

# What's New in Antelope 5.6

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# Introduction - KMI

## Kinemetrics, Inc.

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

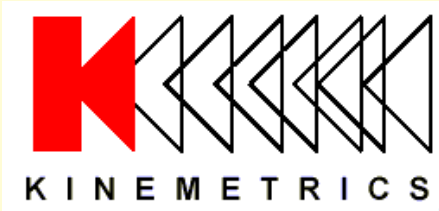


HQ's in Pasadena CA with Sales and Project offices in Switzerland & Abu Dhabi

A screenshot of the Kinemetrics website homepage. The browser address bar shows "www.kinemetrics.com/p-163-Home.aspx". The main content area features a large image of a worker in a blue uniform and cap working inside a large circular opening, possibly a well or tunnel, with various cables and equipment. The Kinemetrics logo is overlaid on this image. Below the image is a navigation menu with links for "About Us", "Products", "Solutions", "Projects", "News", "Downloads", and "Contact". The main content area is divided into two columns. The left column contains three sections: "NEW KINEMETRICS WEBSITES: Kinemetrics has launched 3 new websites", "MSNBC: EARTHSCOPE: Humankind's largest and most ambitious scientific project", and "Quanterra Q330S+ Seismic System" with a small image of the device. The right column features the headline "The Innovative World Leader In Earthquake Monitoring" and the sub-headline "Developer of Technologies, Products and Solutions to Advance How People Live and Work". Below this, it states "For forty years, Kinemetrics has been creating products for:" followed by a bulleted list: "Seismic networks", "Comprehensive environmental monitoring systems", and "Strong motion and weak motion instrumentation". At the bottom, it lists "Project solutions for" with sub-points: "Structural health monitoring (bridges, dams, buildings)" and "Seismic arrays".



# Introduction – KMI Team



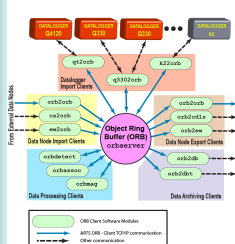
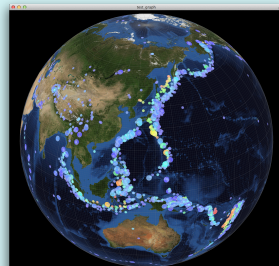
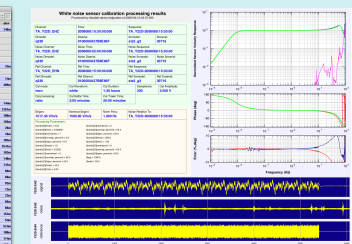
Designs and manufactures sensors and digitizers – Provides complete systems design, installation and operations



Designs High-End Digitizers



Designs High-End Sensors

A table showing data processing results. The table has columns for 'Time', 'Latitude', 'Longitude', 'Altitude', 'Speed', 'Heading', 'Roll', 'Pitch', 'Yaw', 'Roll Rate', 'Pitch Rate', 'Yaw Rate', 'Roll Acc', 'Pitch Acc', 'Yaw Acc', 'Roll Vel', 'Pitch Vel', 'Yaw Vel', 'Roll Acc', 'Pitch Acc', 'Yaw Acc', 'Roll Vel', 'Pitch Vel', 'Yaw Vel'. The data is organized into rows, with some rows highlighted in red and green.

# 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

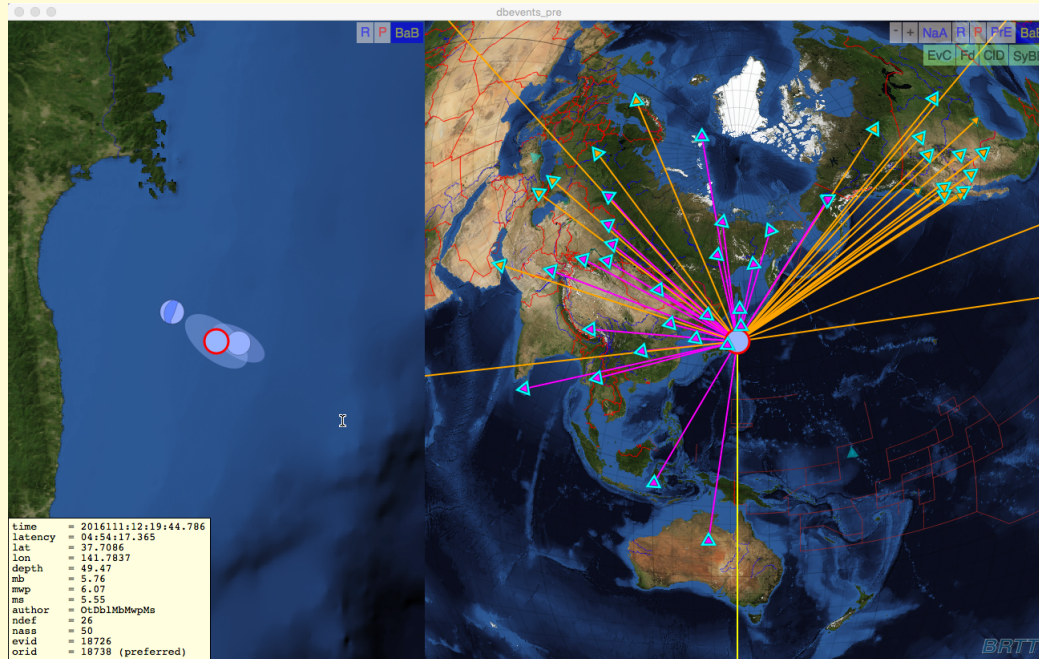




## What's New In Antelope 5.6

- 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

dbevents\_pre: /Volumes/Users/kent/Desktop/active/rtsystems/rtdemo\_gsn/db/gsn

File Show Waveforms Database editing enabled Current Time: 2016-134 (13 May) 19:43:11 GMT

**Mb 4.8** **KYUSHU, JAPAN** **pref\_depth: 0 km** **T + 37:21 minutes**

**Displayed Origin**

Preference: Preferred  
 Lat: 31.0859°  
 Lon: 129.5119°  
 Depth: 0.0000 km (±0 km @ 90%)  
 Region: KYUSHU, JAPAN  
 Magnitudes: 4.8 Mb  
 Uncertainties: majax 28.0 km / strike 141°  
 sdots 1.3 sec  
 confidence interval 90%

**Latest Magnitudes**

author	Mb
Antelope	4.81 ± 0.35
USGS	4.9

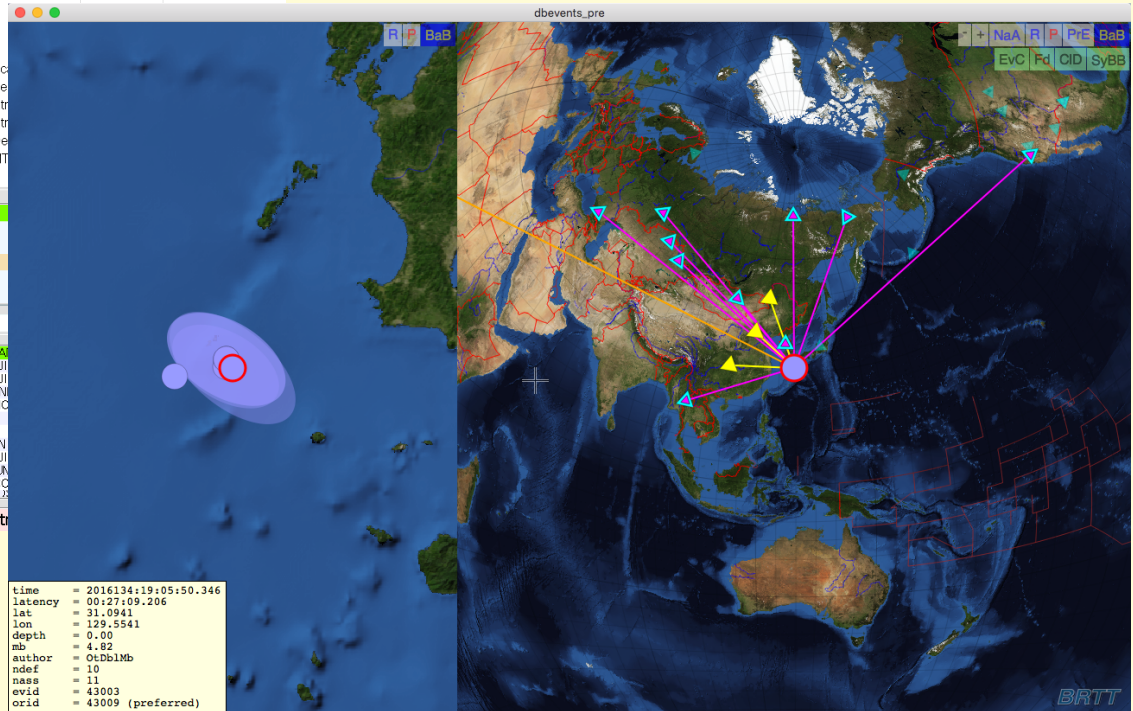
**Best Moment Tensor**

Origin Time (GMT): 2016-134 (13 May) 19:05:50 UTC (±1.4 sec @ 90%)  
 Origin Time (Local): 2016-134 (13 May) 13:05:50 MDT (±1.4 sec @ 90%)  
 Database IDs: evid 43003  
 orid 43011  
 prefor 43011  
 Phases: 13 defining  
 14 associated  
 Author: Antelope Real-time System ('O'DbIMb')

pref	author	orid	depth	ndef	mnt	mags	latency
*	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	4.9 Mb		18:27 minutes
	Antelope	43004	0 km	10	4.8 Mb		16:55 minutes
	Antelope	43003	0 km	8	4.8 Mb		11:53 minutes

origin time	evid	ndef	Ri	prefauth	mag	region
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 FUJI
2016-134 (13 May) 12:57:25 UTC	42301	24	*	Antelope	5.2 Mb	SOUTH OF FUJI
2016-134 (13 May) 10:03:15 UTC	41851	20	*	Antelope	5.2 Mb	TALAUD ISLAND
2016-134 (13 May) 08:24:11 UTC	41625	16	*	Antelope	5.2 Mb	TAIWAN REGION
2016-134 (13 May) 07:01:18 UTC	41493	10	*	Antelope	5.5 Mb	PAKISTAN
2016-134 (13 May) 06:59:31 UTC	41401	26	*	Antelope	5.5 Ms	PAKISTAN
2016-134 (13 May) 04:40:37 UTC	41192	11	*	Antelope	4.0 Mb	SEA OF JAPAN
2016-134 (13 May) 00:54:53 UTC	40982	9	*	Antelope	4.3 Mb	SOUTH OF FUJI
2016-133 (12 May) 18:24:00 UTC	39829	11	*	Antelope	5.0 Mb	SOUTH OF SUN
2016-133 (12 May) 17:43:42 UTC	39524	10	*	Antelope	4.8 Mb	NEAR EAST CO
2016-133 (12 May) 17:28:36 UTC	39463	4	*	Antelope	4.3 Mb	KUNING ISLAND

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



```
time = 2016134:19:05:50.346
latency = 00:27:09.206
lat = 31.0941
lon = 129.5541
depth = 0.00
mb = 4.82
author = O'DbIMb
ndef = 10
nass = 11
evid = 43003
orid = 43009 (preferred)
```

