EU-T0

Status presented at GridPP meeting
Ambleside, 22 Aug 2014

PC, Dave Britton and David Corney are working closely with Swindon in respect of STFC involvement

Pete Clarke

❑ Several Funding Agencies/equivalents signed up to a "position statement" Feb 11th 2014

European agencies position statement:
towards the "EU-T0" federation.

Authors	Institutes	Approval (Agencies directors)	Institutes
Giovanni Lamanna	IN2P3-FR	Jacques Martino	IN2P3-FR
Donatella Lucchesi	INFN-IT	Ursula Bassler	IN2P3-FR
		Gabriel Chardin	IN2P3-FR
		Fernando Ferroni	INFN-IT
		Antonio Zoccoli	INFN-IT
		John Womersley	STFC-UK
		Antony Medland	STFC-UK
		Joachim Mnich	DESY-DE
		Doris Wedlich	KIT-DE
		Matteo Cavalli-Sforza	IFAE-ES
		Marcos Cerrada	CIEMAT-ES
		Frédéric Hemmer	CERN
Ref.: IA_PS_131209			
Version: 5.0			

2. POSITION STATEMENT

Particle, Astroparticle and Nuclear Physics research <u>communities</u> and the corresponding European <u>funding agencies</u> together have been at the centre of major innovations and initiatives in information technology, e-Science and e-infrastructures facing the needs and the specific challenges raised by their pillar research programs, e.g. the LHC. The WLCG project and the EGI e-infrastructure are the most evident example of a successful federated cooperation among international partners for IT services for science.

All the LHC experiments anticipate increases in collected data driven by the physics: the study of the Higgs boson properties and the search for new particles for which higher centre-of-mass energy and higher luminosity are needed. Already in 2015 the data throughput is expected to be twice that observed in 2013. The computing needs and the challenges in the management of the LHC data in the future will strongly impact upon further developments and cooperative efforts.

New major projects currently under design and/or construction, particularly in astroparticle physics, have already become new challenging platforms of further developments, e.g. CTA, EUCLID, LSST, VIRGO-LIGO and other future gravitational waves projects. In fact they have a data throughput of the same order of magnitude if not even larger than LHC, with severe data management issues. These projects encompass an even larger research community bringing together high energy physics and astrophysics agencies to potentially cooperate together and share some new e-Science challenges.

The know-how of the major European WLCG computing centres in data archiving, data management and scientific user support has had interdisciplinary implications in nearby fields extending our connections and cooperation to other agencies/communities: e.g. astrophysics as already said but also medical physics, pharmaceutical and other life sciences research.

The interdisciplinary cooperation needs to be encouraged both at the level of research communities as well as at inter-agencies level, the latter being critical for the first. In this context the May/July 2013 publications (CERN-OPEN-2013-017/018/019) prepared by CERN on behalf of

❑ Theses Funding Agencies (FAs) are responsible for supporting many communities
  ➢ Astronomy, Astrophysics, Cosmology, Astro-Particle Physics, Nuclear Physics, Particle Physics

❑ The FAs pay for a very large e-Infrastructure (=computing, storage, networking) for these communities.

❑ The data rates of all of these communities are set to increase dramatically (HL-LHC, LSST, SKA, Advanced-LIGO...)

❑ The FAs believe they all face same challenges:

  ➢ how to meet future exponentially increasing requirements within likely financial constraints;

  ➢ how to maximise cost effectiveness of what they pay for;

  ➢ how to make e-Infrastructure more easily and transparently shareable by more of their scientific communities;

  ➢ how to provide greater and simpler accessibility (AAA);

  ➢ how to store, move, archive, preserve, and provide open access for Zettabyte scale data sets;

  ➢ how different science communities can share benefit and experiences from technological development programme;

  ➢ + others

4

❑ The FAs, therefore, have agreed to work more closely together to achieve following objectives:

➢ To build upon the existing, successful and well proven, computing and data processing centres that are owned or funded by the EU-T0 Partners, by enhancing cooperation and harmonisation in respect of all aspects of the infrastructure.

