



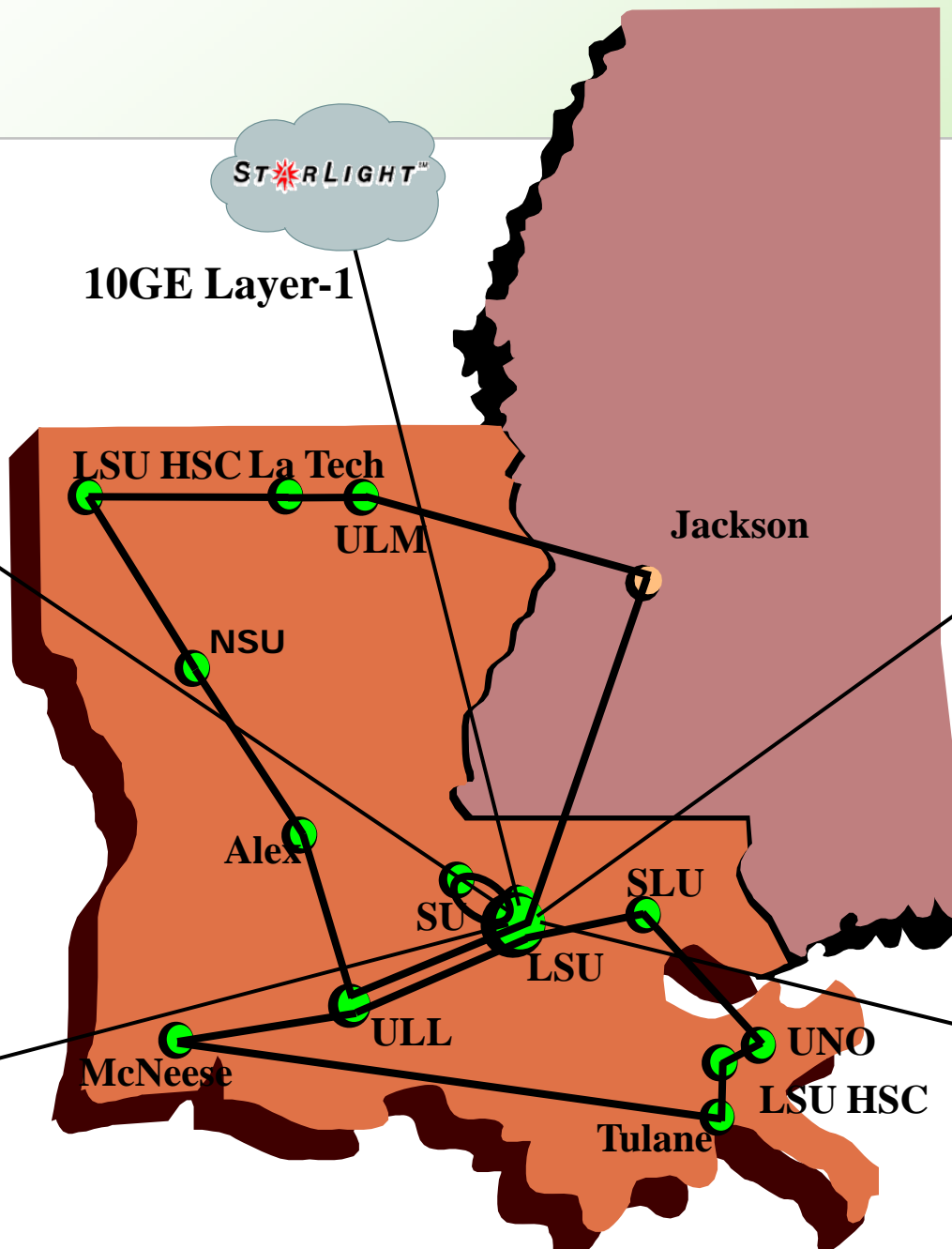
LONI Compute Systems Update

LONI Launch at LITE

John Hardey, IBM

Lonnie Leger, LONI / LSU

Brian Ropers-Huilman, LONI / LSU



10GE Layer-1



10GE Layer-3
10GE Layer-2



Currently OC3 Layer-3
3/07 planned 1GE

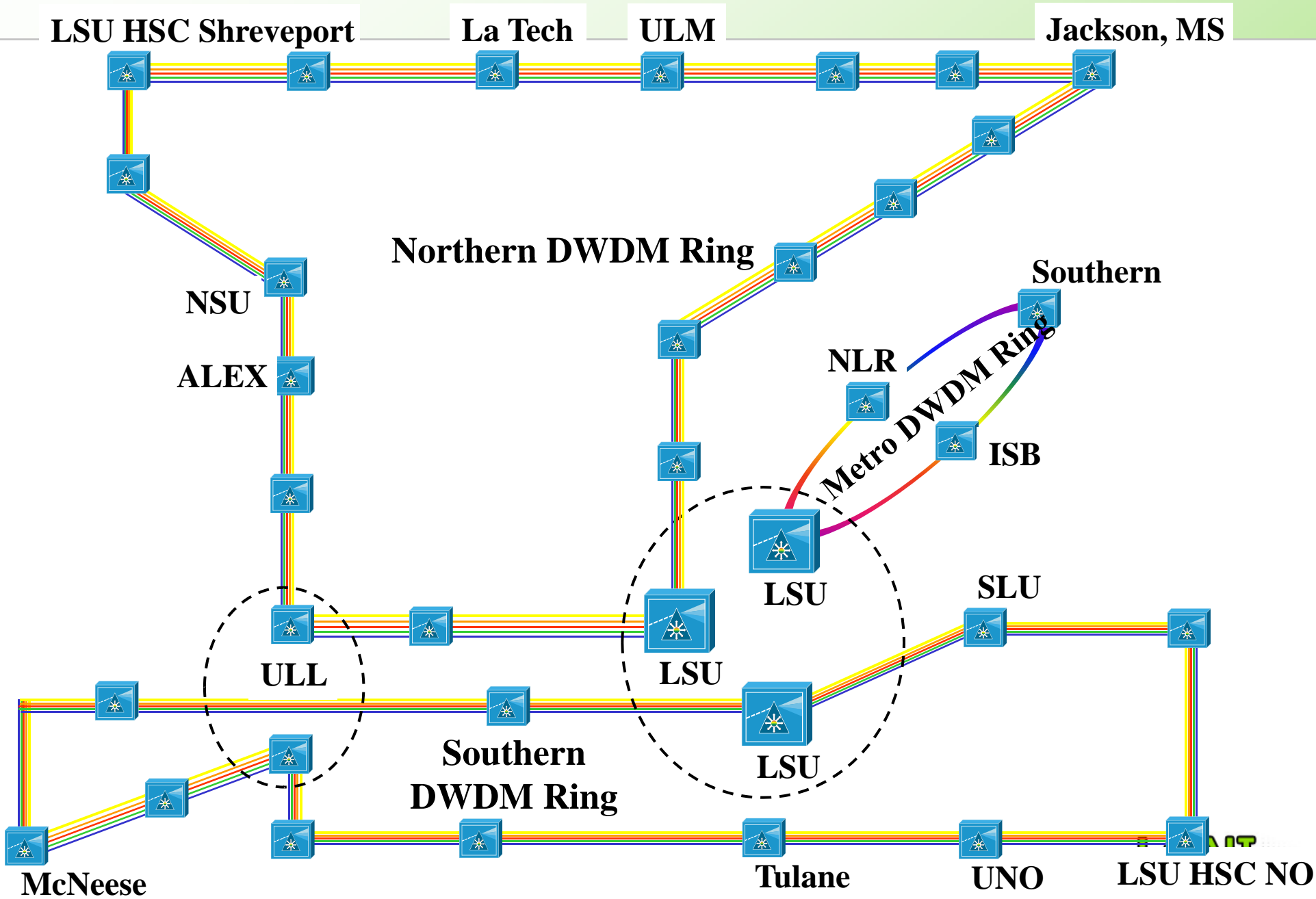


10GE Layer-3



10GE Layer-3







BTR Metro Ring

Cisco Transport Controller

File Edit View Tools Help

Network Scope: All

3 CR 2 MJ 4 MN

WILTEL-NLR-ROADM SU-NLR-ROADM

WILTEL-NLR-CLIENT SU-NLR-CLIENT

LSU-NLR-CLIENT

LSU-NLR-ROADM

Alarms Conditions History Circuits Provisioning Maintenance

Circuits	Circuit Name	Type	Size	Protection	Dir	Status	Source	Destination	# of VLANs	# of Spans	State	OCHNC Wlen	
Rolls	LSU-NLR-CLIENT-SU-NLR-CLIENT-2W	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s3/p26	SU-NLR-ROADM/s13/p26		1	IS	1554.94nm	N
