IT at the IRIS DMC: Synergy with the CIG

By

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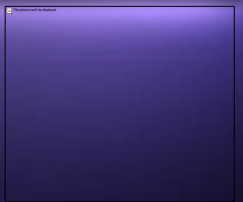


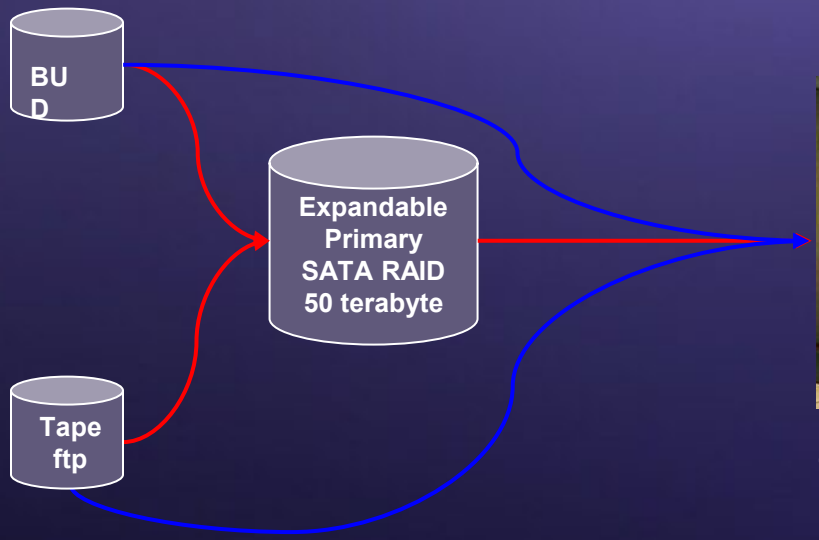
IRIS DMS - Future Directions

- On-line access to all data
- Enhanced User Services
  - Pre-calculated Data Metrics
  - On-demand Data Metrics
- Processing Frameworks
- Networked Data Centers
- Software development

