

What's New in Antelope 5.6

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Boulder Real Time Technologies

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Introduction - KMI

Kinemetrics, Inc.

- Founded in 1969
- OYO Corp owned in 1991
- ISO9001 since 1999
- \$35M FY2012 revenue (mostly international)



HQ's in Pasadena CA with Sales and Project offices in Switzerland & Abu Dhabi

Kinemetrics - Innovate
www.kinemetrics.com/p-163-Home.aspx

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NEW KINEMETRICS WEBSITES:
Kinemetrics has launched 3 new websites

NEPERK EARTHSCOPE:
Humankind's largest and most ambitious scientific project

Quaterna Q2004 Seismic System:

Far fifty years, Kinemetrics has been creating products for

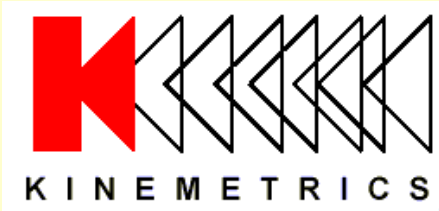
- Seismic networks
- Comprehensive environmental monitoring systems
- Strong motion and weak motion measurements

Project solutions for

- Structural health monitoring (bridges, dams, buildings)
- Seismic arrays



Introduction – KMI Team



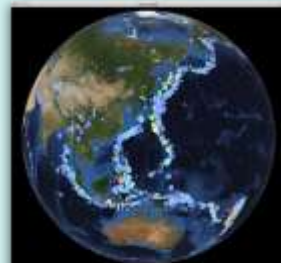
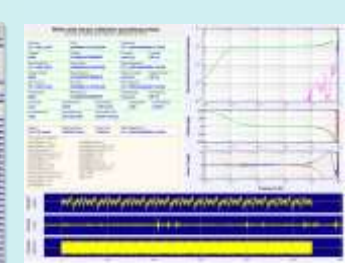
Designs and manufactures sensors and digitizers – Provides complete systems design, installation and operations



Designs High-End Digitizers



Designs High-End Sensors

A screenshot of a data table or spreadsheet with multiple columns and rows of numerical and text data.

Kinematics / BRTT

Comprehensive Hardware, Software, and Services

Kinematics Systems Solutions

- Turnkey complete systems including enterprise-class computing centers and full communications

Kinematics Hardware Manufacturer

- World class Kinematics and Quanterra dataloggers
- World class Kinematics, Metrozet and Streckeisen sensors

BRTT Software Developer

- World class acquisition software for all Kinematics hardware products
- Proven track record for large networks with difficult remote deployments (USArray)
- World class, comprehensive automated and interactive seismic processing software
- Data neutral architecture for support of non-seismic environmental monitoring networks
- Extraordinary Command & Control capabilities with SOH displaying

Kinematics Services

- Complete systems procurement, installation and training including all aspects of both hardware and software
- Network operations





What's New In Antelope 5.6

- Qt and Python Graphics & Maps
- *orb2orb_pre*
- Contractors and Contracted Development
 - *dbmoment*
 - *db2stationxml*
- *dbe*
- Internationalization and Localization
- new *demo* database
- Bighorn

Python / Qt Graphics



- Modern Maps based on NASA Blue Marble
- Python hooks for developers
- Further detail in Danny Harvey's talk

New Graphics in dbevents_pre

File Help Window Database editing enabled Current Time: 2016-134 (13 May) 19:01:11 GMT

Mb 4.8 **KYUSHU, JAPAN** **pref_depths: 0 km** **T + 37:21 minutes**

Displayed Origin

Preference: Preferred
Lat: 31.0859°
Lon: 129.5118°
Depth: 0.0000 km (±0 km @ 90%)
Region: KYUSHU, JAPAN
Magnitude: 4.8 Mb
Uncertainty: major: 28.0 km / strike: 141°
 sdobs: 1.3 sec
 confidence interval: 90%

Latest Magnitudes

author	Mb
Antelope	4.81 ± 0.35
USGS	4.8

Best Moment Tensor

Origin Time (GMT): 2016-134 (13 May) 19:05:50 UTC (±1.4 sec @ 90%)
Origin Time (Local): 2016-134 (13 May) 19:05:50 MDT (±1.4 sec @ 90%)
Database ID: evd: 43003
 oid: 43011
 prefor: 43011

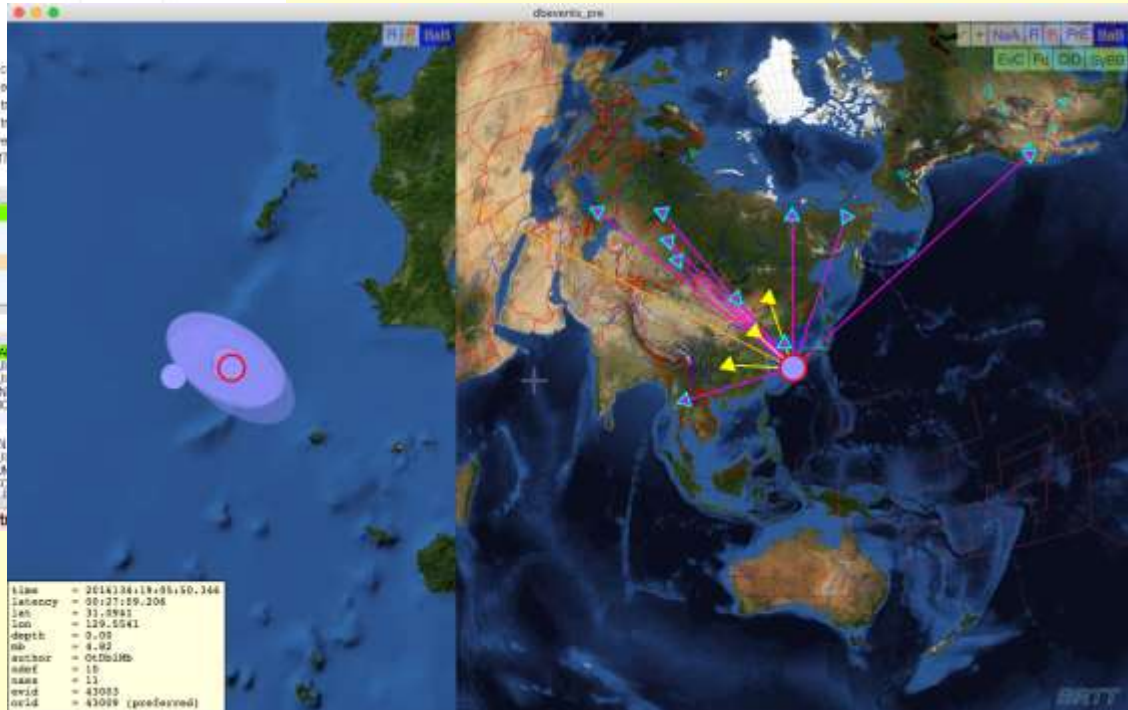
Phases: 13 defining
 14 associated

Author: Antelope Real-time System ("CICDbM")

pref.	author	oid	depth	ndst	ml	mag	delay
*	Antelope	43011	0 km	13	4.8 Mb	37:17 minutes	
	Antelope	43008	0 km	10	4.8 Mb	27:09 minutes	
	Antelope	43007	0 km	10	4.8 Mb	21:58 minutes	
	USGS	43005	7 km	0	4.5 Mb	15:27 minutes	
	Antelope	43004	0 km	10	4.8 Mb	15:55 minutes	
	Antelope	43000	0 km	8	4.8 Mb	11:53 minutes	

origin time	oid	ndst	R	prefor	mag
2016-134 (13 May) 19:05:50 UTC	43003	13	Antelope	4.8 Mb	KYUSHU, JAPAN
2016-134 (13 May) 18:48:34 UTC	42999	0	USGS	5.3 Mb	SOUTH OF FUJ
2016-134 (13 May) 12:57:25 UTC	42901	24	Antelope	5.2 Mb	SOUTH OF FUJ
2016-134 (13 May) 10:03:16 UTC	41881	20	Antelope	5.2 Mb	TALAUD ISLAN
2016-134 (13 May) 08:24:11 UTC	41625	16	Antelope	5.2 Mb	TANAWA REGIO
2016-134 (13 May) 07:51:18 UTC	41403	10	Antelope	5.5 Mb	PAKISTAN
2016-134 (13 May) 06:58:31 UTC	41401	26	Antelope	5.5 Mb	PAKISTAN
2016-134 (13 May) 04:40:37 UTC	41192	31	Antelope	4.0 Mb	SEA OF JAPAN
2016-134 (13 May) 00:54:53 UTC	40982	8	Antelope	4.3 Mb	SOUTH OF FUJ
2016-133 (12 May) 18:24:00 UTC	39809	11	Antelope	5.0 Mb	SOUTH OF SUN
2016-133 (12 May) 17:43:45 UTC	39024	10	Antelope	4.0 Mb	NEAR EAST CO
2016-141 (17 April) 12:45:45 UTC	14163	9	Antelope	4.1 Mb	WINDWARD ISEA

Status: Database updated 2.896 seconds ago (tables updated: origin, net)



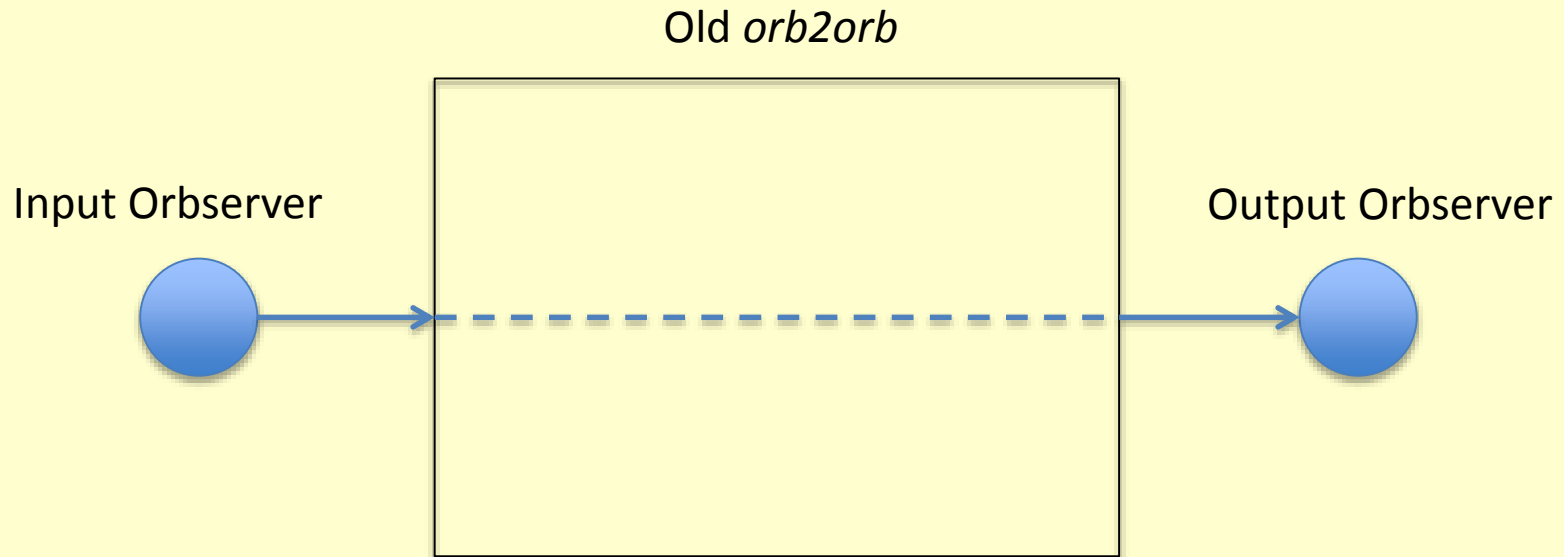
orb2orb_pre

- Design goals
 - Provide datalogger acquisition functionality like *q3302orb* and *altus2orb*
 1. Data ingestion and delivery
 - including repackaging / renaming
 - Point-Of-Contact (POC) call-in capability for dataloggers on dynamic IPs
 - Ultimately: failover support
 2. State-of-Health (SOH) monitoring
 - *dlmon* capabilities
 3. Command-and-control
 - *dlcmd* capabilities
 - Multithreading:
 - multiple *orb2orb* connections with one instance
 - connectivity from *M* source orbs to *N* destination orbs
 - Consolidate slew of related programs (*orb2orb*, *orbxchange*, *orbxthreads*, *orbclone*, etc.)
 - Preserve backwards-compatibility with old *orb2orb*