							SU-NLR-ROADM/s14/p26	LSU-NLR-ROADM/s5/p26					
	LSU-NLR-CLIENT-WILTEL-NLR-CLIENT...	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s14/p30	WILTEL-NLR-ROADM/s5/p30		1	IS	1558.98nm	W
							WILTEL-NLR-ROADM/s3/p30	LSU-NLR-ROADM/s13/p30					E
	LSU-NLR-CLIENT-WILTEL-NLR-CLIENT...	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s14/p31	WILTEL-NLR-ROADM/s5/p31		1	IS	1559.79nm	W
							WILTEL-NLR-ROADM/s3/p31	LSU-NLR-ROADM/s13/p31					E
	LSU-NLR-CLIENT-WILTEL-NLR-CLIENT...	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s14/p32	WILTEL-NLR-ROADM/s5/p32		1	IS	1560.61nm	W
							WILTEL-NLR-ROADM/s3/p32	LSU-NLR-ROADM/s13/p32					E
	LSU-NLR-CLIENT-WILTEL-NLR-CLIENT...	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s14/p1	WILTEL-NLR-ROADM/s5/p1		1	IS	1530.33nm	W
							WILTEL-NLR-ROADM/s3/p1	LSU-NLR-ROADM/s13/p1					E
	LSU-NLR-CLIENT-WILTEL-NLR-CLIENT...	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s3/p1	WILTEL-NLR-ROADM/s13/p1		2	IS	1530.33nm	N
							WILTEL-NLR-ROADM/s14/p1	LSU-NLR-ROADM/s5/p1					E
	LSU-NLR-CLIENT-WILTEL-NLR-ROAD...	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s14/p29	WILTEL-NLR-ROADM/s5/p29		1	IS	1558.17nm	N
							WILTEL-NLR-ROADM/s3/p29	LSU-NLR-ROADM/s13/p29					W
	LSU-NLR-ROADM-SU-NLR-ROADM-1...	OCHNC	Equipped non...	Unprot	2-way	DISCOVERED	LSU-NLR-ROADM/s3/p25	SU-NLR-ROADM/s13/p25		1	IS	1554.13nm	E
							SU-NLR-ROADM/s14/p25	LSU-NLR-ROADM/s5/p25					W

Create... Edit... Delete... Filter... Search...

Scope: Network (All) Help

NET CKT



South Ring

Cisco Transport Controller

File Edit View Tools Help

Network Scope: All

Network View

7 CR 0 MJ 3 MN

Unknown10
Node is disconnected
(N/A alarm status)

