NCCS Network Roadmap

Presented by

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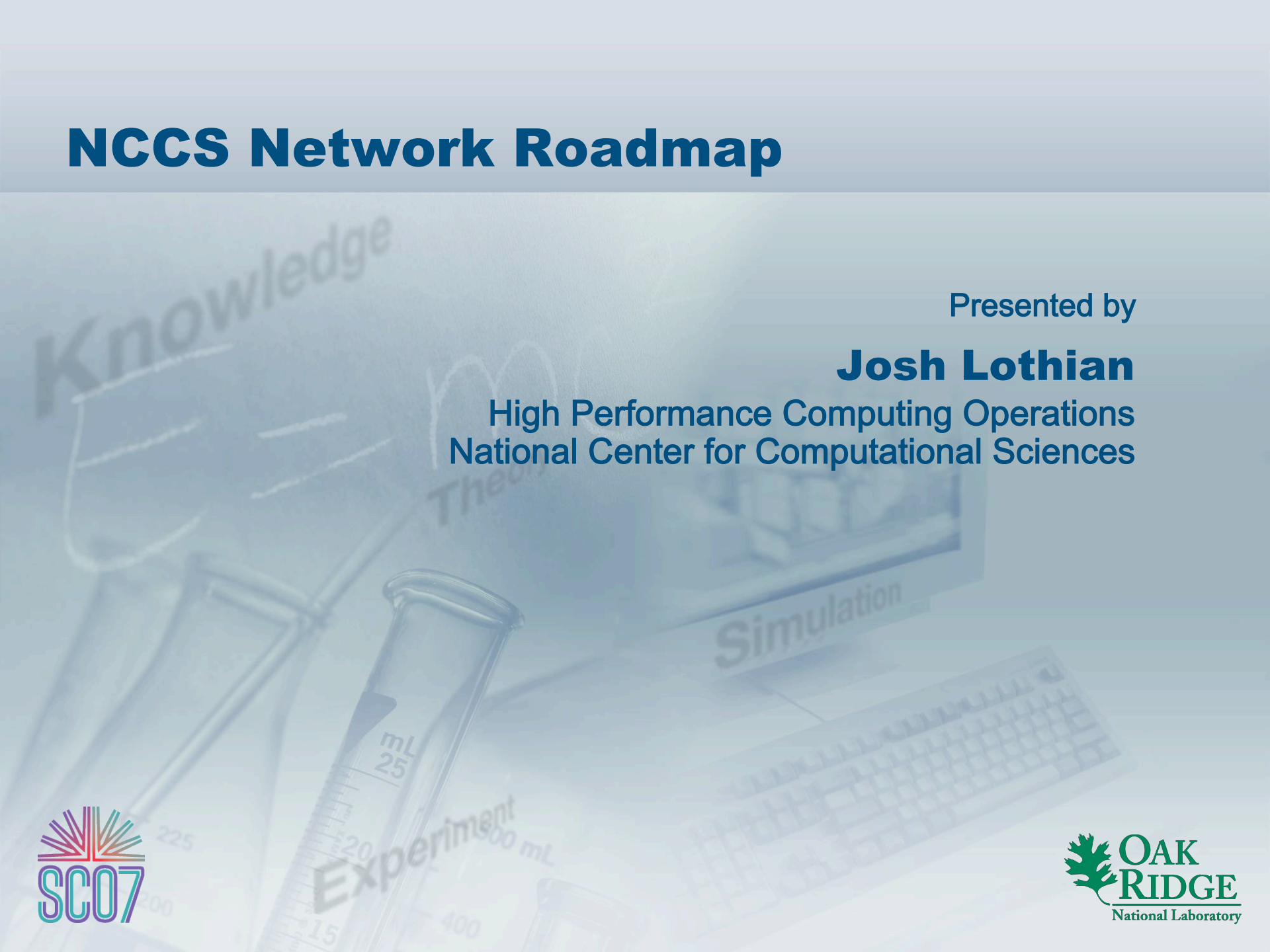

