

Technology Watch Working Group

Helge Meinhard / CERN-IT
HEPiX Spring 2019 at SDSC
28-Mar-2019

Challenges

- LHC Run 4 / phase II and other Big Sciences
- Understanding better where technology and markets go becomes indispensable
- Wide area of topics to be covered in a regular and systematic manner

Motivation

- Previously, evolution of technologies and markets tracked on ad-hoc basis
 - Certain efforts by some sites
 - For example Bernd Panzer-Steindel at CERN
 - Little / no coordination, little information exchange
- Main purposes:
 - Follow trends, better predict costs, optimise investments
 - Provide input to computing models and software development

Proposal in Spring 2018

... at WLCG/HSF workshop, HEPiX spring 2018, ...

- Significant expertise and interest in many places, not restricted to major labs
- Leverage the expertise and interest to organise a more regular technology watch activity
- Form a working group open to people from all interested experiments and sites

WG Launch, Target, Scope

- Working group launched late summer 2018
- Surprisingly high level of interest
 - 58 subscribers on the mailing list hepix-techwatch-wg at hepix dot org
- Target: HEP experiments, in particular LHC; other communities as they collaborate in and contribute to the WG
- Scope: Evolution of technology and markets
 - Does not include benchmarking, cost modelling, software techniques and products – covered elsewhere



WG Deliverables

- Regularly maintained set of Web pages
- Regular reports at HEPiX, GDB, WLCG workshops, ...
- Submissions to CHEP, ...
- Citable publications (e.g. in CSBS)

Techwatch WG – Organisation (1)

- Chairs: Helge Meinhard, Bernd Panzer-Steindel
- Six sub-groups (with conveners):
 - General market trends, semiconductor markets, unit sales: **Servesh Muralidharan, Peter Wegner**; Rolf Seuster, Kai Leffhalm, Charles Leggett, Gang Chen
 - CPUs and accelerators: **Andrea Sciaba, Eric Yen**; Michele Michelotto, Rolf Seuster, Servesh Muralidharan, Domenico Giordano, Niko Neufeld, Charles Leggett, Peter Wegner, Mathieu Puel, Romain Wartel, Andrea Chierici, Andrea Valassi, Shigeki Misawa, Felice Pantaleo, Chris Hollowell, Tristan Suerink



Techwatch WG – Organisation (2)

- Six sub-groups (cont'd):
 - Server markets: **Chris Hollowell, Michele Michelotto**; Servesh Muralidharan, Peter Wegner, Mathieu Puel, Andrea Chierici, Harvey Newman
 - Memories: **Shigeki Misawa**; Servesh Muralidharan, Andrea Sciaba, Loic Tortay, Fabio Hernandez
 - Storage: **German Cancio, Martin Gasthuber**; Federico Calzolari, Peter Wienemann, Oliver Freyermuth, Julien Leduc, Vladimir Sapunenko, Kai Leffhalm, Alessandro Brunengo, Shkelzen Rudovac, Loic Tortay, Fabio Hernandez, Eric Yen, Harvey Newman, Shigeki Misawa, Jan Erik Sundermann
 - Network: **Edoardo Martelli, Rolf Seuster**; Federico Calzolari, Fazhi Qi, Alessandro Brunengo, Harvey Newman, Tristan Suerink

First Objectives

- Presentations at WLCG/HSF/OSG workshop at JLAB last week, and at this HEPiX workshop
 - Very natural time-scale
 - Created much increasing commitment in February and March
 - Total of 25 meetings in Indico so far (six plenary, 19 sub-groups)
 - Session last week highly appreciated



Next Steps

- Three presentations at HEPiX after coffee
- Plenary meeting to review presentations and next steps soon
- Presentation at EGI conference in May
- Article to be published in CSBS?

- Common deliberations with other WGs and stakeholders
 - How to ensure that results have the right impact on WLCG and other communities?

Digression: Server Costs (1)

- One result of Bernd Panzer-Steindel's activities: CPU and storage price/performance improves by 15% and 20% per year, respectively
 - Based on CERN procurements
 - Optimistically rounded up to 20%
 - Convolved with other effects, e.g. memory prices
- Major cornerstone of cost projections of LHC computing
 - Used to interpret what 'flat funding' means



Digression: Server Costs (2)

- Recently checked by other sites/countries
 - Growth rate found lower than 15% / 20%
 - Potential reasons include
 - Different architectures and their evolution in time
 - Different volume and educational/research discounts and their evolution in time

Digression: Server Costs (3)

- More data needed
 - Most major and mid-size procurers should follow this systematically
 - Some data by nature sensitive – but we need to extend our proven sharing culture to procurements
 - With respect to our need to use the budgets most effectively, will need to look at absolute numbers, too

Final Remarks

- Thanks to all WG members and the conveners for their dedication and contributions so far – WELL DONE! Let's keep up the momentum!
- Interested? Never too late to join – contact conveners or HM
- Ideas for opportunities (in particular presentations)? Contact conveners or HM