On-line data

Tier 1 and Tier2 Data

Electronic Reception of Data

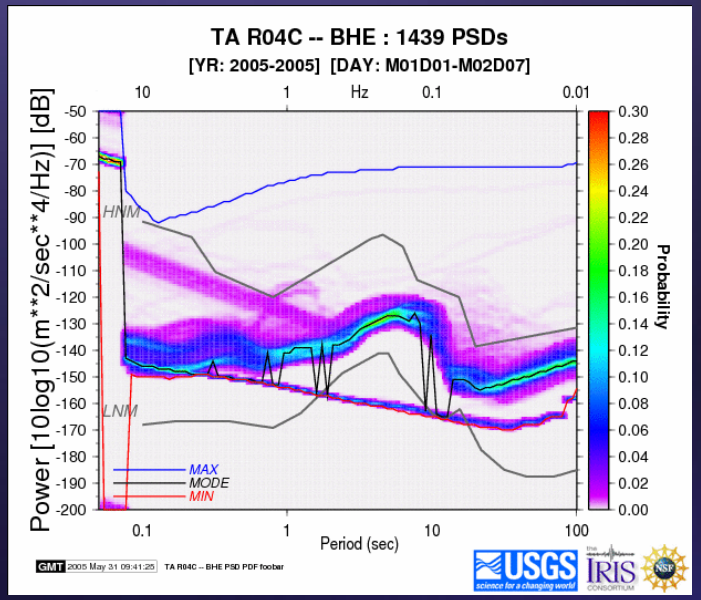


1.2 petabyte capacity

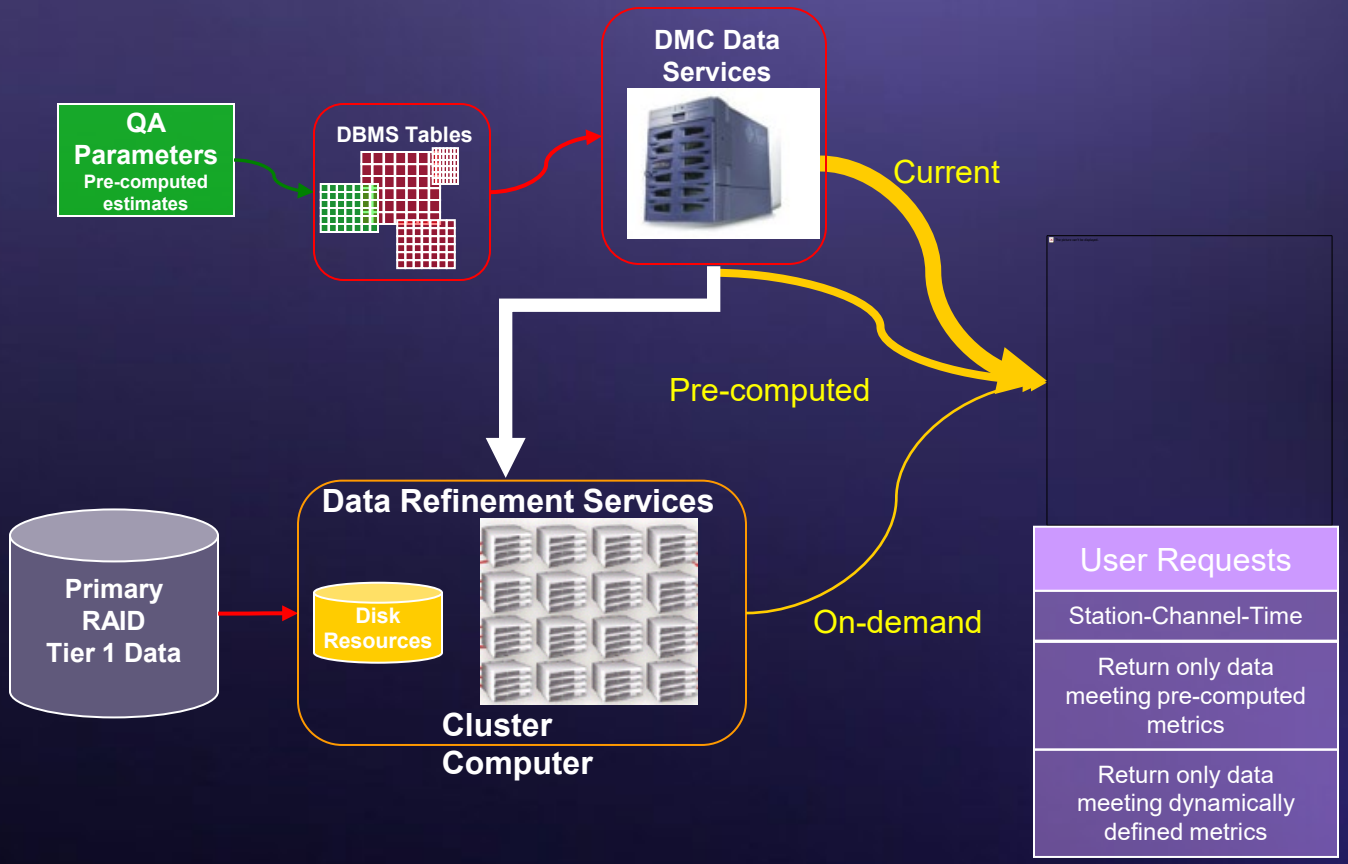
Currently 36 terabytes
Growing at 10 tbyte/year