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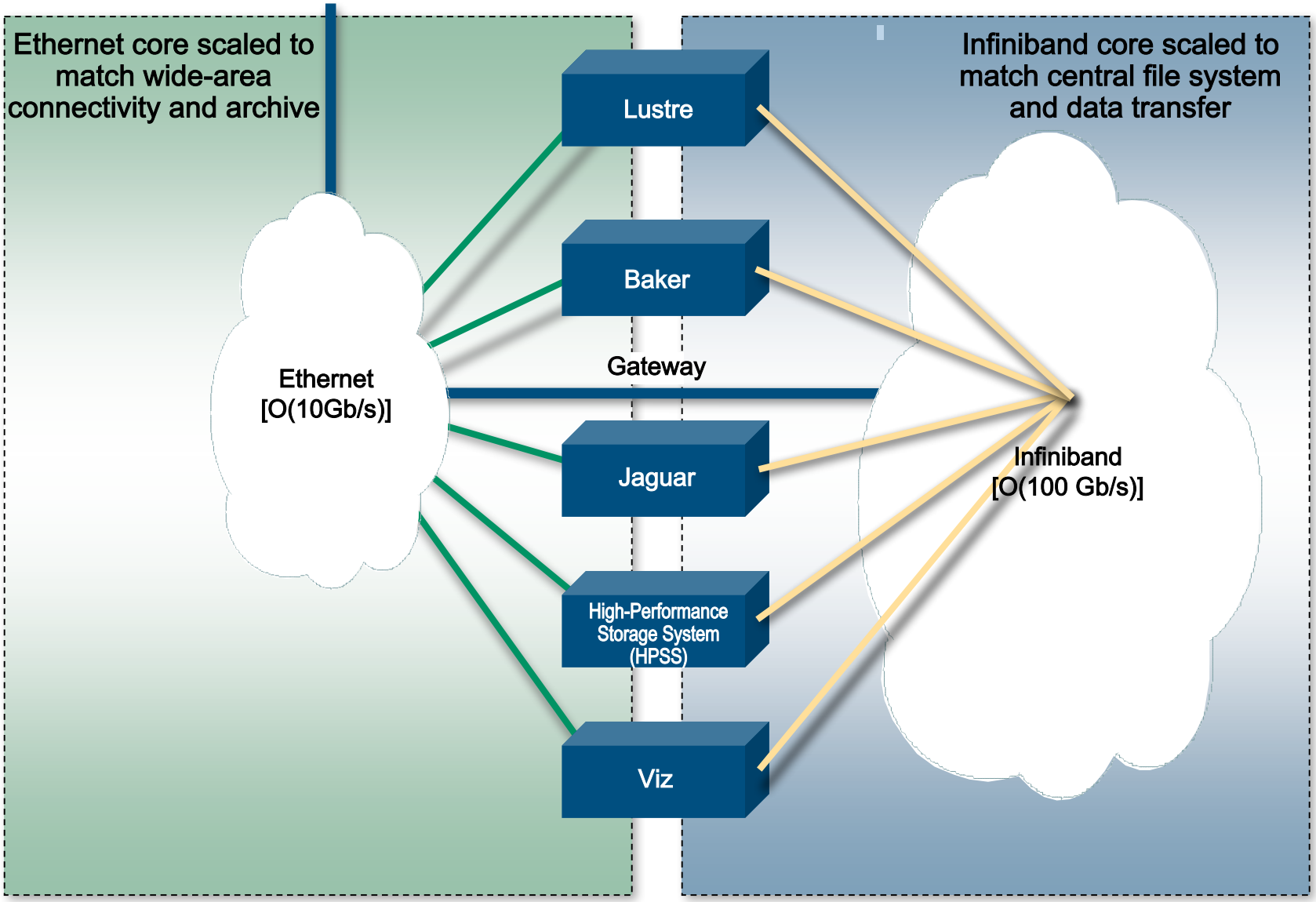
NCCS network roadmap

