Antelope 5.2 and other new developments

February, 2012

European Antelope User Group Meeting

Trieste, Italy

BRTT

BOULDER REAL TIME TECHNOLOGIES, INC.

- Changes at BRTT
- Python
- **rtwebserver**
- **dbpick**
- **css3.1**
- Strong motion response spectra
- **orbmonrtd**
- Solaris, Linux and Apple
- Future development

Big Changes at BRTT

- Kent Lindquist hired full time
- Kent has become BRTT's Chief Operations Officer (COO)
- Kent will be responsible for production of new releases
- Kent brings his experience with python and **`rtwebserver`** into BRTT
- Kent provides BRTT with stability, new blood and increases BRTT's ability to undertake new development
- Kent will no longer be available as a private consultant
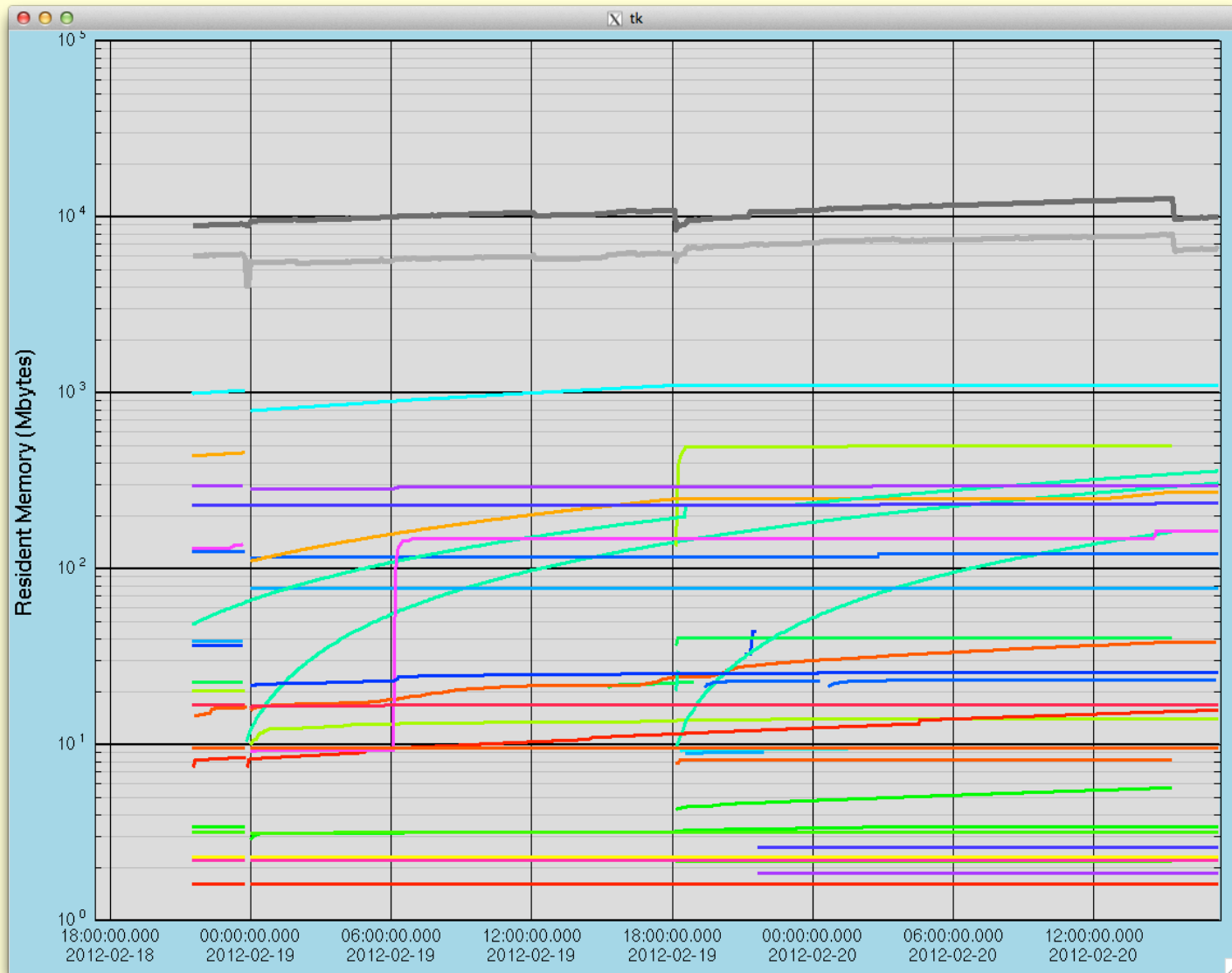
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New Python Capabilities in Antelope