# orb2orb\_pre

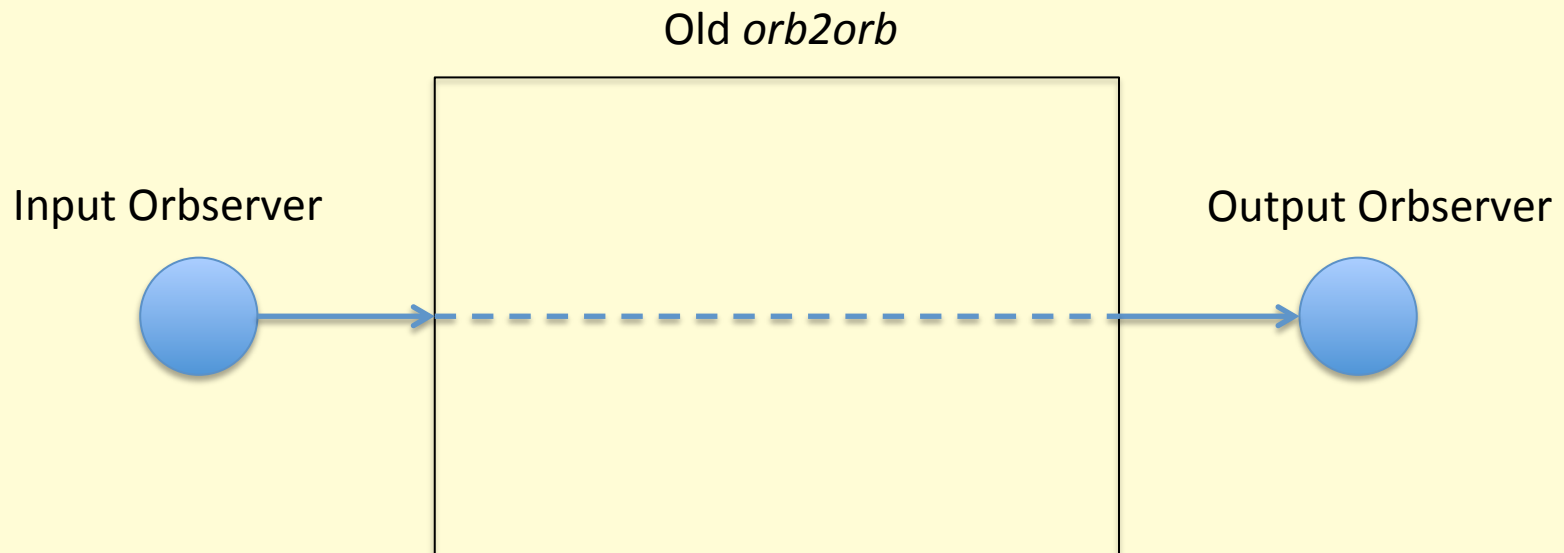
- Design goals
  - Provide datalogger acquisition functionality like *q3302orb* and *altus2orb*
    1. Data ingestion and delivery
      - including repackaging / renaming
      - Point-Of-Contact (POC) call-in capability for dataloggers on dynamic IPs
      - Ultimately: failover support
    2. State-of-Health (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

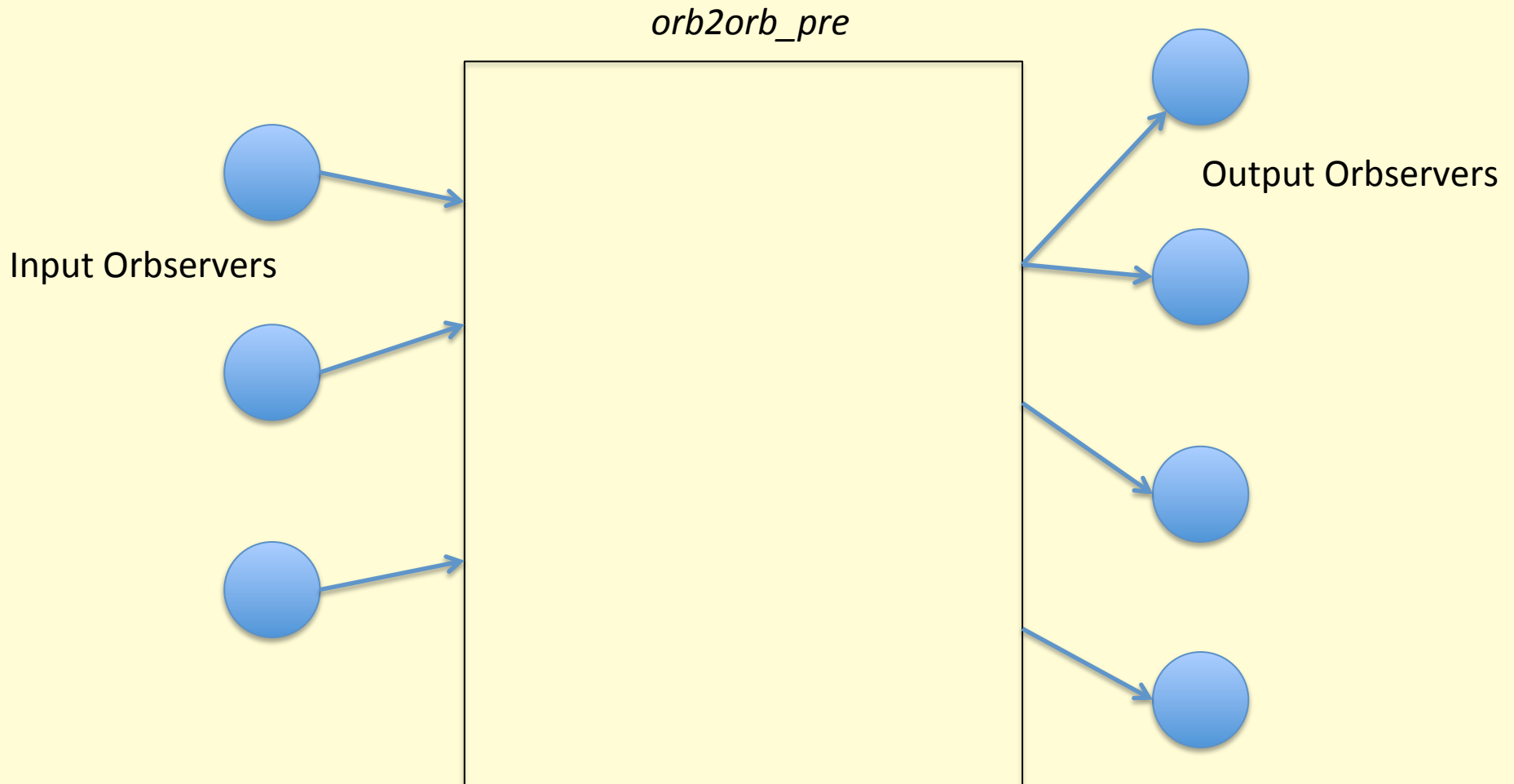
- Basic data acquisition capabilities (*orb2orb*)
- many-to-many connections in one instance
  - Fully Multithreaded
- Basic *dlmon*-compatible SOH output
- Backwards compatibility with
  - Legacy command-line format
  - Legacy parameter-file format
  - [N.B. Not all parameters/options supported yet]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

# orb2orb: old architecture

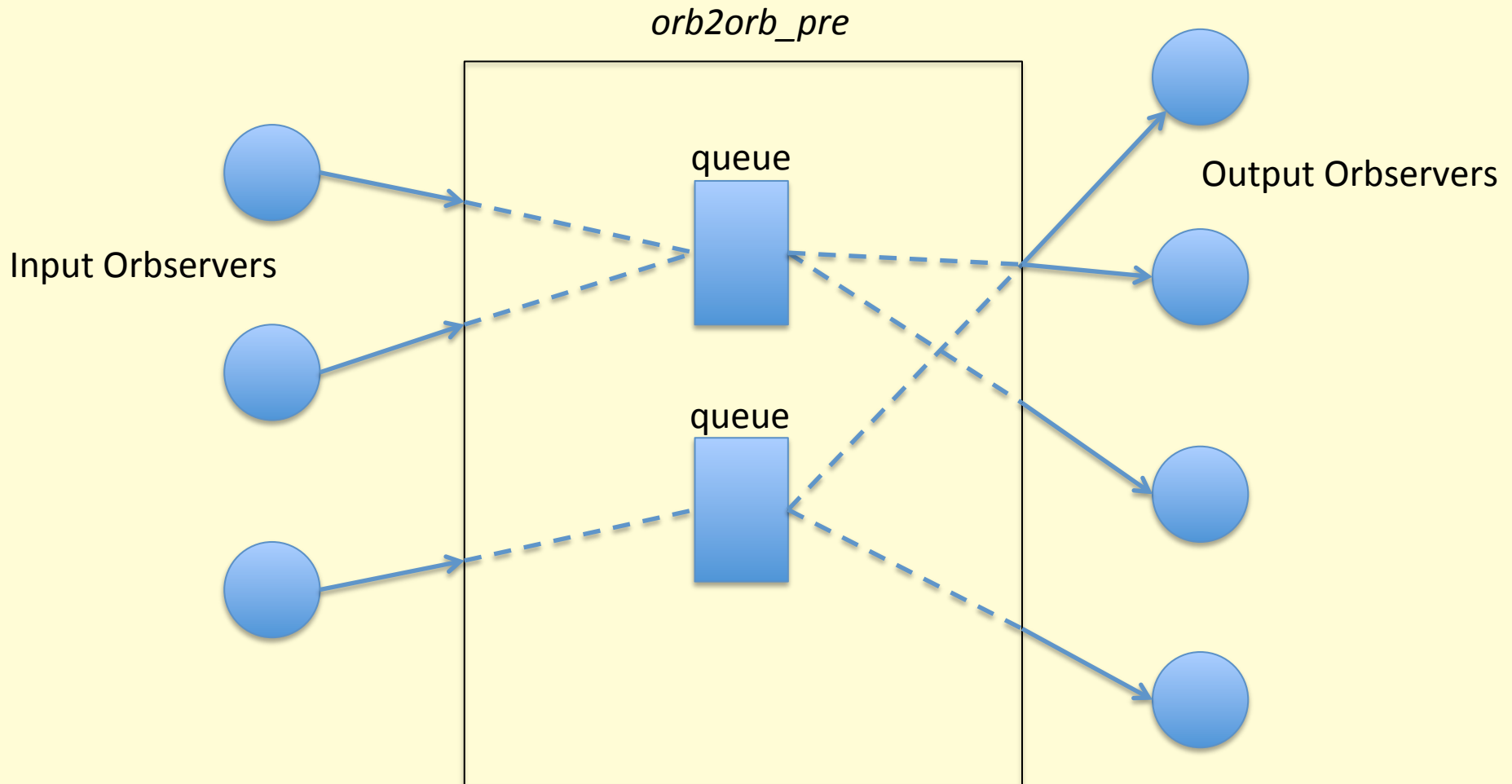


- Served well for many years
- Large networks might have hundreds of individual instances
- Manual configuration becomes burdensome
- Insufficiently supportive of direct data-acquisition role from dataloggers