Summary: Hybrid Ethernet/Infiniband (IB) network to provide both high-speed wide-area connectivity and uber-speed local-area data movement

- 2007
  - Scaled Ethernet to meet wide-area needs and current day local-area data movement
  - Developed wire-speed, low-latency perimeter security to fully utilize 10Gb production and research WAN connections
  - Began IB LAN deployment
- 2008
  - Continue building out IB LAN infrastructure to satisfy the file system needs of the Baker system
  - Test Lustre on IB/WAN for possible deployment
  - Increase security on 10Gb WAN connections

NCCS network roadmap summary



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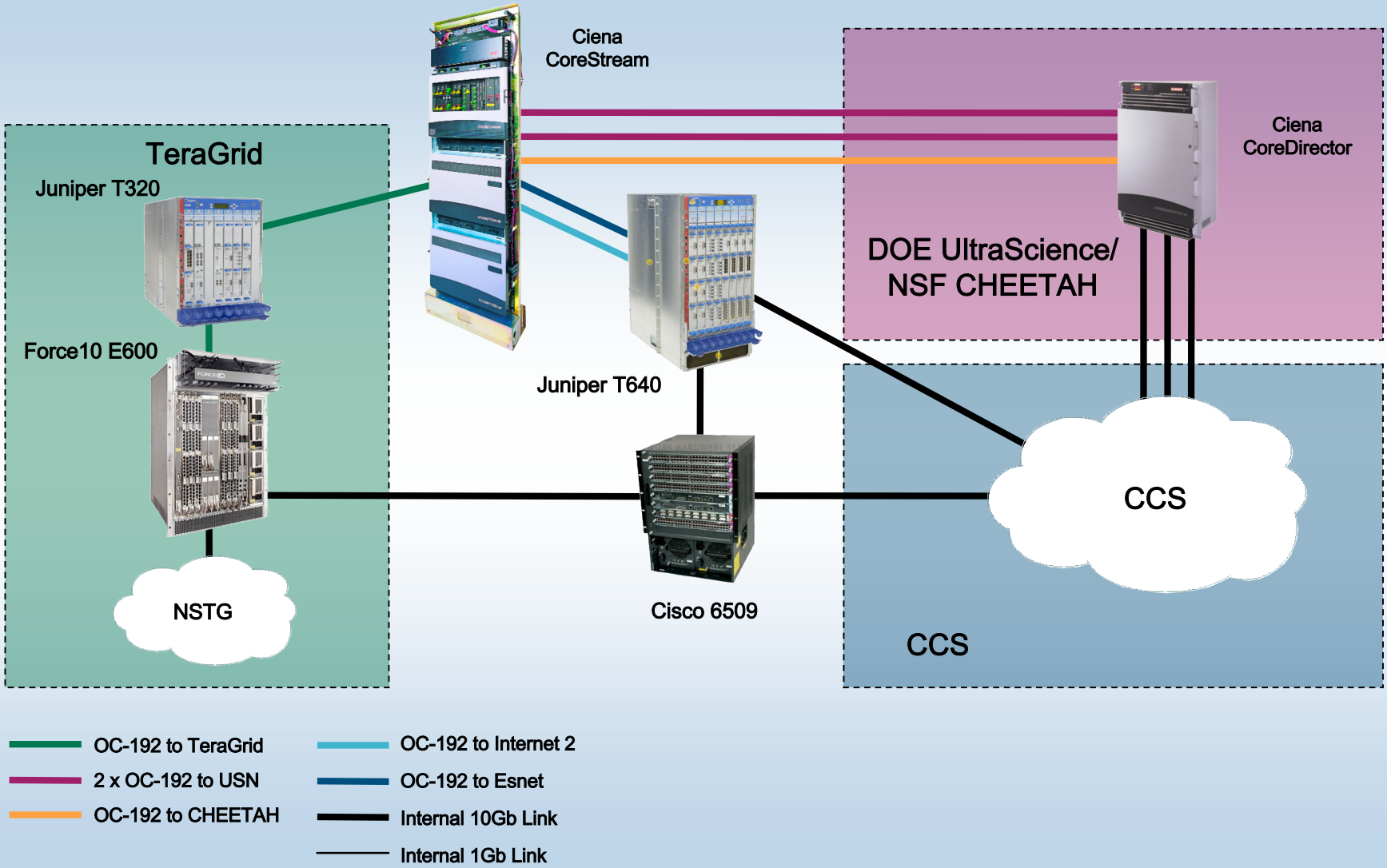
NCCS WAN overview



