

Network Functions Virtualisation Working Group Proposal

Monday, 16 October 2017 17:25 (25 minutes)

High Energy Physics (HEP) experiments have greatly benefited from a strong relationship with Research and Education Network (REN) providers and thanks to the projects such as LHCOPN/LHCONE and REN contributions, have enjoyed significant capacities and high performance networks for some time. RENs have been able to continually expand their capacities to over-provision the networks relative to the experiments needs and were thus able to cope with the recent rapid growth of the traffic between sites, both in terms of achievable peak transfer rates as well as in total amount of data transferred. For some HEP experiments this has led to designs that favour remote data access where network is considered an appliance with almost infinite capacity. There are reasons to believe that the network situation will change due to both technological and non-technological reasons starting already in the next few years. Various non-technological factors that are in play are for example anticipated growth of the non-HEP network usage with other large data volume sciences coming online; introduction of the cloud and commercial networking and their respective impact on usage policies and securities as well as technological limitations of the optical interfaces and switching equipment.

As the scale and complexity of the current HEP network grows rapidly, new technologies and platforms are being introduced, collectively called Network Functions Virtualisation (NFV), ranging from software-based switches such as OpenVSwitch, Software Defined Network (SDN) controllers such as OpenDaylight up to full platform based open solutions such as Cumulus Linux. With many of these technologies becoming available, it's important to understand how we can design, test and develop systems that could enter existing production workflows while at the same time changing something as fundamental as the network that all sites and experiments rely upon. As this is not the only activity in the area and there are many different projects already running, it's important to find the effort to contribute and coordinate various different networking activities within HEP.

In this talk we'll describe these challenges and propose the formation of a NFV working group that would evaluate the existing technologies and provide guidance on their performance and adoption to the sites and experiments.

Desired length

25 minutes

Primary authors: BABIK, Marian (CERN); MC KEE, Shawn (University of Michigan (US))

Presenter: BABIK, Marian (CERN)

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