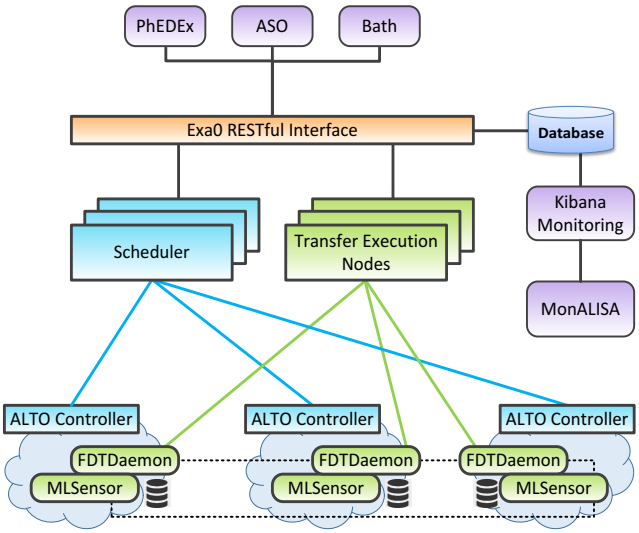
ExaO: Software Defined Data Distribution for Exascale Sciences

California Institute of Technology,
European Organization for Nuclear Research (CERN),
Tongji University, Tsinghua University, Yale University

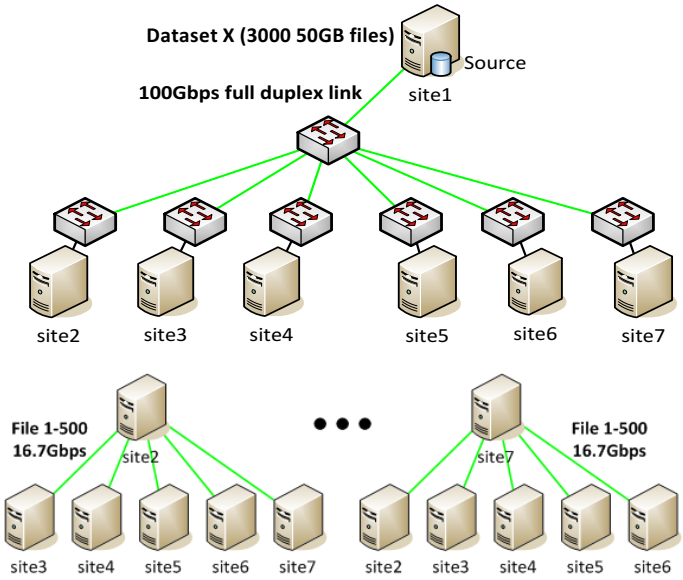
ExaO leverages the emerging SDN technique to realize end-to-end orchestration of data flows involving host groups at different domains.

Architecture



- On-demand, dynamic, minimal network state abstraction to provide **global, real-time, inter-domain network view**
- Centralized, file-level transfer scheduling to achieve **high transfer concurrency**
- Global, dynamic network resource allocation among flows to achieve **high network utilization** and **low transfer delay**

Demonstration: Distributing A Dataset to All the Sites



- Source site splits uplink bandwidth to all destination sites with different file groups
- Destination sites become file providers to each other after receiving from source
- **Total link utilization**: 85.71%

Presentations will happen at
3:00pm Tuesday; 2:00pm Wednesday; 10:30am Thursday.
Demos will last all three days!
Please stop by booth 2537 (the Caltech Booth).

For more information, please contact us.

supersdnprogramming@gmail.com