

MCNC

North Carolina Research & Education Network

NCREN

Update

North Carolina House of Representatives
Ways and Means/Broadband Connectivity

March 4, 2009



MCNC

Agenda

- School Connectivity Update
- School Connectivity Home Pilot
- Items to ponder
 - Ownership vs. Lease of public serving networks
 - ITS/MCNC collaboration



MCNC

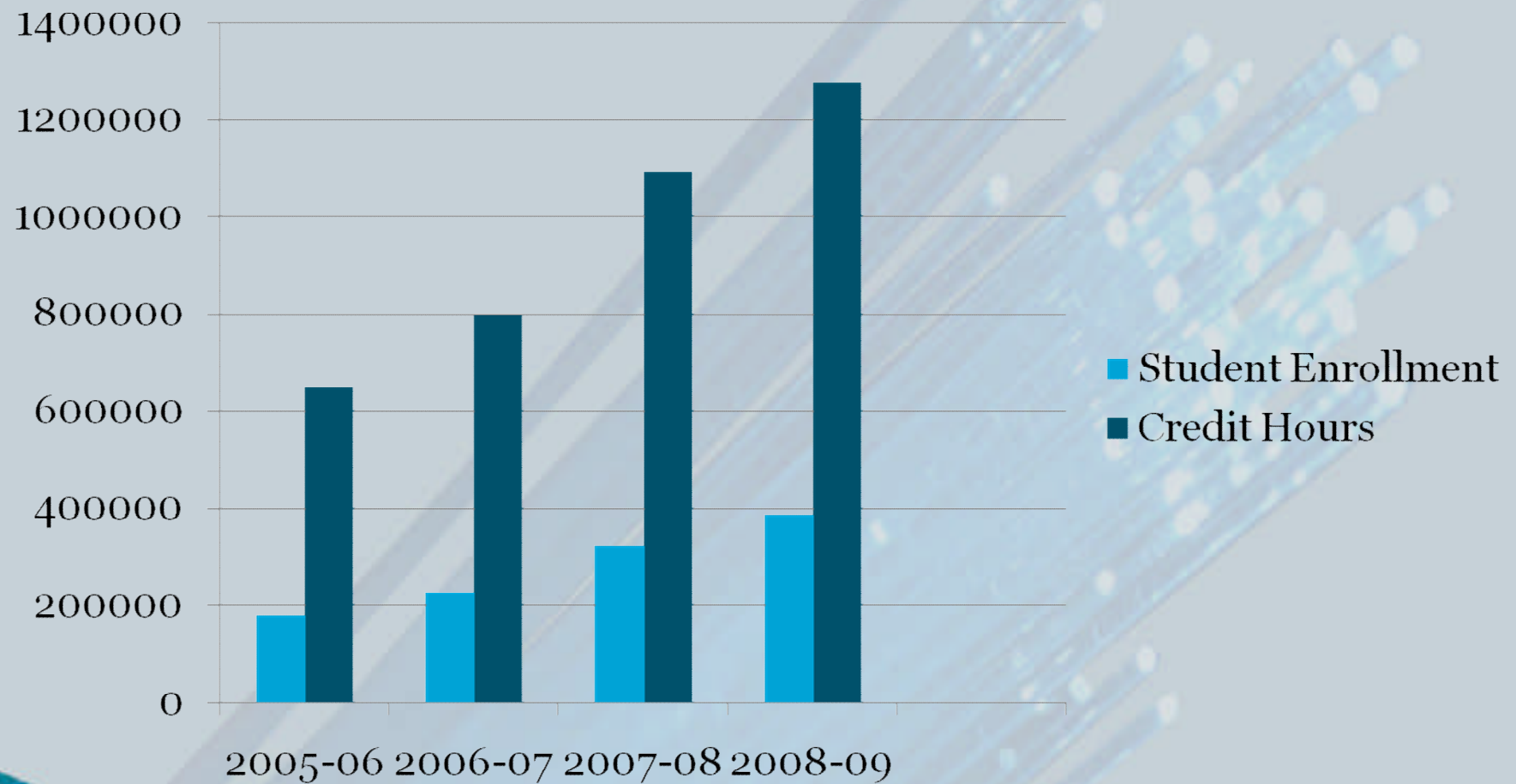
What is NCREN's Core Role?