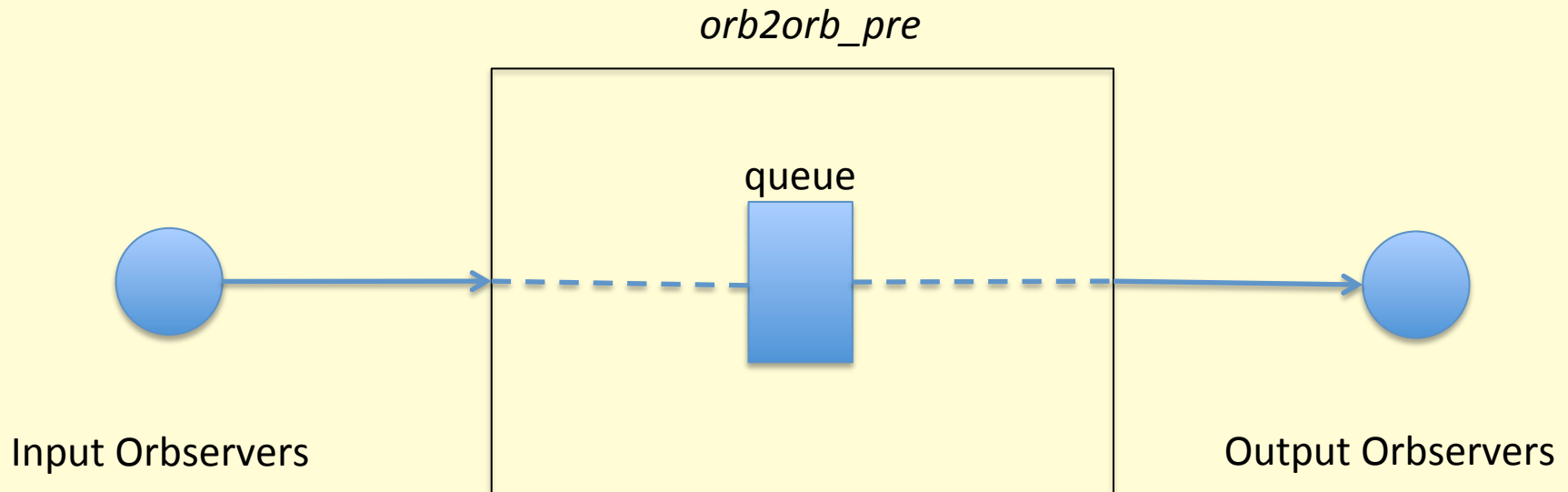
# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture

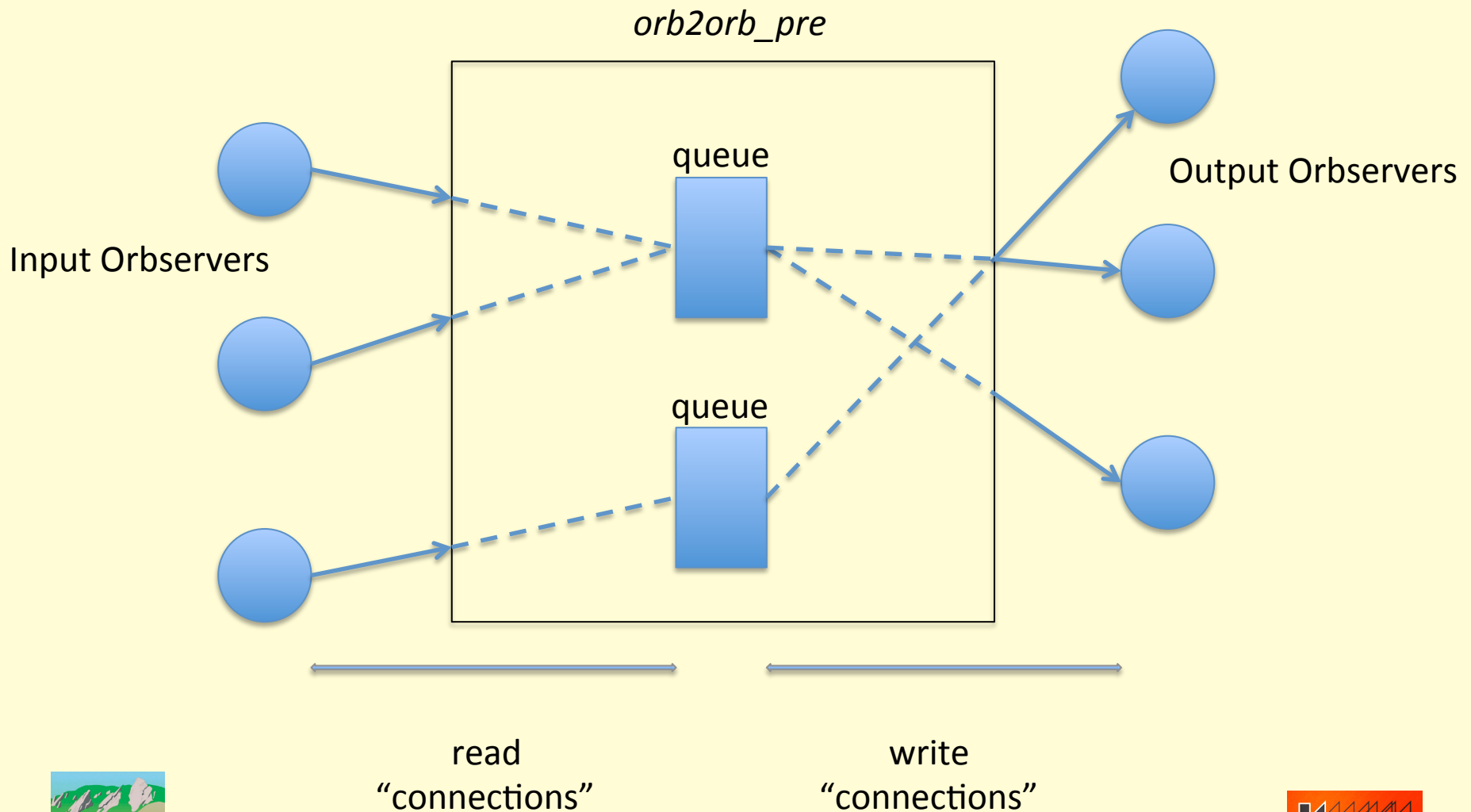


# orb2orb\_pre: new architecture

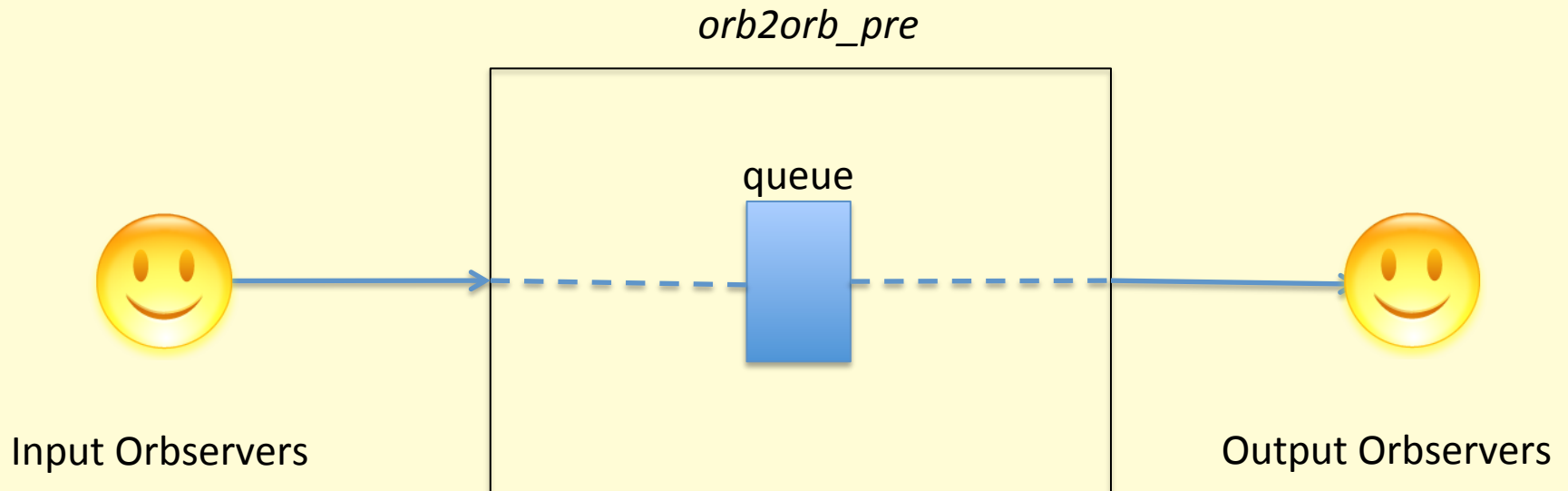


- Separate the connection into two parts:
  - The “read” half
  - The “write” half
- Configure each connection independently
- Add an internal *queue* to buffer data
- Allows you to acquire once, distribute to many destinations
- Allows you to fine-tune outputs
  - different match expressions to different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

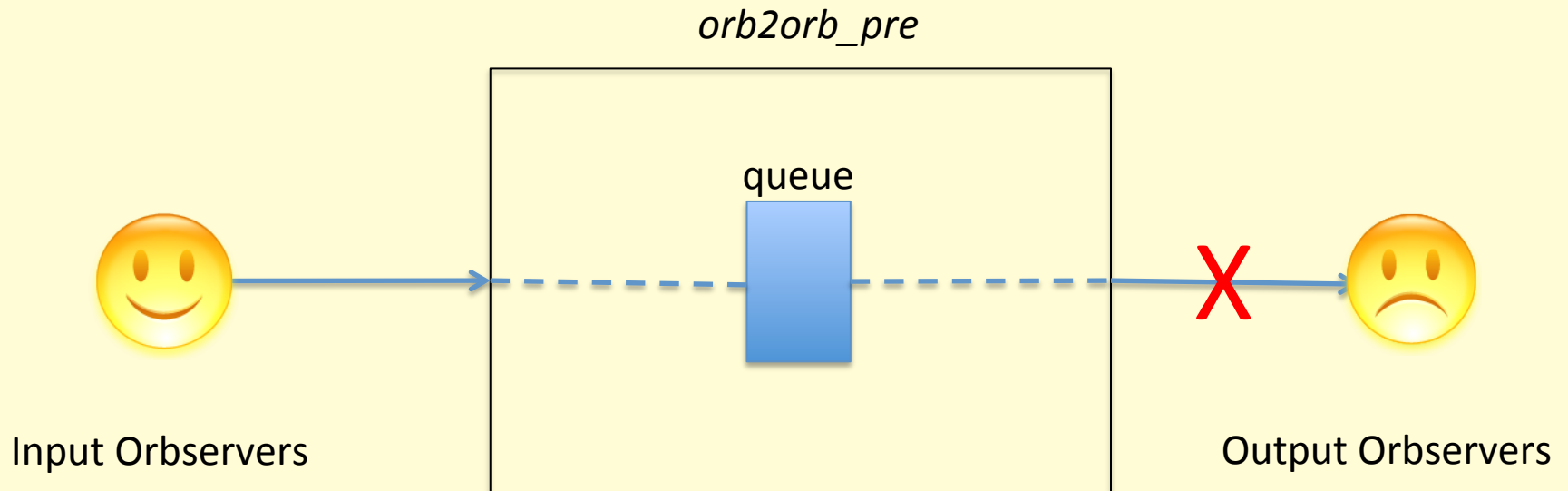
# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture

