

Using Kytos SDN platform to enhance international big data transfers

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Data-intensive science collaborations still face challenges when transferring large data sets between globally distributed endpoints. Many issues need to be addressed to orchestrate the network resources in order to better explore the available infrastructure. In multi-domain scenarios, the complexity increases because network operators rarely export the network topology to researchers and users, resulting in a slow inter domain circuit provisioning. The LHC from CERN and the LSST are two examples of such scientific initiatives.

Kytos SDN Platform is a new solution, developed at the Sao Paulo Research and Analysis Center (SPRACE) from Unesp, that enables a fast way to deploy an SDN infrastructure. Kytos was designed to be easy to install, use, develop and share via Network Apps (NApps). A circuit provisioning application has been developed on top of the Kytos platform, known as the “Kytos MEF E-Line”. It is a service type defined by the Metro Ethernet Forum for connecting exactly two User Network Interfaces (UNI), so they can communicate only with each other. This NApp can be used to schedule a circuit with a minimum bandwidth before the beginning of a specific data transfer between two endpoints. We present in detail the Kytos open source SDN platform and introduce the “Kytos MEF E-Line” NApp, developed in collaboration with AmLight. We also show how this can be integrated with FTS via GFAL plugin in order to allow the provisioning of end-to-end circuits over a Software-Defined Network.

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