RAMAH-SOUTH-AMP LSU-SOUTH-ROADM SLU-SOUTH-ROADM LAPLACE-SOUTH-AMP

ULL-SOUTH-ROADM UNO-SOUTH-CLIENT HSCNO-SOUTH-ROADM

TULANE-SOUTH-CLIENT

FRANKLIN-SOUTH-AMP SCHRIEVER-SOUTH-AMP TULANE-SOUTH-ROADM UNO-SOUTH-ROADM

Alarms Conditions History Circuits Provisioning Maintenance

Circuits	Circuit Name	Type	Size	Protection	Dir	Status	Source	Destination	# of VLANs	# of Spans	State	OCHNC Wlen	
Rolls	HSC.NO-to-UNO-1550.12	OCHNC	Equipped non-...	Unprot	2-way	DISCOVERED	HSCNO-SOUTH-ROADM/s14/p21 UNO-SOUTH-ROADM/s3/p21	UNO-SOUTH-ROADM/s5/p21 HSCNO-SOUTH-ROADM/s13/p21		1	IS	1550.12nm	N
	LSU-to-ULL-59.79	OCHNC	Equipped non-...	Unprot	2-way	DISCOVERED	LSU-SOUTH-ROADM/s3/p31 ULL-SOUTH-ROADM/s14/p31	ULL-SOUTH-ROADM/s13/p31 LSU-SOUTH-ROADM/s5/p31		2	IS	1559.79nm	N
	UNO-to-Tulane-1550.12	OCHNC	Equipped non-...	Unprot	2-way	DISCOVERED	UNO-SOUTH-ROADM/s14/p21 TULANE-SOUTH-ROADM/s3/p21	TULANE-SOUTH-ROADM/s5/p21 UNO-SOUTH-ROADM/s13/p21		1	IS	1550.12nm	N

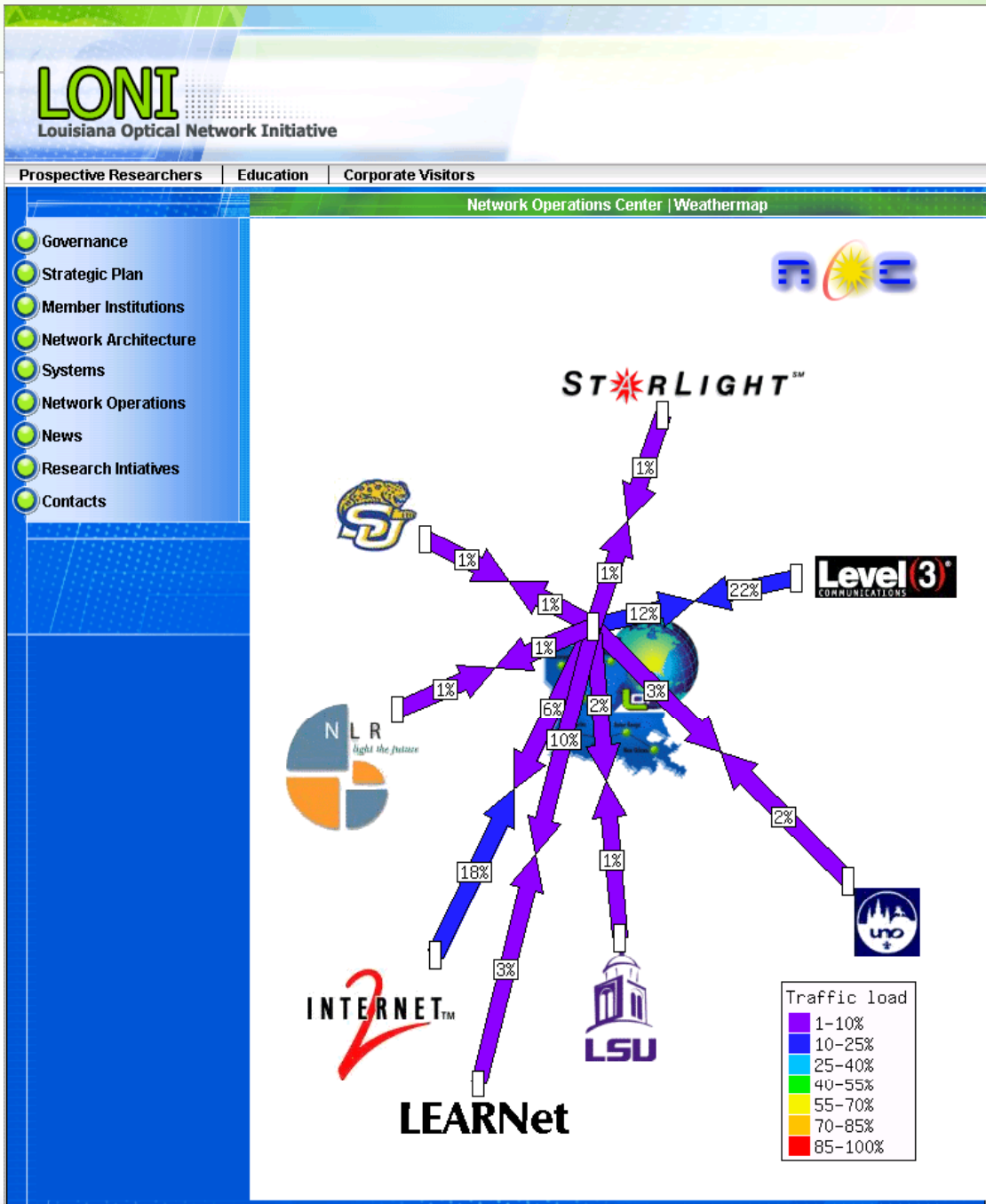
Create... Edit... Delete... Filter... Search...