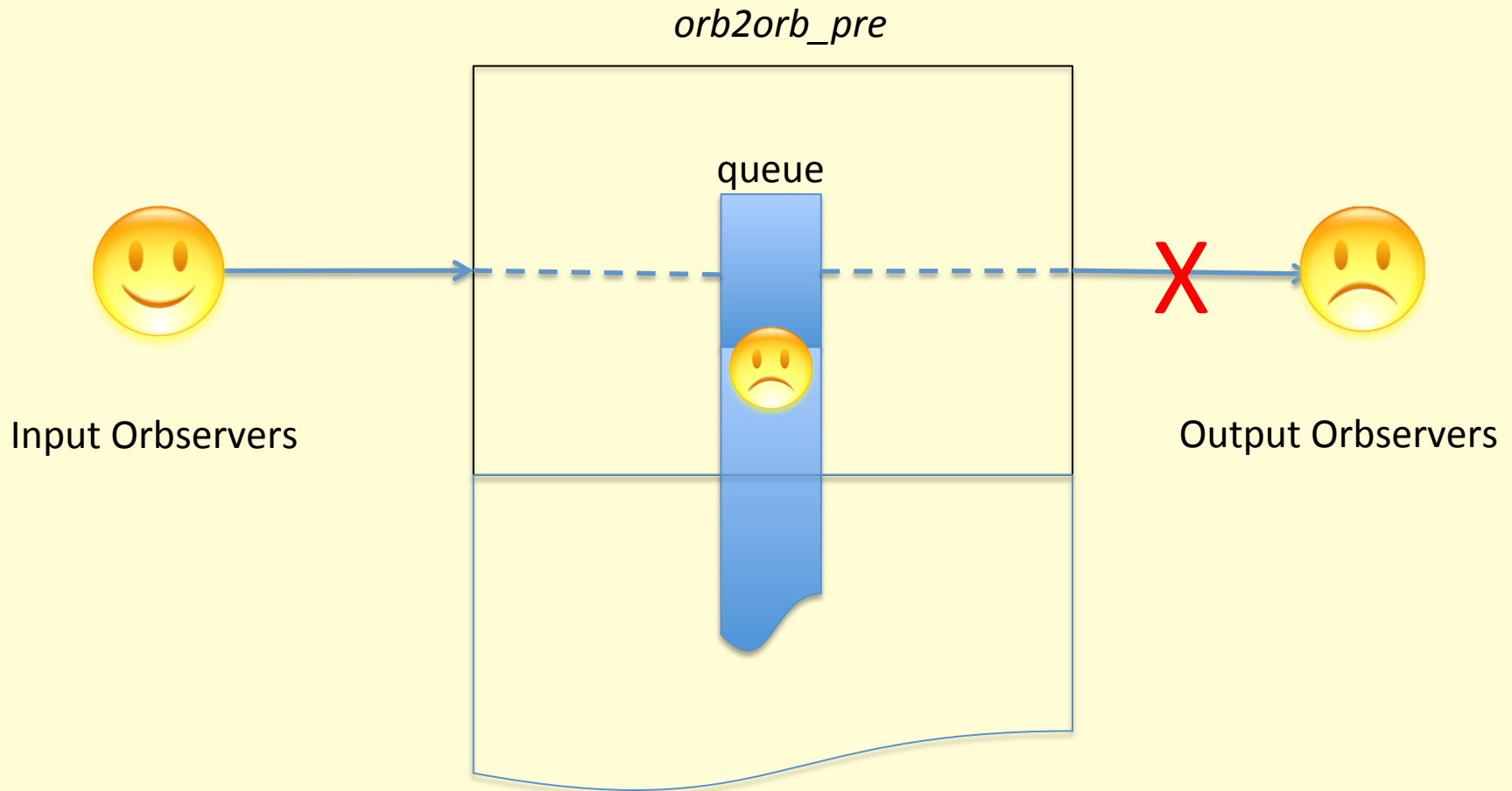


# orb2orb\_pre: new architecture

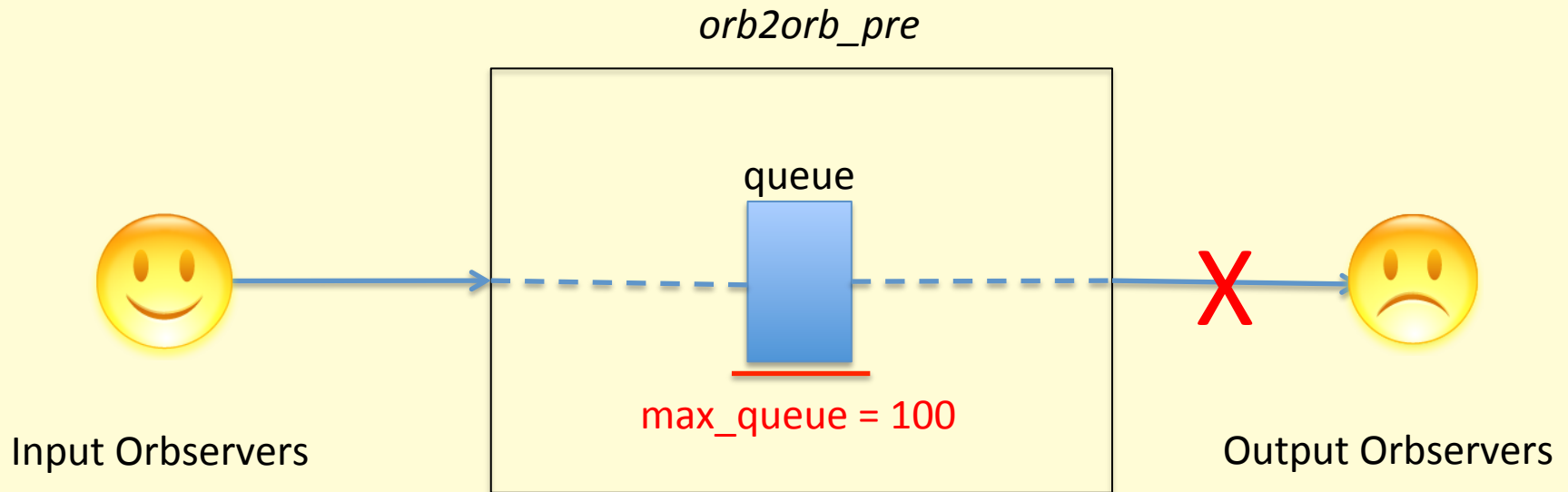




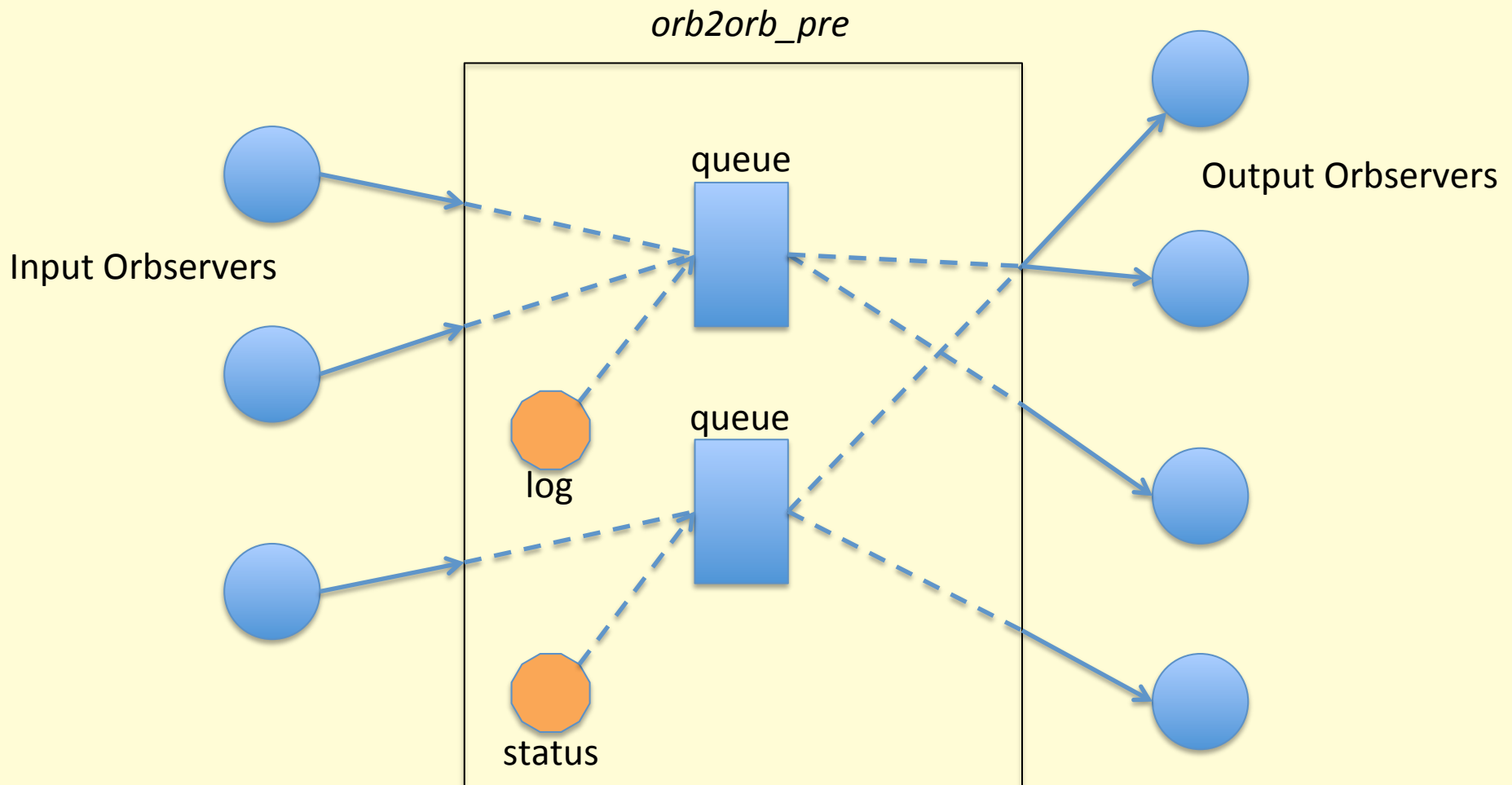
# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture



# orb2orb\_pre: new architecture



# orb2orb\_pre: dlmon output

dlname	comt	orbname	dir	queue	nq	runtm	SLT	dltncy	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*