- Python additions have been largely brought about by Kent
- Standard python 2.7.2 64-bit interpreter in Antelope 5.2 release
- Also included are a set of public-domain python extensions (Kent will describe in more detail)
- Also included are a set of Antelope extensions to python in the same vein as the tcl and perl Antelope extensions
  - Contributed extensions previously developed by Kent
  - vector, history, sysinfo and GUI widget extensions currently available in perl
  - orbreapthr extension

- Most new GUI tools will be developed using python

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Why Bother With Python?

- Heavily used "modern" object oriented scripting language
- Used extensively in Australia and US Antelope communities
- Can find young software developers who know python (not so much the case for perl and tcl)
- Has a large and comprehensive set of public-domain extensions, including scientific/engineering extensions
- Performs similar to perl
- Unlike perl, is inherently OO
- Unlike perl, provides a simple path for tk widget extensions
- Helps to prevent BRTT fossilization

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Python-based Tool for Monitoring Memory

rtwebserver

- Python-based web server developed by Kent prior to his employment by BRTT
- Along with the various python extensions, provides a comprehensive toolkit for developing custom web servers that are highly integrated into the Antelope environment (configuration, connectivity, etc.)
- This is a work in progress; the 5.2 version is in a preliminary state
- We (BRTT and Kinemetrics) do not have a business model for **rtwebserver**. The software currently has its own licensing bit and we are considering a surcharge for its use.

New **dbpick** Capabilities

- Complete rewrite of underlying data handling middleware
- Overall data access performance increased by a factor of 10+
- Highly dynamic response to changing underlying database
- New typein commands, `dbrefresh` and `dbreopen`
- New typein command, `batch`, to increase graphics perfomrance and to control display flashing when changing events
- Can keep a **dbpick** window open continuously when running **dbevents**
- First phase toward a complete rewrite of **dbpick**

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css3.1

- New incremental changes to **css3.0** as we discussed last year
  - Mainly increased lengths of various attributes
  - All id attributes from 8 to 12 characters
  - All epoch times have microsecond precision
  - dnorth, deast in site have 5 digits precision
  - lat, lon have 7 digits precision
  - Increase dir to 80 characters and dfile to 48 characters
  - Increase sta to 8 charcters and chan to 14 characters
- Increased sta attribute size means that SEED to css aliasing can be done with consistent snet_ssta type naming convention
- Can use **dbconvert** to convert from **css3.0** to **css3.1**
- New `gsn_demo` will use **css3.1**
- What about a change to implement preferred magnitude?
  - Propose addition of `prefmag` attribute in `event` table

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Strong Motion Response Spectra

- New ability developed in **orbwfproc** for producing continuous time-dependent strong motion response spectra

- Implemented in the **orbwfproc wffilter** module as a threaded one to many generalized filtering capability

- Expanded floating point data representations within ORB packets and Datascope waveform files

- Provides a very fast method for computing continuous time-dependent response spectra for large numbers of channels

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orbmonrtd changes

- In conjunction with strong motion response spectra generation, **orbmonrtd** is in the process of being rewritten
- Will provide capability to plot color-contoured spectragram style time-scrolling data plots
- Adaptation of buplot bptrace tk canvas item extension available in python
- Rewrite of old tcl/tk script as a python script
- Introduce a number of new features, including dynamic automatic channel configurations

