

*IT at the IRIS DMC:
Synergy with the CIG*

By

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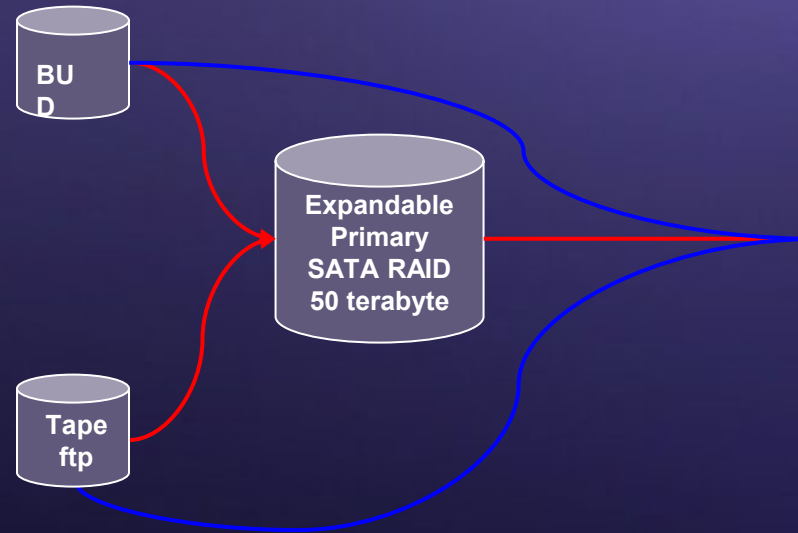
IRIS DMS - Future Directions