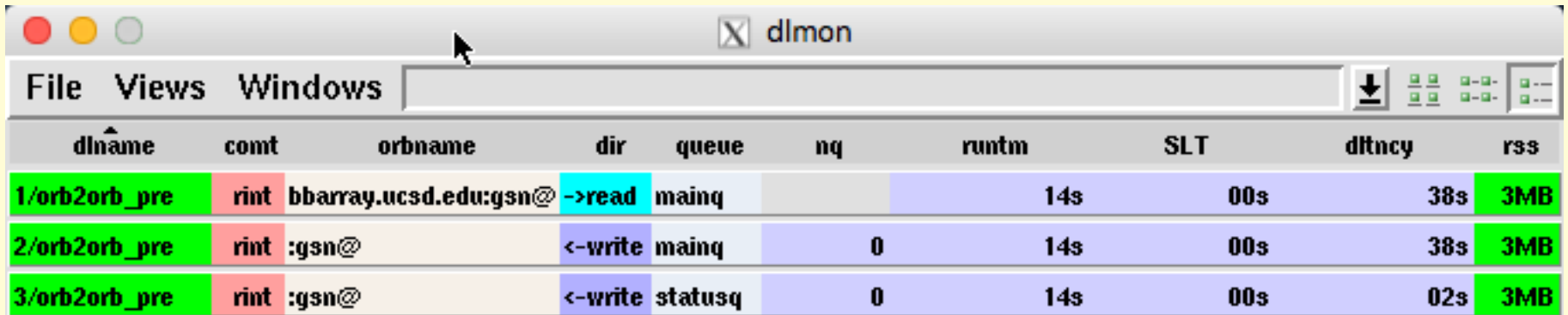
*queue name*

*direction*

*Resident  
Set  
Size  
(memory)*

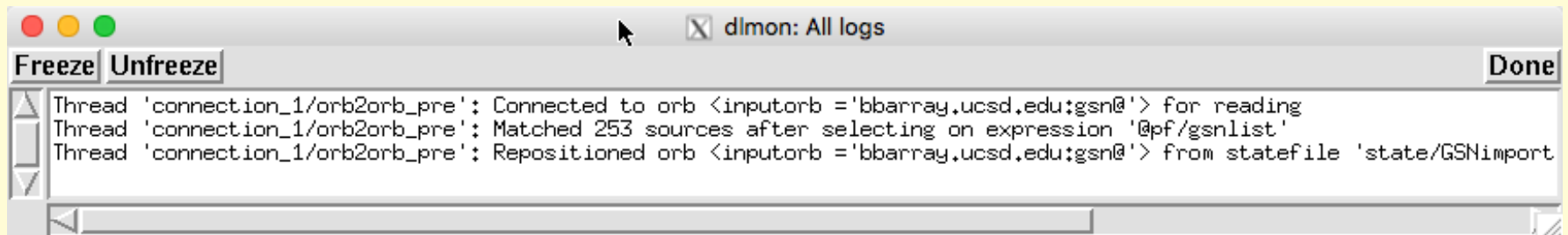


# orb2orb\_pre: dlmon output



The screenshot shows the dlmon application window with a table of processes. The table has columns for dlname, comt, orbname, dir, queue, nq, runtm, SLT, dltncty, and rss. Three rows are visible, all for the process 1/orb2orb\_pre.

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 output area. The log contains three lines of text:

```
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 barray.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
  }
}

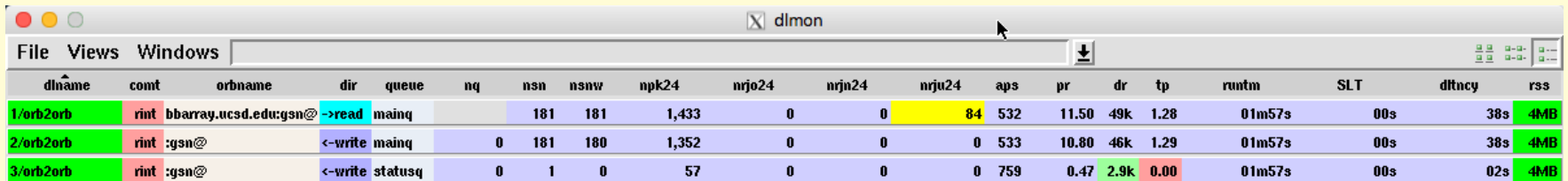
time_intervals_sec &Arr{
  pfstatusreport      2
  internal_timeout    1
  shutdown_grace_period 15
}
```



# 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

# orb2orb dev: dlmon output



dlname	cont	orbname	dir	queue	nq	nsn	nsnw	npk24	nrjo24	nrjn24	nrju24	aps	pr	dr	tp	runtm	SLT	ditncy	rss	
1/orb2orb	rint	bbarray.ucsd.edu:gsm@	->read	mainq		181	181	1,433	0	0	84	532	11.50	49k	1.28	01m57s	00s	38s	4MB	
2/orb2orb	rint	:gsm@	<-write	mainq		0	181	180	1,352	0	0	0	533	10.80	46k	1.29	01m57s	00s	38s	4MB
3/orb2orb	rint	:gsm@	<-write	statusq		0	1	0	57	0	0	0	759	0.47	2.9k	0.00	01m57s	00s	02s	4MB

*Added:*

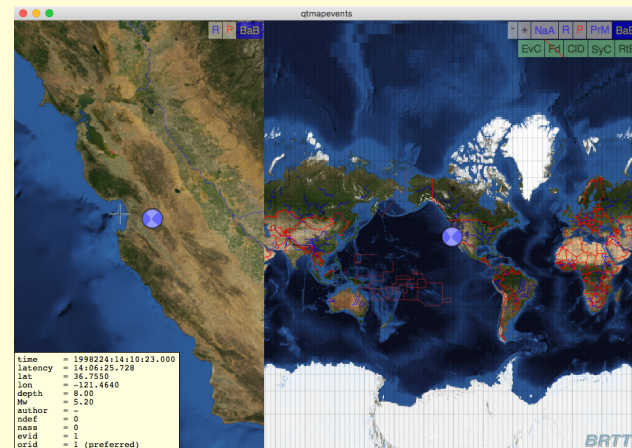
- *Number of sourcenames*
- *Number of waveform sourcenames*
- *Number of packets, last 24 hours*
- *Number of packets rejected, last 24 hours, too old*
- *Number of packets rejected, last 24 hours, too new*
- *Number of packets rejected, last 24 hours, won't unstuff*
- *Average packet size (bytes)*
- *Packet rate (packets per second)*
- *Data rate (bits per second)*
- *Throughput (ratio of seconds acquired to real-time elapsed)*

# 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.brtt.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](mailto:support@brtt.com), especially for bugs )



# 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

orig	schanloc	sensor	site	sitechan	snetsta	stage	stamag	wfdisc	dlsens
review									
<b>Table:</b> <i>origin</i> <b>Table type:</b> Base Table <b>Description:</b> Data on event location and size <b>File:</b> /Volumes/Users/antelope/data/db/demo/demo.origin <b>Unix permissions:</b> Read/Write <b>Modified:</b> 3/16/2016 10:34:53.264 MDT(50 days 22.4 hours ago) <b>Table size:</b> 9.1 kilobytes <b>Record size:</b> 238 bytes per record <b>Record count:</b> 39 records <b>Primary keys:</b> <i>time, lat, lon, depth, ndef, nass</i> <b>Alternate keys:</b> <i>orid</i> <b>Foreign keys:</b> <i>evid, commid, grn, srn</i> <b>Defines:</b> <i>orid</i> <b>Detailed description:</b> Information describing a derived or reported origin for a particular event is stored in this table.									
f			dbaenloc:iasp91	UCSD:rt		3/08/16 (068)	15:50:21.75212 UTC		

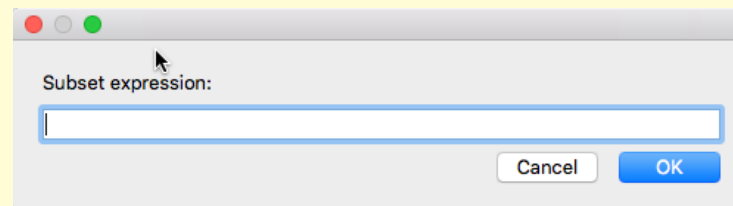
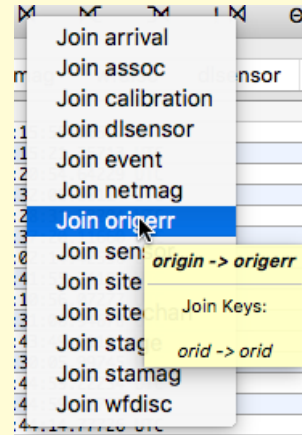
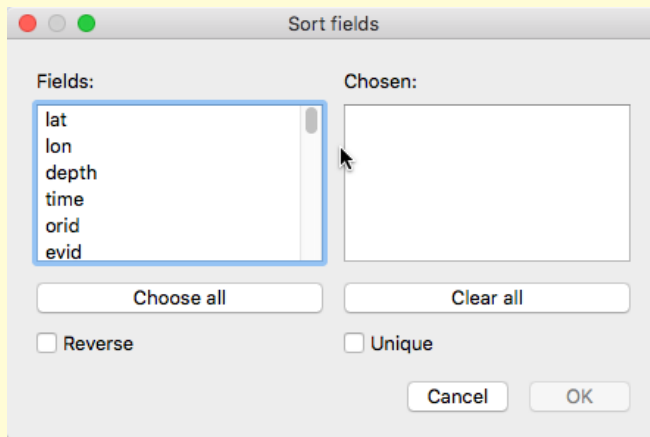
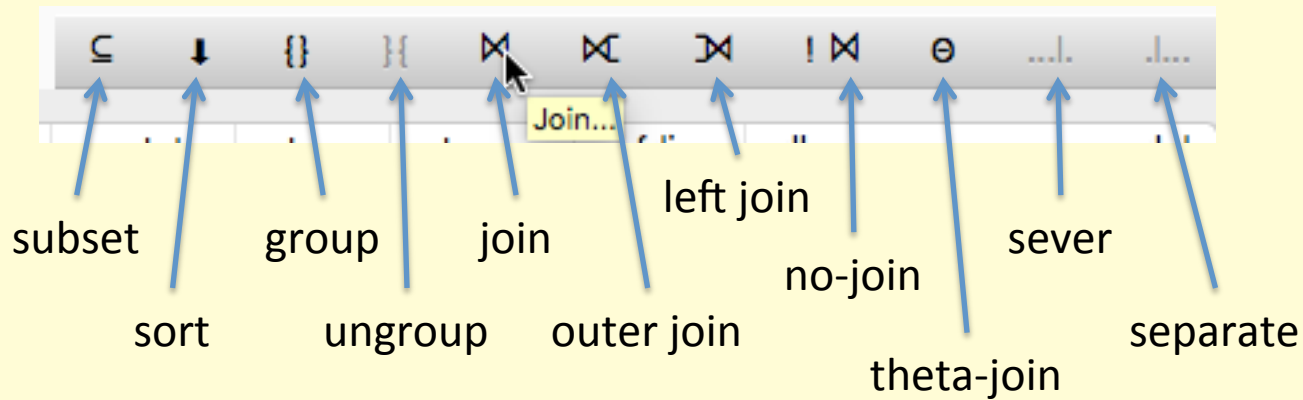
orid	evid	jdate	nass	ndef	grn	srn	review	dt
1	6	2016012	23	23	43	3	y	f
<b>Field:</b> <i>orid</i> <b>Description:</b> origin id <b>Type:</b> integer <b>Size:</b> 8 bytes <b>Format:</b> %8ld <b>Position in row:</b> 48-56 (zero offset) <b>Range:</b> orid > 0 <b>Units:</b> <b>Null value:</b> -1 <b>Defining for table:</b> <i>origin</i> <b>Key type for 'origin':</b> Alternate <b>Column empty:</b> No <b>Detailed description:</b> 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.								

