



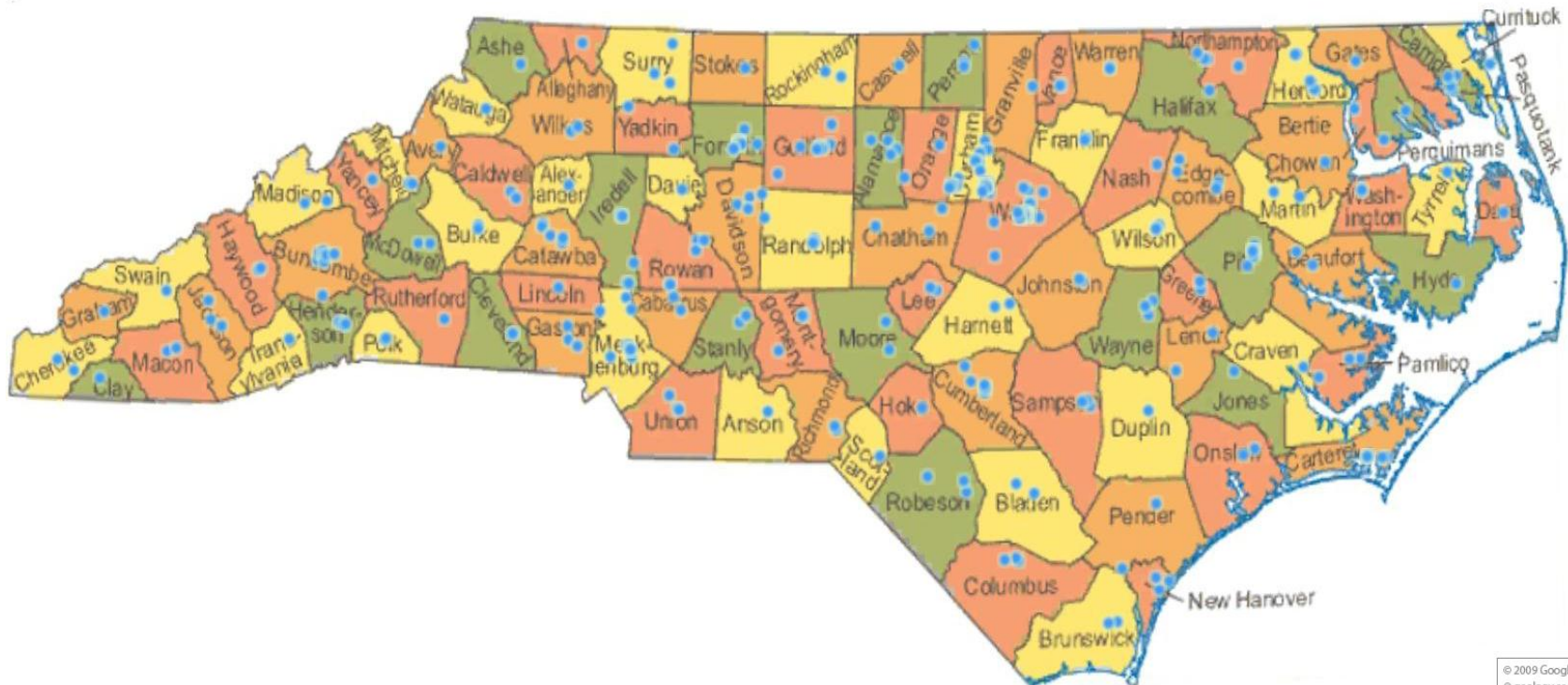
Golden LEAF Rural Broadband Initiative and the Future of MCNC/NCREN

Joe Freddoso

NCPLDA

MCNC Operates NCREN

A high speed optical backbone for Community Anchor Institutions (K12, Community Colleges, Universities, Libraries, Public Health and Safety, non-profit hospitals, etc) . Intranet and Internet.