- Backbone for Education and Research
 - Need is 20x in 6 years
 - Research in the wide area
- Fiscal Agent
 - Protect endowment
 - Protect customer



MCNC

One Impact: eLearning Growth

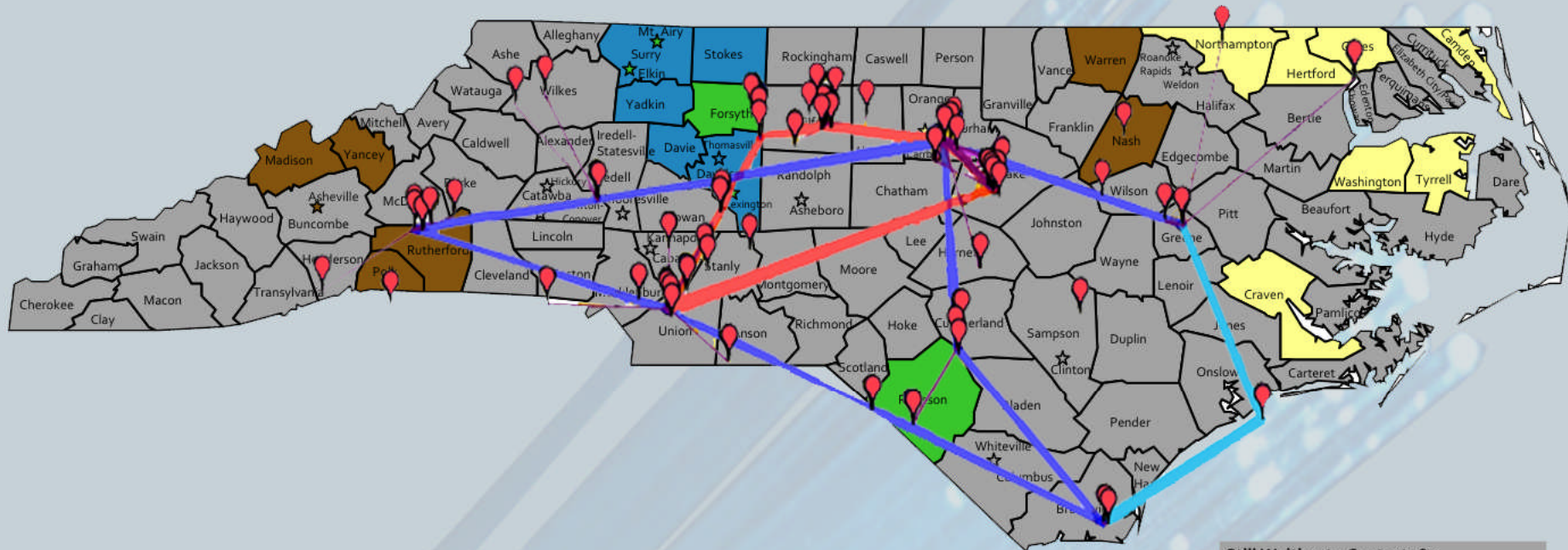


Student Enrollment/Credit Hours=UNC Online, NCCCS, NCVPS



MCNC

Where We Were

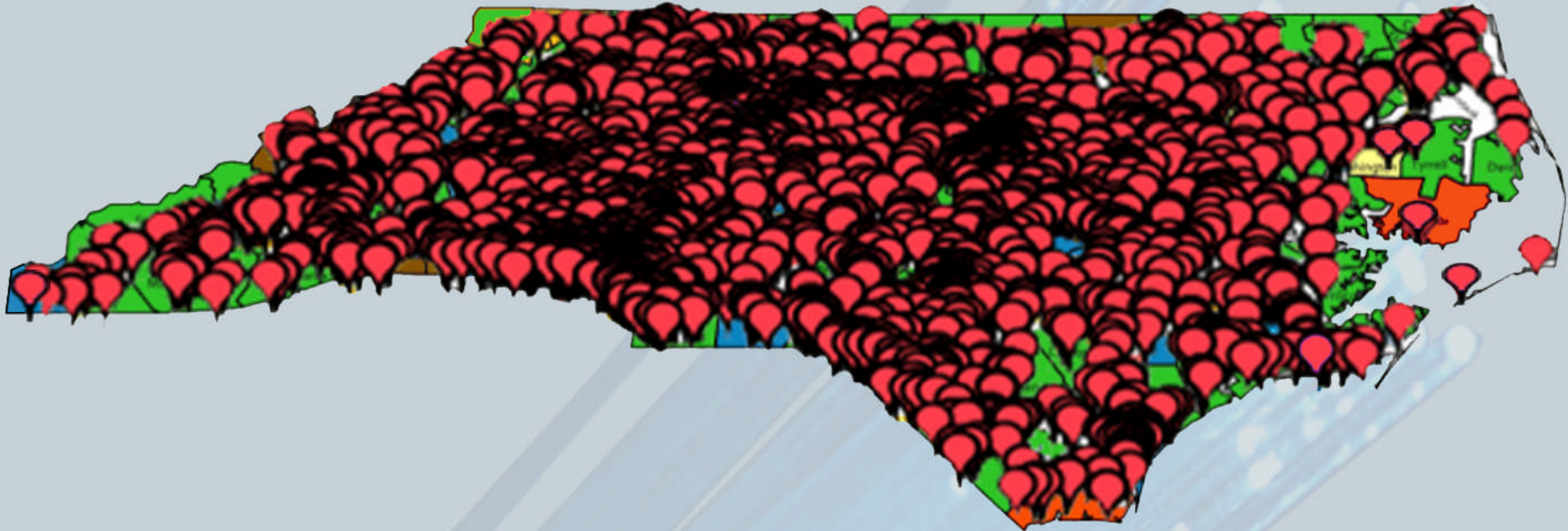


Still Waiting to Contact -89
Previously Connected to NCREN -8
Connected via Intermediary -7
Fully Integrated per terms of SOW -5
Backbone Connections Completed, LAN integration required -6
Circuits Ordered, confirmed due dates -0
City or Combined City/County LEAs ☆



MCNC

Where We Are Now



Previously Connected to NCREN -2
Connected via Intermediary -5
Fully Integrated per terms of SOW -90
Backbone Connections Completed, LAN integration required -9
Circuits Ordered, confirmed due dates -7