orb2orb_pre: current version

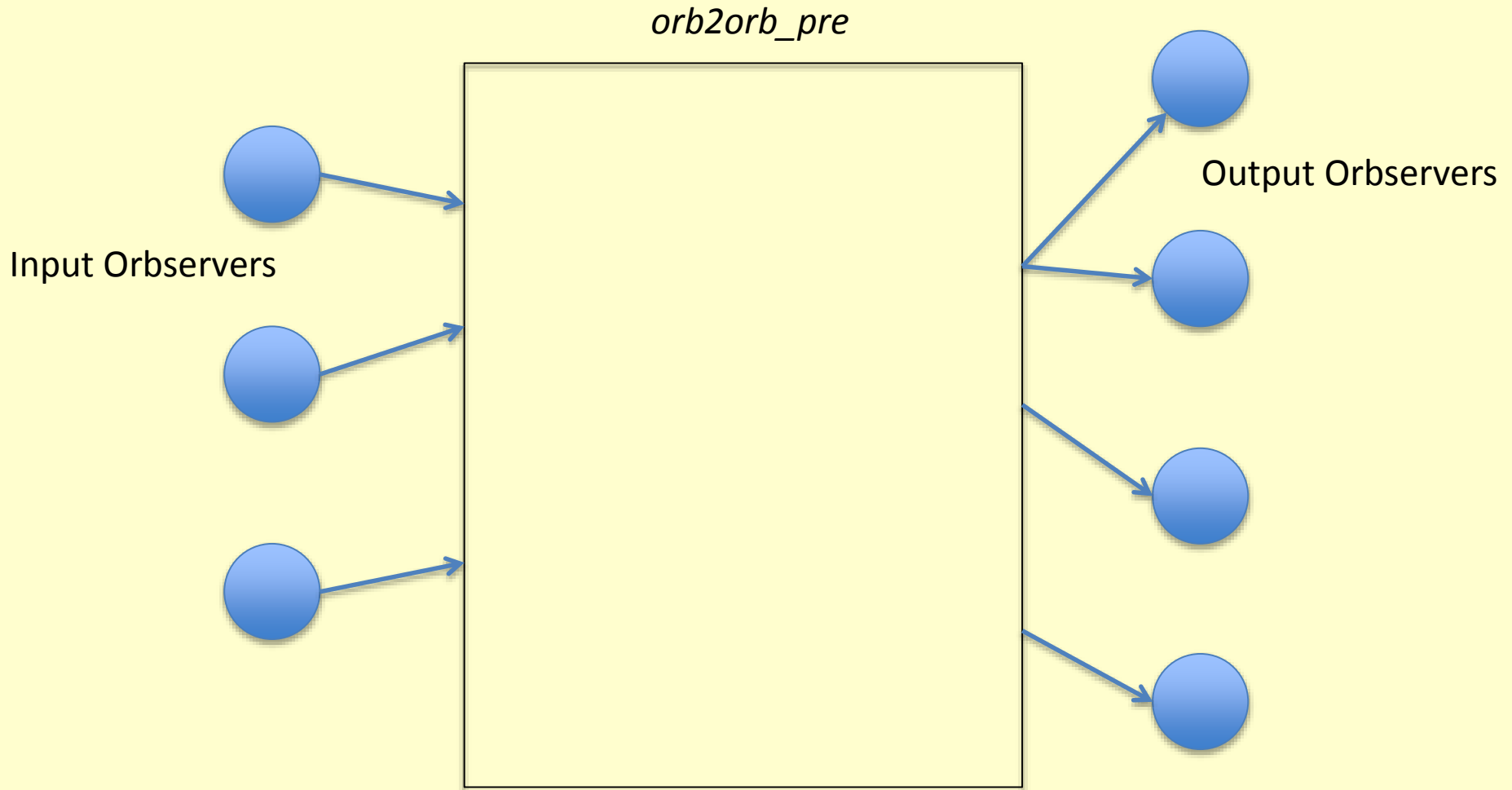
- Basic data acquisition capabilities (*orb2orb*)
- many-to-many connections in one instance
 - Fully Multithreaded
- Basic *dlmon*-compatible SOH output
- Backwards compatibility with
 - Legacy command-line format
 - Legacy parameter-file format
 - [N.B. Not all parameters/options supported yet]
- Embedded in GSN *rtdemo*(1)

orb2orb: old architecture

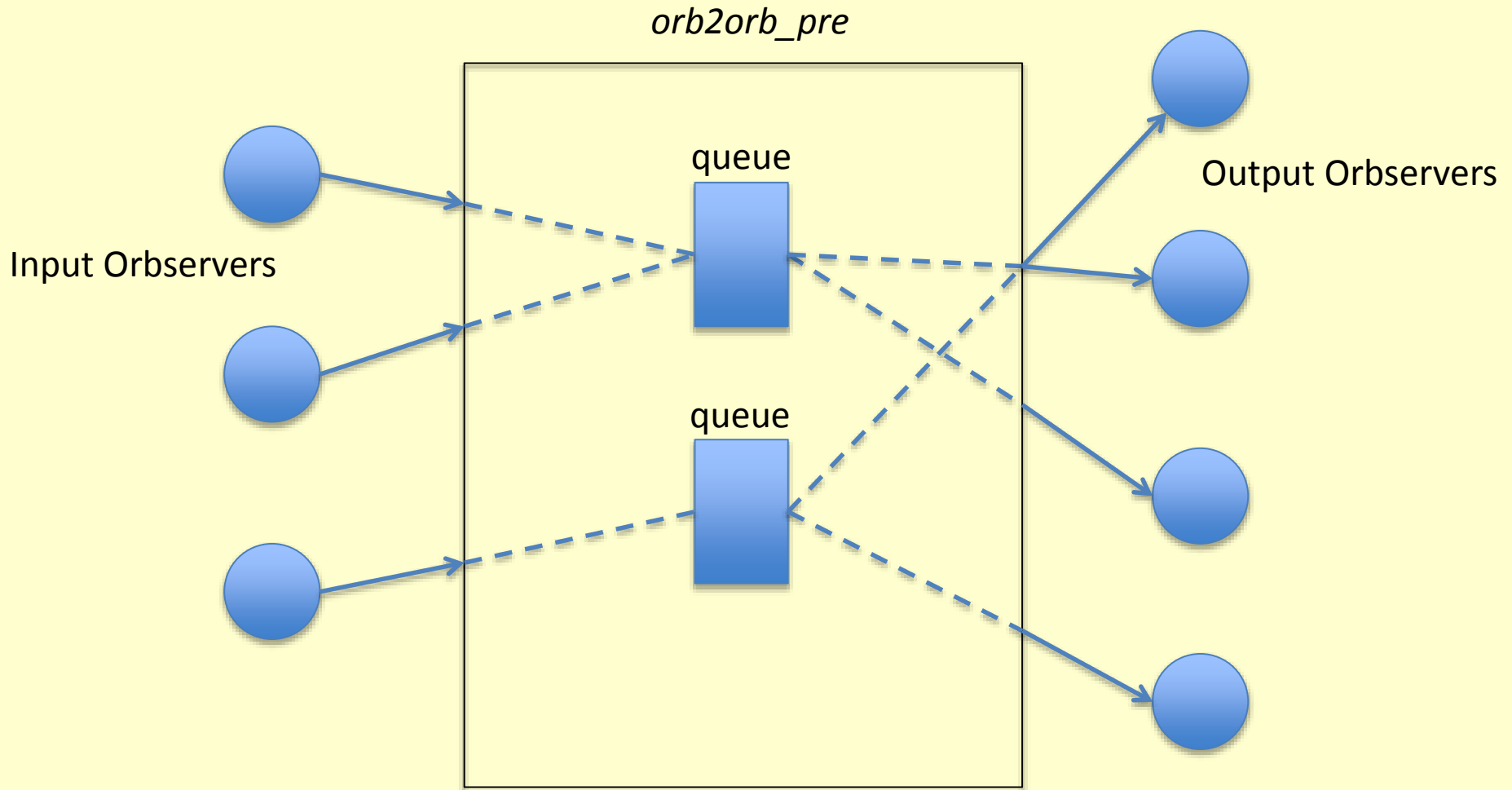


- Served well for many years
- Large networks might have hundreds of individual instances
- Manual configuration becomes burdensome
- Insufficiently supportive of direct data-acquisition role from dataloggers

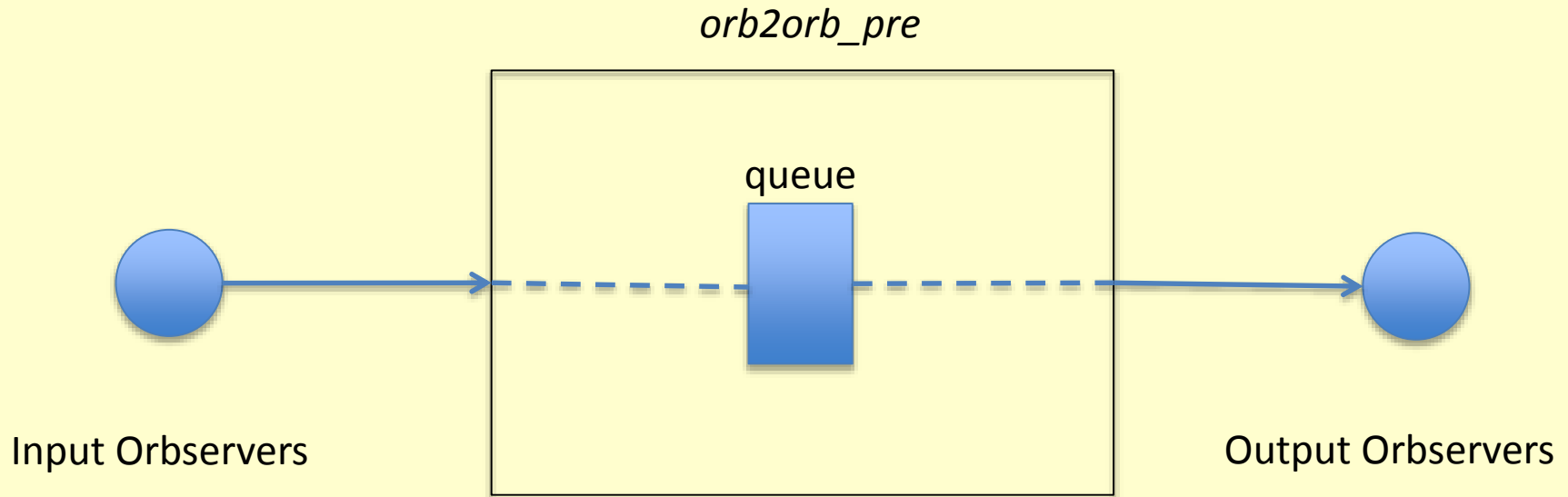
orb2orb_pre: new architecture



orb2orb_pre: new architecture

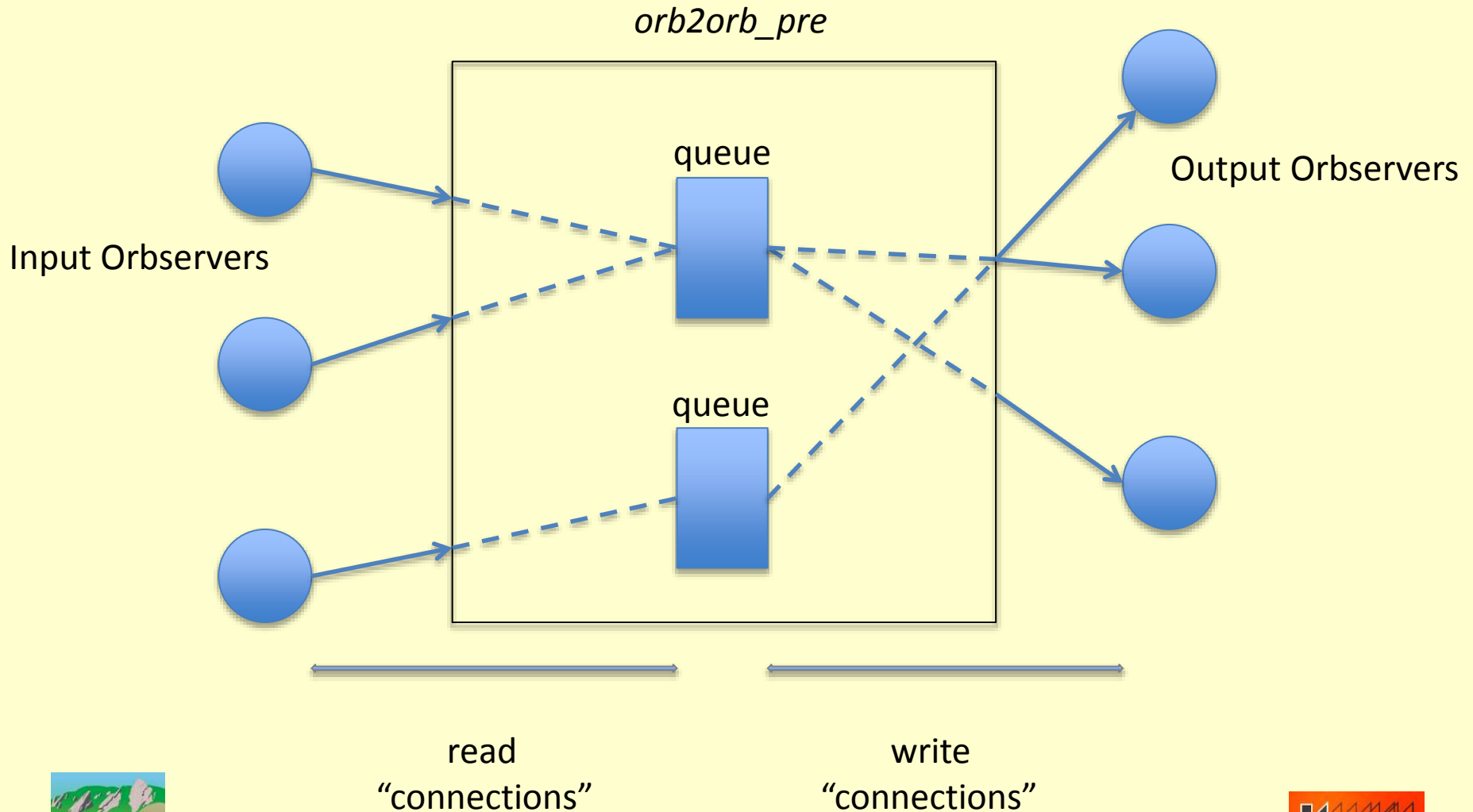


orb2orb_pre: new architecture

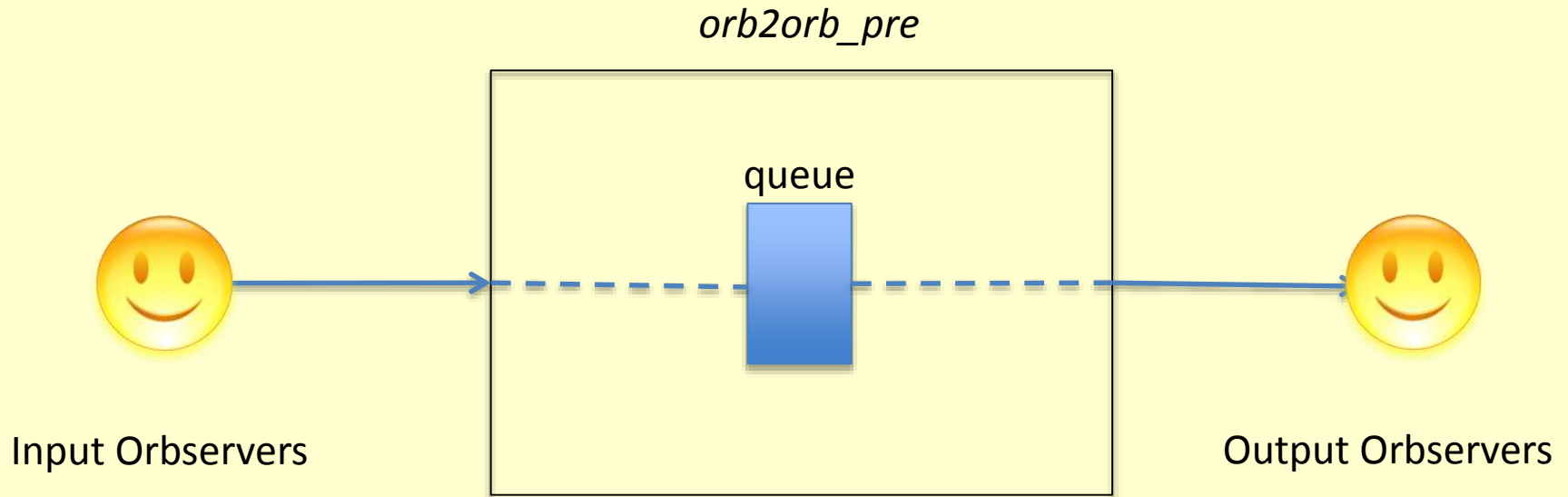


- Separate the connection into two parts:
 - The “read” half
 - The “write” half
- Configure each connection independently
- Add an internal *queue* to buffer data
- Allows you to acquire once, distribute to many destinations
- Allows you to fine-tune outputs
 - different match expressions to different outputs