➢ To integrate the computing and data processing centres into a European Tier-0 centre by creating shared services which can be more easily and transparently used by the different Scientific Communities.

➢ To extend and simplify access to the EU-T0 data centres and their services, through a common approach to integrating Authentication, Authorization and Accounting frameworks.

➢ To achieve a more cost effective provision arising from economies of scale, minimisation of duplication, and adoption of common solutions.

➢ To innovate in new services and software tools as required for benefiting the Scientific Communities. In particular to develop the means to store, move, archive, preserve, and provide open access for Zettabyte scale data sets.

➢ To integrate with other e-Infrastructures and to work towards convergence of HPC and HTC services.

➢ To engage with commercial infrastructure providers to develop a workable mixed model of provision.

➢ To broaden existing collaborations beyond Europe.

❑ Nicely encapsulated by:

"The EU-T0 vision is to create a hub of knowledge and expertise to coordinate technological development, and optimise the investment of the funding agencies in their existing data centres by broadening, simplifying, and harmonising access, driven by well-defined user requirements."

❑ EU-T0 is NOT an EU H2020 project. It is a long lived consortium

What does this actually mean ?

❑ Put most simply the main aim of EU-T0 is to evolve the e-Infrastructure to be more easily shared by more of its scientific communities.

❑ This should benefit all :
  ➢ economies of scale and efficiency gains
  ➢ share underlying operations staff and services
  ➢ avoid duplication of underlying services

❑ Probably this means:
  ➢ Cloud + virtualisation services
  ➢ Simpler AAA
  ➢ Data management services
  ➢ ...

❑ From a FA point of view this makes great sense and we (HEP) naturally support the aspiration.

❑ Within the UK STFC are taking a very sensible and realistic view on this
  ➢ They are being guided by the communities (we are closely helping them)
  ➢ They are only interested in what is good for the science.
  ➢ STFC SCD are fully on board with this.

❑ Since the initial signing on Feb 11th there has been a lot of "discussion"
  ➢ To define scope and mission in detail
  ➢ To understand how it interacts with other existing EU projects (EGI, EUDAT)

❑ Finally there are nearly ready:
  ➢ A "Statement of Intent" document which sets out in more detail what EU-T0 aspires to do
  ➢ A "Consortium agreement"
  ➢ An initial idea on Governance

❑ The next steps will include:
  ➢ Setting up (interim?) governance
  ➢ Setting up means to consult with communities

❑ I said that EU-T0 is NOT an EU H2020 project.... ... but to achieve aims

  ➢ EU-T0 will co-operate/support existing projects (EGI, EUDAT...)

  ➢ EU-T0 members may initiate projects

❑ Ideally projects would only be formulated after determining what the scientific communities need... but there are looming h2020 deadlines for the first calls...

❑ Two projects have been initiated which address basis infrastructure developments which it is assumed will benefit all communities in the long run.

  ➢ ZEPHYR : Zettabyte scale data management

  ➢ DataCloud : Cloud infrastructure

  Ian Collier will talk about these shortly

- ❑ WLCG works just fine and does not need fixing
    - ➢ There is no implication that WLCG is failing or missing something
    - ➢ There is no implication to change or disrupt anything for Run-II

- ❑ Hasn't WLCG already done all this ?
    - ➢ This is not about re-inventing anything
    - ➢ But the other communities don't, and won't, use the Grid
    - ➢ Its about providing what other communities need to share an infrastucture

- ❑ It should not detract resources from WLCG
    - ➢ New communities would require commensurate hardware resources
    - ➢ Also some dedicates staff resources, but hopefully economies of scale would accrue

- ❑ It will benefit from the enormous experience of WLCG

EU-T0 : How does it relate to GridPP

❑ Everything said about WLCG applies to GridPP

❑ GridPP management is liaising closely with STFC and with David Corney (Head of SCD)

❑ This may mean an expanded role for the RAL R89 facility – which we would support

❑ The current status means it is too early to say if this is relevant to T2 sites

Questions