Circuits Ordered, awaiting due dates -1
Project Dialogue Occurring -1
City or Combined City/County LEAs ☆



MCNC

MCNC's Broader Role

- Public Good
 - Neutrality
 - Non-Profit
 - Education
 - Innovation
 - Economic Development
 - Health
 - Homeland Security
 - Environment
 - Consumer Access Stimulus



MCNC

PILOT: School Connectivity Home

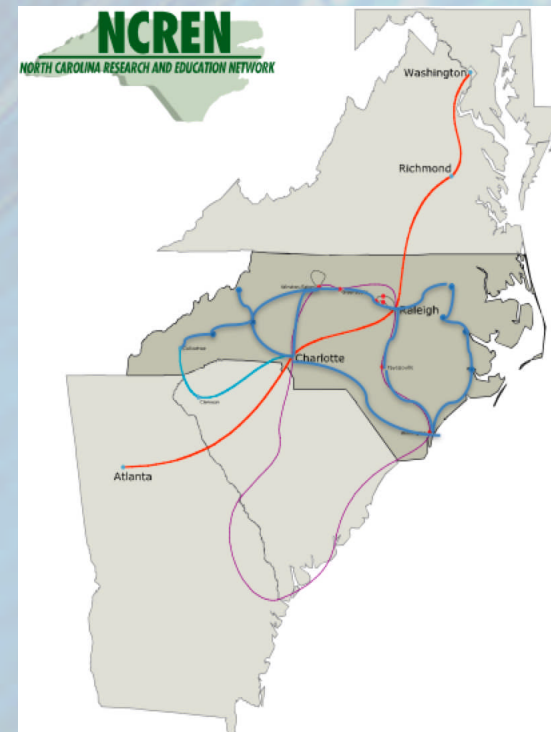
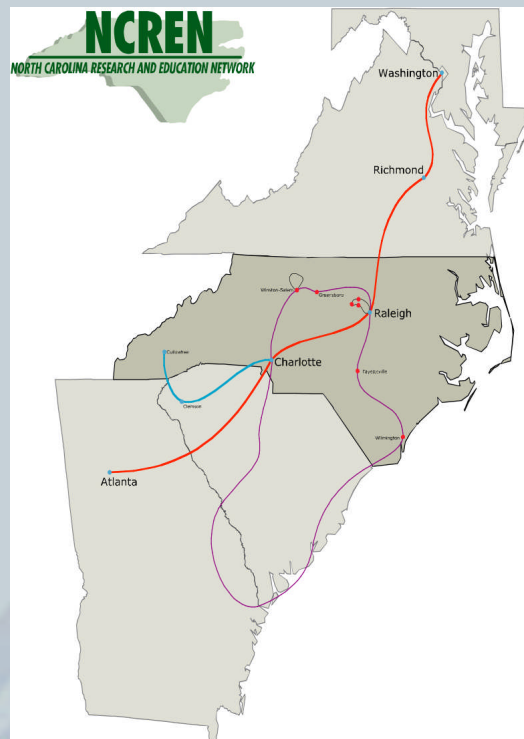
- Pilot will be one calendar year (Aug 09-July 10)
- NC House Ways and Means, Broadband Connectivity
- \$50K from MCNC endowment
 - Subsidize broadband @ home
- eNC, Friday Institute, ATT, Embarq, TWC
- Early Colleges with one-to-one learning initiatives
 - Edgecombe, Macon, Warren, Wayne
 - Can support about 50 students and teachers per school
- Contact the districts/schools to confirm interest



