SC18 Network Research Exhibition

Toward an NRP, xRP: Super-Channels and SDXs for Data-Intensive Science

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Abstract

A consortium has been establishd to design, develop, implement, and operate an end-to-end data transport service for data intensive science, within the framewok of a large scale distributed science DMZ. Many science research communities require simple data transport across multi-domain WANsand LANs on end-to-end 100 Gbps connections, for example, to enable virtual co-location of data with computing, analytic systems, instruments and visualation systems. Provisioning such end-to-end disk to disk services are a challenge because the data must be transported across among generalized networks and multiple network domains. LANs, campus networks, and WANs, such as regional networks,, national networks, and international networks. A consortium has been formed to address this use by leveraging the existing ESnet Science DMZ architecture. A first step was to create a regional science DMZ, the Pacific Research Platform (PRP), an initiate led by Larry Samrr and Tom Defanti. Pratners include multiple California universities, Pacific Wave, CENIC, the International/National Communications Exchange Facility, and the Metropolitan Resrach and Education Network (MREN), a regional network in seven states in the upper mid-west. More recently, two workshops have been held at Montana State University in Bozeman, Montana, focused on the concept of a National Research Platform (NRP). In additon, a Global Research Platform is being developed with multiple international partners.

Goals

The purpose of these demonstrations is to showcase components of a potential National Research Platform, specifically the types of features and functions that would allow highly distributed Science DMZs to scale. Such capabilities include instrumentation that cam measure large scale, high capacity daa flows across WANs and LANs E2E, disk to disk.

Goals included:

1 Demonstration these E2E flows.

2 Measuring the flows.

3 Optimizing the performance and reliability of long duration high capacity data flows.

4 using techniques to ensure End-To-End (E2E) high performance, reliable disk-to-disk data – in part by using Data Tarnsfer Nodes (DTNs)ggg.

Resources

Required resources from SCinet are SCinet WAN 100 Gbps circuits from the StarLight facility in Chicago to the StarLight booth on the SC18 showfloor

Involved Parties

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- SCinet
- Metropolitan Research and Education Network