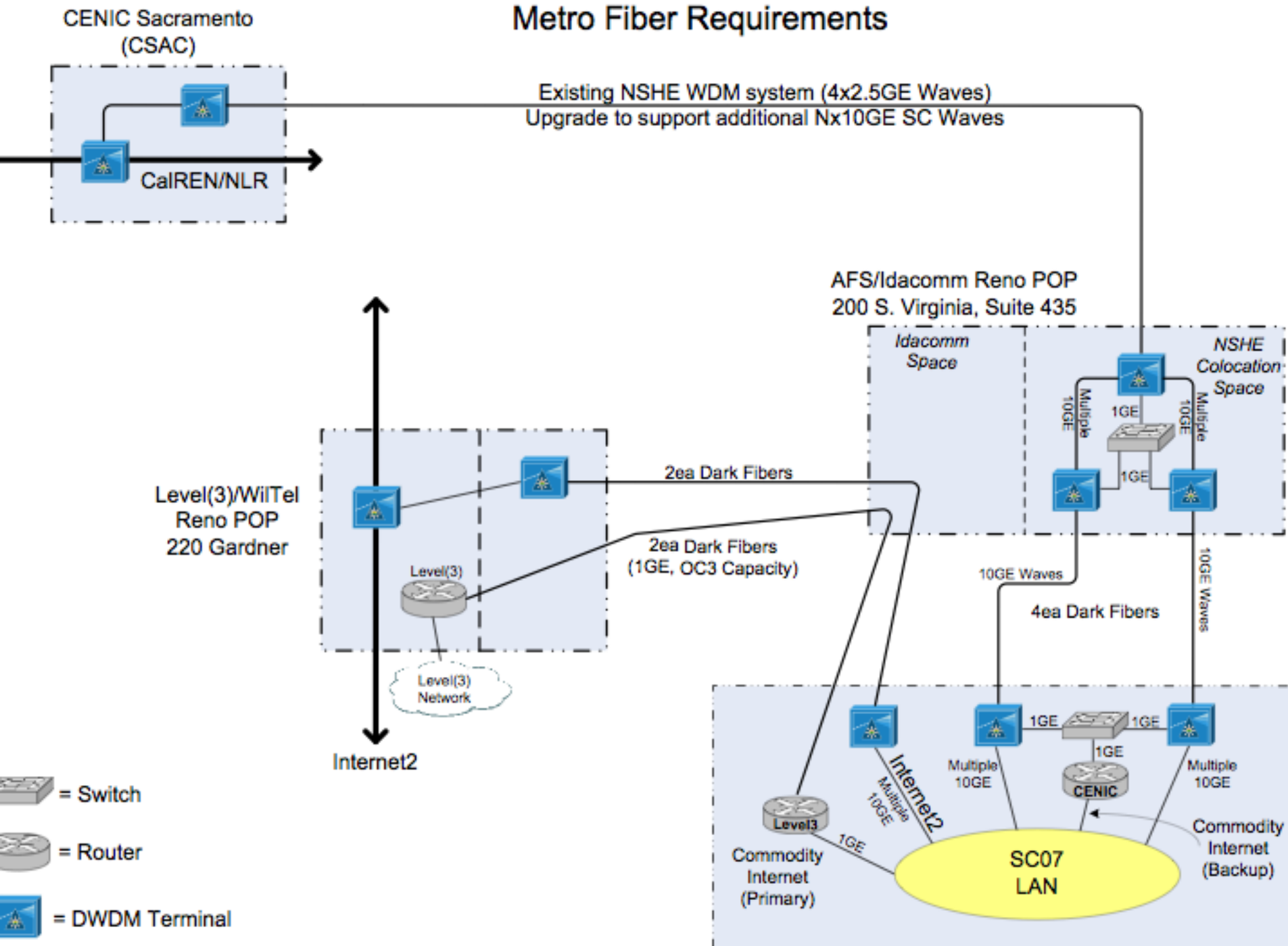# SC07
WAN Transport Group
Status Report: 6/19/07

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.

