The current era of exascale computing brings ever-growing demands on the amount of available computing power, storage capacity, and network throughput. This affects also the massive computing infrastructure for management of data produced by the experiments at the LHC, the Worldwide LHC Computing Grid (WLCG). The standard financing used for many years enabling the resource growth of 10 - 20% is no more sufficient and to close the resource gap different methods are pursued. The sites involved in the WLCG are encouraged to find non-grid external resources to be used for WLCG tasks. Probably the most popular among them are High Performance Computing (HPC) Centers. In this contribution, we present an overview of one of the WLCG sites, the distributed Tier-2 site in Prague, Czech Republic.

The role of Tier-2s in the WLCG ecosystem is crucial: they deliver resources same as Tier-1s.

ABSTRACT

The first campaign: LCG-1 Service Opened 2nd September 2003. Altogether 13 sites: Taipei, Brookhaven, CERN, Bataglia, Fermilab, Karlsruhe, Lyon, Budapest, Moscow, PRAGUE, Barcelona, Rutherford UK, Tokyo. The project concept formulated in ATLAS@LHC was one of the first computing centers included into the main site at the FZU in Prague. Currently, CZ Tier-2 is a modest size Tier-2 site with distributed resources. The main part is installed at the Institute of Physics of the CAS (FZU) in Prague, additional resources are provided by other institutions in Prague, by Nuclear Physics Institute of the CAS (NPI) in Rez near Prague and by the CESNET association and HPC center IT4i in the city of Ostrava (cf. the map). The complete stack of resources involves ~13,850 CPUs, 10.21 PB of disk space and network connectivity of the range between 10 Gb/s and 100 Gb/s. The compute, storage and data management services provided by CZ-Tier-2 are used predominantly by ATLAS and ALICE@LHC but also by other HEP and astro-particle physics experiments. IP6 is deployed at all disk servers and worker nodes.

The Tier-2s are the LHC experiments but also other particle and astro-particle experiments. This work is supported by INTER-EXCELLENCE LTT/7014 project Ministry of Education, Youth and Sports (MEYS) of the Czech Republic. The IT4i resources and outside network connectivity were supported through the project e-INFRA CZ (05-8614) supported by the MEYS.

Running jobs profile for the last year provided by the local monitoring at the central site in Prague. Main CPU consumers are ATLAS and ATLAS grid external resources to be used for WLCG Tier-2 site with the LHC experiments but also other particle and astro-particle experiments. This affects also the massive computing infrastructure for management of data produced by the experiments at the LHC, the Worldwide LHC Computing Grid (WLCG). The standard financing used for many years enabling the resource growth of 10 - 20% is no more sufficient and to close the resource gap different methods are pursued. The sites involved in the WLCG are encouraged to find non-grid external resources to be used for WLCG tasks. Probably the most popular among them are High Performance Computing (HPC) Centers. In this contribution, we present an overview of one of the WLCG sites, the distributed Tier-2 site in Prague, Czech Republic.

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