



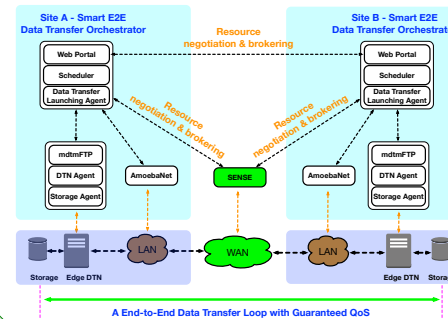
BigData Express: Toward Predictable, Schedulable, High-performance Data Transfer



What is BigData Express?

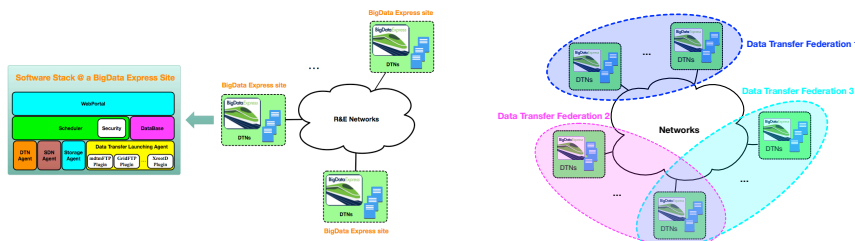
- A schedulable, predictable, and high-performance data transfer service
 - ❖ Peer-to-peer, scalable, and extensible data transfer model
 - ❖ Visually appealing, easy-to-use web portal
 - ❖ High-performance data transfer engine
 - ❖ Time-constraint-based scheduler
 - ❖ On-demand provisioning of network paths with guaranteed QoS
 - ❖ Robust and flexible error handling
 - ❖ CILogon-based security
- Project web site: <http://bigdataexpress.fnal.gov>

End-to-End Transfer Loop



- Application-aware network service
 - On-demand programming
- Fast-provisioning of end-to-end network paths with guaranteed QoS
- Distributed resource negotiation & brokering

Distributed, Peer-to-Peer Model

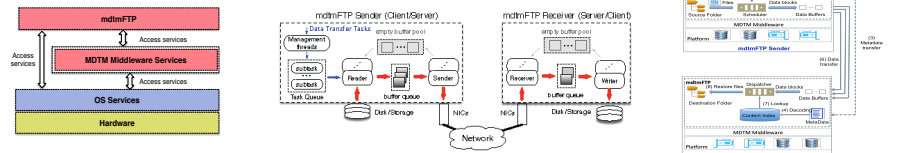


Each site independently provides data transfer service

Flexible data transfer federations

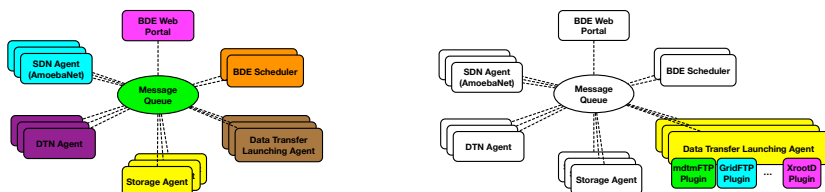
A High-performance Data Transfer Engine

-- mdtmFTP



- A pipelined I/O centric design to streamline data transfer
- Multicore-aware data transfer middleware optimizes use of underlying hardware
- Extremely efficient in transferring of Lots Of Small Files

Scalable & Extensible Design



- Scheduler manages site resources through agents
- Use MQTT as message bus
- Extensible Plugin framework to support various data transfer protocols
 - mdtmFTP, GridFTP, XrootD

Miscellaneous

- Apache 2.0 License
- Docker release is available at publicregistry.fnal.gov
- Manuals:
 - ❖ Admin: https://bigdataexpress.fnal.gov/admin_manual/index.html
 - ❖ Web portal user: https://bigdataexpress.fnal.gov/portal_manual/index.html
- Deployment and collaborations

