Intelligent Network Infrastructures
(smart Networks and Middleware Services for Science BigData Infrastructure)

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• Why an intelligent networking workshop now?

✓ Big Data (Data-intensive science)
✓ Extreme-Scale Computing
✓ Network complexities
Benefits of SDN/Intelligent Networking

- Scalability
- Application awareness
- Service automation
- Network Programmability
- Load balancing
- Self-healing
- High availability
- Machine learning
- Controllability
- Service discover
- Improved innovations
- Multi-vendor solutions
Exploring SDN technologies to build intelligent networking for complex distributed data-intensive science.
Data View in the Office of Science

Cross-Layer intelligence (SDN)

Backbone Networks

Lab LAN

Apps

Apps Services

Network Services

Physical networks

Data Facility

E2E Intelligence (SDN)
Workshops Goals:

- SDN-enabled application services – to enable data-intensive scientific applications to explore and exploit the capabilities of SDN technologies
- SDN Networking Services – leverage SDN technologies to enable scientists to maximize the value of high-performance optical networks

Workshops Expectations

- Identify the major challenges to achieve the above goals
- Summarize the challenges in a workshop report