MCNC

Value of Network Ownership

Urban areas owned, rural areas fee increases over time to education clients. Not realistic in today's environment



MCNC

Existing Ownership Savings

Currently Lit Fiber Using Existing Demand

Routes	Impact	Net Present Value
Fiber to UNC-TV & MCNC Tower (Owned)	\$497,430	\$397,150
Raleigh to Charlotte (IRU)	\$2,249,936	\$686,248
Raleigh Metro Ring (Owned)	\$26,572,789	\$21,806,831
Rocky Mount to Charlotte (Lease)*	\$1,268,486	\$289,064
DukeNet Charlotte (Lease)	\$1,215,000	\$90,530
Total	\$31,803,641	\$23,269,823

* 10 year lease from Qwest, will be lit by March, 2009



MCNC

Financial Considerations

15 Year NPV Cost model:

- NPV uses discount rate of 10%
- Inflation 4%
- Capacity lease (-1%) - deflation
- Modeled demand increase is well below trend
- Build assumes an equal partner



MCNC

Financial Model Inputs

Capital Build	Mile
Cost-aerial	\$35K
Cost-Underground Rural East	\$46K
Cost – Underground Urban East	\$90K
Cost – Underground Urban West	\$108K
Cost-Underground Rural West	\$65K

Capital Equip	
Amplifier Spacing	70 miles
Amplifier Spacing Contingency	5%
Communications shelter & non-recurring ROW	\$225K
Optical equipment @ Amplifier	\$210K
Optical equipment @ RPOP	\$234K
Equipment Upgrade	5%
Equipment Useful Life	6

Operational	
Annual O&M	8%
Annual Franchise & ROW	\$330/mile
Right of way per site	\$2500
Shelter Maintenance Expense	10%
Equipment Maintenance	5%
Collocation per month	\$1000

Financial	
Inflation	4.0%
Discount	10.0%

Fiber Route Miles	
Rocky Mount – Greenville	43.5
Greenville-MC-Wilmington	167
Winston Salem-Hickory-Ash	157
Asheville-Charlotte	118
Charlotte Metro	70
Charlotte-Wilmington	202
Lenior-Boone	28.3



MCNC

15-Year Net Present Cost for Priority Routes

Summary View (\$000)

	Today	Ownership IRU	Permanent
Industry Standard Modeled	\$28,492	\$22,668	\$50,511
Subject Matter Experts	\$85,360	\$23,839	\$40,898



MCNC

Community Endorsements

"I am very supportive of this initiative. As you have pointed out, NCREN is critical to our having an infrastructure for the 21st century."

Dr. June Atkinson, State Superintendent, North Carolina Department of Public Instruction

"I think this is a very worthwhile project and just the kind of investment the Administration is looking for."