Scope: Network (All) Help

NET CKT



Weather Map





LONI HPC Systems

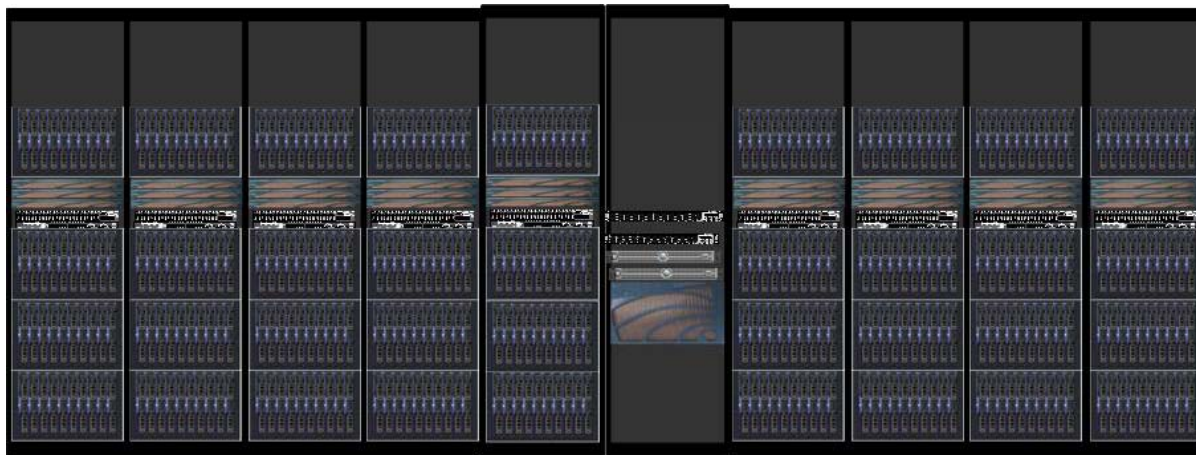
- Five IBM System p5 p575-IH Clusters
 - 14 nodes with 8-way IBM Power5's @ 1.9 GHz, 16 GB RAM, 146 GB HDD, 4x10/100/1000 Ethernet
 - AIX 5L v5.2 / v5.3
 - IBM Federation high-speed switch
 - Head and storage
- 851.2 GF theoretical peak; 4.256 TF total
- Currently deployed





New LONI HPC Systems

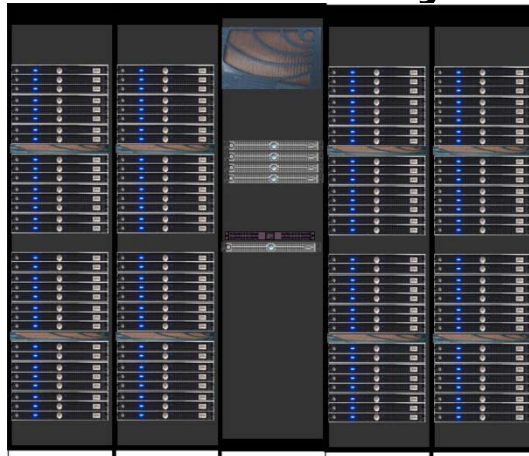
- Central Dell Linux Cluster
 - 680 nodes with dual socket Intel “Clovertown” Xeons (8 cores) @ 2.33 GHz, 8 GB RAM, 80 GB HD, Gb Ethernet
 - Red Hat Enterprise Linux (RHEL) v4
 - Cisco (Topspin) InfiniBand high-speed interconnect (4xIB), 50% blocking
- 50.7 TF theoretical peak; 5.44 TB RAM
- Deployment expected March 2007





