

# Rt-tests – Status report

- Quick overview of the tests in the suite
- Discussion of recent changes and new features
- Ideas for the future
- Discussion / Open the floor to a wishlist for the future.

# rt-tests

- Suite of tests, originally from Thomas Gleixner
  - cyclicttest: high resolution timer test
  - signaltest: signal roundtrip test
- Small number of “core” developers, fairly stable software suite. Surprising number of people who contribute one or two patches and disappear
- Development tends to occur in spurts.

# rt-tests

- Tests from Carsten Emde
  - pmqtest: POSIX message queue test
  - svsematest: SYSV semaphore latency tests
  - sigwaittest: sigwait() latency test
  - ptsematest: POSIX threads mutex latency test
  - sendme: send a signal from a driver to userspace

# rt-tests

- From Clark Williams
  - pi\_stress: priority inheritance stress test
  - hwlatdetect: hardware latency detect
    - Front end to Jon Master's kernel hardware latency detector
    - Clark currently working to update hwlatdetect to use either old version of module or Steve's rewrite / ftrace-hwlatdetector
- From John Kacur
  - pip\_stress: priority inheritance with processes

# rt-tests

- From Steven Rostedt
  - rt-migrate-test:
  - SCHED\_DEADLINE
    - deadline\_test:
    - cyclicdeadline

# rt-tests - rteval

- Rteval: originally from Clark Williams and David Sommerseth
  - Tests the suitability of a system for realtime, using cyclicttest and running various loads such as hackbench in order to stress test the system.

# Rt-tests Social Engineering (being good open source citizens)

- Moved rt-tests out of our home directories on kernel.org into `pub/scm/utils/rt-tests`
- Removed most distribution specific code outside of rt-tests
- Posting all changes, even small ones.

# rt-tests – New Features

- Building with `-DHAVE_PARSE_CPUSTRING_ALL`
  - To use `numa_parse_cpusttring_all()` used in isolating cpus. (no autotools!)
- Support added for Android (Bionic) by Henrik Austad.
  - Android lacks certain features such as `pthread_barriers`, `pthread_setaffinity`
  - Support for a subset of tests
- Many fixes to the build system, such as generating `.o`, `.a` and `.d` files in a `blldir`, etc (John)
- `cyclictest –tracemark` from Luis Capitulino
  - Bypass `cyclictest` tracing and allow it to be done by external programs, in particular `tracecmd`
    - `Cyclictest` must still do a minimum amount of set-up such as writing to the `trace_marker` file



# rt-tests – New Features

- --spike=trigger (feature to record spikes from John Kacur)
  - Any time a spike > trigger occurs we record the data. (Thread and time stamp)
  - --spike-nodes=num\_of\_nodes, is the amount of data we can record, default is 1024
- Change in hwlatdetect to allow kernel module to be a built-in (Clark Williams)
- cyclictst: SMI count/detection via MSR/SMI counter (Daniel Bristot de Oliveira)
  - --smi Enable SMI count/detection on processors with SMI count support

# rt-tests 1.0 – yay!

- After a lot of necessary clean-up, all that niggling stuff like spelling fixes, complete manpages, etc
- stable/v1.0 released May 2016
- Maintenance branch called stable/devel/v1.0.1
- Unstable version originally called v2.0, renamed to unstable/devel/v1.1.1
  - Still struggling with a good way to number this.

# rt-tests 1.0

- Maintained stable version, for people who just need the tests to work, such as OSADL, and rteval (Red Hat), and many unknown developers.
- Unstable version for people who want to get creative with the next version of rt-tests

# rt-tests – Future ideas

- Version of cyclicttest that runs on small embedded systems
- More modular code, better code sharing throughout the tests.
- Removal of old code to handle ancient kernels and software environments.
- Rework / rewrite and simplification of options in cyclicttest
- Rip out tracing and use external tracing software, in particular trace-cmd (part way there)
- Ability to query rteval and cyclicttest during a long run
- Simple network latency test?
- Always open to new useful tests

# rt-tests – Wish List

- Ideas, wish lists, brainstorming, the floor is yours!