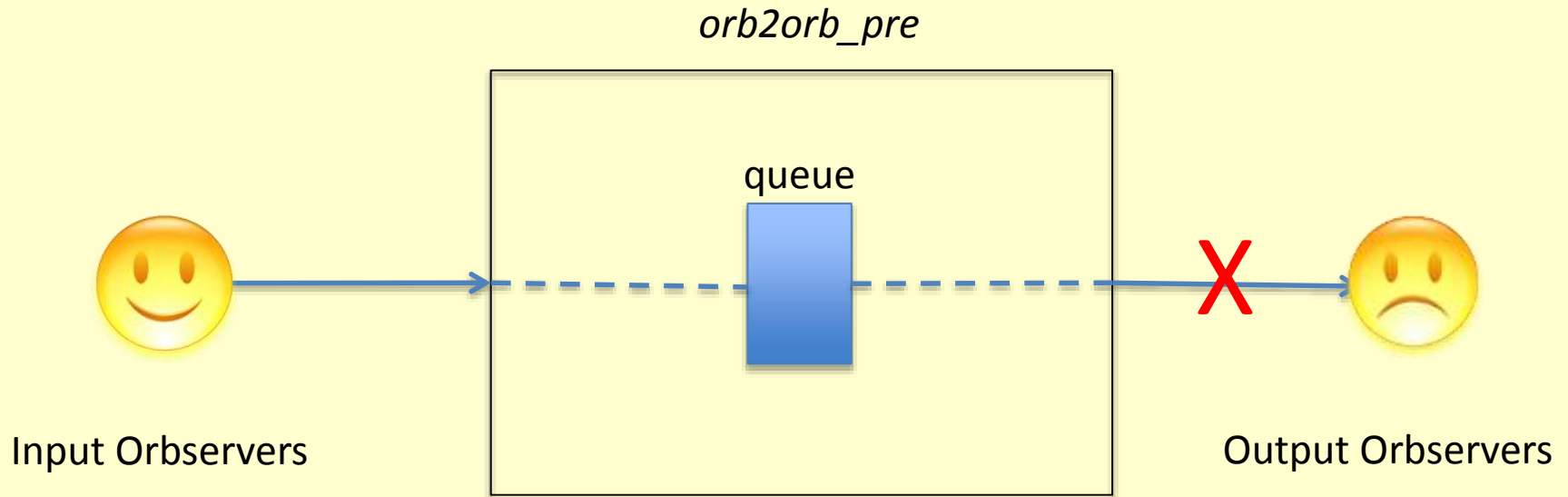
orb2orb_pre: new architecture



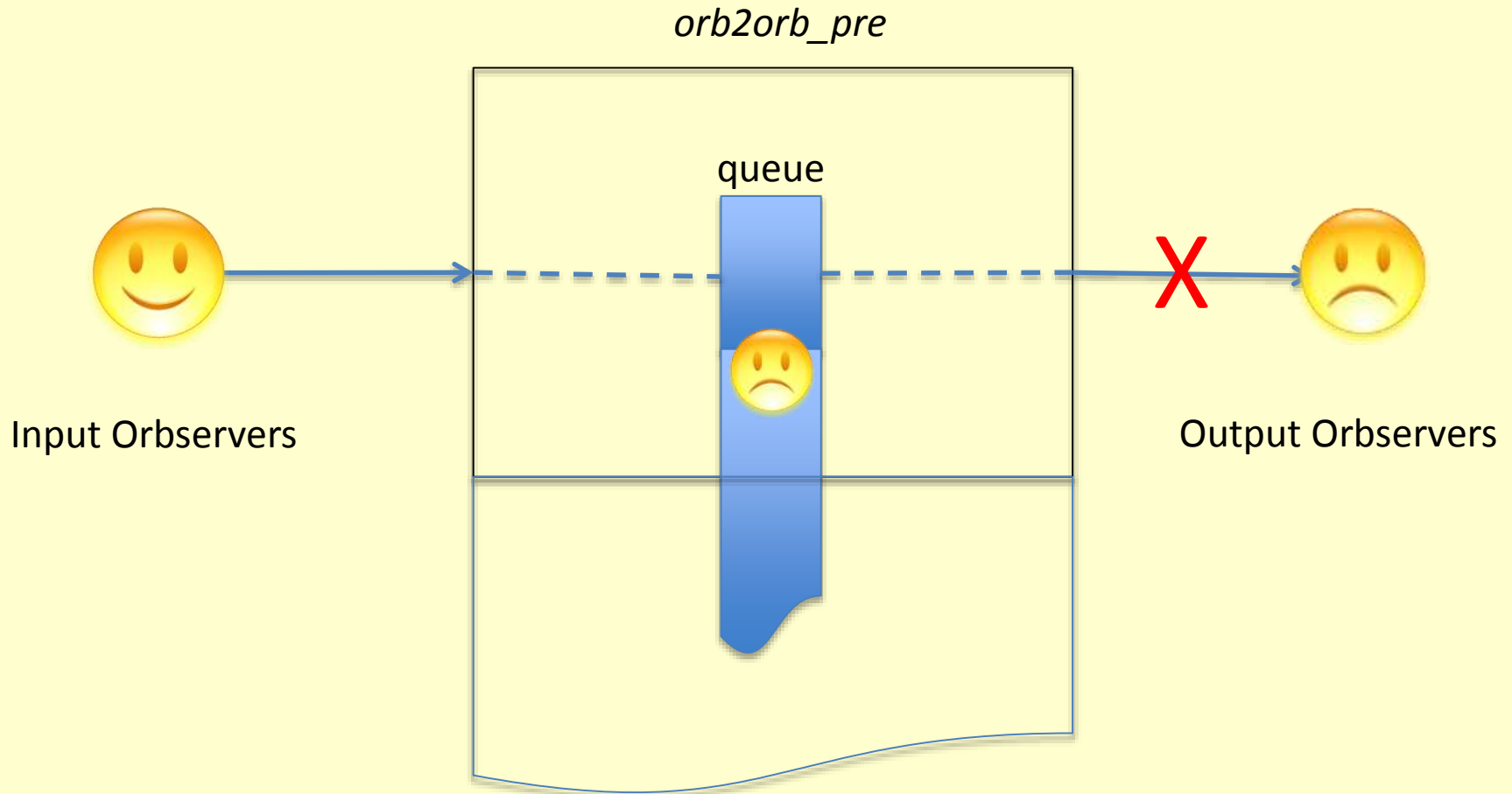
orb2orb_pre: new architecture



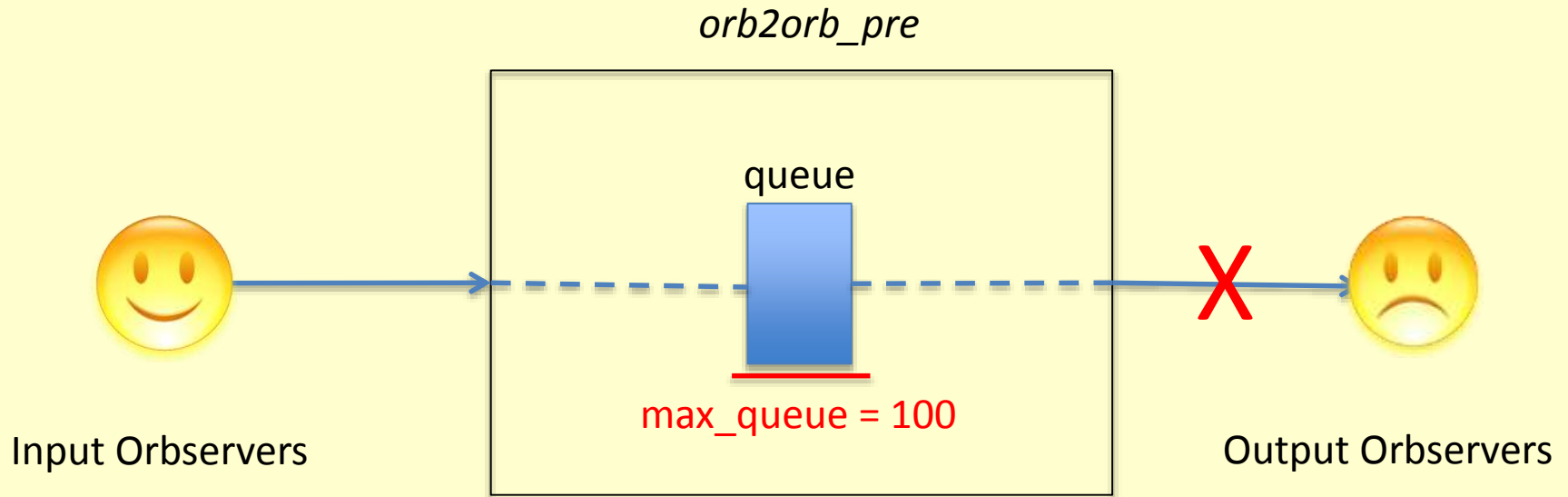
orb2orb_pre: new architecture



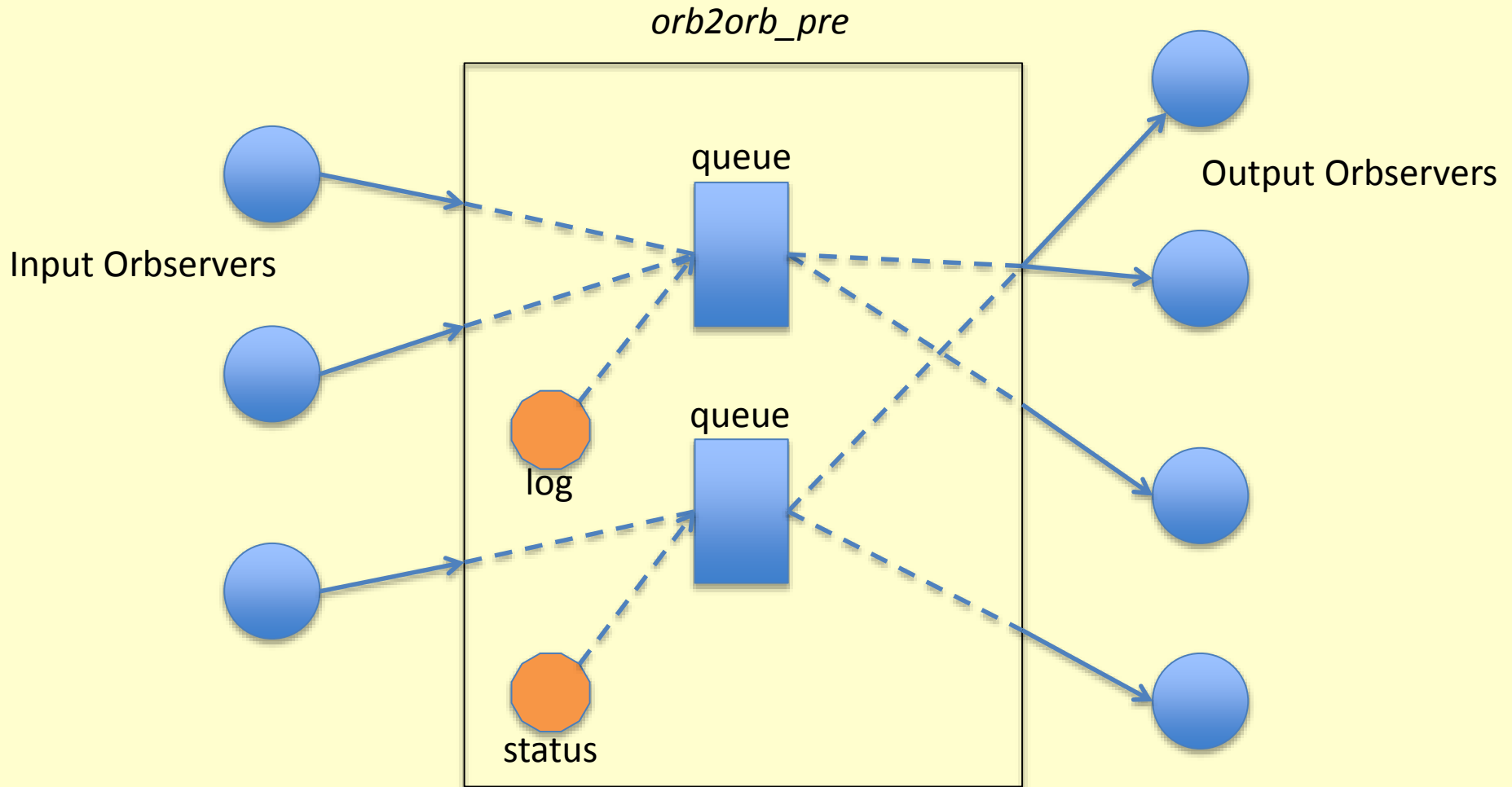
orb2orb_pre: new architecture



orb2orb_pre: new architecture



orb2orb_pre: new architecture



orb2orb_pre: dlmon output

dlname	comt	orbname	dir	queue	nq	runtm	SLT	dltncty	rss
1/orb2orb_pre	rint	bbarray.ucsd.edu:gsn@	->read	mainq		32s	00s	01m05s	3MB
2/orb2orb_pre	rint	:gsn@	<-write	mainq	0	32s	00s	01m05s	3MB