SC07 Conference
Metro Fiber Requirements

CENIC Sacramento (CSAC)

CalREN/NLR

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

10GE Multiple | 1GE | Multiple 10GE

1GE

Level(3)/WilTel
Reno POP
220 Gardner

Level(3)

2ea Dark Fibers

2ea Dark Fibers
(1GE, OC3 Capacity)

10GE Waves

4ea Dark Fibers

10GE Waves

Level(3) Network

Internet2

Multiple 10GE

1GE | 1GE

1GE

Multiple 10GE

CENIC

Multiple 10GE

Commodity Internet (Backup)

= Switch

= Router

= DWDM Terminal

Level3

Internet2

Multiple 10GE

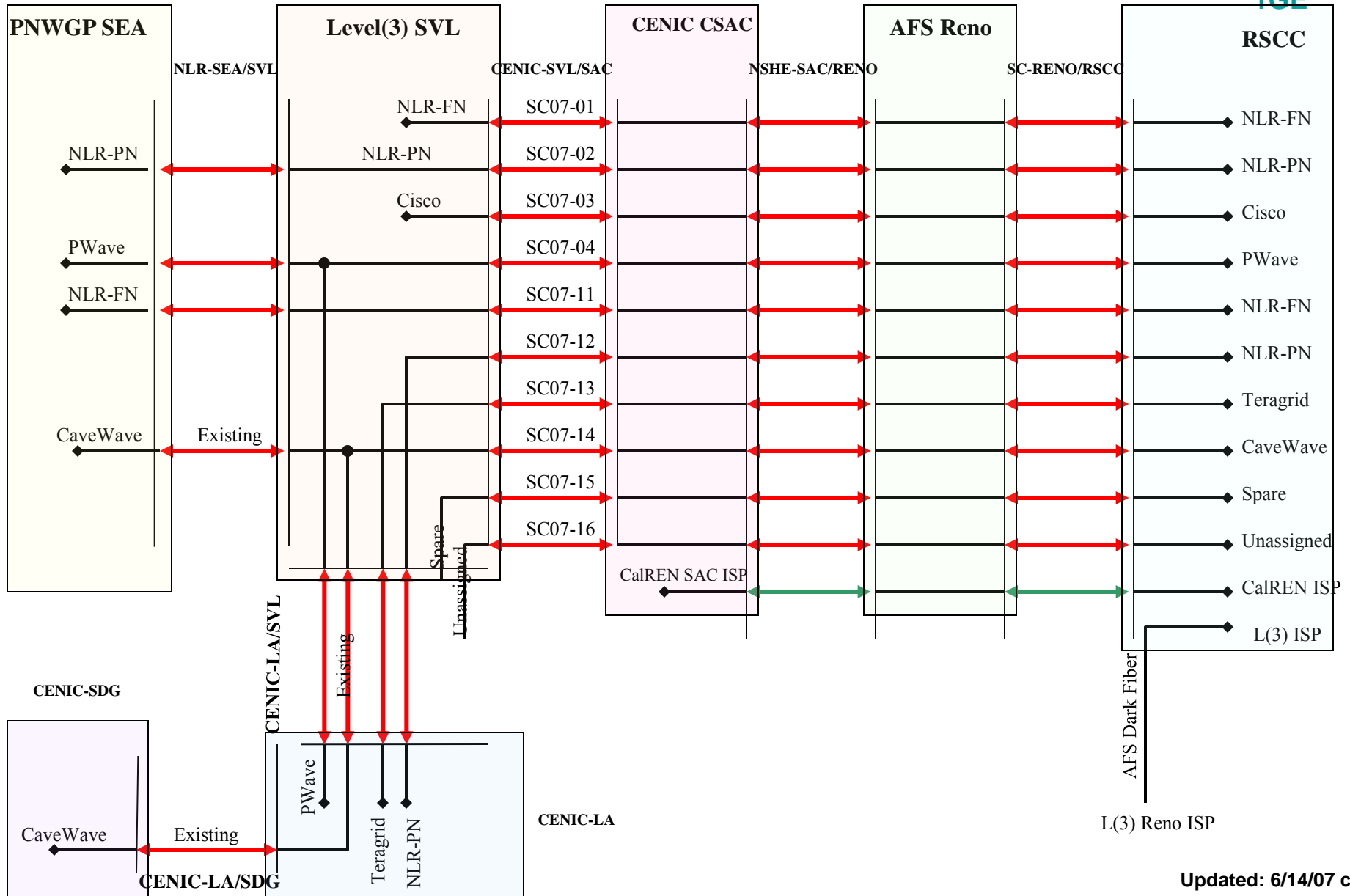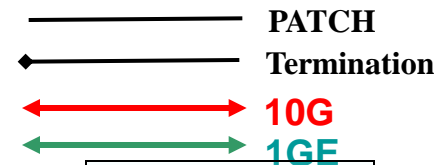Commodity Internet (Primary)