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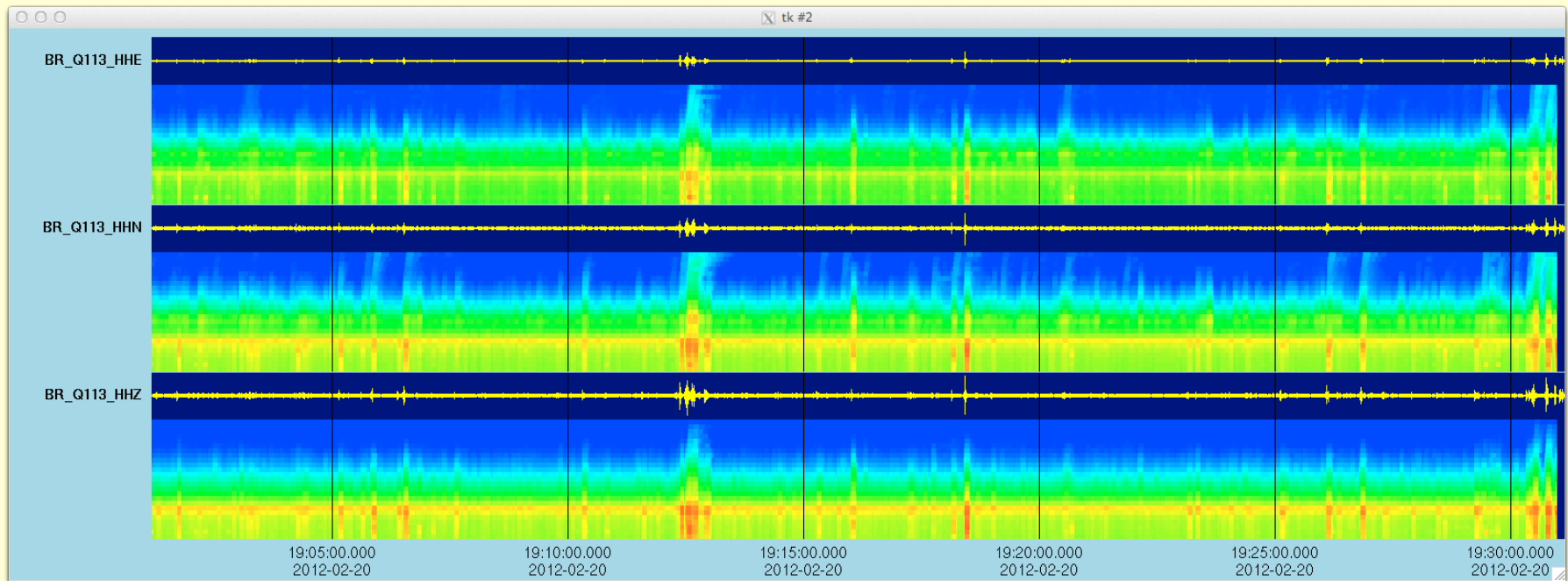
Solaris, Apple, Linux

- Still on schedule for 5.3 being last Solaris release
  - Ramp down in Solaris development
  - Solaris support through one year from 5.3 release
- Uncertainty of Apple hardware future
  - Macpro discontinued?
  - Macpro undergoing major new development?
  - Cannot depend on Apple for enterprise-class hardware
- Starting with 5.2, BRTT will fully support Linux as a platform for enterprise-class systems
  - Canvas of large-scale users who need enterprise-class systems (Kinemetrics, ANF, IRIS/DMC, Australia TEWS, Canada)
  - BRTT will fully support RHEL 6.2 starting with 5.2 release

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Future

- ## Strong motion
  - Continued development of traditional SM processing
  - Database schema extensions to support SM processing results
  - Display, monitoring and control through web interfaces
- ## `dbpick`
  - Next phase is to migrate the GUI to our new tk-based graphics extensions
  - Develop new `dbpick` main program as a python scripts
- ## `dbloc2`
  - Kent will head a complete rewrite
  - Currently soliciting comments/suggestions for new `dbloc2`
  - Probably a python script with embedded `dbpick` functionality

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Future

- Continued development of Linux enterprise-class systems support
  - In conjunction with Kinemetrics and ANF, BRTT will purchase, test and maintain an enterprise-class Linux Antelope system
  - We will focus on a single Linux release version and provide full support for Antelope systems using this release
  - We will continue to offer full support for Apple-based systems
- Development of `rtwebserver` into a fully operational product

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