“connection”

*number of
packets
in queue*

*run
time*

*Status
Latency*

*Data
Latency*

orb name

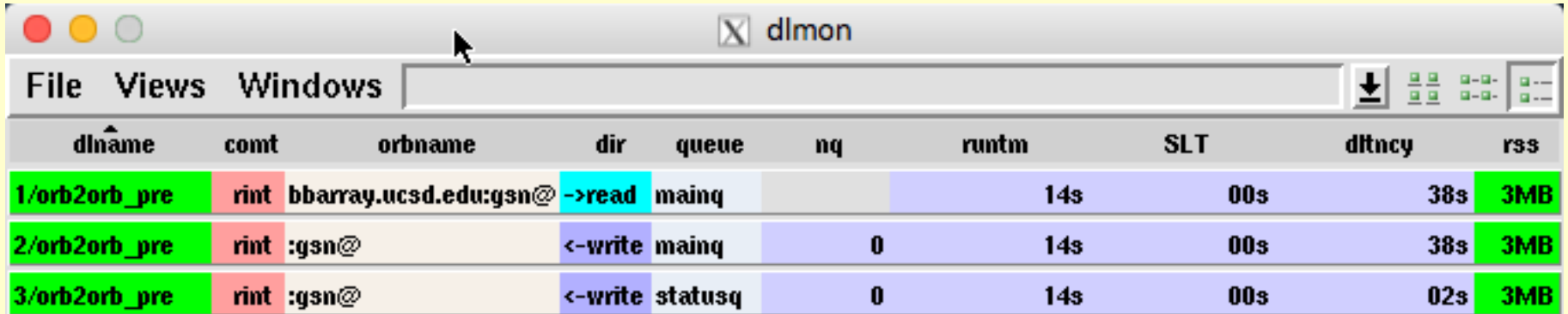
queue name

direction

*Resident
Set
Size
(memory)*

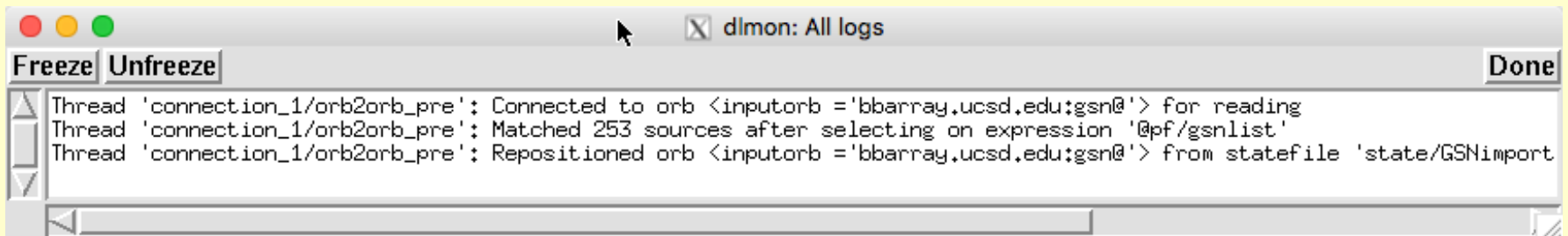


orb2orb_pre: dlmon output



The screenshot shows the dlmon application window with a table of connections. The table has columns for dlname, comt, orbname, dir, queue, nq, runtm, SLT, dltncty, and rss. Three rows are visible, all for 'orb2orb_pre' connections.

dlname	comt	orbname	dir	queue	nq	runtm	SLT	dltncty	rss
1/orb2orb_pre	rint	bbarray.ucsd.edu:gsn@	->read	mainq		14s	00s	38s	3MB
2/orb2orb_pre	rint	:gsn@	<-write	mainq	0	14s	00s	38s	3MB
3/orb2orb_pre	rint	:gsn@	<-write	statusq	0	14s	00s	02s	3MB



The screenshot shows the 'dlmon: All logs' window with a log of connection events. The window has 'Freeze' and 'Unfreeze' buttons and a 'Done' button. The log text is as follows:

```
Thread 'connection_1/orb2orb_pre': Connected to orb <inputorb = 'bbarray.ucsd.edu:gsn@'> for reading  
Thread 'connection_1/orb2orb_pre': Matched 253 sources after selecting on expression '@pf/gsnlist'  
Thread 'connection_1/orb2orb_pre': Repositioned orb <inputorb = 'bbarray.ucsd.edu:gsn@'> from statefile 'state/GSNimport'
```

orb2orb_pre: command line

orb2orb_pre [-v] [CURRENT SYNTAX]
[-p pf]
[-S statefile]
[-t targetname]
[[orbtag orbname] ...]

orb2orb_pre [-v] [LEGACY SYNTAX]
[-m match]
[-p pf]
[-r reject]
[-S statefile]
[-t targetname]
orb in orb out [start-time [period | end-time]]

orb2orb_pre: command line

- Example from *rtdemo* GSN:

```
orb2orb_pre -v -S state/GSNimport inputorb bbarray.ucsd.edu:gsn outputorb :gsn
```

- “orbtag” parameters label each actual orbname
 - just as in *q3302orb*, *altus2orb*

orb2orb_pre: parameter file

```
connections &Tbl{  
    &Arr{  
        read_from_orbtag    inputorb  
    }  
    &Arr{  
        write_to_orbtag     outputorb  
    }  
}
```


orb2orb_pre: parameter file

```
connections &Tbl{
  &Arr{
    read_from_orbtag    inputorb
  }
  &Arr{
    write_to_orbtag    outputorb
  }
  &Arr{
    read_from_queue    statusq
    write_to_orbtag    outputorb
  }
}
```

orb2orb_pre: parameter file

```
connections_defaults &Arr{
  read &Arr{
    read_from_orbname
    read_from_orbtag
    write_to_queue      mainq
    starttime
    endtime
    too_old
    too_new
    check_unstuff      false
    suppress_unstuff_errors false
  }
  write &Arr{
    read_from_queue      mainq
    write_to_orbname
    write_to_orbtag
    max_queue            100
  }
  shared &Arr{
    name                auto
    run                 true
    match
    reject
  }
}
```



orb2orb_pre: parameter file

```
connections_special &Arr{
  status_create &Arr{
    run                true
    write_to_queue    statusq
  }
  log_create &Arr{
    run                true
    write_to_queue    mainq
  }
}

time_intervals_sec &Arr{
  pfstatusreport      2
  internal_timeout    1
  shutdown_grace_period 15
}
```



orb2orb_pre: planning for next year

- Time and Multiplex repackaging
- More status metrics (dataflow, rates, etc.)
- POC Capability
- Command-and-control (*dlcmd*)
- Duplicate packet rejection
- Additional legacy option & parameter support
- Failover to alternate input orbserver

Contractors

- Continuing strategy of doing Antelope infrastructure development in-house and contracting externally for some well-defined applications and capabilities
- Juan Reyes, *Reyes' Code*
 - *dbmoment*
- Celso Reyes, *Celso Reyes Consulting*
 - *db2stationxml*

dbmoment

- Contributed-code wrapper around Dreger's regional moment-tensor code
- Further detail in Juan Reyes' talk
 - Focal Mechanism Framework in Antelope



db2stationxml

- Station-metadata export capability from Datascope to FDSN StationXML format
- Further detail in Celso Reyes' talk

`% db2stationxml -L network /opt/antelope/data/db/demo/demo`

```
<FDSNStationXML xmlns="http://www.fdsn.org/xml/station/1" schemaVersion="1.0" xsi:schemaLocation="http://www.fdsn.org/xml/station/1 http://www.fdsn.org/xml/station/fdsn-station-1.0.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:css30="http://www.brrt.com/xml/station/css30" >
  <Source>ZZ</Source>
  <Sender>BRTT</Sender>
  <Module>db2stationxml</Module>
  <ModuleURI><!-- UNKNOWN --></ModuleURI>
  <Created>2016-05-13T19:29:38.17847</Created>
  <Network code="AZ" startDate="1970-01-01T00:00:00" endDate="2599-12-31T23:59:59" css30:netType="-" >
    <Description>Anza Real-Time Broadband Network</Description>
    <SelectedNumberStations>38</SelectedNumberStations>
  </Network>
  <Network code="PB" startDate="1970-01-01T00:00:00" endDate="2599-12-31T23:59:59" css30:netType="ww" >
    <Description>Plate Boundary Observatory Borehole Seismic Network</Description>
    <SelectedNumberStations>11</SelectedNumberStations>
  </Network>
  <Network code="YN" startDate="1970-01-01T00:00:00" endDate="2599-12-31T23:59:59" css30:netType="-" >
    <Description>San Jacinto Fault Zone (SJFZ)</Description>
    <SelectedNumberStations>4</SelectedNumberStations>
  </Network>
</FDSNStationXML>
%
```



dbe

- Complete rewrite of venerable database editor
- First version introduced last year as *dbe_pre*
- Original *dbe* is still available as *dbe_dep(1)*
- Very hard to rewrite to established standard
- A few features still missing
- Feedback welcome!!
 - Add and vote on feature requests:
 - <https://brtt.zendesk.com/hc/en-us/community/topics/200361606-Feature-Requests-dbe>
 - (also support@brtt.com, especially for bugs)



dbe

dbf: /opt/antelope/data/db/demo/demo

File Edit View Options Graphics Help

Tables New Window

	arrival	assoc	calibration	event	instrument	lastid	netmag	network	origerr	origin	scharloc	sensor	site	sitechan	stetsta	stage	stamag	wldisc	disensor	sensormodel			
	lat	lon	depth	time		time	evrid	evdat	nasa	ndof	ann	ann	review	dtype	mi	mid	7	locat	stnm	auth	startdate		
0	33.9213	-117.8007	18.5671	1/12/16 (012)	05:29:00.48717 UTC		1	6	2016012	23	23	43	3	y									
1	33.9365	-117.8047	14.8700	1/12/16 (012)	05:29:00.73000 UTC		2	6	2016012	23	53			y									
2	33.7327	-116.8130	4.8900	1/12/16 (012)	05:41:57.43000 UTC		3	7	2016012	26	53			y									
3	33.3071	-116.8195	17.8050	1/12/16 (012)	05:41:57.62942 UTC		4	7	2016012	26	26	43	3	y	f	1.63	9	locat	losp91	UCSD:rtm	3/07/16 (067)	20:32:08.88314 UTC	
4	33.4885	-116.5786	8.1352	1/12/16 (012)	05:41:59.89487 UTC		5	2	2016012	18	18	43	3	y	f	0.81	8	locat	losp91	UCSD:rtm	3/07/16 (067)	20:28:13.73304 UTC	
5	33.4896	-116.4647	11.3244	1/12/16 (012)	05:56:18.89440 UTC		6	3	2016012	14	14	43	3	y	f								
6	33.3967	-116.2553	10.3066	1/12/16 (012)	17:24:25.05183 UTC		7	8	2016012	28	28	43	3	y	f	1.46	3	locat	losp91	UCSD:rtm	2/29/16 (060)	21:02:14.42536 UTC	
7	33.3863	-116.2863	8.7400	1/12/16 (012)	17:24:25.88000 UTC		8	8	2016012	28	46			y									
8	33.7511	-116.6978	10.2723	1/12/16 (012)	17:29:37.53821 UTC		9	1	2016012	24	24	43	3	y	f	0.55	2	locat	losp91	UCSD:rtm	2/29/16 (060)	21:10:56.07277 UTC	
9	33.9541	-116.8587	20.5127	1/12/16 (012)	17:37:24.14660 UTC		10	9	2016012	30	39	43	3	y	f	2.47	3	locat	losp91	UCSD:rtm	2/29/16 (060)	21:31:06.94678 UTC	
10	33.9707	-116.8662	1.7100	1/12/16 (012)	17:37:24.53000 UTC		11	9	2016012	40	105			y									
11	34.6847	-116.1387	0.8000	1/12/16 (012)	18:39:53.45746 UTC		12	10	2016012	23	23	43	3	y	f	2.37	10	locat	losp91	UCSD:rtm	3/07/16 (067)	22:38:05.99745 UTC	
12	34.6933	-116.2430	1.9100	1/12/16 (012)	18:39:53.79000 UTC		13	10	2016012	23	30			y									
13	34.6960	-116.2377	2.2500	1/12/16 (012)	18:40:35.35000 UTC		14	11	2016012	24	29			y									
14	34.6754	-116.1441	0.8000	1/12/16 (012)	18:40:35.52294 UTC		15	11	2016012	24	24	43	3	y	f	2.46	16	locat	losp91	UCSD:rtm	3/08/16 (068)	16:44:14.77726 UTC	
15	34.6943	-116.2368	2.3700	1/12/16 (012)	19:11:22.70000 UTC		16	13	2016012	18	21			y									
16	34.6223	-116.2103	5.2469	1/12/16 (012)	19:11:24.11368 UTC		17	13	2016012	18	18	43	3	y	f	2.43	4	locat	losp91	UCSD:rtm	2/29/16 (060)	22:39:32.13351 UTC	
17	34.6953	-116.2363	2.7600	1/12/16 (012)	19:11:41.23000 UTC		18	12	2016012	28	23			y									
18	34.6795	-116.1875	18.1784	1/12/16 (012)	19:11:42.16418 UTC		19	12	2016012	28	28	43	3	y	f	2.85	15	locat	losp91	UCSD:rtm	3/08/16 (068)	16:41:28.89489 UTC	
19	33.7533	-116.8147	13.7953	1/13/16 (013)	05:29:22.14992 UTC		20	14	2016013	45	45	43	3	y	f								
20	33.7538	-116.8397	12.6300	1/13/16 (013)	05:29:22.52000 UTC		21	14	2016013	45	44			y									
21	-15.1946	-174.9023	233.3900	1/13/16 (013)	05:55:59.72000 UTC		22	15	2016013	27	0			y									
22	33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113 UTC		23	4	2016013	13	13	43	3	y	f								
23	33.5310	-116.4713	6.4297	1/13/16 (013)	06:06:37.83234 UTC		24	4	2016013	13	13	43	3	y	f								
24	33.5321	-116.4673	7.8669	1/13/16 (013)	06:06:40.33282 UTC		25	5	2016013	20	20	43	3	y	f	-0.83	12	locat	losp91	UCSD:rtm	3/08/16 (068)	15:52:21.46812 UTC	
25	33.5355	-116.4824	9.8919	1/13/16 (013)	06:06:40.36363 UTC		26	5	2016013	20	20	43	3	y	f	-0.85	11	objenloc	losp91	UCSD:rtm	3/08/16 (068)	15:50:28.44980 UTC	
26	32.6990	-115.7656	15.8563	1/13/16 (013)	12:05:12.70967 UTC		27	18	2016013	31	31	45	3	y	f	2.85	13	objenloc	losp91	UCSD:rtm	3/08/16 (068)	16:24:30.55457 UTC	
27	32.7010	-115.7925	17.8874	1/13/16 (013)	12:05:13.12483 UTC		28	18	2016013	31	31	45	3	y	f	2.85	14	locat	losp91	UCSD:rtm	3/08/16 (068)	16:24:05.42086 UTC	
28	32.7142	-115.8113	6.6600	1/13/16 (013)	12:05:15.00000 UTC		29	18	2016013	31	46			y									
29	33.4818	-116.2040	7.2509	1/13/16 (013)	13:37:05.51306 UTC		30	19	2016013	36	36	43	3	y	f								
30	33.4723	-116.4090	5.6700	1/13/16 (013)	13:37:05.88000 UTC		31	19	2016013	36	61			y									
31	33.8051	-116.3679	27.4623	1/13/16 (013)	16:09:18.89407 UTC		32	20	2016013	29	29	43	3	y	f	1.14	5	locat	losp91	UCSD:rtm	3/07/16 (067)	19:05:10.28383 UTC	
32	33.9243	-116.9580	15.5200	1/13/16 (013)	16:09:19.63000 UTC		33	20	2016013	29	60			y									
33	34.6950	-116.2373	1.8300	1/13/16 (013)	16:50:11.87000 UTC		34	21	2016013	28	29			y									
34	34.6962	-116.2074	5.1955	1/13/16 (013)	16:50:13.91490 UTC		35	21	2016013	28	28	43	3	y	f	2.22	6	locat	losp91	UCSD:rtm	3/07/16 (067)	19:10:03.12921 UTC	
35	34.6987	-116.2408	1.4200	1/13/16 (013)	06:53:53.23000 UTC		36	16	2016013	34	50			y									
36	34.6289	-116.2532	0.8000	1/13/16 (013)	06:53:54.11081 UTC		37	16	2016013	34	34	43	3	y	f	2.31	33	locat	losp91	UCSD:rtm	3/08/16 (068)	21:23:47.83167 UTC	
37	32.7000	-115.8003	10.9500	1/13/16 (013)	12:01:04.33000 UTC		38	17	2016013	31	58			y									