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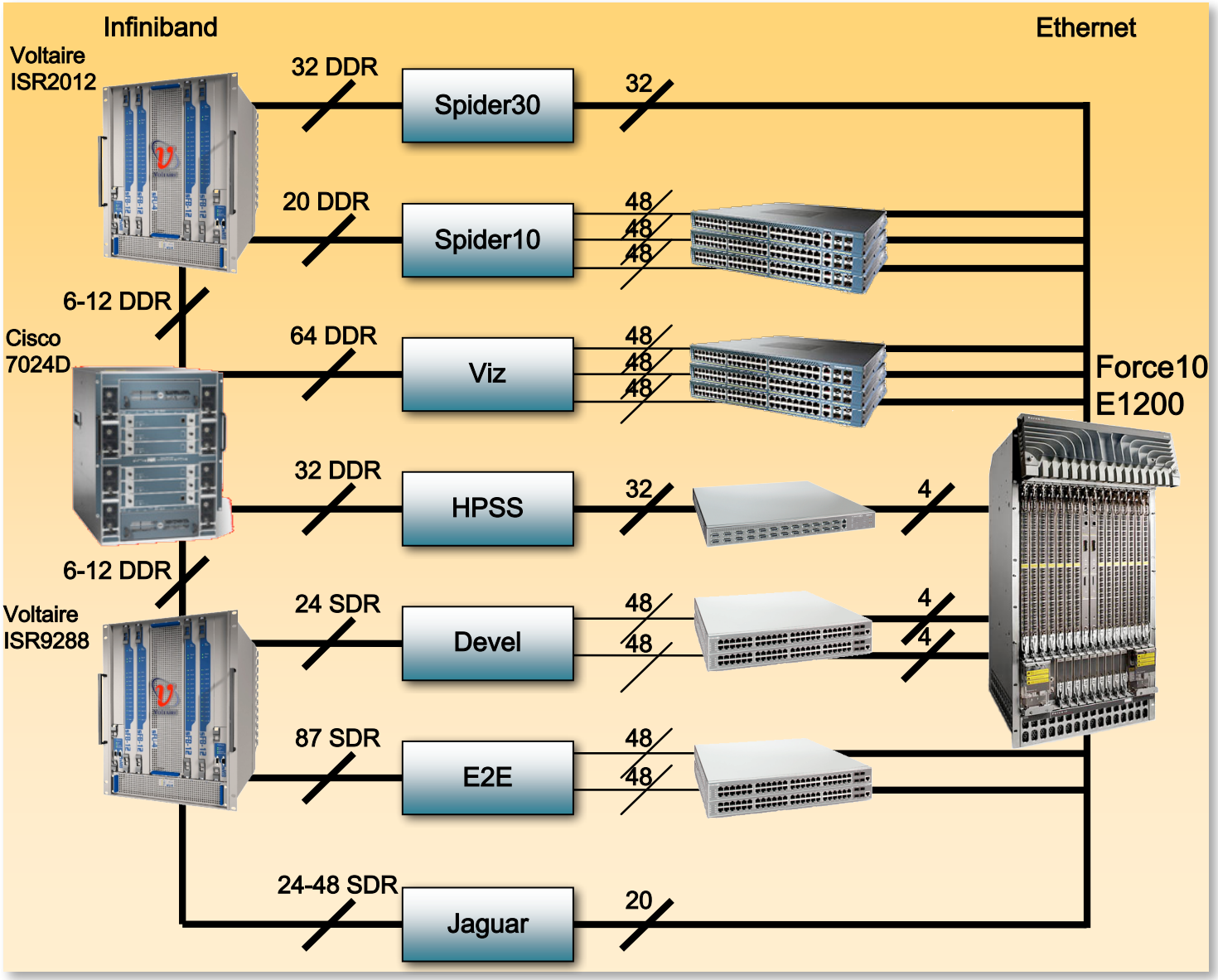
