WAN Transport Team

- Ed Smith - CENIC - WAN Project Coordinator
- Bill Jensen - Univ Wisconsin - Network Consultant
- Chris Costa - CENIC - Network Engineer
- Chris Griffin - FLR - Network Engineer
- Greg Ebner - NSHE - Network Engineer
- Matt Zekauskas - Internet 2 - Senior Engineer
- Ryan Vaughn - FLR - Network Engineer
- Stanton Gurr - NSHE - Network Engineer
- Vendors
  - Jeff Verant - Ciena
  - Kevin McGrattan - Cisco
  - Eric Bernier - Nortel
RSCC Connectivity Status

• Fiber contract has been signed by American Fiber Systems (AFS) and is awaiting signature from the ACM’s COO.

• Partial payment has been made by ACM and we are waiting for confirmation the entire amount has been paid. (City of Reno, Reno Visitors Bureau & RSCC agreed to underwrite 50% of total cost.)

• No firm completion date available yet, which is dependent on when construction begins and permit issues, if any.

• CENIC and NSHE have finalized the design and financial issues related to upgrading Reno to Sacramento optical segment.
SC 07 Conference
Metro Fiber Requirements

Existing NSHE WDM system (4x2.5GE Waves)
Upgrade to support additional Nx10GE SC Waves

AFS/Idacomm Reno POP
200 S. Virginia, Suite 435
Idacomm Space
NSHE Colocation Space

Level(3)/WiTel Reno POP
220 Gardner
Level(3) Network
2ea Dark Fibers
Level(3) (1GE, OC3 Capacity)

CENIC Sacramento (CSAC)
CalREN/NLR

Internet2

Switch
Router
DWDM Terminal

Commodity Internet (Primary)
SC07 LAN
Commodity Internet (Backup)
Hardware Support

• Backhaul transponders for waves into Reno
  – NLR INC
  – NLR LLC
  – Cisco

• SC Metro
  – Cisco - 4 Waves from AFS to RSCC
  – Nortel - n Waves from AFS to RSCC
  – Ciena - n Waves from AFS to RSCC
  – Infinera - Internet2 transport from Level(3) to RSCC
  – Fujitsu - interests in supporting metro topology

• Commodity Service
  – OC3 from Level(3) Reno
  – GE from CENIC CalREN-DC
## WAN Circuits

<table>
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<tr>
<th>Status</th>
<th>SC Circuit ID</th>
<th>Description</th>
<th>Type</th>
<th>Circuit Origin Node</th>
<th>Reno POP</th>
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SC07 West WAN Transport Wave Map

- **PNWGP SEA**
- **Level(3) SVL**
- **CENIC CSAC**
- **AFS Reno**
- **RSCC**

**Patch Terminations**
- 10G
- 1GE

**Networks and Services**
- NLR
- SC
- SC07
- Cisco
- PWave
- CaveWave
- Teragrid
- CalREN SAC ISP
- L(3) Reno ISP
- Spare
- Unassigned
- CalREN ISP
- PNWGP SEA
- CENIC-SDG
- CENIC-LA/SDG
- CENIC-LA/SVL
- CENIC-LA
- L(3) ISP

Updated: 6/14/07 cc
SC07 Internet2 WAN Transport

- Internet2 Network from Level(3) Reno
  - Network passes through Reno
  - Extending 5 to 10 10G waves into RSCC
  - Ability to augment LosAngeles-Reno-Chicago path if needed
  - Reviewing need for experimental wave services
SC07 Internet2 Waves (so far)

- 2x Internet2 IP
- 1x Internet2 Dynamic Circuit Service
- 1x ESnet IP
- 1x ESnet Science Data Network
- OpenFabrics from IA State via BOREAS
- Investigating KREONET extension from Westin Seattle to Reno
- Call for waves is over, but… any more?
Enhance Pacific Wave

Add 10GE Capacity From SVL-SEA SVL-LA

Extend Exchange from SVL to Reno

PAIX-Palo Alto
529 Bryant

PAIX
6509

15540 DWDM

CENIC 10GE Lambda

Level(3) 1360 Kifer, SVL

Level(3) SVL 6509

NLR 10GE Lambda

PNWGP-SEA
2001 6th Ave Westin Bldg

15808 DWDM

PNWGP
6509

Equinix-LAX
600 W 7th

Equinix-600
6509

10GE Dark Fiber

10GE

Equinix-LAX
818 W 7th

Equinix-818
6509

15808 DWDM

1 Wilshire-LAX
624 S. Grand

1 Wilshire
6509

10GE Dark Fiber

10GE

10GE

Enhance Pacific Wave

Add 10GE Capacity From SVL-SEA SVL-LA

Extend Exchange from SVL to Reno

PAIX-Palo Alto
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2001 6th Ave Westin Bldg

15808 DWDM

PNWGP
6509

Equinix-LAX
600 W 7th

Equinix-600
6509

10GE Dark Fiber

10GE

Equinix-LAX
818 W 7th

Equinix-818
6509

15808 DWDM

1 Wilshire-LAX
624 S. Grand

1 Wilshire
6509

10GE Dark Fiber

10GE

10GE
Scheduled Dates

• June/July, 2007:
  – Plan and deploy backhaul circuits from SVL to SAC

• August, 2007:
  – Upgrade NSHE Reno-Sac ONS system
  – OTDR test metro fiber
  – Test Circuits from SVL to Reno

• Week of Sep 17, 2007:
  – WAN Staging
    • Install metro systems from AFS/Reno to RSCC
    • Test circuits from SVL to RSCC

• Week of Oct 20-21, 2007:
  – Scinet Network Staging
    • Verify operation of circuits to scinet network

• Week of Nov 5 and 11, 2007:
  – Network Setup
  – Conference Support