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RAL Tier-1 evolution as global CernVM-FS service provider

The CernVM-FS is firmly established as a method of software distribution for the LHC experiments at the WLCG sites. Use of CernVM-FS outside WLCG has been growing steadily, with increasing number of Virtual Organizations (VOs) both within High Energy Physics (HEP) communities and in other disciplines (i.e. Space, Natural and Life Sciences) having identified this technology as a more efficient way of maintaining and accessing their software across the Grid.

We give an overview on the work carried out at RAL to establish an infrastructure able to offer the CernVM-FS service to a broad range of HEP and non-HEP organizations and on the role played by the Tier-1 to support the CernVM-FS developers group.

We discuss the CernVM-FS Replica service delivered as part of the WLCG Stratum-1 network and we then focus on the facility provided to setup a complete service for the non-LHC communities. Master Repository (Stratum-0) and Replica/Mirror (Stratum-1) facilities are presented, together with a customized mechanism to upload and maintain the master repositories by VO Software Grid Managers.

The RAL Tier-1 began offering CernVM-FS to small VOs in the UK in 2012. With support from the EGI the RAL Tier-1 has, since September 2013, been leading the CernVM-FS Task Force which has successfully developed an infrastructure, modeled on that deployed by WLCG, providing a resilient, distributed CernVM-FS service to non-LHC VOs across Europe and indeed replicated around the world. The evolution and current status of the worldwide non-LHC Stratum-0 and Stratum-1 network topology where RAL Tier-1 is a key player is discussed as part of the sustained effort made by the EGI CernVM-FS Task Force to promote the use of CernVM-FS and cooperation on cross-replicating repositories for VOs supported by multiple collaborations.

The pros and cons for a possible CernVM-FS service consolidation are explored. Using a single High Available Stratum-1 system for both WLCG and other HEP and non-HEP communities is cost-effective and will optimise the resources, as long as it is kept as a critical service without rising the maintenance costs.

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