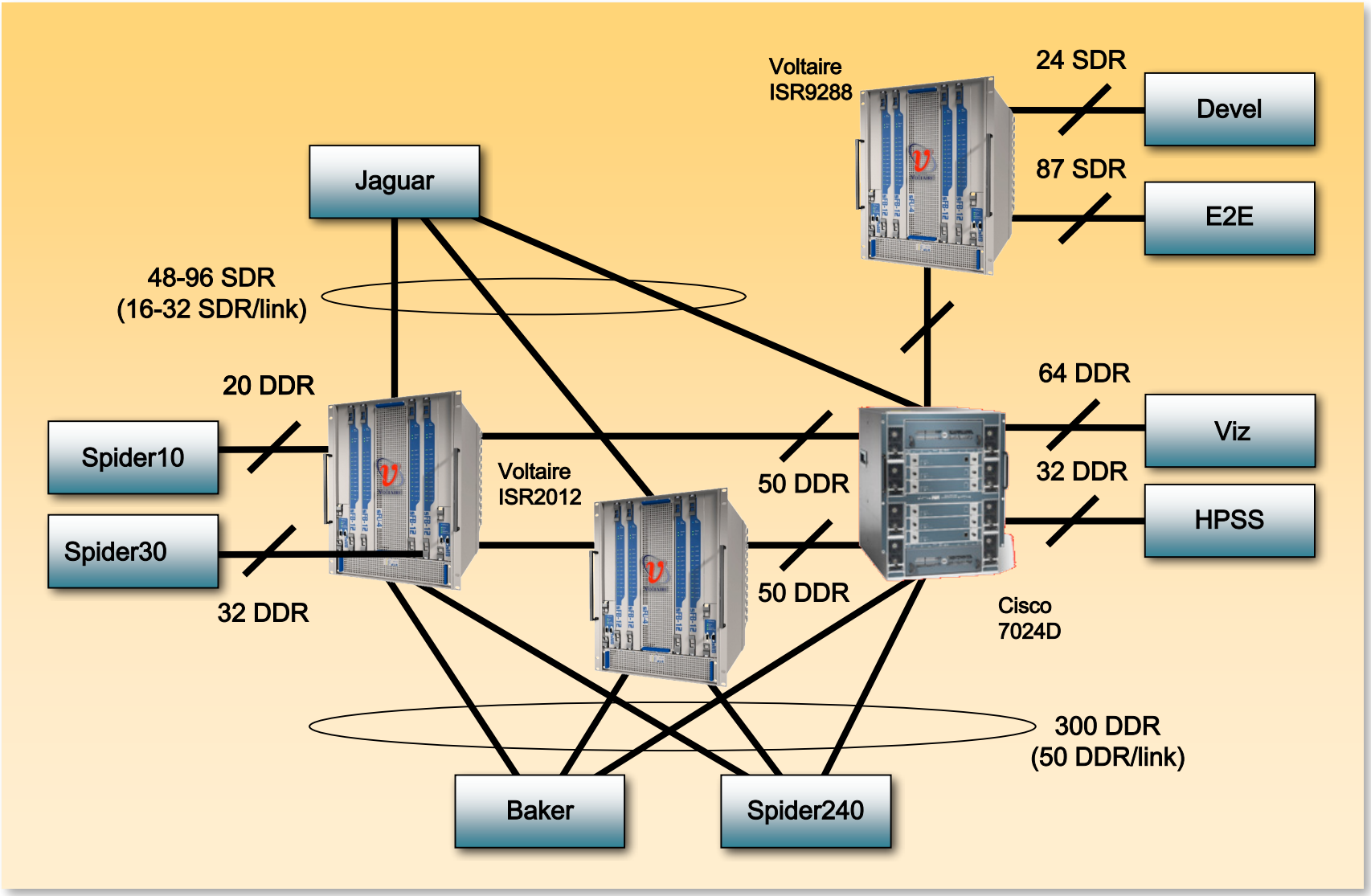
NCCS Network 2007



