

# Scientific Computing Forum

Helge Meinhard / CERN-IT  
Grid Deployment Board 08-Apr-2020

# Context (1)

- WLCG very successful
  - Further evolution needed for HL-LHC
  - Must take advantage of technology developments
- Other big-data sciences rapidly emerging in wider scientific community
- HPC, commercial and research clouds, heterogeneous architectures (e.g. GPUs) used by other sciences
- Funding agencies wonder how to optimise investments across science cases
  - They expect input from HEP in general and WLCG in particular
- WLCG to embrace these additional opportunities

# Context (2)

- Strategy required to ensure that
  - Costs of future scientific computing are contained
  - Maximum advantage is being taken from technology developments
  - Constraints by national funding and usage structures are accommodated in an optimal way
- Scientific Computing Forum (SCF) established in 2017 by Eckhard Elsen, CERN Director of Research and Scientific Computing
  - Aim is to develop technical basis for this strategy
  - Part of the CERN Directorate's strategy established in 2016 to strengthen links with Member States



# Role

- High-level technical advisory role to Funding Agencies
  - Advise, raise awareness, convince
  - Formal communication channel with Funding Agencies: RRB
- Informal, no executive role
  - Different from formal, executive WLCG Overview Board foreseen in WLCG MoU
  - Scope goes beyond computing for LHC and HEP

# Membership

- By invitation, to ensure discussions are possible at the right level
- Current membership, bound to evolve as discussions require additional technical expertise:
  - Eckhard Elsen, CERN Director for Research and Computing, chair
  - President of CERN Council
  - Representatives of LHC experiments (spokespersons, computing coordinators)
  - Representatives of funding agencies and major WLCG sites
  - Representatitives of WLCG project
  - Representatives of CERN-IT and other CERN units
  - Experts as adequate for the topics to be covered
  - Scientific secretary (HM, since 02/2018)
  - (58 addresses on mailing list)



# Information

- Publicly available from SCF Indico page:

<https://indico.cern.ch/category/9249/>

- Summary of the first four meetings: see my presentation at GDB 11-Apr-2018

<https://indico.cern.ch/event/651352/contributions/2960306/>



# 5<sup>th</sup> Meeting – 20 September 2018

- 32 participants
- Tape and disk storage: Evolution of technology and markets and its impact
- The role of HPC for HEP computing – situation and outlook
- Round table

# 6<sup>th</sup> Meeting – 25 February 2019

- 40 participants
- HPCs and Large Scale Scientific Instruments - FZ Julich's view
- Scientific Software Institute
- Cost evolution of compute and storage servers
- Results from HNSciCloud
- Round table





# 7<sup>th</sup> Meeting – 02 October 2019

- 31 participants
- WLCG preparations for Run 3 and beyond
- GPUs in CMS: status and plans
- CERN School of Computing
- CERN openlab
- CERN's MALT project
- Round table



# 8<sup>th</sup> Meeting – 13 February 2020

- 33 participants
- Quantum initiative
  - Quantum computing science: training and tools for physicists and “classical” computing engineers at IN2P3/CNRS
  - Lattice gauge theory applications for quantum computing at DESY
  - Oak Ridge National Lab's quantum information science group
  - Quantum Technology initiatives at CERN: status and plans
- Update on the NSF IRIS-HEP software institute
- Round table



# Details of Presentations / Discussions

- Interested?
  - See slides and minutes in Indico
  - Ask me for private communication or for a dedicated GDB presentation



# Next Meeting

- Scheduled for 22 October 2020



# Summary (from Indico)

The Scientific Computing Forum brings together experts in the field of data-intensive, computing applications of publicly funded research to outline solutions for the requirements over the next decade.

Evolving from the success of the world-wide LHC computing grid (WLCG) and encompassing the latest developments of the Scientific Clouds, science will continue to drive and lead the development of demanding computing installation.

The forum takes stocks of the developments in advanced computing with the goal of identifying options and synergies for adequate and affordable solutions.