1GE

SC07 LAN

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

Status	SC Circuit ID	Description	Type	Circuit Origin Node	Reno POP	Metro DWDM Transport
tentative	SC07-01	NLR-SUNN-FrameNet	10GE LAN	SUNN	AFS	Cisco
tentative	SC07-02	NLR-SEAT-PacketNet	10GE LAN	SEAT	AFS	Cisco
tentative	SC07-03	CISCO	10GE LAN	SUNN	AFS	Cisco
tentative	SC07-04	Pacific Wave	10GE LAN	SUNN	AFS	Cisco
Confirmed	SC07-05	CENIC SAC ISP	1GE	SAC	AFS	Cisco
tentative	SC07-11	NLR-SEAT-FrameNet	10GE LAN	SEAT	AFS	ONS-1
tentative	SC07-12	NLR-LOSA-PacketNet	10GE LAN	LOSA	AFS	ONS-2
tentative	SC07-13	SDSC/Teragrid-1	OC192	LOSA	AFS	ONS-1
tentative	SC07-14	EVL/CaveWave	10GE LAN	SUNN	AFS	ONS-2
tentative	SC07-15	SPARE WAVE	10GE LAN	SUNN	AFS	ONS-1
tentative	SC07-16	unassigned			AFS	ONS-2
tentative	SC07-17	Reno Level(3) ISP	1GE	RENO	Level(3)	ONS-1
tentative	SC07-21	ESNet IP	10GE	SUNN?	Level(3)	Infinera
tentative	SC07-22	ESNet SDN	10GE	SUNN?	Level(3)	Infinera
tentative	SC07-23	Internet2 IP	OC 192	LOSA?	Level(3)	Infinera
tentative	SC07-24	Internet2 IP	OC 192	SALT?	Level(3)	Infinera
tentative	SC07-25	Internet2 DCS	10GE	SALT?	Level(3)	Infinera

SC07 West WAN Transport Wave Map

PATCH

Termination

10G

1GE

PNWGP SEA

Level(3) SVL

CENIC CSAC

AFS Reno

RSCC

NLR-SEA/SVL

CENIC-SVL/SAC

NSHE-SAC/RENO

SC-RENO/RSCC

	NLR-FN	SC07-01			NLR-FN
NLR-PN	NLR-PN	SC07-02			NLR-PN
	Cisco	SC07-03			Cisco
PWave		SC07-04			PWave
NLR-FN		SC07-11			NLR-FN
		SC07-12			NLR-PN
		SC07-13			Teragrid
CaveWave	Existing	SC07-14			CaveWave
		SC07-15			Spare
		SC07-16			Unassigned
		CalREN SAC ISP			CalREN ISP
					L(3) ISP