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

# dbe: tooltips

		View100		View101		View102		View103			
Table:	lon	View103				time	orid		evid		
<b>Table type:</b>	-116.8303	View	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
<b>Record count:</b>	-116.8303	556 records	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
<b>View tables:</b>	-116.8303	origin, assoc	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
<b>Table creation:</b>	-116.8303	<i>dbopen origin</i>	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	<i>dbsubset depth &lt; 40</i>	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	<i>dbjoin assoc</i>	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	<i>dbsubset delta &lt; 1</i>	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
	-116.8303	<i>dbsort origin.ml</i>	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21				
33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113	UTC	23					
33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113	UTC	23					
33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113	UTC	23					
33.5357	-116.4816	9.7193	1/13/16 (013)	06:06:37.81113	UTC	23					

# dbe: database operations toolbar



Danke: Stefan Radman

# dbe: row viewer and editor

dbe Row Viewer

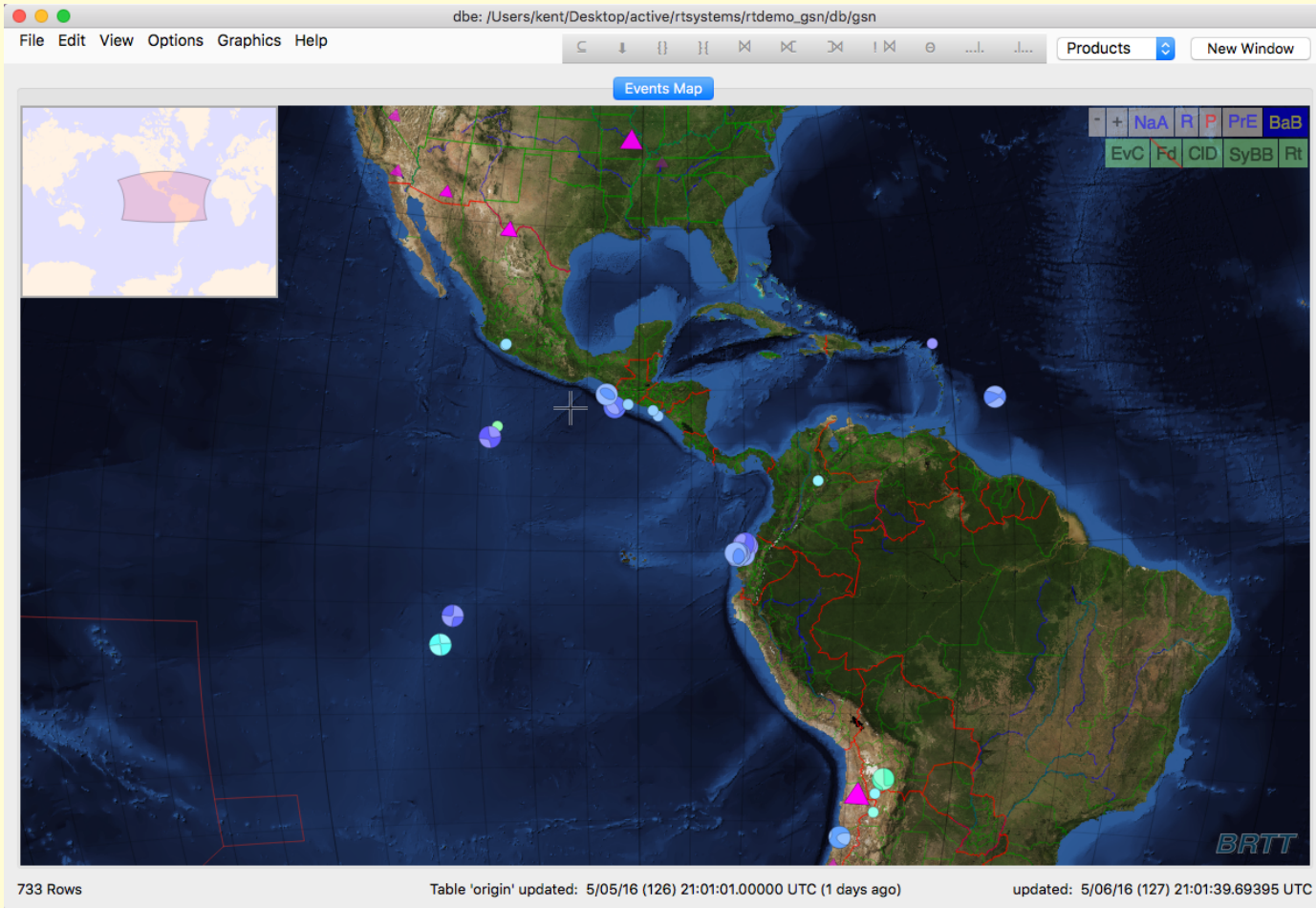
Row index  in table 'origin' (39 total rows) ◀ ▶

Allow Edits  Readable Times  Local Timezone

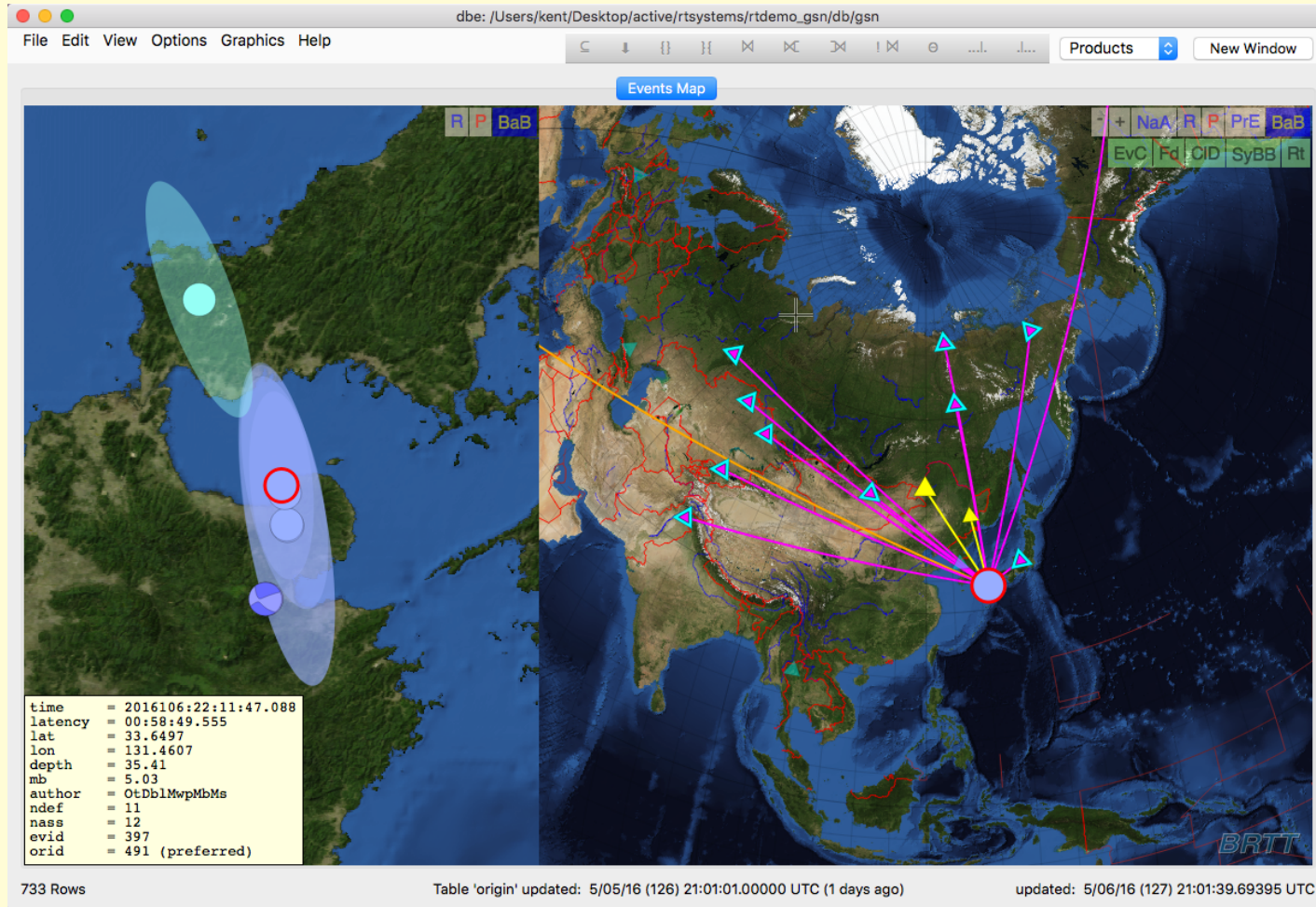
lat:	<input type="text" value="34.6795"/>	review:	<input type="text" value="y"/>
lon:	<input type="text" value="-116.3875"/>	depdp:	<input type="text"/>
depth:	<input type="text" value="10.1784"/>	dtype:	<input type="text" value="f"/>
time:	<input type="text" value="1/12/16 (012) 19:11:42.16418 UTC"/>	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

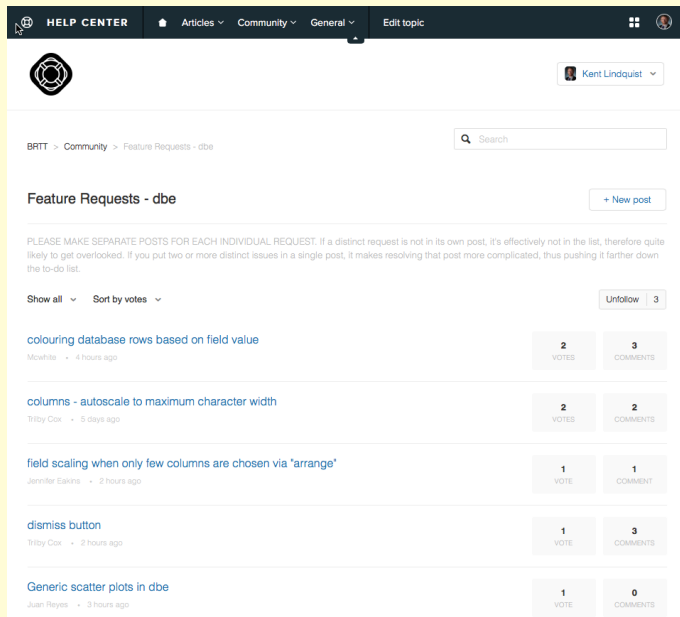


# dbe: maps



# 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](mailto: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 “I10n”
  - The *expression* into specific languages; the application-configuration side of the problem
  - New manpage *antelope\_i10n(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

file Modifica Visualizza **Opzioni** Grafica Guida

Abilita modifica  
 Colora le righe in modo alternato  
 Colora lo sfondo di bianco  
 Rimuovi il colore di sfondo  
 Colore 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...