New LONI HPC Systems

- Six Remote Dell Linux Clusters
 - 132 nodes with dual socket Intel “Woodcrest” Xeons (4 cores) @ 2.33 Ghz,
 - 4 GB RAM, 80 GB HD, Gb Ethernet
 - Red Hat Enterprise Linux (RHEL v4)
 - Cisco (Topspin) InfiniBand high-speed interconnect (4xIB), non-blocking
- 4.92 TF theoretical peak; 528 GB RAM
- Deployment expected January 2007





Storage

- Central site will have:
 - 225 TB raw, 192 TB usable from Data Direct Networks (DDN)
 - Will provide central `/home` storage as well as global `/scratch` space
 - Using Cluster File Systems' Lustre file system
- Remote sites will have:
 - 14.0 TB raw, 12 TB usable from DDN
 - Additional local `/scratch` storage per system



Storage

- PetaShare – Dr. Tevfik Kosar's, et al. \$957,678 NSF grant (Award #957678) for CCT at LSU
 - “an innovative distributed data archival, analysis and visualization instrument for data intensive collaborative research. PetaShare will enable transparent handling of underlying data sharing, archival, and retrieval mechanisms; and will make data available to the scientists for analysis and visualization on demand.”
- ~40 TB plus ~500 TB archival



Software

- Standard development tools and libraries
- IBM's LoadLeveler RM; Moab scheduler
- Globus v4.0.3 pre-WS
- MPICH-G2 installs for running across multiple systems
 - Successful runs via LoadLeveler
- Portal is operational:
 - Uses GridSphere and MyProxy
 - LONI Certificates via Globus Simple CA
- <http://portal.loni.org/>



Portal

English



Louisiana Optical Network Initiative

About

Grid Information Browser

Refresh

Parallel Computing Resources

Name	System	CPUs	Peak(GFlops)	Memory(GB)	Disk(GB)	Uptime	Load	Jobs
Bluedawg	IBM P5	112	851	224	1859	102 days 15:34	<div style="width: 20%;"></div>	6R-0Q-120
Ducky	IBM P5	112	851	224	1859	63 days 11:36	<div style="width: 20%;"></div>	1R-0Q-40
Neptune	IBM P5	112	851	224	1859	4 days 1:31	<div style="width: 20%;"></div>	1R-0Q-00
Zeke	IBM P5	112	851	224	1859	11 days 11:06	<div style="width: 20%;"></div>	4R-0Q-30
Total:		448	3404	896				

LONI - LOUISIANA OPTICAL NETWORK INITIATIVE

The Louisiana Optical Network Initiative, or LONI, is a fiber optics network that connects supercomputers at Louisiana's major research universities, allowing computation speeds more than 1000 times the rate previously possible, and transforming the research capability of Louisiana's educational institutions. Governor Kathleen Babineaux Blanco has pledged \$40 million over ten years for the development and support of LONI.

As a direct consequence of LONI, the Louisiana Board of Regents has become a member of the National LambdaRail (NLR), a nationwide grid-computing infrastructure that is expected to have the same effect on our nation's technological development as the interstate highway system has had on interstate commerce.

Louisiana's pursuit of LONI and LambdaRail membership has actually resulted in a "redrawing" of the NLR map, bringing this developing computer highway through Louisiana and along the Gulf Coast, where before it would have by-passed this important region altogether. Indeed, Louisiana has taken bold steps to become a player on the technology field of the future.



Login

User Name

Password

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p5 Utilization

System	Site	Commisioned	Jobs	Unique Users	% Utilization
bluedawg*	LaTech	20060201	2,057	29	24.1
ducky	Tulane	20060315	2,445	52	29.3
zeke	ULL	20060807	1,552	14	26.0
neptune	UNO	20060908	167	9	30.4
lacumba	SUBR	N/A	N/A	N/A	N/A
Totals / Average:			6,221	132	27.45

* Bluedawg was re-installed 20060806 and job data before then was lost
Data collected on 20061211 using purr



p5 Usage

