GDS Software Status

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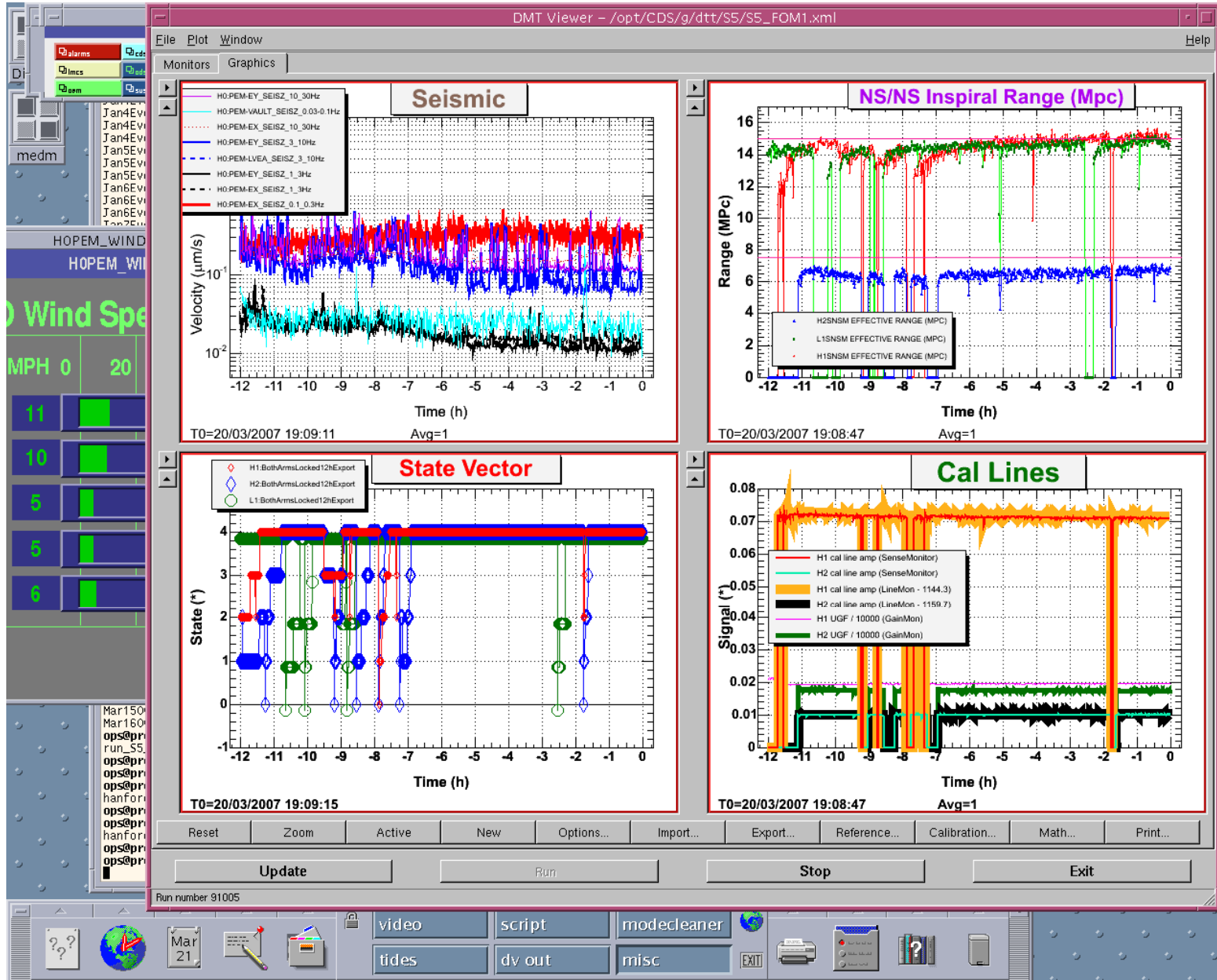# Overview

- Current Status

- New version to be released July 2007
  - Changes / Improvements

- Schedule

Online Status

- dmt-2.11.1 installed on online systems with root-5.14.0 and framecpp-1.8.235

- ~150 monitors + Support process running at LHO (91) and LLO (61)

- Running on 10 nodes (~33GHz) at LHO and 5 nodes (~15GHz) at LLO.

- Almost everything seems to be running stably

  - Little manual intervention.

  - FOMs, trends, Spi, etc running with no problems

- But

  - PlaneMon seems to be allergic to root-5.14

  - Many accumulated fixes, changes

  - New functionality defined

FOMS!!!

Off-line Version (dol-0.4.1)

- dol-0.4.1

  - Rpms available
    - built/tested by Adam Miller (UWM)
    - 32/64-bit implementations
    - Fedora Core 4
    - Installs into /opt/lscsoft/dol/
    - Links to lscsoft dependencies.

  - Available from daswg repository, see http://www.lsc-group.phys.uwm.edu/daswg/download/repositories.html for installation instructions.

  - 32-bit and 64-bit versions installed (as appropriate) on LIGO clusters and gateway/development

Changes/Improvements

- Build scripts / dependencies

  - Optional LAL dependency

    - T-domain calibration needed by StrainWatch

  - New root version: 5.15-08

  - New FrameCPP-1.9.0

    - New compression methods

- Base library

  - Time constructor made "explicit"

    - Can't user integer instead of time any more.

Changes II

- Heterodyning
  - TSeries::fShift()
    - Calculates phase with complex 'phi *= delta'
    - Fast, but lost precision
    - complex<float> -> complex<double>
  - Mixer
    - Recalculates phase for each sample with 'phi=fmod(phi+delta, twopi)
    - Slow
    - Use sincos(), avoid copies, scalar × complex

Changes III

- Containers
  - TSeries
    - Fix heterodyning (see above)
  - DVector
    - Specialize DVectC::mpy()
  - fSeries
    - Base class for f-domain containers (DFT, PSD, CSD, ASD)
    - Future replacements for FSeries, FSpectrum.
    - More coherent i/f, fewer type limitations.
    - Test only

Changes IV

- Monitors

  - PDnMon: Monitor to look for inconsistencies in redundant PD signals.

  - StrainWatch: Monitor t-domain calibration results (uses Xavi's LAL code).

Changes V

- SignalProcessing
  - Mixer
    - Fix heterodyning (see above)
  - filter_delay
    - New class to adjust start time of filter output Tseries (esp. FIR based filters).

- Service changes/bugs
  - Webview
    - Fix memory leak (partially)
    - Serve Spectra.

Changes VI

- Utilities: seg_calc
  - New segment manipulation utility
    - Interpretive command based
    - Fast!
    - Could be back-end for GUI
  - Commands:
    - Read file (arbitrary column format)
    - Define new segment type (evaluate)
    - Write
    - Execute macro
  - http://www.ligo.caltech.edu/~jzweizig/Utilities/seg_calc.html

Upgrade Schedule

- Online
  - Version gds-2.11.2 tagged
  - Dependencies installed at sites
    - Lal-5.2, root-5.15-08, metaio,
    - FrameCPP-1.9.0 - configuration broken?
  - Finish installation, start testing this week
- Offline (dol)
  - Dol-4.3 tag will be based on gds-2.11.2
  - Framecpp-1.9.0 rpm ready
  - Expect dol rpm in order 1 week