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

Tabelle Nuova Finestra

mag	network	origerr	origin	schanloc	sensor	site	sitochan	snetsta	stage	stamag	wfdisc	dlsensor	sensormodel									
id	evnid	idate	nass	ndef	grn	srn	review	dtype	ml	miid	7	locsat:iasp91	UCSD:rtML	auth	iddate							
0	33.9213	-117.0097		23	23																	
1	33.9365	-117.0487		23	53																	
2	33.2327	-116.0130		26	51																	
3	33.3031	-116.0195		26	26	43	3	y	1.61	9	locsat:iasp91	UCSD:rtML	3/07/16 (067)	20:32:08.88114	UTC							
4	33.4805	-116.5786		18	18	43	3	y	0.03	8	locsat:iasp91	UCSD:rtML	3/07/16 (067)	20:28:31.23204	UTC							
5	33.4896	-116.4647		14	14	43	3	y														
6	33.3967	-116.2553		28	28	43	3	y	1.46	1	locsat:iasp91	UCSD:rtML	2/29/16 (060)	21:02:14.42536	UTC							
7	33.3863	-116.2863		28	46																	
8	33.7511	-116.6978		24	24	43	3	y	0.55	2	locsat:iasp91	UCSD:rtML	2/29/16 (060)	21:10:56.07277	UTC							
9	33.9541	-116.8587		39	39	43	3	y	2.47	3	locsat:iasp91	UCSD:rtML	2/29/16 (060)	21:31:06.94678	UTC							
10	33.9707	-116.8662		40	105																	
11	34.6847	-116.1387		23	23	43	3	y	2.37	10	locsat:iasp91	UCSD:rtML	3/07/16 (067)	22:30:05.99745	UTC							
12	34.6933	-116.2410		23	30																	
13	34.6960	-116.2377		24	29																	
14	34.6754	-116.1481		24	24	43	3	y	2.46	16	locsat:iasp91	UCSD:rtML	3/08/16 (068)	18:44:14.77726	UTC							
15	34.6983	-116.2368		18	21																	
16	34.6221	-116.2193		18	18	43	3	y	2.41	4	locsat:iasp91	UCSD:rtML	2/29/16 (060)	22:39:32.13351	UTC							
17	34.6953	-116.2363		28	23																	
18	34.6795	-116.3875		28	28	43	3	y	2.85	15	locsat:iasp91	UCSD:rtML	3/08/16 (068)	16:41:28.03439	UTC							
19	33.7533	-116.8147	13.7953	1/13/16 (013)	05:05:22.14992	UTC	20	14	2016013	45	45	43	3	y	f	locsat:iasp91	UCSD:rt	3/07/16 (067)	23:16:56.11251	UTC		
20	33.7538	-116.8303	12.6300	1/13/16 (013)	05:05:22.52000	UTC	21	14	2016013	45	44											
21	-15.1946	-174.9913	233.3900	1/13/16 (013)	05:55:59.72000	UTC	22	15	2016013	27	0											
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	7.0669	1/13/16 (013)	06:06:40.33282	UTC	25	5	2016013	20	20	43	3	y	f	-0.03	12	locsat:iasp91	UCSD:rtML	3/08/16 (068)	15:52:21.46812	UTC
25	33.5355	-116.4824	9.8919	1/13/16 (013)	06:06:40.36563	UTC	26	5	2016013	20	20	43	3	y	f	-0.05	11	dbgenloc:iasp91	UCSD:rtML	3/08/16 (068)	15:50:28.44908	UTC
26	32.6990	-115.7656	15.0563	1/13/16 (013)	12:05:12.70967	UTC	27	18	2016013	31	31	45	3	y	f	2.05	13	dbgenloc:iasp91	UCSD:rtML	3/08/16 (068)	16:24:30.55457	UTC
27	32.7010	-115.7925	17.8874	1/13/16 (013)	12:05:13.12403	UTC	28	18	2016013	31	31	45	3	y	f	2.05	14	locsat:iasp91	UCSD:rtML	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											
29	33.4818	-116.3940	7.2209	1/13/16 (013)	13:37:05.51998	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											
31	33.8651	-116.9679	27.4629	1/13/16 (013)	16:03:18.89497	UTC	32	20	2016013	29	29	43	3	y	f	1.14	5	locsat:iasp91	UCSD:rtML	3/07/16 (067)	19:03:10.20193	UTC
32	33.9283	-116.9580	13.5200	1/13/16 (013)	16:03:19.63000	UTC	33	20	2016013	29	60											
33	34.6950	-116.2373	1.8300	1/13/16 (013)	16:50:11.87000	UTC	34	21	2016013	28	29											
34	34.5962	-116.2674	5.1955	1/13/16 (013)	16:50:13.91490	UTC	35	21	2016013	28	28	43	3	y	f	2.22	6	locsat:iasp91	UCSD:rtML	3/07/16 (067)	19:10:03.12921	UTC
35	34.6907	-116.2408	1.4200	1/13/16 (013)	06:53:53.23000	UTC	36	16	2016013	34	50											
36	34.6289	-116.2552	0.0000	1/13/16 (013)	06:53:54.11081	UTC	37	16	2016013	34	34	43	3	y	f	2.31	33	locsat:iasp91	UCSD:rtML	3/08/16 (068)	21:23:47.83167	UTC
37	32.7000	-115.8003	10.9900	1/13/16 (013)	12:01:04.33000	UTC	38	17	2016013	31	58											
38	32.7769	-115.8205	22.3493	1/13/16 (013)	12:01:04.02651	UTC	39	17	2016013	31	31	45	3	y	f	2.42	34	locsat:iasp91	UCSD:rtML	3/08/16 (068)	21:27:48.58127	UTC

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

文件 编辑 视图 选项 图形 帮助

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

表

arrival	assoc	calibration	event	instrument	lastid	netmag	network	origerr	origin	schanloc	sensor	site	site	stage	stamag	wfdisc	disensor	sensormodel
sta	ondate	offdate	lat	lon	elev		staname					statype		lddate				
0	BSAP	2011224	33.2602	-116.3223	0.1600		Borrogo Springs Airport, CA, USA				2/01/16 (032)	22:04:47.8451						
1	BZN	1983020	33.4915	-116.6670	1.3010		Buzz Northens Place, Anza, CA, USA				2/01/16 (032)	22:04:48.6101						
2	CPE	2004125	32.8889	-117.1051	0.1500		Camp Elliot, Miramar, CA, USA				2/01/16 (032)	22:05:21.2411						
3	CRY	1982274	33.5654	-116.7373	1.1280		Cary Ranch, Anza, CA, USA				2/01/16 (032)	22:05:26.3861						
4	CSLB	2003001	2010193	33.7793	-118.1126	0.0170	Cal State Long Beach, Long Beach, CA, USA				2/01/16 (032)	22:06:06.5221						
5	CSLB	2012230	33.7799	-118.1123	0.0170		Cal State Long Beach, Long Beach, CA, USA				2/01/16 (032)	22:06:07.0911						
6	FRD	1982274	33.4947	-116.6022	1.1640		Ford Ranch, Anza, CA, USA				2/01/16 (032)	22:06:07.3771						
7	GARR	2012306	33.5918	-116.6708	1.4420		Garrison Ranch, CA, USA				2/01/16 (032)	22:06:45.0451						
8	HSSP	2012305	33.5847	-116.6641	1.3880		Hill Street, Anza, CA, USA				2/01/16 (032)	22:06:46.5361						
9	KNN	1982274	33.7141	-116.7119	1.5070		Keenwild Fire Station, Mountain Center, CA, USA				2/01/16 (032)	22:06:46.9581						
10	LVAZ	1993108	33.3516	-116.5615	1.4350		Lost Valley Scout Camp, CA, USA				2/01/16 (032)	22:07:19.2891						
11	MONP	1998033	2007310	32.8927	-116.4225	1.9200	Monument Peak, Mt. Laguna, CA, USA				2/01/16 (032)	22:07:52.7901						
12	MONPZ	2007258	32.8920	-116.4223	1.8750		Monument Peak TA Vault, Mt. Laguna, CA, USA				2/01/16 (032)	22:07:52.9881						
13	MTRP	2002005	32.8203	-117.0567	0.2007		Mission Trails Regional Park, Santee, CA, USA				2/01/16 (032)	22:07:56.2871						
14	PFO	1982274	33.6117	-116.4594	1.2590		Pinyon Flats Observatory, CA, USA				2/01/16 (032)	22:07:56.4961						
15	RDM	1982274	33.6300	-116.8478	1.3650		Red Mountain, Riverside Co, CA, USA				2/01/16 (032)	22:08:40.97791	UTC					
16	RSP	2013024	33.6515	-116.7394	1.6100		Rouse Ridge, CA, USA				2/01/16 (032)	22:09:09.51628	UTC					
17	SETM	2011056	33.5097	-116.5615	1.2160		South East Table Mountain, Anza, CA, USA				2/01/16 (032)	22:09:11.30829	UTC					
18	SMER	2002040	33.4577	-117.1708	0.3557		Santa Margarita Ecological Reserve, CA, USA				2/01/16 (032)	22:09:12.34944	UTC					
19	SND	1982274	33.5519	-116.6129	1.3580		Jim Saunders Place, Anza, CA, USA				2/01/16 (032)	22:09:22.59255	UTC					
20	SOL	1996040	32.8410	-117.2480	0.2450		Mt. Soledad, San Diego, CA				2/01/16 (032)	22:10:10.10350	UTC					
21	TMSF	2013034	33.6192	-116.6809	2.0770		TMSF, CA, USA				2/01/16 (032)	22:10:23.35299	UTC					
22	TONN	2011063	33.1442	-116.1193	0.0536		Tonner Ranch, Anza, CA, USA				2/01/16 (032)	22:10:29.59911	UTC					
23	TRAN	2011065	33.4955	-116.5834	1.1970		Tranquility, Anza, CA, USA				2/01/16 (032)	22:10:32.13424	UTC					
24	TRO	1982274	33.5234	-116.4257	2.6280		Toro Peak, Riverside Co, CA, USA				2/01/16 (032)	22:10:32.37662	UTC					
25	TUBB	2011021	33.2101	-116.4091	0.3940		Tubb Canyon, CA, USA				2/01/16 (032)	22:11:01.56125	UTC					
26	WMC	1983259	33.5736	-116.6747	1.2710		Walmic Ranch, Anza, CA, USA				2/01/16 (032)	22:11:04.10737	UTC					
27	B081	2006166	2599365	33.7112	-116.7142	1.4670	keenwi081bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:21.96652	UTC					
28	B082	2006161	2599365	33.5982	-116.5960	1.3748	pathfi082bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.17672	UTC					
29	B082A	2013061	2599365	33.5982	-116.5960	1.3748	pathfi082bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.29291	UTC					
30	B084	2006169	2599365	33.6116	-116.4564	1.2710	pinyon084bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.48604	UTC					
31	B086	2006168	2599365	33.5575	-116.5310	1.3920	santar086bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.65097	UTC					
32	B086A	2013044	2599365	33.5575	-116.5310	1.3920	santar086bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.74798	UTC					
33	B087	2006168	2599365	33.4955	-116.6027	1.1390	fordr087bcs2006, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.83296	UTC					
34	B088	2007027	2599365	33.3749	-116.6205	1.4039	skyoks088bcs2007, Anza, CA, USA			ss	2/01/16 (032)	21:58:22.90817	UTC					
35	B088A	2013065	2599365	33.3749	-116.6205	1.4039	skyoks088bcs2007, Anza, CA, USA			ss	2/01/16 (032)	21:58:23.00524	UTC					
36	B093	2007263	2599365	33.5937	-116.7641	1.2296	trippf093bcs2007, Anza, CA, USA			ss	2/01/16 (032)	21:58:23.08940	UTC					
37	B946	2010204	2599365	33.5373	-116.5925	1.4290	sagebf946bcs2010, Anza, CA, USA			ss	2/01/16 (032)	21:58:23.30717	UTC					
38	TFPO	2010099	33.6060	-116.4544	1.2750		Pinon Flats, CA, USA			ss	2/01/16 (032)	21:58:44.09304	UTC					
39	JORD	2011327	2016366	33.4722	-116.6450	1.2350	JORD			ss	2/01/16 (032)	21:56:56.53317	UTC					