Class 1 Data
Class 2 Data
Class 1or 2 Data

Data mining: pre-calculated data metrics

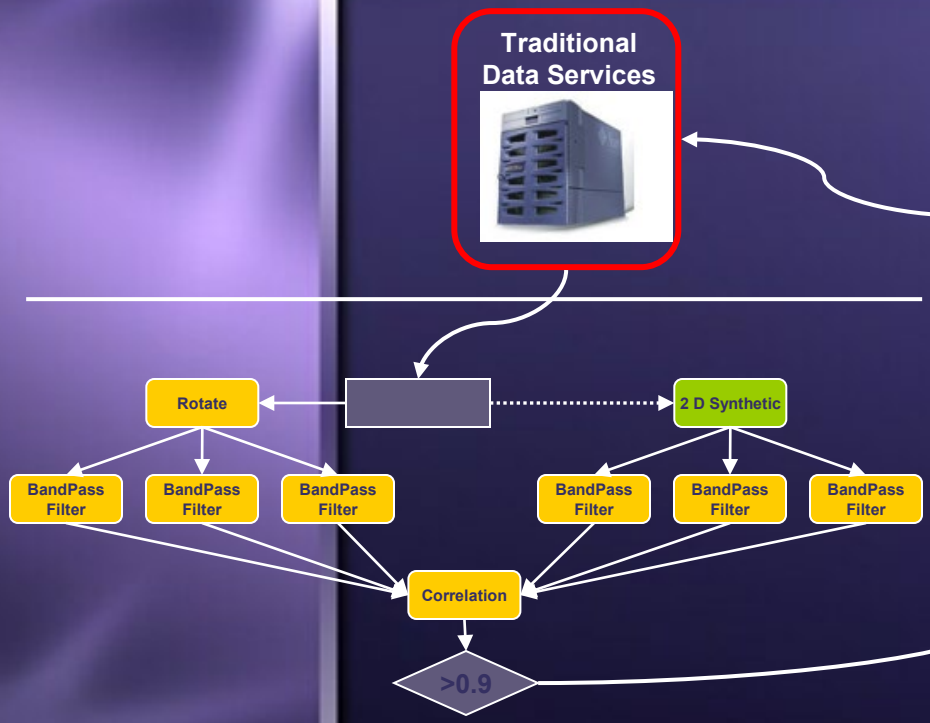


Enhanced Data Selection



Data filtering by placing “significant” computational power next to the actual on-line data”

How enhanced services might be implemented!

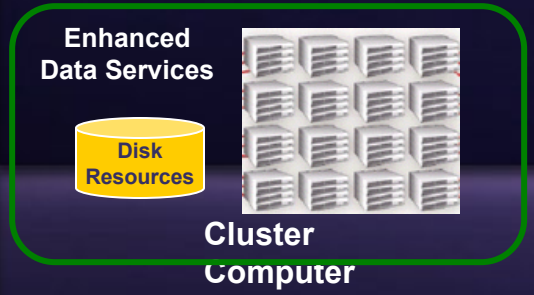


Traditional User Requirements:

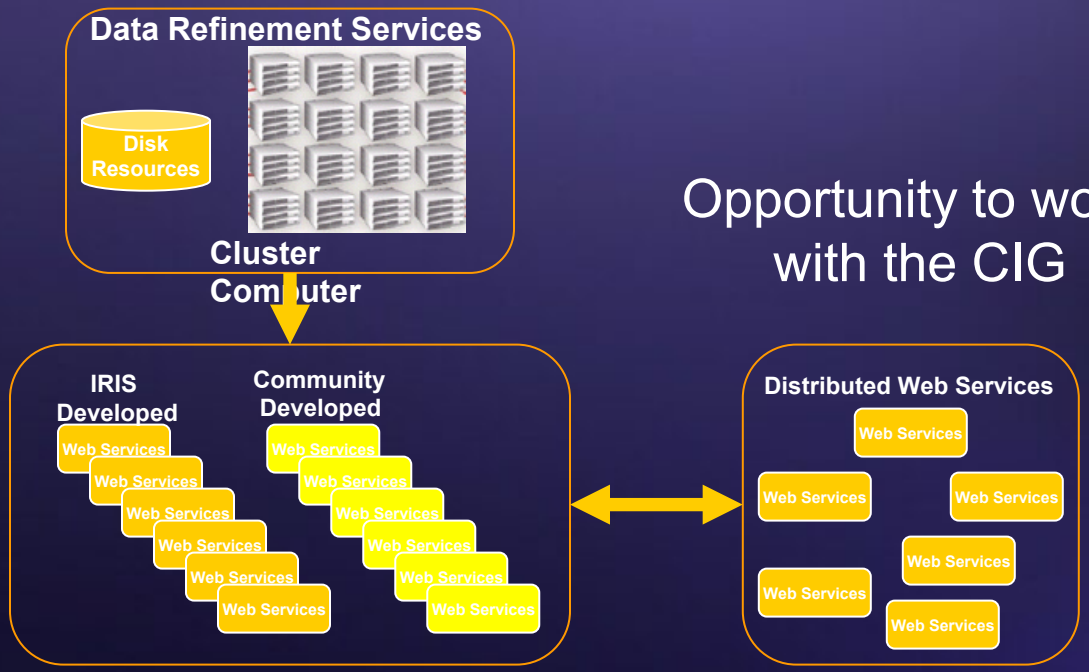
1. Select events meeting some criteria
2. Select stations with a distance constraint
3. For all broadband channels select ones with a 3 BH channels
4. Select channels with QUACK S/N > something

Enhanced Data Requirements:

1. Rotate horizontals
2. Filter each channel through three 1 octave filters
3. Calculate 2d synthetics in each band
4. Perform correlation between synthetic and observed data
5. Return data with correlation > 0.9 to user



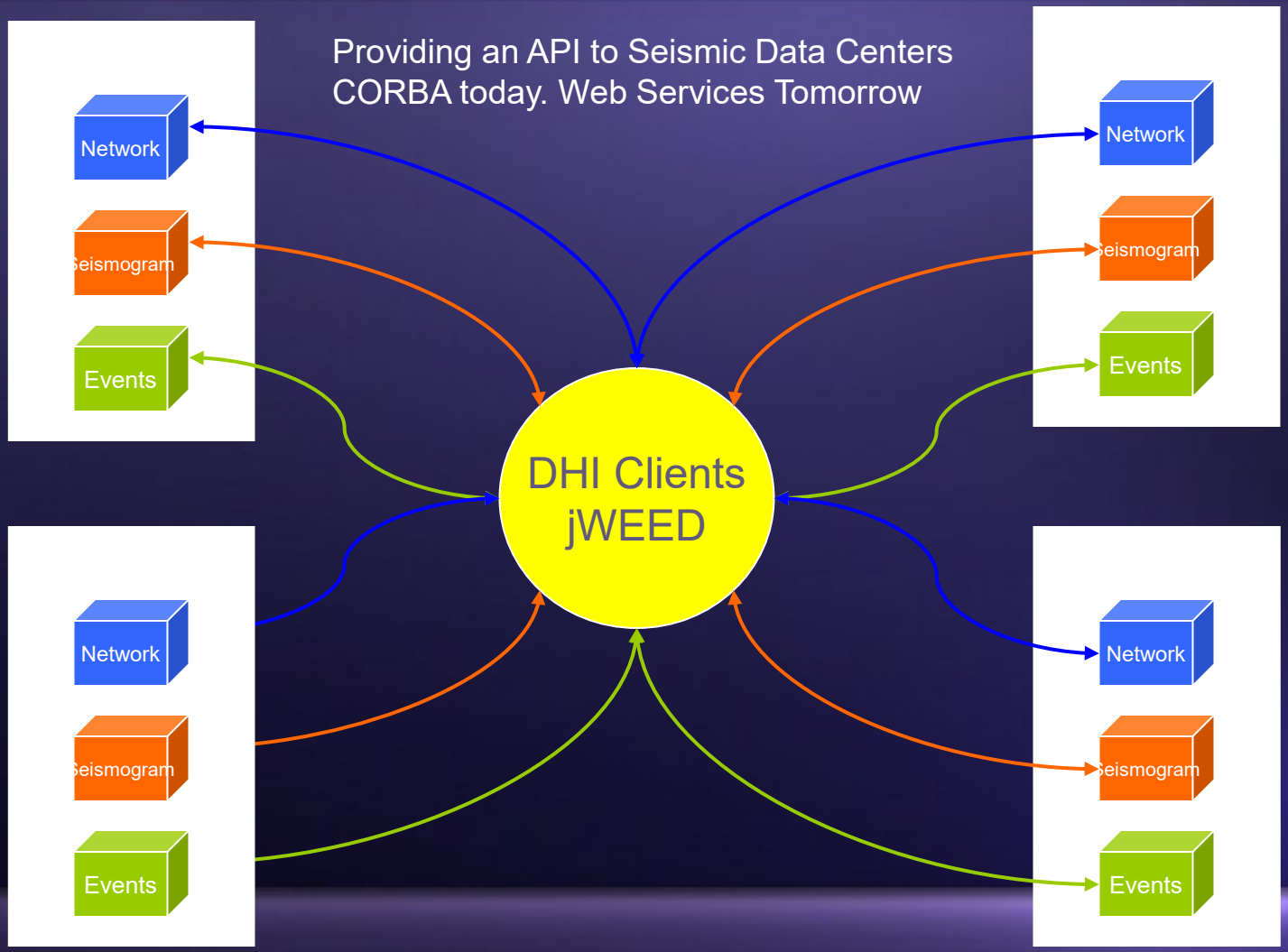
Processing Frameworks



Opportunity to work with the CIG

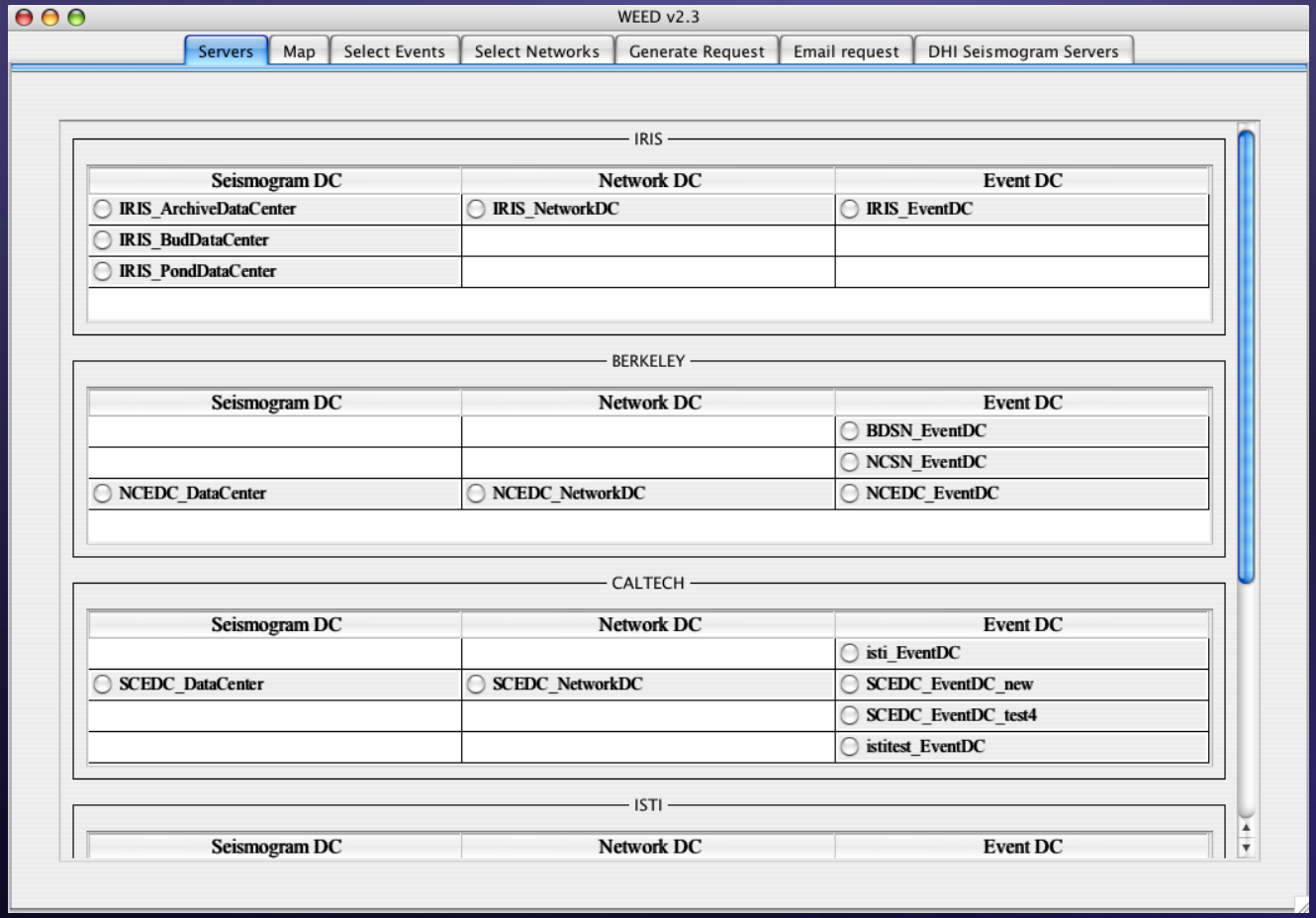
Based on Web Services or next generation paradigm

Access to Distributed Data Centers



IRIS DMC - NCEDC - SCEDC - SCEPP and soon ORFEUS - ISC - NEIC

Clickable access to data centers



Software Development

- Web Services Distributed Framework
  - User developed and shared tools
- Providing access to Legacy Applications
  - Seismic Analysis Code
    - Get SAC to be Open-Source
      - Limited to IRIS members at this time
    - Provide Web-services access to SAC functionality
    - Tool for seamless access to distributed data
    - Basic Analysis of data with datasets such as USArray in mind