- ★ 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 Tier 2 Data

Electronic Reception of Data

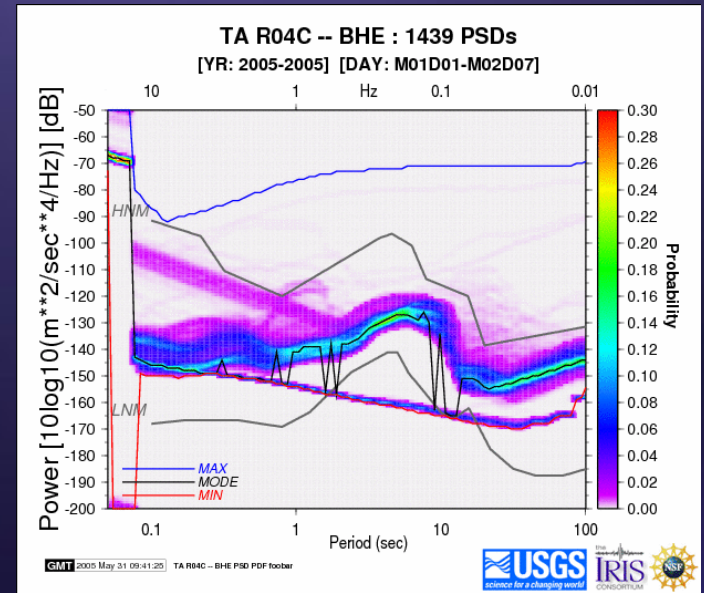


1.2 petabyte capacity

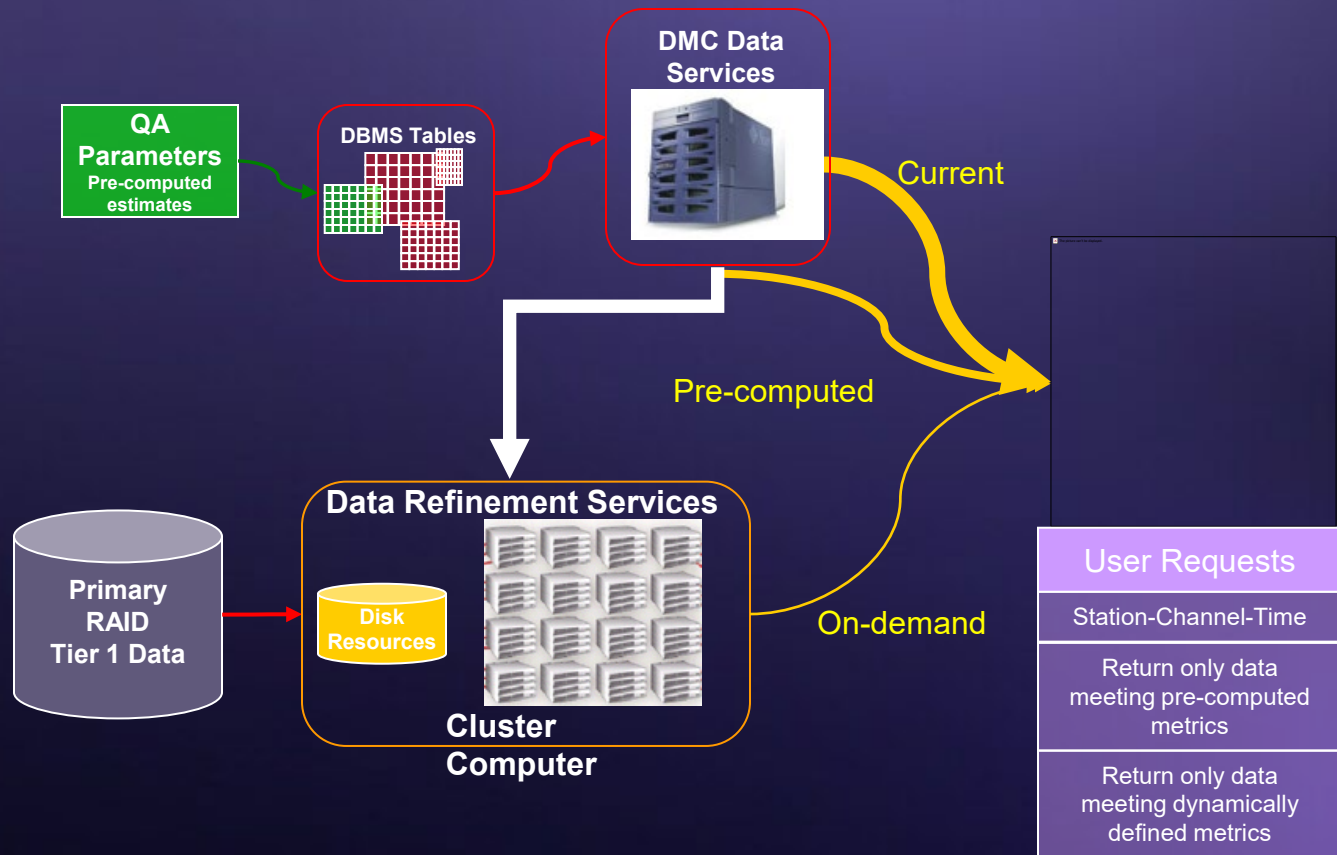
Currently 36 terabytes
Growing at 10 tbyte/year



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 Data Services

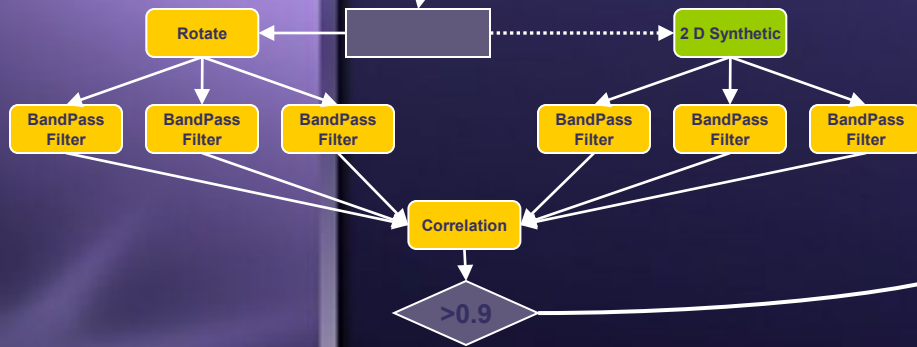


Traditional User Requirements:

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

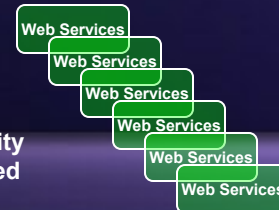


Enhanced Data Services

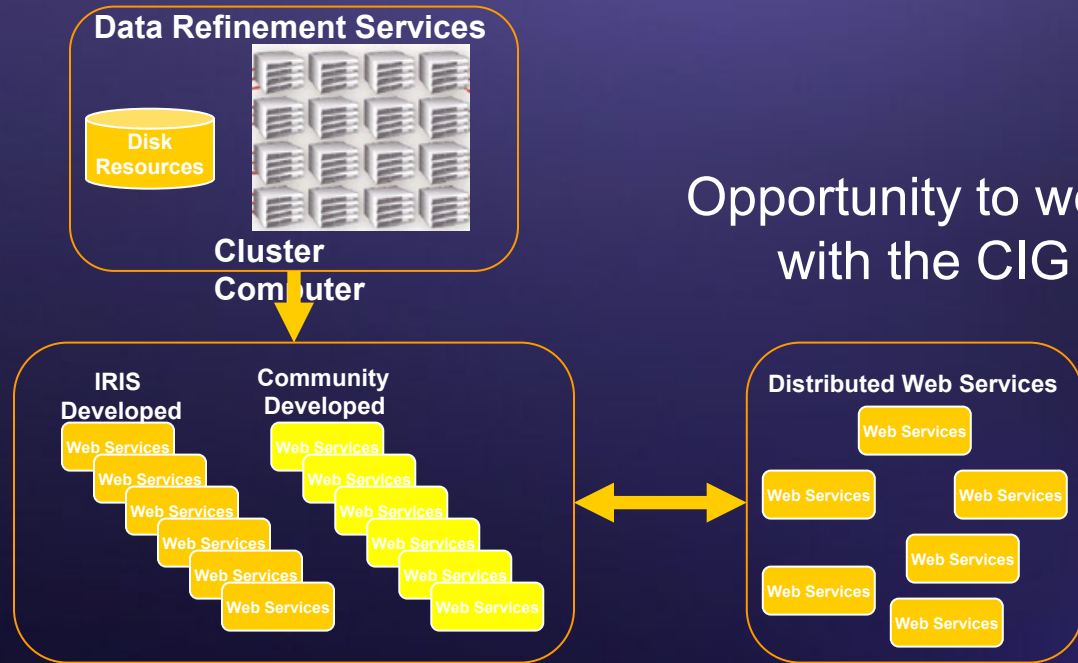


Cluster
Computer

Community
Developed



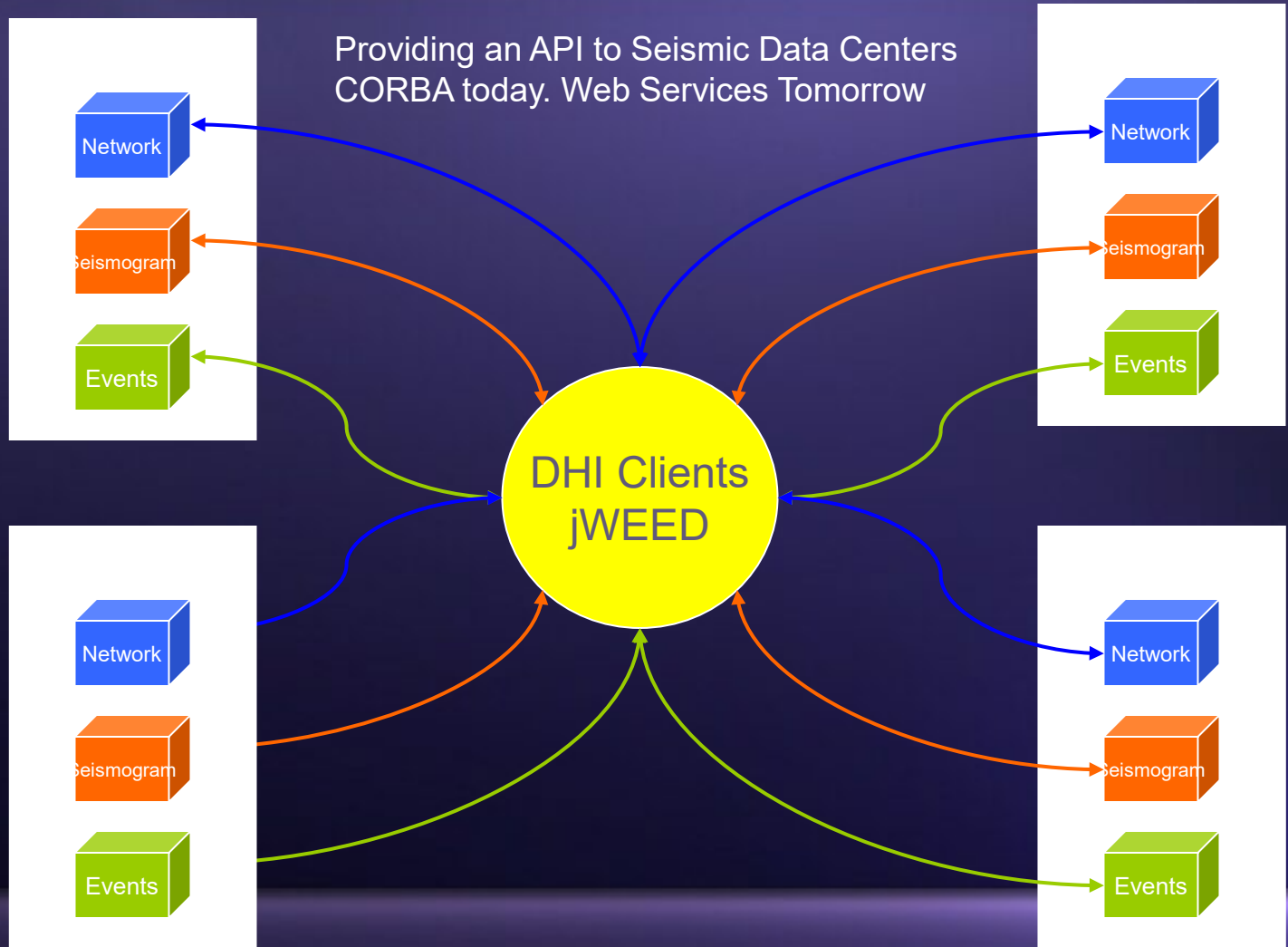
Processing Frameworks



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

WEED v2.3

Servers | Map | Select Events | Select Networks | Generate Request | Email request | DHI Seismogram Servers

IRIS

Seismogram DC	Network DC	Event DC
<input type="radio"/> IRIS_ArchiveDataCenter	<input type="radio"/> IRIS_NetworkDC	<input type="radio"/> IRIS_EventDC
<input type="radio"/> IRIS_BudDataCenter		
<input type="radio"/> IRIS_PondDataCenter		

BERKELEY

Seismogram DC	Network DC	Event DC
		<input type="radio"/> BDSN_EventDC
		<input type="radio"/> NCSN_EventDC
<input type="radio"/> NCEDC_DataCenter	<input type="radio"/> NCEDC_NetworkDC	<input type="radio"/> NCEDC_EventDC

CALTECH

Seismogram DC	Network DC	Event DC
		<input type="radio"/> isti_EventDC
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		<input type="radio"/> SCEDC_EventDC_test4
		<input type="radio"/> istitest_EventDC

ISTI

Seismogram DC	Network DC	Event DC
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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