54的行

已更新的'site'表: 3/16/16 (076) 16:34:53.29536 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









# Internationalization and Localization: *Special Offer*

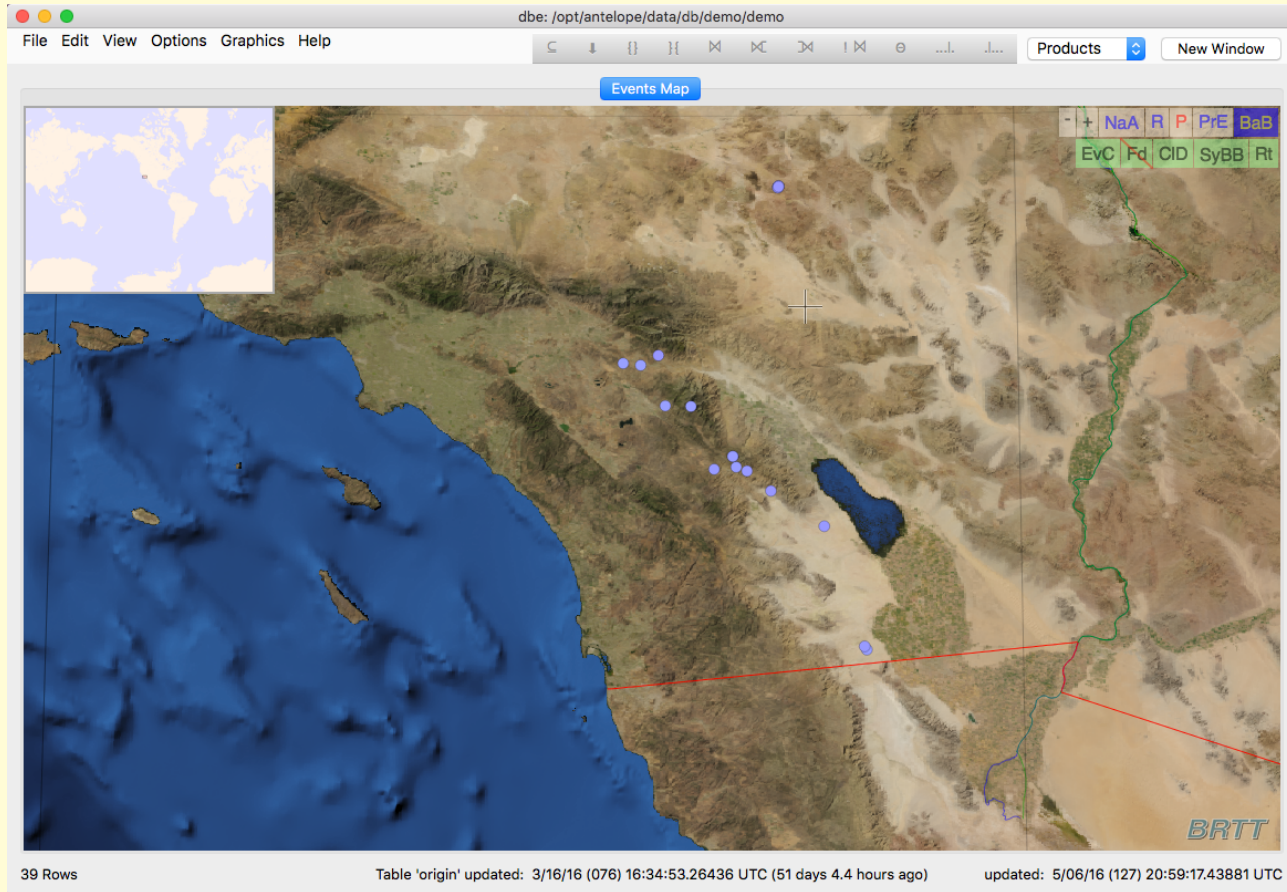
- If you'd like *dbe* controls in your language, we'll give you a *Microsoft Excel* spreadsheet at this meeting (about 170 strings to translate), you translate it, we'll put your language in the next Antelope 5.6 patch

# 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!

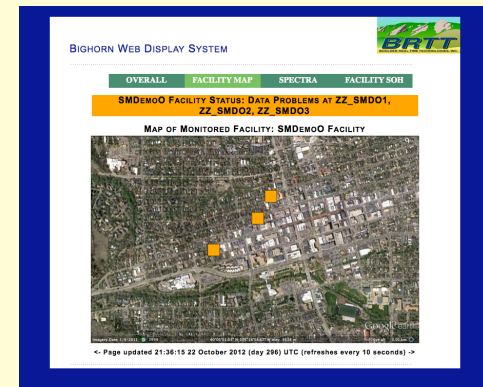
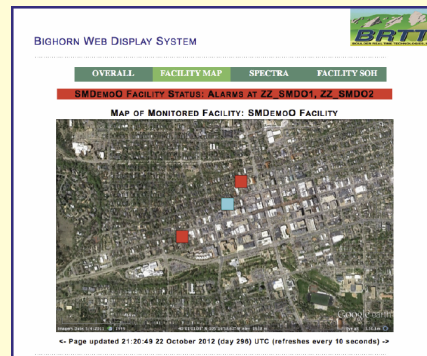
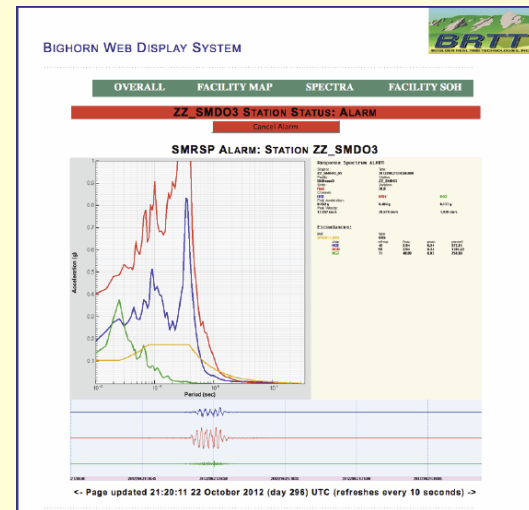


# Bighorn

## 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



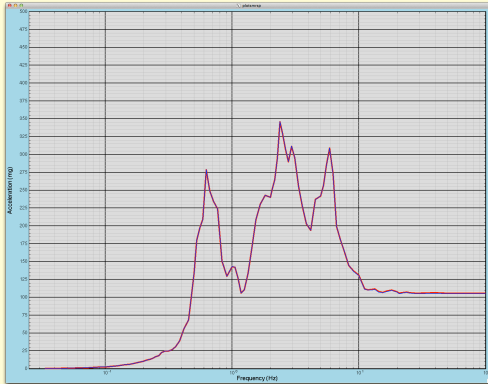
Bundled into Antelope 5.6

State-of-Health  
Monitoring

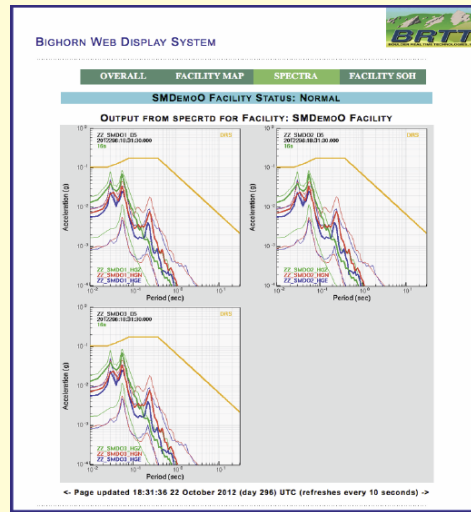


# Bighorn

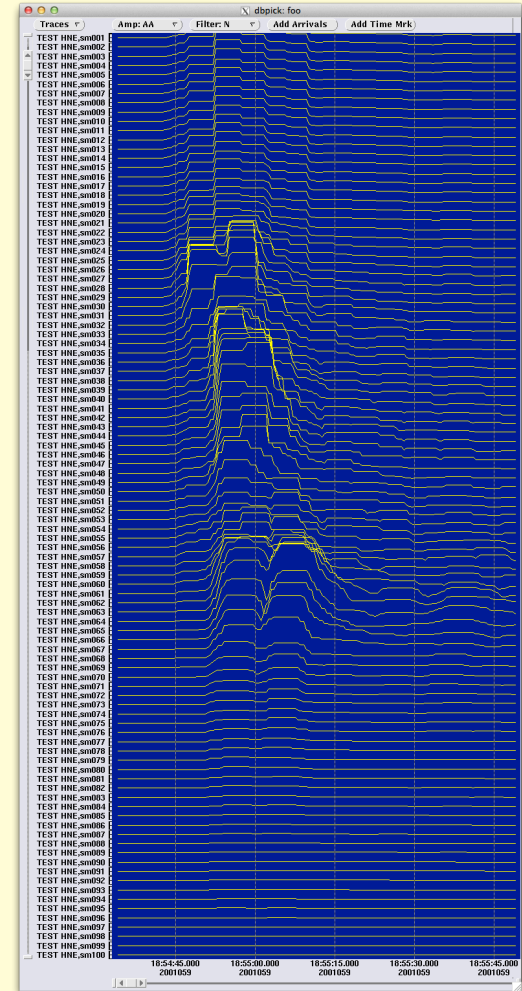
- Method vetted by Nuclear Regulatory Commission
- Faithful translation from
  - After-the-fact event-based review; to
  - Streaming, real-time, continuous now-casting



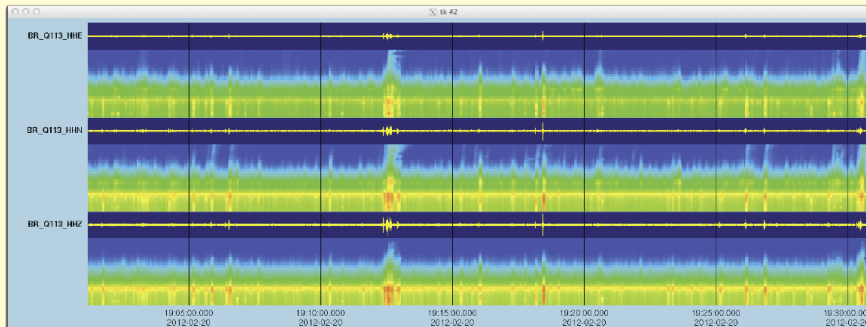
-> Synthesize  
Real-time  
Spectral  
Calculations



Multiple  
Time-domain filters  
Of incoming wavefield



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







## 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?