



Autumn/Fall 2015 HEPiX meeting  
Brookhaven National Lab, Upton NY, U.S.A.

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(with contributions by Tony Wong / BNL)

# HEPiX

- Global organisation of service managers and support staff providing computing facilities for HEP community
- Most WLCG sites, including WLCG Tier-0, Tier-1 and many Tier-2, represented
- Meetings are held twice per year
  - Thus far: spring in Europe, autumn in North America or Asia – being revised
- Reports on status and recent work, work in progress & future plans
  - Usually no showing-off, honest exchange of experiences
- (Re-juvenated) Web site: [www.hepix.org](http://www.hepix.org)

# HEPiX Autumn/Fall 2015

- Held 12 – 16 October at Brookhaven National Lab, Upton NY (Long Island), U.S.A.
- Sponsors: Western Digital, HP, Red Hat, DDN
- 110 registered participants (40 more than at last BNL meeting in 2004!)
  - Many first timers, many old friends
  - 39 from North America, 49 from Europe, 11 from Asia/Pacific, ~11 from 5 companies
  - 32 different affiliations
- 82 contributions
  - slots cut down to 20 mins (!)
- Full details: <http://indico.cern.ch/event/384358/>
- Extensive workshop notes (32 pages PDF covering all presentations):  
<https://indico.cern.ch/event/384358/attachments/1179456/1706835/TripReport.pdf>

# Group Photo



# Tracks and Trends... (1)

- Site reports – 20 contributions
  - *Infrastructure incidents; leasing; private clouds; power and cooling constraints*
- Security and networking: 8 contributions
  - *IPv4 addresses (nearly) exhausted – sites urged to dual stack to accommodate IPv6*
  - *Continuing perfSONAR deployment and more comprehensive network performance monitoring*
  - *Security concerns at data centers*
    - *Third party software*
    - *Targeted phishing attempts (including a very malicious one against registered participants!)*
    - *Malware*
    - *Need for continuous awareness campaigns*

# Tracks and Trends... (2)

- Storage and file systems: 10 contributions
  - *Ceph is increasingly adopted at various sites*
    - *Production usage at RAL, BNL*
    - *CERN's presentation of Ceph and CVMFS*
  - *Continuing development of dCache pools at US Tier1 sites (BNL and FNAL)*
  - *CERN users home directories migrating away from AFS (CERNBOX + EOS)*
  - *DDN presentation on reduction of file system latency (IME parallel file system)*
  - *WD's presentation on predictive failure analysis*
  - *DESY's presentation on QoS and Data Cycle management for storage systems*

# Tracks and Trends... (3)

- Grids/clouds: 14 contributions – serving as GDB meeting as well
  - *Docker containers*
    - *support in Condor*
    - *tested at various sites*
  - *Increased interest in commercial cloud services*
    - *Benchmarking @ CERN*
    - *Continuing tests of AWS*
  - *Several sites reported VM provisioning of cloud resources via OpenStack (becoming standard?), but some still use OpenNebula*
  - *OSG-accessible resources increasingly available*
    - *OSG overview provided by FNAL*
    - *alternative to commercial cloud providers in some cases (see Martin Purschke's presentation)*

# Tracks and Trends... (4)

- IT facilities and business continuity: 6 contributions
  - *LBL's new data center*
    - *Innovative cooling infrastructure*
    - *Orderly migration from the Oakland facility*
  - *HP consolidation presentation*
    - *Visiting HP data center during SuperComputing 15 (Austin, TX)*
    - *If you are there on Thursday, Nov. 19 and are interested, please send mail to [tony@bnl.gov](mailto:tony@bnl.gov)*
  - *BNL's proposed new data center*
    - *Multi-disciplinary facility*
    - *~30,000 ft<sup>2</sup> (~2800 m<sup>2</sup>)*
  - *Asset management/tracking with Infor EAM @ CERN*
    - *Tracking purchased IT equipment*
    - *Thousands of incorrect bar-code stickers changed by supplier*



# Tracks and Trends... (5)

- Computing and batch systems: 8 contributions
  - *HTCondor increasingly used at many sites, but LSF/Grid Engine are still hanging on at some sites*
    - *Partitionable slots*
    - *Discussions with HTCondor team at HEPiX are useful to many sites*
  - *NVMe disk drives*
    - *overcoming latency and bandwidth limitations with blazing performance (at a price)*
    - *Bypassing SATA controller is the most significant reason*
  - *Discussion of benchmark standard*
    - *HS06 does not measure performance of multi-core processors well*
    - *Usage of experimental code to cross-check*
    - *No prospect for a new standard until SPEC releases a new benchmark*
  - *Demand by non-traditional fields for computing support*

# Tracks and Trends... (6)

- End-user IT services and operating systems: 5 contributions
  - *SL update from FNAL*
    - *Continuous release (less emphasis on point releases)*
    - *Active support for SL6 and SL7 images*
  - *CERN CentOS7 updates*
    - *Puppet for desktops*
    - *CENTOS and RHEL common base*
  - *Docker support with both distros*
  - *ownCloud presentation by RAL/STFC/PPD –cloud-like access to storage on multiple devices*
  - *Support for Mac/iOS and mobiles at CERN – mobile device count rising fast while PC count is flat*

# Tracks and Trends... (7)

- Basic IT services: 10 contributions
  - *BNL using ELK to monitor application activity logfiles on storage systems (dCache, others)*
  - *Consolidation of monitoring (environmental, system, batch, etc) at LBL*
    - *ELK integrated into monitoring infrastructure*
    - *Power over ethernet hardware feature*
  - *Service/system monitoring @ CERN*
    - *Ceph SLS dashboard*
    - *ELK integrated*
  - *Detailed presentation on configuration management @ CERN w/Puppet*
  - *FNAL presentation on Online Computing support*
    - *“taking over” and standardizing to ITIL practices*
    - *Ongoing drive to users on best practices*
  - *Quattor has an active community supporting it (RAL, Brussels, Paris-Sud, etc)*
  - *Foreman and GitHub (configuration management tools) presentations by BNL and KIT*
  - *InfluxDB and Grafana as alternatives to Ganglia*

# Next meetings

- Spring 2016: DESY Zeuthen (near Berlin), Germany
  - 18 – 22 April
  - Same tracks as at BNL
  - 25 years of HEPiX: Photo gallery being prepared
  - First public announcement in December
- Autumn/Fall 2016: Lawrence Berkeley National Lab, CA, U.S.A.
  - Tentative date: 17 – 21 October 2016 (week after CHEP in San Francisco)
- Proposals received for subsequent meetings
- Will need to re-consider swap of European/N-American meeting, Asian labs becoming important contributors to HEPiX

Expressions of interest and proposals are always welcome

# Questions?

