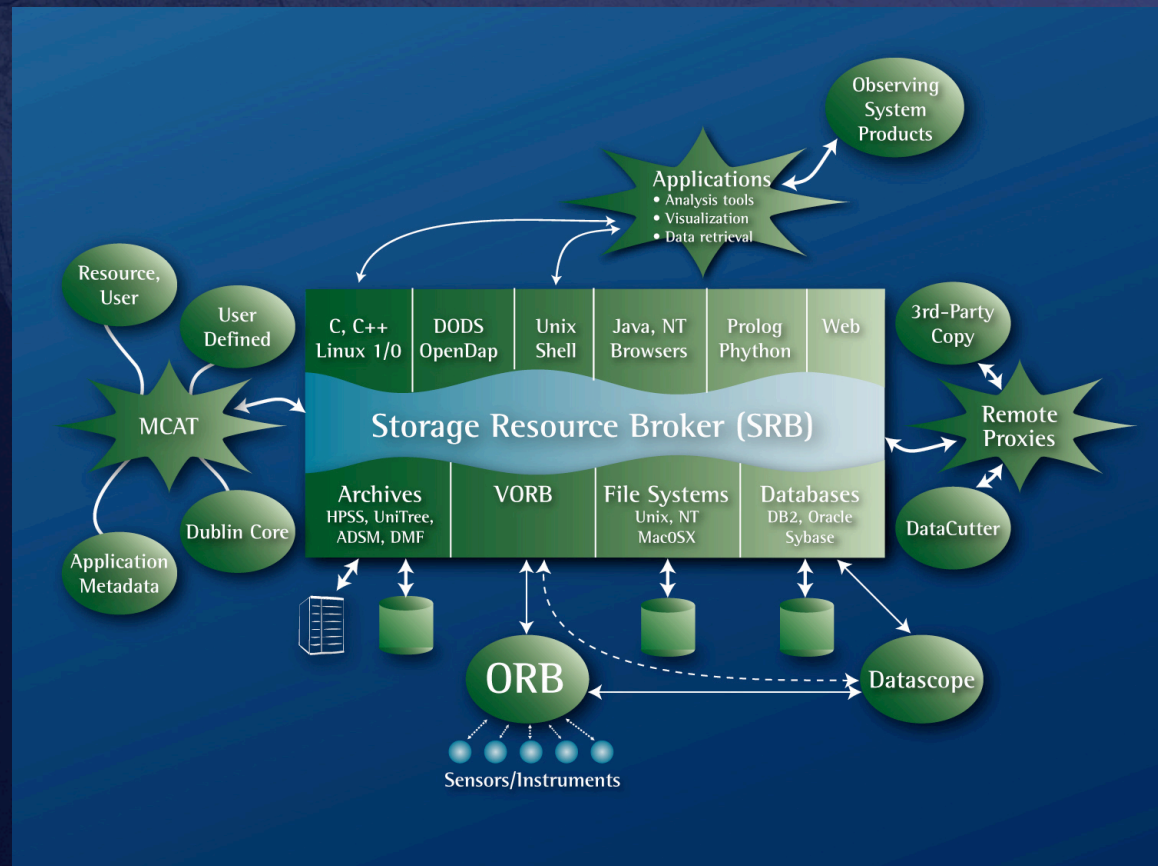# Datascope and ORB drivers for Storage Resource Broker

Multi-TeraByte Storage

Sophisticated Archive

Data Replication

Virtual-server access

ROADNet Point-of-Presence

- Grid node for ROADNet

- Antelope, SRB, several other CI components

- Fundamental, intelligent "atom" in distributed, real-time sensor-, data-, processing-grid

- Leaf node for data acquisition

- Concentrator node for access or networking

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ROADNet Point-of-Presence

RPOP Status

- Engineering and prototype deployment stages
- New compile architecture to reliably build and link SRB against Antelope real-time system components
- Cfengine-based remote code maintenance system (S. Foley, G. Davis)

Deployed Prototype RPOPs

- Trout Lake, WI (Madison) Field research station
- National Center for High-Performance Computing (Taiwan)
- R/V Roger Revelle
- Upcoming: R/V Melville
- Upcoming: Virginia LTER

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RPOP Antelope SRB

- SRB Compiled with Antelope-style Makefiles
- Parameter-file driven setup
- Easy installation
- Links reliably to Antelope libraries
- Tri-platform compile (Linux, Solaris, MacOSX)

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Antelope Interface to SRB

- New Datascope serialization library
  - libds interactions through a serial connection
  - Pfdbquery_serialopen()
  - Pfdbquery_dbopen()
  - Pfdbquery_dbprocess() etc.
  - Pf-base transfer; pf-based protocol compiler
- SRB Wrappers:
  - srb_dbopen(), srb_orbopen()
  - srb_dbgetv() etc.
  - Matched API

Demonstrations

- S-command access to usarray data files

- trtransfer access to waveform data

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Current work

- Infrastructure is solidifying
  - 6 months writing Makefiles, launch scripts…

- Fleshing out rest of the commands in Datascope, Orb SRB wrappers

- Mapping to all language interfaces (PHP etc)

Promise for Future

- Remote extraction of data subsets

- Remote review of databases

- Web interaction with large distributed archives

- Distributed read/write access … complicated by synchronization issues

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