39 Rows

Table 'origin' updated: 3/16/16 (076) 16:34:53.26436 UTC (50 days 5.0 hours ago)

updated: 5/05/16 (126) 21:34:59.75065 UTC



dbe: major new features

- All tables are in one window
 - New Windows available on request
- Modern interface
 - Cocoa substrate on Mac
 - *\$ANTELOPE/bin/native/dbe*
 - (run *\$ANTELOPE/bin/x11/dbe* over *ssh*)
- In-cell editing
- New mapping tools integrated into application
 - more sophistication to come here
- Internationalized (thanks to Translators!)
- Dynamic updating

dbe: minor features

- Lots of tooltips
 - *dbhelp* info integrated into tables, fields tooltips
 - Full contents of each row
- Quick-access database-operations toolbar
- Context-sensitive (right click) find-forward, find-backward, subset
- Separate background colors for null and blank values

dbe: tooltips

rr origin schanloc sensor site sitechan snetsta stage stamag wfdisc dlsens

review

Table: *origin*

Table type: Base Table

Description: Data on event location and size

File: /Volumes/Users/antelope/data/db/demo/demo.origin

Unix permissions: Read/Write

Modified: 3/16/2016 10:34:53.264 MDT(50 days 22.4 hours ago)

Table size: 9.1 kilobytes

Record size: 238 bytes per record

Record count: 39 records

Primary keys: *time, lat, lon, depth, ndef, nass*

Alternate keys: *orid*

Foreign keys: *evid, commid, grn, srn*

Defines: *orid*

Detailed description:

Information describing a derived or reported origin for a particular event is stored in this table.

3/08/16 (068) 16:50:01.25018 UTC

f dbaenloc:iasp91 UCSD:rt 3/08/16 (068) 15:50:21.75212 UTC

18	34.6795	-116.3875	10.1784	1/12/16 (0
19	33.7533	-116.8147	13.7953	1/13/16 (0
20	Record index: 18			
21	Record size: 238 bytes			
22				
23	lat:	34.6795		
24	lon:	-116.3875		
25	depth:	10.1784		
26	time:	1/12/16 (012) 19:11:42.16418 UTC		
27	orid:	19		
28	evid:	12		
29	jdate:	2016012		
30	nass:	28		
31	ndef:	28		
32	ndp:			
33	grn:	43		
34	srn:	3		
35	etype:			
36	review:	y		
37	depdp:			
38	dtype:	f		
	mb:			
	mbid:			
	ms:			
	msid:			
	ml:	2.85		
	mlid:	15		
	algorithm:	locsat:iasp91		
	auth:	UCSD:rtMl		
	commid:			
	lddate:	3/08/16 (068) 16:41:28.03439 UTC		

orid	evid	jdate	nass	ndef	grn	srn	review	dt
1	6	2016012	23	23	43	3	y	f

Field: *orid*

Description: origin id

Type: integer

Size: 8 bytes

Format: %8ld

Position in row: 48-56 (zero offset)

Range: orid > 0

Units:

Null value: -1

Defining for table: *origin*

Key type for 'origin': Alternate

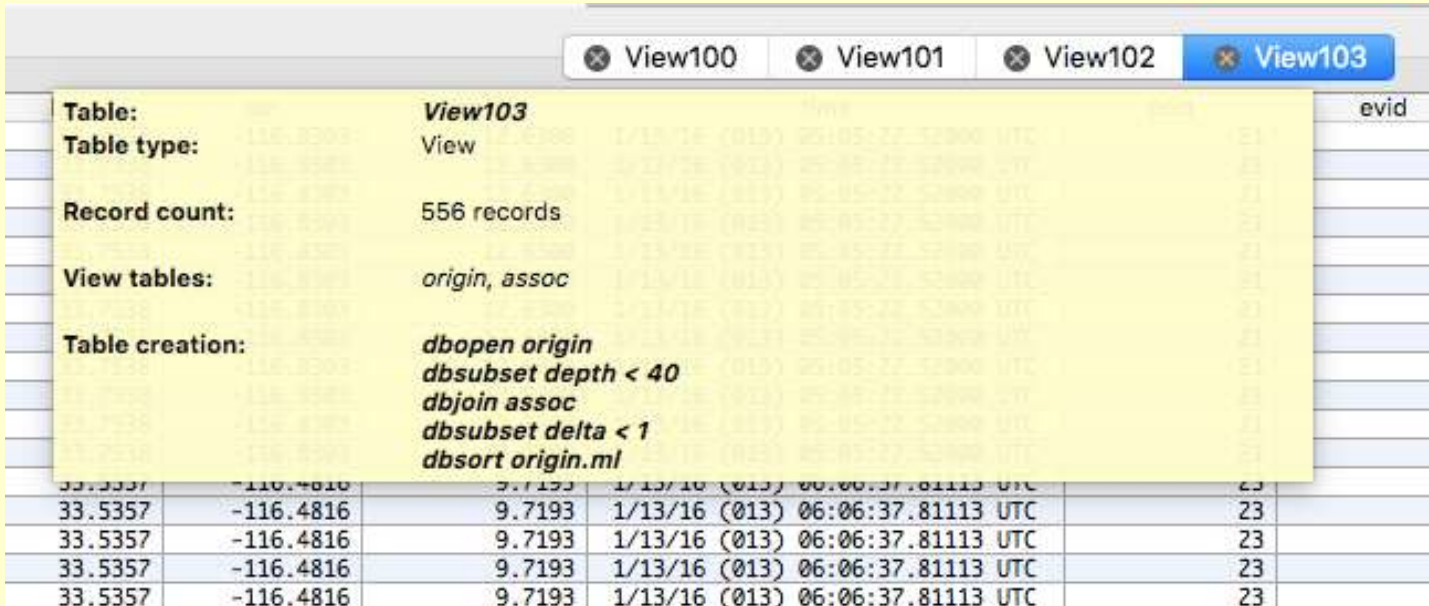
Column empty: No

Detailed description:

Each origin is assigned a unique positive integer which identifies it in a data base. The orid is used to identify one of the many hypotheses of the actual location of the event.



dbe: tooltips



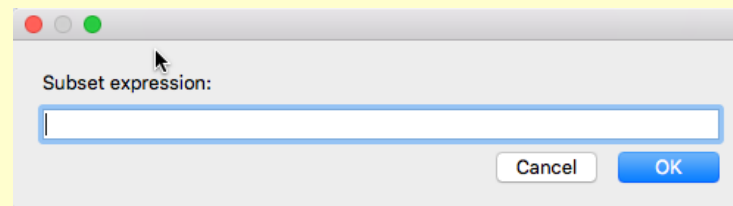
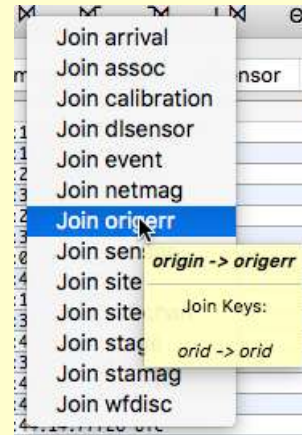
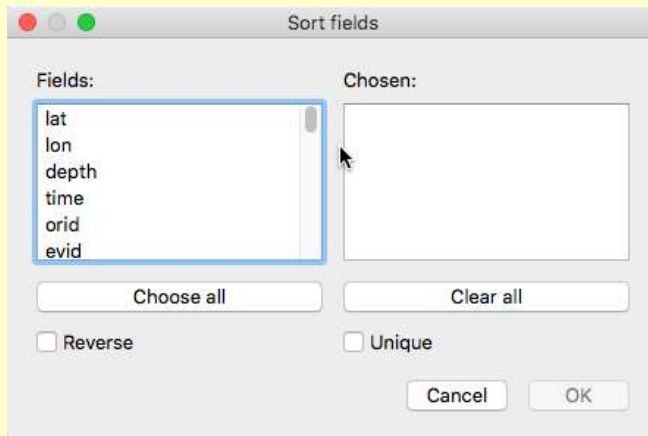
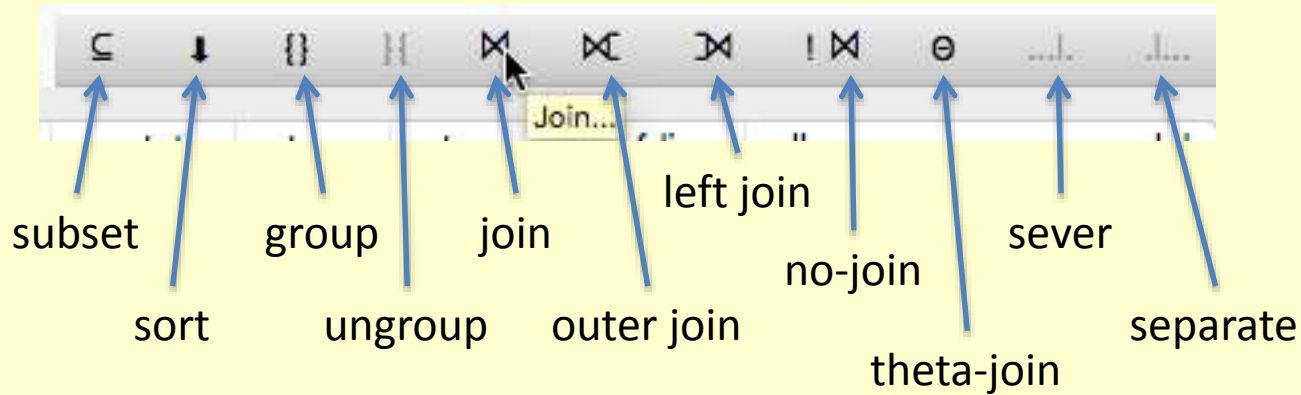
The screenshot shows a database application window with four tabs: View100, View101, View102, and View103. The View103 tab is active and displays a tooltip with the following information:

- Table:** View103
- Table type:** View
- Record count:** 556 records
- View tables:** origin, assoc
- Table creation:**
dbopen origin
dbsubset depth < 40
dbjoin assoc
dbsubset delta < 1
dbsort origin.ml