President Erskine Bowles, University of North Carolina General Administration

"This is an important opportunity and I am fully supportive, especially if this would help us do some things statewide earlier than we would have otherwise had thought possible. I will be glad to help in every way."

President Hope Williams, North Carolina Independent Colleges and Universities

"Thanks for including us in this conversation and I have had the opportunity to review with our senior staff. We believe it is an excellent idea for investment and are fully supportive."

Dr. Scott Ralls, President North Carolina Community College System



MCNC

ITS/MCNC

ITS	MCNC
Customer: State Administration	Customer: Research and Education
Customers have unique applications, tools and service needs.	Customers have robust and growing research needs and virtual education demand is skyrocketing.
Backbone: Owned urban, leased rural	Same
Exposure: Millions in extra lease costs	Same
Desire: Common backbone infrastructure	Same



MCNC

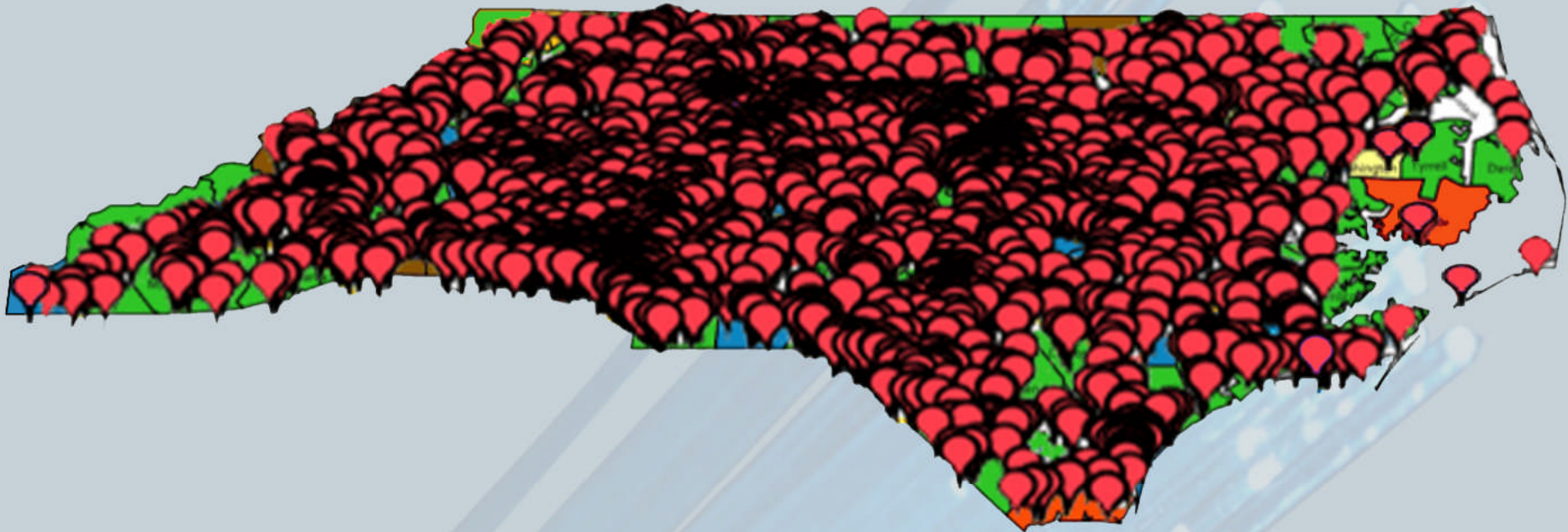
ITS/MCNC

- Policy: ITS/MCNC work cooperatively on a common backbone
 - Higher education research, education, state administration and public health entities
- Policy: MCNC cannot pursue commercial business
 - Research/Content traffic between education and commercial
- Funding: Stimulus funds from across education, rural broadband and health care to build a common backbone--\$20-\$25M
 - Private Sector to get maximum benefit from this funding.



MCNC

Thank you



Previously Connected to NCREN -2
Connected via Intermediary -5
Fully Integrated per terms of SOW -90
Backbone Connections Completed, LAN integration required -9
Circuits Ordered, confirmed due dates -7
Circuits Ordered, awaiting due dates -1
Project Dialogue Occurring -1
City or Combined City/County LEAs ☆



MCNC