Spare

Unassigned

CENIC-LA/SVL

Existing

CENIC-SDG

CENIC-LA

CaveWave

Existing

PWave

Teragrid

NLR-PN

CENIC-LA/SDG

AFS Dark Fiber

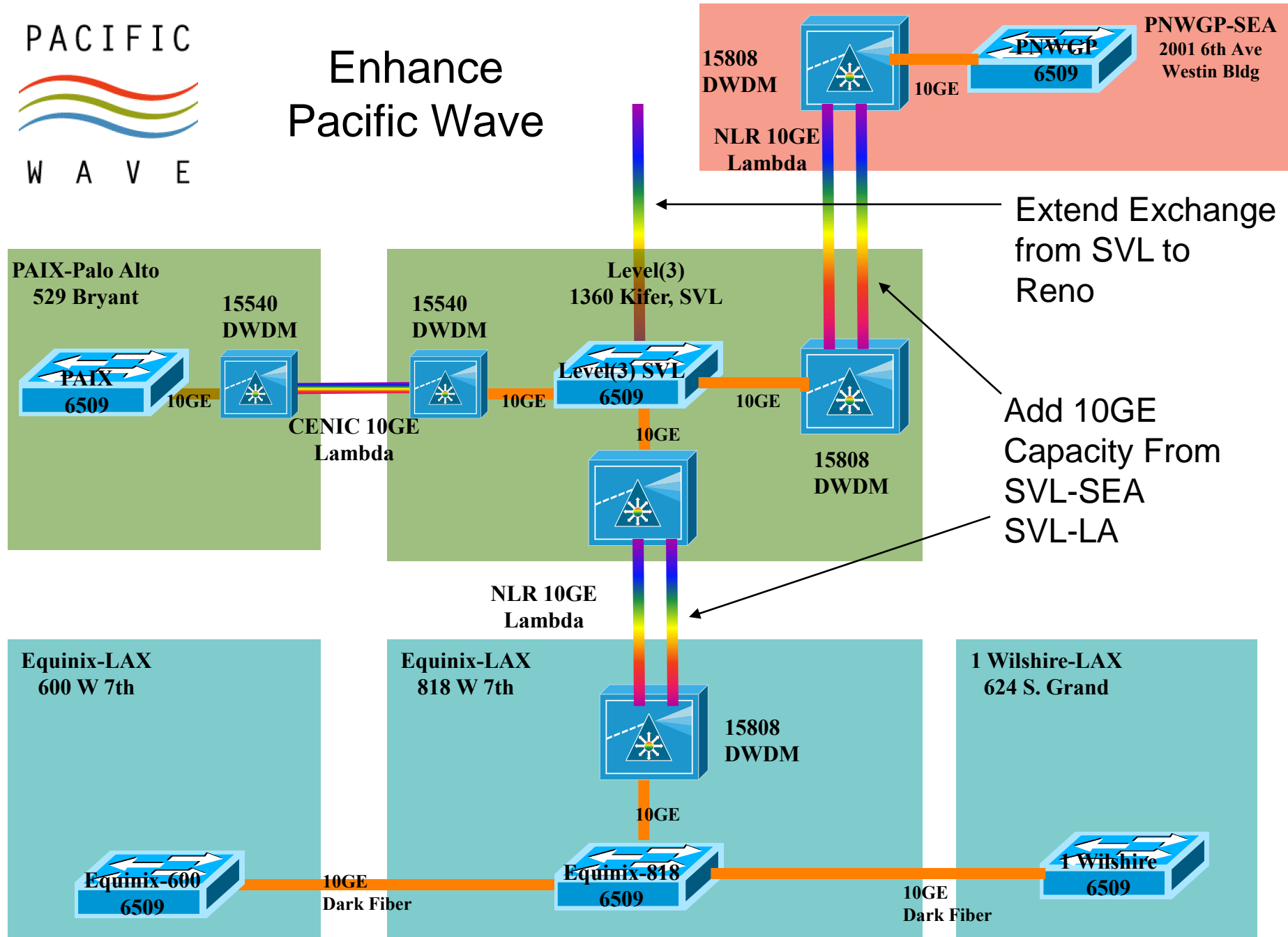L(3) Reno ISP

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

PNWGP-SEA
2001 6th Ave
Westin Bldg

PNWGP
6509

15808 DWDM

10GE

NLR 10GE Lambda

Extend Exchange from SVL to Reno

PAIX-Palo Alto
529 Bryant

15540 DWDM

15540 DWDM

Level(3)
1360 Kifer, SVL

PAIX
6509

10GE

CENIC 10GE Lambda

10GE

Level(3) SVL
6509

10GE

10GE

15808 DWDM

Add 10GE Capacity From SVL-SEA SVL-LA

NLR 10GE Lambda

Equinix-LAX
600 W 7th

Equinix-LAX
818 W 7th

1 Wilshire-LAX
624 S. Grand

15808 DWDM

10GE

Equinix-600
6509

10GE
Dark Fiber

Equinix-818
6509

10GE
Dark Fiber

1 Wilshire
6509

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