The background table has columns: evid, time, and other data. The visible rows are:

evid	time	other
33.5357	-116.4816	9.7193 1/13/16 (013) 06:06:37.81113 UTC
33.5357	-116.4816	9.7193 1/13/16 (013) 06:06:37.81113 UTC
33.5357	-116.4816	9.7193 1/13/16 (013) 06:06:37.81113 UTC
33.5357	-116.4816	9.7193 1/13/16 (013) 06:06:37.81113 UTC

dbe: database operations toolbar



Danke: Stefan Radman

dbe: row viewer and editor

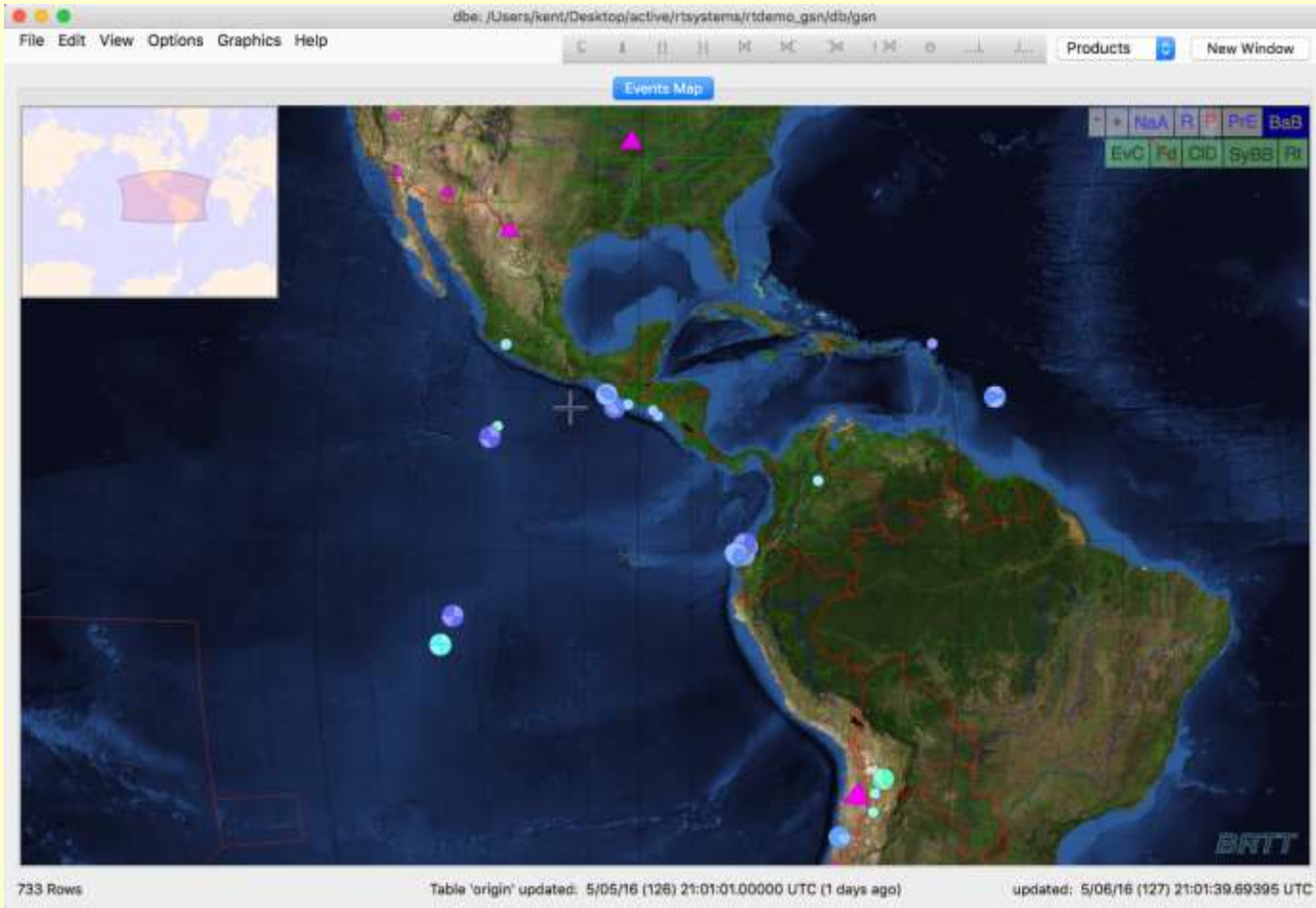
dbe Row Viewer

Row index in table 'origin' (39 total rows) ◀ ▶

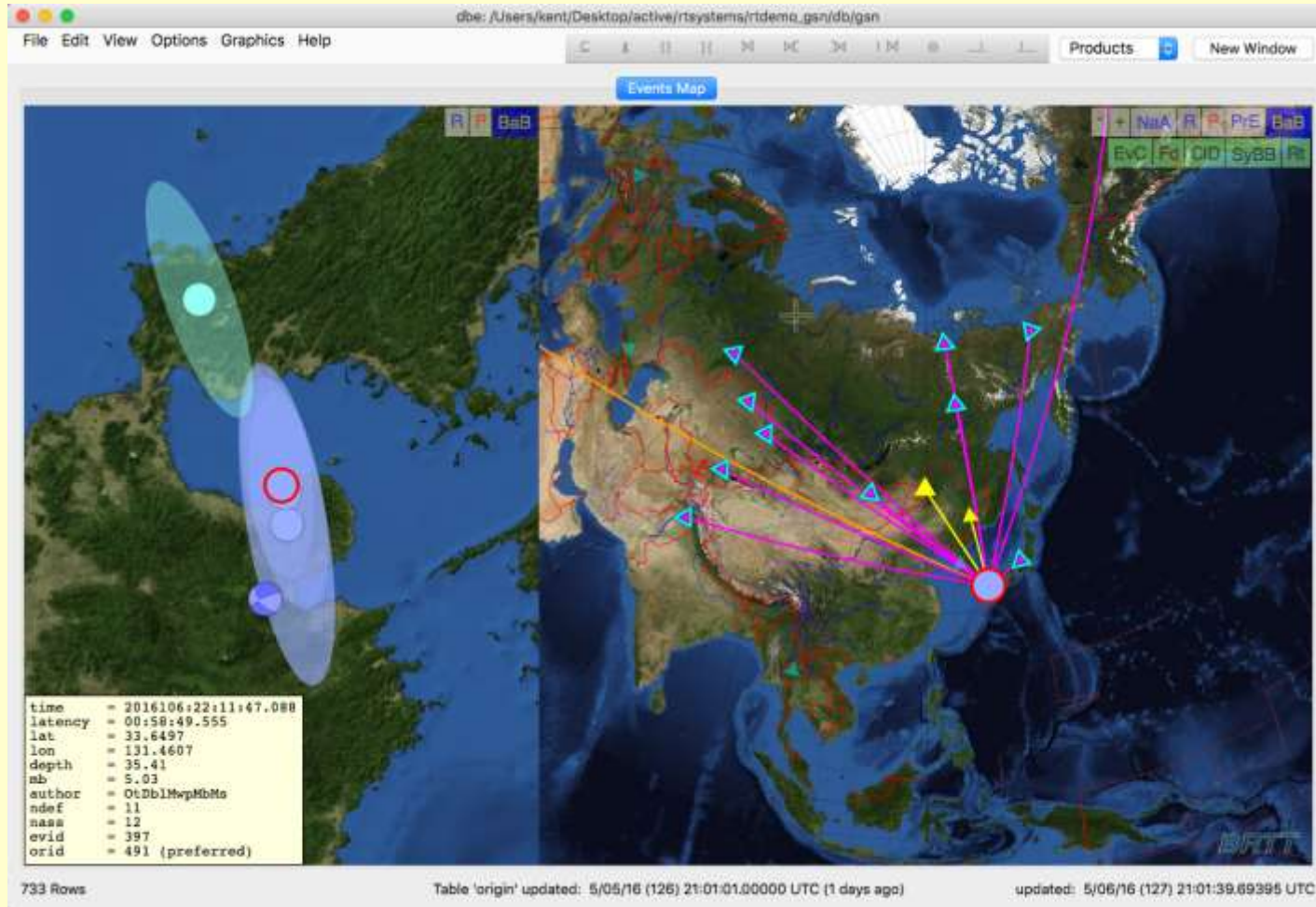
Allow Edits Readable Times Local Timezone

lat:	<input type="text" value="34.6795"/>	review:	<input type="text" value="y"/>
lon:	<input type="text" value="-116.3875"/>	depdp:	<input type="text"/>
depth:	<input type="text" value="10.1784"/>	dtype:	<input type="text" value="f"/>
time:	<input type="text" value="1/12/16 (012) 19:11:42.16418 UTC"/>	mb:	<input type="text"/>
orid:	<input type="text" value="19"/>	mbid:	<input type="text"/>
evid:	<input type="text" value="12"/>	ms:	<input type="text"/>
jdate:	<input type="text" value="2016012"/>	msid:	<input type="text"/>
nass:	<input type="text" value="28"/>	ml:	<input type="text" value="2.85"/>
ndef:	<input type="text" value="28"/>	mlid:	<input type="text" value="15"/>
ndp:	<input type="text"/>	algorithm:	<input type="text" value="locsat:iasp91"/>
grn:	<input type="text" value="43"/>	auth:	<input type="text" value="UCSD:rtML"/>
srn:	<input type="text" value="3"/>	commid:	<input type="text"/>
etype:	<input type="text"/>	lddate:	<input type="text" value="3/08/16 (068) 16:41:28.03439 UTC"/>

dbe: maps

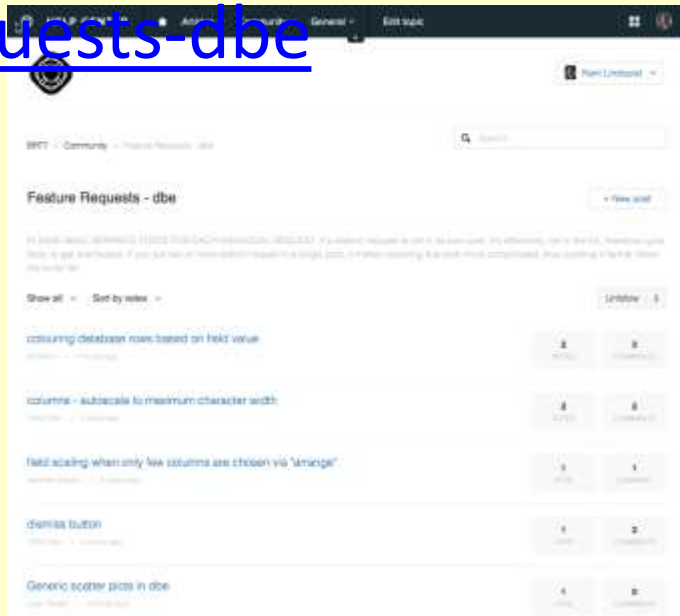


dbe: maps



dbe: feedback welcome!

- Add and *vote on* feature requests:
- <https://brtt.zendesk.com/hc/en-us/community/topics/200361606-Feature-Requests-dbe>



- One Request per post!
- Each detail in its own post!
- Vote!

- (also support@brtt.com, especially for bugs)



Internationalization and Localization

- Internationalization “I18n”
 - The *capability* to support multiple languages; the software-development side of the problem
 - New library *libbqtr(3)* to support translating program controls
 - All Unicode-supported languages allowed
 - This is our first, basic foray – will require more investment if there is sustained interest

Internationalization and Localization

- Localization “l10n”
 - The *expression* into specific languages; the application-configuration side of the problem
 - New manpage *antelope_l10n(5)* on how to add a language
 - Languages may be added/changed by BRTT, by the AUG community, or privately
 - Can do most of the work in Microsoft Excel – use *ts2x/sx(1)* program

Internationalization and Localization: Caveats

- All support requests must be in English
- This includes screen-dumps
 - *Command-E* or *Ctrl-E* shortcut to switch to English
- We do not translate, and do not foresee translating, database content, table names, schema descriptions etc.

dbe: Italian

dbesoft: /opt/antelope/data/db/demo/demo

file Modifica Visualizza **Options** Grafica Guida

- Abilita modifica
- ✓ Colora le righe in modo alternato
- ✓ Colora lo sfondo di bianco
- ✓ Rimuovi il colore di sfondo
- Colora di sfondo bianco...
- Nessun colore di sfondo...
- Carattere...
- ✓ Includi l'intestazione nel salvataggio del testo
- Lingua
- Ora locale 'America/Denver'
- Valori nulli in formato grezzo
- ✓ Tempi leggibili
- Richiesta nomi viste
- Mostra colonne vuote
- ✓ Strumenti
- Aggiorna Intervallo...

tag	network	origin	origin	schanloc	sensor	site	sitchan	anetata	stage	stamag	wdisc	dsensor	sensormodel
evrid	date	time	date	sm	sm	review	dtype	ml	mid	locset	losp91	auth	idiate
0	33	9213	-117	8897									
1	33	9365	-117	8487									
2	33	2327	-116	8138									
3	33	9811	-116	8195									
4	33	4885	-116	5786									
5	33	4896	-116	4647									
6	33	3967	-116	2553									
7	33	3863	-116	2863									
8	33	7511	-116	6978									
9	33	9541	-116	8587									
10	33	9787	-116	8662									
11	34	6847	-116	1387									
12	34	6933	-116	2418									
13	34	6968	-116	2377									
14	34	6754	-116	1481									
15	34	6983	-116	2368									
16	34	6621	-116	2399									
17	34	6955	-116	2363									
18	34	6795	-116	3875									
19	33	7533	-116	8147	13	7953	1/13/16	(813)	05:05:22	14990	UTC		
20	33	7538	-116	8381	12	6300	1/13/16	(813)	05:05:27	12800	UTC		
21	-15	1946	-174	5813	233	3900	1/13/16	(813)	05:55:59	72800	UTC		
22	33	5357	-116	4816	9	7193	1/13/16	(813)	06:06:37	81113	UTC		
23	33	5338	-116	4713	6	4297	1/13/16	(813)	06:06:37	83294	UTC		
24	33	5321	-116	4679	7	8069	1/13/16	(813)	06:06:40	13262	UTC		
25	33	5355	-116	4824	9	8919	1/13/16	(813)	06:06:40	36363	UTC		
26	32	6990	-115	7656	15	8563	1/13/16	(813)	12:05:12	78967	UTC		
27	32	7010	-115	7925	17	8874	1/13/16	(813)	12:05:13	12483	UTC		
28	32	7142	-115	8113	6	6680	1/13/16	(813)	12:05:15	80000	UTC		
29	33	4818	-116	3948	7	2289	1/13/16	(813)	13:37:05	51998	UTC		
30	33	4723	-116	4090	5	6780	1/13/16	(813)	13:37:05	88800	UTC		
31	33	8651	-116	9679	27	4629	1/13/16	(813)	16:03:18	69497	UTC		
32	33	8283	-116	9580	13	5200	1/13/16	(813)	16:03:19	63000	UTC		
33	34	6958	-116	2373	1	8388	1/13/16	(813)	16:58:31	87800	UTC		
34	34	5962	-116	2674	5	1955	1/13/16	(813)	16:58:33	91490	UTC		
35	34	6987	-116	2488	1	4200	1/13/16	(813)	06:53:53	23000	UTC		
36	34	6289	-116	2552	8	8000	1/13/16	(813)	06:53:54	11081	UTC		
37	32	7000	-115	8001	10	9900	1/13/16	(813)	17:01:04	13000	UTC		
38	32	7769	-115	8205	22	3493	1/13/16	(813)	17:01:04	82051	UTC		
39	17	2036913											