NCCS IB network 2008



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2007 milestones

- April 2007—Completed 10 G WAN upgrade
- June 2007—Completed VL/QOS testing
- November 2007—Complete fiber IB cable testing
- December 2007—IBoIP/SDP decision point

2008 milestones

January—4x QDR testing

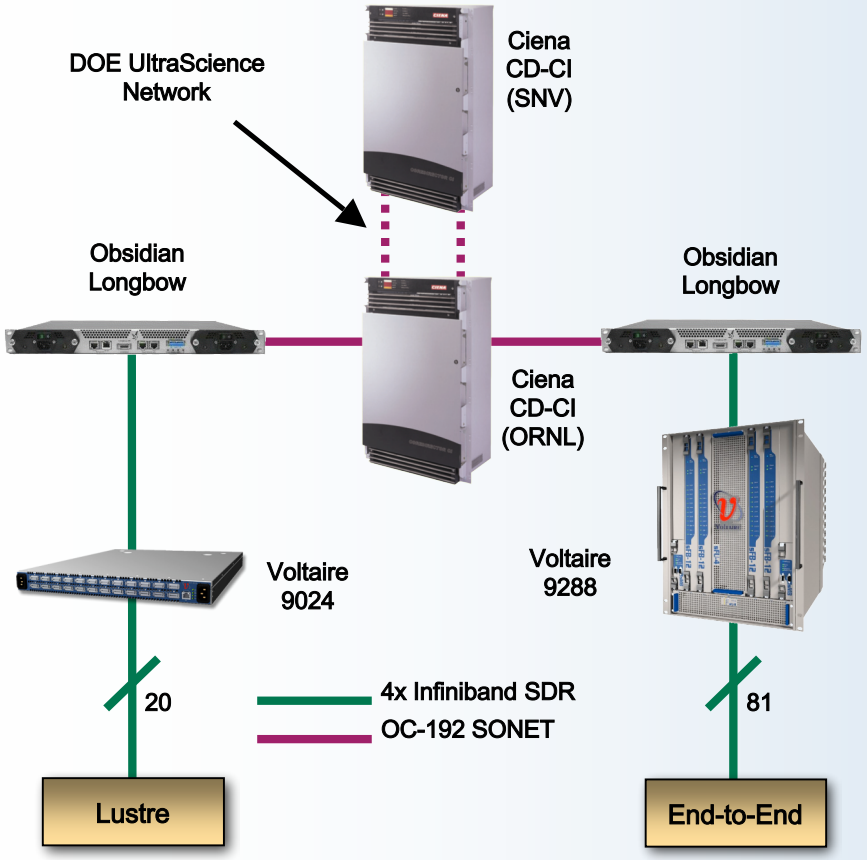
February—Deploy flow-based perimeter security

February—Complete 4X QDR testing

March—Enable routing of XT3 HSN to production network

June—Deploy redundant links between IB switches

IB over WAN testing



- Placed 2 x Obsidiam Longbow devices between Voltaire 9024 and Voltaire 9288
- Provisioned loopback circuits of various lengths on the DOE UltraScience Network and ran test
- RDMA Test Results:

  Local: 7.5 Gbps (Longbow to Longbow)

  ORNL ↔ ORNL (0.2 mile): 7.5 Gbps

  ORNL ↔ Chicago (1400 miles): 7.46 Gbps

  ORNL ↔ Seattle (6600 miles): 7.23 Gbps

  ORNL ↔ Sunnyvale (8600 miles): 7.2 Gbps

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