39 Righe

Tabella 'origin' aggiornata: 3/16/16 (076) 16:34:53.26436 UTC (50 days 5.3 hours' fa)

aggiornato/a: 5/05/16 (126) 21:56:44.71930 UTC

Grazie: Alessandra Papparelli



dbe: Chinese

db: /opt/antelope/data/db/demo/demo

文件 编辑 视图 选项 图形 帮助

连接arrival
连接assoc
连接calibration
连接disensor
连接event
连接netmag
连接origerr
连接sensor
连接site
连接sitechan
连接stage
连接stamag
连接wfdisc

arrival	assoc	calibration	event	instrument	lastid	netmag	network	origerr	origin	schanloc	sensor	site	site	stage	stamag	wfdisc	disensor	sensormodel
sta	onote	offdate	lat	lon	elev	stname	statvce							lodate				
0	BSAP	2011224	33.2682	-116.3223	0.1680	Borrego Springs Airport, CA, USA					2/01/16 (032)	22:04:47.845						
1	BZN	1983020	33.4915	-116.6670	1.3018	Buzz Northern Flats, Anza, CA, USA					2/01/16 (032)	22:04:48.610						
2	CPE	2004325	32.8889	-117.1051	0.1500	Camp Elliot, Miramar, CA, USA					2/01/16 (032)	22:05:21.241						
3	CRY	1982274	33.5654	-116.7373	1.1260	Cary Ranch, Anza, CA, USA					2/01/16 (032)	22:05:26.386						
4	CSLB	2003001	2010153	33.7793	-118.1126	0.8170	Cal State Long Beach, Long Beach, CA, USA				2/01/16 (032)	22:06:06.522						
5	CSLB	2012238	33.7799	-118.1123	0.8170	Cal State Long Beach, Long Beach, CA, USA					2/01/16 (032)	22:06:07.091						
6	FRO	1982274	33.4947	-116.6822	1.1640	Ford Ranch, Anza, CA, USA					2/01/16 (032)	22:06:07.377						
7	GARR	2012306	33.5938	-116.6700	1.4420	Garrison Ranch, CA, USA					2/01/16 (032)	22:06:45.849						
8	HSSP	2012305	33.5847	-116.6641	1.3880	Hill Street, Anza, CA, USA					2/01/16 (032)	22:06:46.536						
9	KWV	1982274	33.7141	-118.7139	1.5070	Keenwile Fire Station, Mountain Center, CA, USA					2/01/16 (032)	22:06:46.958						
10	LVAZ	1995188	33.3516	-116.5615	1.4350	Last Valley Scout Camp, CA, USA					2/01/16 (032)	22:07:19.289						
11	MONP	1998033	2007318	32.8927	-116.4225	1.9200	Monument Peak, Mt. Laguna, CA, USA				2/01/16 (032)	22:07:52.790						
12	MONP	2007754	32.8970	-116.4223	1.8750	Monument Peak IA Vault, Mt. Laguna, CA, USA					2/01/16 (032)	22:07:52.988						
13	NETP	2002005	32.6203	-117.0567	0.2007	Mission Trails Regional Park, Santee, CA, USA					2/01/16 (032)	22:07:56.267						
14	PFO	1991274	33.6117	-116.4394	1.2390	Pinyon Flats Observatory, CA, USA					2/01/16 (032)	22:07:56.496						
15	RDH	1982274	33.6300	-116.8478	1.3650	Red Mountain, Riverside Co, CA, USA					2/01/16 (032)	22:08:40.979						
16	RHSP	2013024	33.6515	-118.7394	1.6100	Rouse Ridge, CA, USA					2/01/16 (032)	22:09:09.316						
17	SETH	2011056	33.5007	-116.5615	1.2160	South East Table Mountain, Anza, CA, USA					2/01/16 (032)	22:09:11.308						
18	SNER	2002040	33.4577	-117.1700	0.3557	Santa Margarita Ecological Reserve, CA, USA					2/01/16 (032)	22:09:12.349						
19	SND	1982274	33.5519	-116.6120	1.3580	Jim Saunders Place, Anza, CA, USA					2/01/16 (032)	22:09:22.925						
20	SOL	1996040	32.8418	-117.2480	0.2450	Mt. Soledad, San Diego, CA					2/01/16 (032)	22:10:18.103						
21	THSP	2013034	33.6192	-116.6000	2.0770	THSP, CA, USA					2/01/16 (032)	22:10:23.352						
22	TOMV	2011063	33.1442	-116.1193	0.8536	Tanner Ranch, Anza, CA, USA					2/01/16 (032)	22:10:29.599						
23	TRAV	2011065	33.4955	-116.5834	1.1970	Transquility, Anza, CA, USA					2/01/16 (032)	22:10:32.134						
24	TRO	1982274	33.5234	-116.4257	2.6280	Toro Peak, Riverside Co, CA, USA					2/01/16 (032)	22:10:32.376						
25	TUBB	2011021	33.2101	-116.4091	0.3940	Tubb Canyon, CA, USA					2/01/16 (032)	22:11:01.561						
26	WVC	1983250	33.5736	-116.6747	1.2710	Walmic Ranch, Anza, CA, USA					2/01/16 (032)	22:11:04.107						
27	B081	2006166	2599365	33.7132	-116.7142	1.4670	keenw081bcs2006, Anza, CA, USA				ss	2/01/16 (032)	21:58:21.966					
28	B082	2006161	2599365	33.5982	-116.5968	1.3748	pathf1082bcs2006, Anza, CA, USA				ss	2/01/16 (032)	21:58:22.176					
29	B082A	2013061	2599365	33.5982	-116.5968	1.3748	pathf1082bcs2006, Anza, CA, USA				ss	2/01/16 (032)	21:58:22.292					
30	B084	2006169	2599365	33.6116	-116.4564	1.2710	pinyon084bcs2006, Anza, CA, USA				ss	2/01/16 (032)	21:58:22.406					
31	B086	2006168	2599365	33.5575	-116.5318	1.3920	sanior086bcs2006, Anza, CA, USA				ss	2/01/16 (032)	21:58:22.650					
32	B086A	2013044	2599365	33.5575	-116.5318	1.3920	sanior086bcs2006, Anza, CA, USA				ss	2/01/16 (032)	21:58:22.747					
33	B087	2006168	2599365	33.4955	-116.6037	1.1300	fordc087bcs2006, Anza, CA, USA				ss	2/01/16 (032)	21:58:22.832					
34	B088	2007027	2599365	33.3749	-116.6205	1.4039	shyok088bcs2007, Anza, CA, USA				ss	2/01/16 (032)	21:58:22.920					
35	B088A	2013065	2599365	33.3749	-116.6205	1.4039	shyok088bcs2007, Anza, CA, USA				ss	2/01/16 (032)	21:58:23.002					
36	B093	2007263	2599365	33.5937	-116.7641	1.2396	trupp093bcs2007, Anza, CA, USA				ss	2/01/16 (032)	21:58:23.009					
37	B946	2010204	2599365	33.5373	-116.5925	1.4298	sageh946bcs2010, Anza, CA, USA				ss	2/01/16 (032)	21:58:23.307					
38	TRFO	2010099	33.6060	-116.4544	1.2750	Pinyon Flats, CA, USA					2/01/16 (032)	21:58:44.093						
39	JORD	2011327	2016366	33.4722	-116.6450	1.2350	JORD				2/01/16 (032)	21:56:56.531						

54的行 已更新的'site'表: 3/16/16 (076) 16:34:53.29538 UTC (先前的50 days 5.5 hours) 已更新的: 5/05/16 (126) 22:04:57.70621 UTC

谢谢: Margaret Chen



dbe: Arabic

db: /opt/antelope/data/db/dema/demo

ملف تحرير عرض خيارات رسومات تعليمات

iddate	sensor	disensor	wfidoc	stamag	stage	metsta	shechan	site	sensor	scharloc	origin	origerr	network	netmag	lastid	instrument	event	calibration	assoc	arrival				
UTC 20:15:55.18547	0607	3/08/16	UCSD:M	algorithm	mid	ml	dhvoo	F	review	am	43	23	23	2016012	6	1	UTC 03:29:00-48715	BL23	L13/16	117.0007	117.0007	33.4365	0	
UTC 18:15:21.35713	0603	3/08/16	USGS:cl	locast:taep01	F	1.88											UTC 03:29:00-73000C	BL23	L13/16	117.0047	117.0047	33.4365	1	
UTC 18:20:54.64279	0603	3/08/16	USGS:cl																					
UTC 20:12:08.88114	0673	3/07/16	UCSD:M	locast:taep01	9	1.61		F																
UTC 20:18:31.23204	0673	3/07/16	UCSD:M	locast:taep02	8	8.83		F																
UTC 20:17:20.11608	0673	3/07/16	UCSD:M	locast:taep01	1	1.46		F																
UTC 21:02:14.42536	0603	2/29/16	UCSD:M	locast:taep01	1	1.46		F																
UTC 18:41:55.24189	0603	3/08/16	USGS:cl																					
UTC 21:18:56.87277	0603	2/29/16	UCSD:M	locast:taep02	2	8.55		F																
UTC 21:11:06.94678	0603	2/29/16	UCSD:M	locast:taep01	3	2.47		F																
UTC 18:43:09.91111	0603	3/08/16	USGS:cl																					
UTC 22:30:00.00745	0673	3/07/16	UCSD:M	locast:taep01	18	2.37		F																
UTC 18:44:59.22234	0603	3/08/16	USGS:cl																					
UTC 18:44:59.22767	0603	3/08/16	USGS:cl																					
UTC 18:44:14.77726	0603	3/08/16	UCSD:M	locast:taep02	16	2.46		F																
UTC 18:48:23.80893	0603	3/08/16	USGS:cl																					
UTC 12:29:32.13351	0603	2/29/16	UCSD:M	locast:taep01	4	2.41		F																
UTC 18:48:09.05175	0603	3/08/16	USGS:cl																					
UTC 20:41:28.83439	0603	3/08/16	UCSD:M	locast:taep01	15	2.85		F																
UTC 23:06:56.11251	0673	3/07/16	UCSD:rs	locast:taep02				F																
UTC 18:53:42.34653	0603	3/08/16	USGS:cl																					
UTC 18:50:01.25818	0603	3/08/16	USGS:cl																					
UTC 15:50:21.75212	0603	3/08/16	UCSD:rs	depth:loc:taep01				F																
UTC 15:51:56.58572	0603	3/08/16	UCSD:rs	locast:taep01				F																
UTC 15:52:21.86912	0603	3/08/16	UCSD:M	locast:taep01	12	8.83		F																
UTC 13:50:28.44988	0603	3/08/16	UCSD:M	depth:loc:taep02	11	8.85		F																
UTC 16:24:30.75471	0603	3/08/16	UCSD:M	depth:loc:taep01	13	7.85		F																
UTC 16:24:05.42886	0603	3/08/16	UCSD:M	locast:taep01	14	7.85		F																
UTC 19:07:58.36671	0603	3/08/16	USGS:cl																					
UTC 16:40:09.93342	0603	3/08/16	UCSD:rs	locast:taep02				F																
UTC 19:12:36.79709	0603	3/08/16	USGS:cl																					
UTC 20:03:08.20195	0673	3/07/16	UCSD:M	locast:taep01	5	1.14		F																
UTC 19:15:34.49819	0603	3/08/16	USGS:cl																					
UTC 19:24:46.91206	0603	3/08/16	USGS:cl																					
UTC 19:10:03.12821	0673	3/07/16	UCSD:M	locast:taep01	6	2.22		F																
UTC 21:23:58.13484	0603	3/08/16	USGS:cl																					
UTC 21:23:47.83167	0603	3/08/16	UCSD:M	locast:taep01	33	2.31		F																
UTC 21:27:48.58127	0603	3/08/16	USGS:cl																					
UTC 21:27:36.47932	0603	3/08/16	UCSD:M	locast:taep01	34	2.42		F																

معلومات

معلومات

lat

lon

depth

time

orid

evid

date

data

name

ndid

ndp

nom

مسح الكل

إختيار الكل

مكسبي

OK

Cancel

JTC 21:56:12.22079 (126) 5/05/16

(days 5.3 hours 50) UTC 18:34:53.26438 (078) 3/16/16

عدد الصفوف 39

شكرا: Toufik Allili



dbe: Español

db: /opt/antelope/data/db/demq/demc

Archivo Editar Vista Opciones Gráficos Ayuda

Tablas Ventana Nueva

arrival	assoc	calibration	event	instrument	lastid	netmag	network	origerr	origin	schanloc	sensor	sno	sfilechan	snetsa	stage	stamag	wfidsc	disensor	sensormodel	
0	33.9213	-117.8897	18.5671	1/12/16 (012)	05:29:00.40717 UTC															
1	33.9365	-117.8487	14.8700	1/12/16 (012)	05:29:00.73000 UTC															
2	33.2327	-116.8130	4.8900	1/12/16 (012)	05:41:57.43000 UTC															
3	33.3033	-116.8195	17.8850	1/12/16 (012)	05:41:57.62942 UTC															
4	33.4885	-116.5786	8.1327	1/12/16 (012)	05:41:59.00487 UTC															
5	33.4896	-116.4647	11.3746	1/12/16 (012)	05:41:59.00488 UTC															
6	33.3907	-116.2533	18.3065	1/12/16 (012)	17:24:25.05183 UTC															
7	33.3863	-116.2863	8.7400	1/12/16 (012)	17:24:25.98000 UTC															
8	33.7511	-116.6978	10.2729	1/12/16 (012)	17:29:37.53821 UTC															
9	33.9541	-116.8587	20.5127	1/12/16 (012)	17:37:24.14668 UTC															
10	33.8707	-116.8662	1.7100	1/12/16 (012)	17:37:24.53000 UTC															
11	34.6847	-116.1387	0.8000	1/12/16 (012)	18:39:53.45746 UTC															
12	34.6933	-116.2420	1.9100	1/12/16 (012)	18:39:53.79000 UTC															
13	34.6960	-116.2377	2.3300	1/12/16 (012)	18:40:35.35000 UTC															
14	34.6754	-116.1481	0.8000	1/12/16 (012)	18:40:35.52294 UTC															
15	34.6883	-116.2368	2.3700	1/12/16 (012)	19:11:22.79000 UTC															
16	34.6221	-116.2103	5.2469	1/12/16 (012)	19:11:24.11368 UTC															
17	34.6953	-116.2363	2.7600	1/12/16 (012)	19:11:41.23000 UTC															
18	34.6795	-116.3875	10.1794	1/12/16 (012)	19:11:42.16418 UTC															
19	33.7513	-116.8147	11.7953	1/13/16 (015)	05:05:22.14902 UTC															
20	33.7538	-116.8303	17.6300	1/13/16 (015)	05:05:22.52000 UTC															
21	-15.1946	-174.9013	231.3900	1/13/16 (015)	05:55:59.72000 UTC															
22	33.3357	-116.4916	9.7191	1/13/16 (015)	06:06:37.81113 UTC															
23	33.5108	-116.4713	6.4797	1/13/16 (015)	06:06:37.83154 UTC															
24	33.5321	-116.4673	7.8669	1/13/16 (015)	06:06:40.33282 UTC															
25	33.5355	-116.4824	9.8919	1/13/16 (015)	06:06:40.36563 UTC															
26	32.6990	-115.7656	15.0563	1/13/16 (015)	12:05:12.70967 UTC															
27	32.7010	-115.7925	17.8874	1/13/16 (015)	12:05:13.12403 UTC															
28	32.7142	-115.8113	6.6600	1/13/16 (015)	12:05:15.00000 UTC															
29	33.4818	-116.3940	7.2209	1/13/16 (015)	13:37:05.51908 UTC															
30	33.4723	-116.4090	5.6700	1/13/16 (015)	13:37:05.80000 UTC															
31	33.8651	-116.3679	27.4623	1/13/16 (015)	16:03:13.00407 UTC															
32	33.9283	-116.3680	13.5200	1/13/16 (015)	16:03:13.63000 UTC															
33	34.6958	-116.2373	1.8300	1/13/16 (015)	16:50:11.87000 UTC															
34	34.5062	-116.2074	5.1955	1/13/16 (015)	16:50:13.91400 UTC															
35	34.6907	-116.2408	1.4200	1/13/16 (015)	06:55:55.23000 UTC															
36	34.6289	-116.2532	0.8000	1/13/16 (015)	06:53:54.11001 UTC															
37	32.7000	-115.8003	10.9900	1/13/16 (015)	12:01:04.33000 UTC															
38	32.7709	-115.8295	22.3493	1/13/16 (015)	12:01:04.82051 UTC															

Tabla 'origin' Actualizada: 3/16/16 (076) 16:34:53.26436 UTC (50 days 5.5 hours atrás)

actualizado: 5/05/16 (126) 22:07:27.70349 UTC

Gracias: Juan Reyes



Internationalization and Localization: *Special Offer*

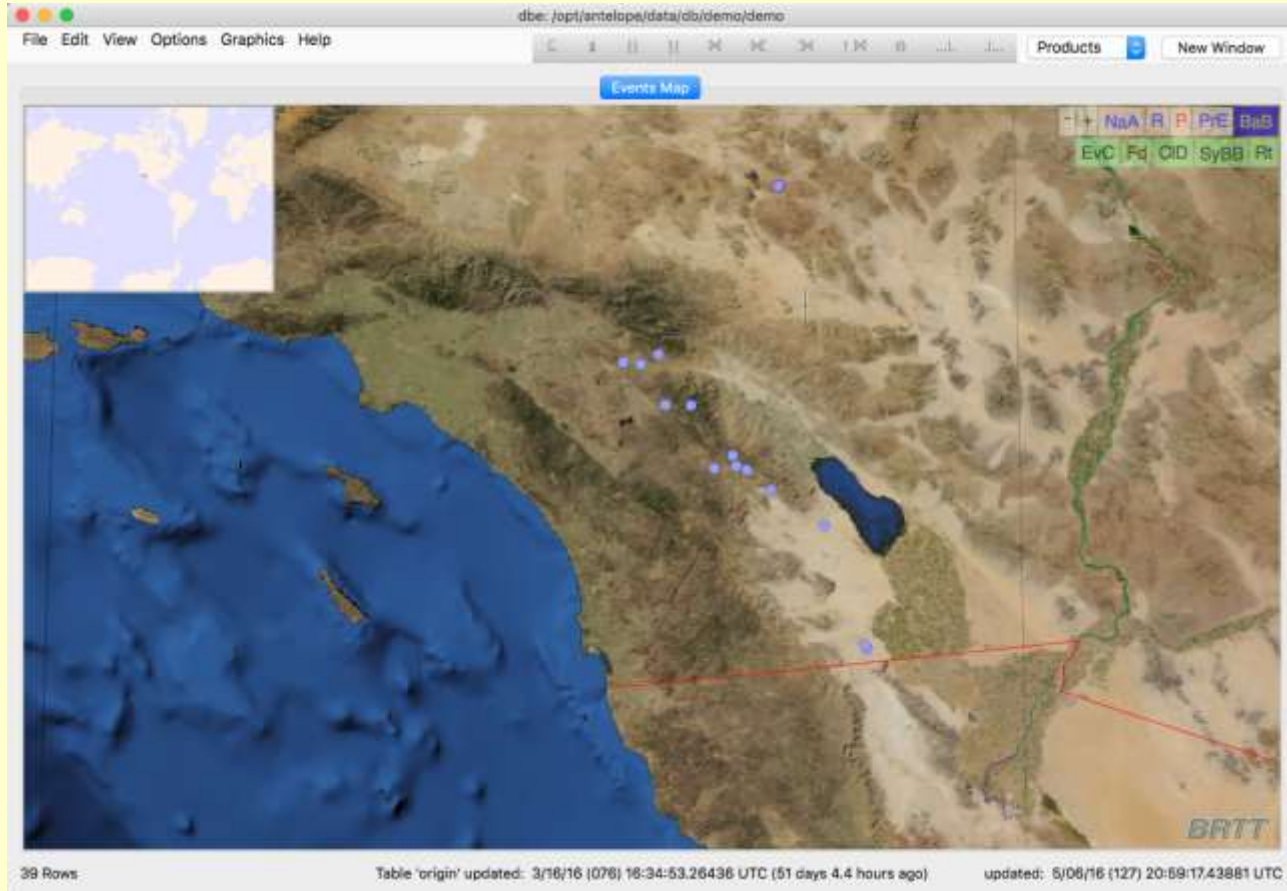
- If you'd like *dbe* controls in your language, we'll give you a *Microsoft Excel* spreadsheet at this meeting (about 170 strings to translate), you translate it, we'll put your language in the next Antelope 5.6 patch

new demo database

- Original demo database was showing it's age
 - No event table
 - Limited station metadata
 - Old-format *lddates* in places
 - many other anachronisms
- New demo database courtesy UCSD / Jennifer Eakins
 - 20 events from Anza network, Southern California
 - Segmented waveform data
 - Full station metadata

new demo database

/opt/antelope/data/db/demo/demo



Bighorn

Bighorn

is now delivered at no additional cost with Antelope 5.6!



Bighorn

Main Features

- **Now-casting** of wavefield spectral content
- Real-time, continuous response spectra exceedence
- Immediate results tailored for response team
- Automatic alarms against engineered criteria (Structural Health Monitoring)
- **Independent of Earthquake Location**
 - No need to wait for location
 - Applicable for non-earthquake sources
 - Very close to Earthquake Early Warning
- Quantitative, **critical decision support**



Facility Monitoring



Bundled into Antelope 5.6

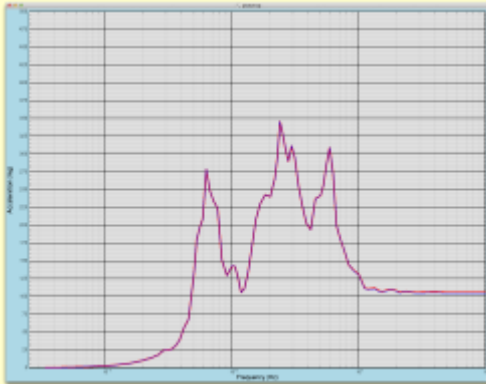
State-of-Health
Monitoring



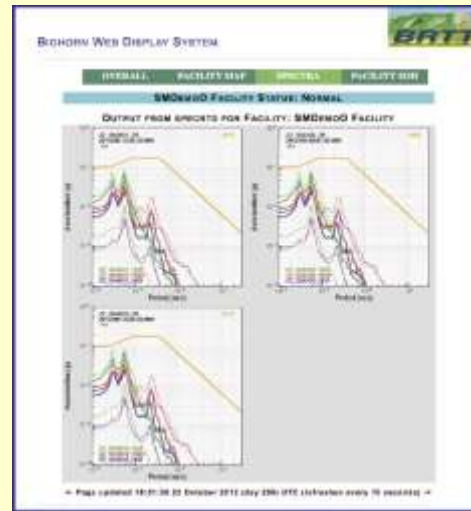
Bighorn

- Method vetted by Nuclear Regulatory Commission
- Faithful translation from
 - After-the-fact event-based review; to
 - Streaming, real-time, continuous now-casting

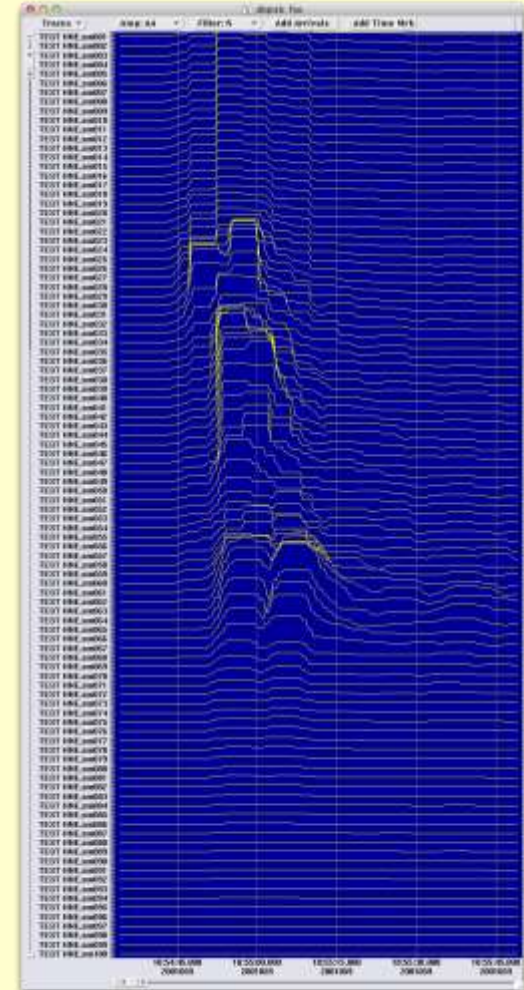
Multiple
Time-domain filters
Of incoming wavefield



-> Synthesize
Real-time
Spectral
Calculations

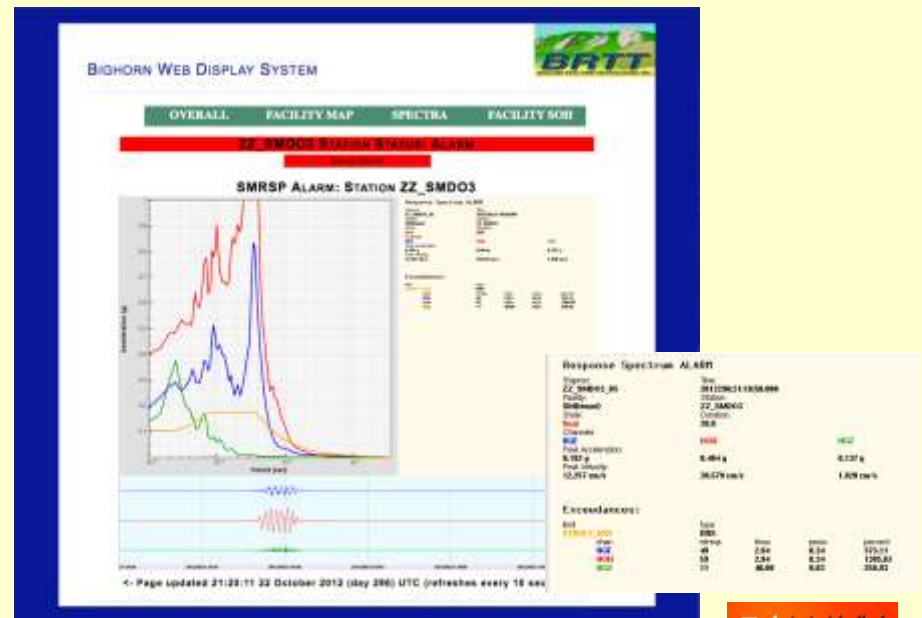
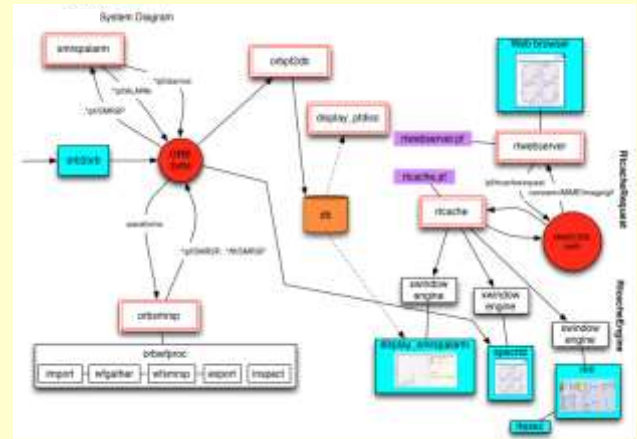


Blue: Traditional post-processing
Red: Streaming real-time processing
(or vice versa...)



Bighorn

- Alarms based on exceedence of Operating Basis Earthquake (OBE)
- Building-block nature of Antelope/Bighorn system and open-architecture APIs allow construction of wide variety of systems for Structural-Health Nowcasting, Earthquake Early Warning, and Post-Earthquake Response (e.g. Critical Facility alert / Alarm Acknowledgment system)



Future: Antelope 5.7 (May 2017)

- Feature-completeness and promotion of *orb2orb_pre* (datalogger-acquisition compliance: expanded SOH reporting, data repackaging/renaming capability, POC processing dlcmd compatibility)
- Continued campaign to modernize graphics and rewrite applications
- Feedback and requests?



Thank You!

Questions?