© 2009 Google
© geology.com
cshpk012811

Advantages of a backbone

- Aggregate Demand for Internet Bandwidth
- Flexibility to peer with high demand sites
- Adjust quickly to “bursty” needs
- Optimum performance for high bandwidth apps

Serve today

- 17 UNC System Institutions
- 24 of 36 independent colleges and universities
- 58 Community Colleges
- 115 Local Education Agencies
- 15 Charter Schools
- Library System
 - Mecklenberg
 - Cumberland
 - Pitt
 - Triangle Research Libraries

Financial example – what we try to do

■ Rural Facility (Small LEA)

- Before NCREN

- Circuit Cost \$2800/Month

- (redundant T1)

- Bandwidth at 10mbps \$1200/Month

- NCREN

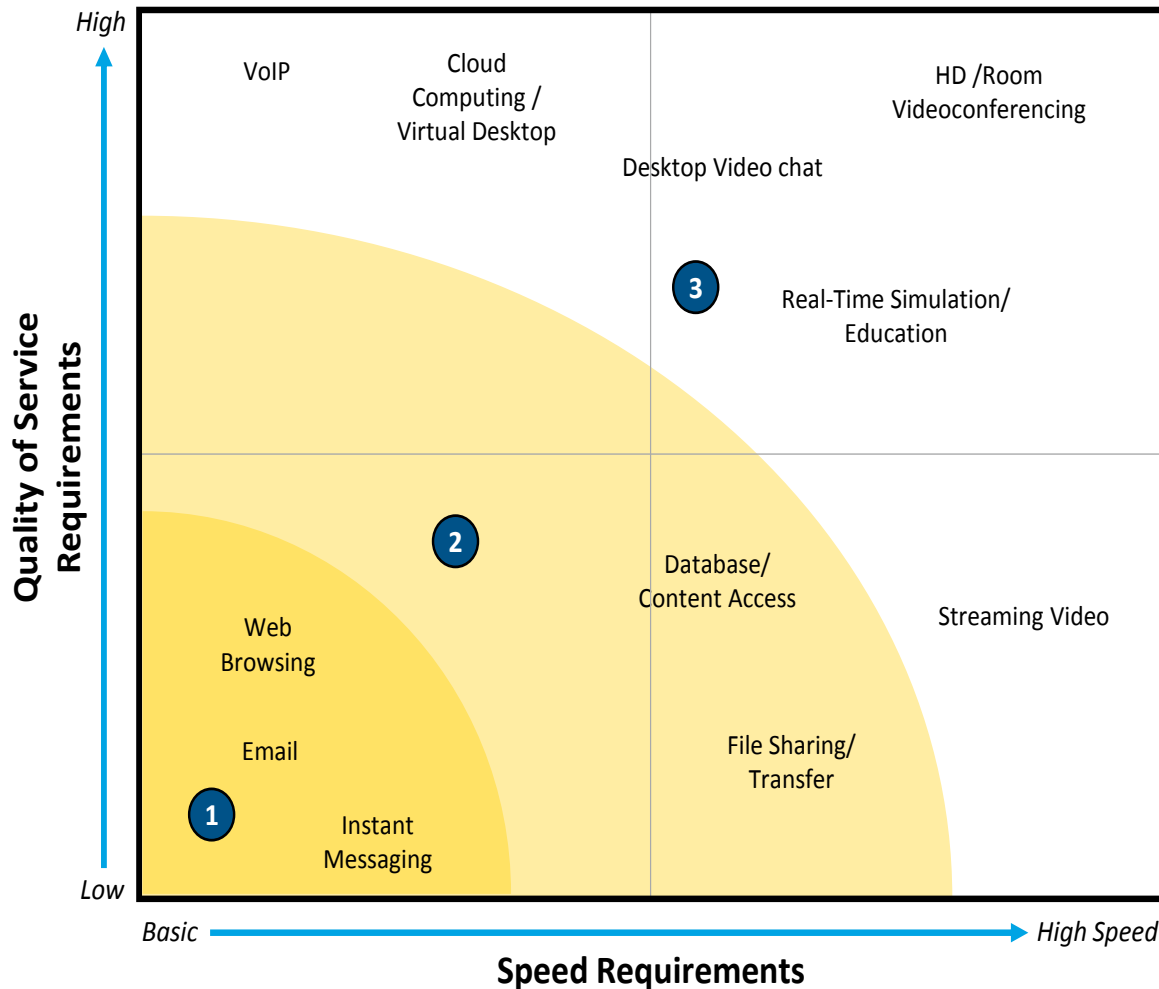
- Circuit Cost \$1900/Month

- Bandwidth at 100mbps \$ 600/Month

- Leased Router/Router Mn't \$ 500/Month

- Backbone Charge \$ 850/Month

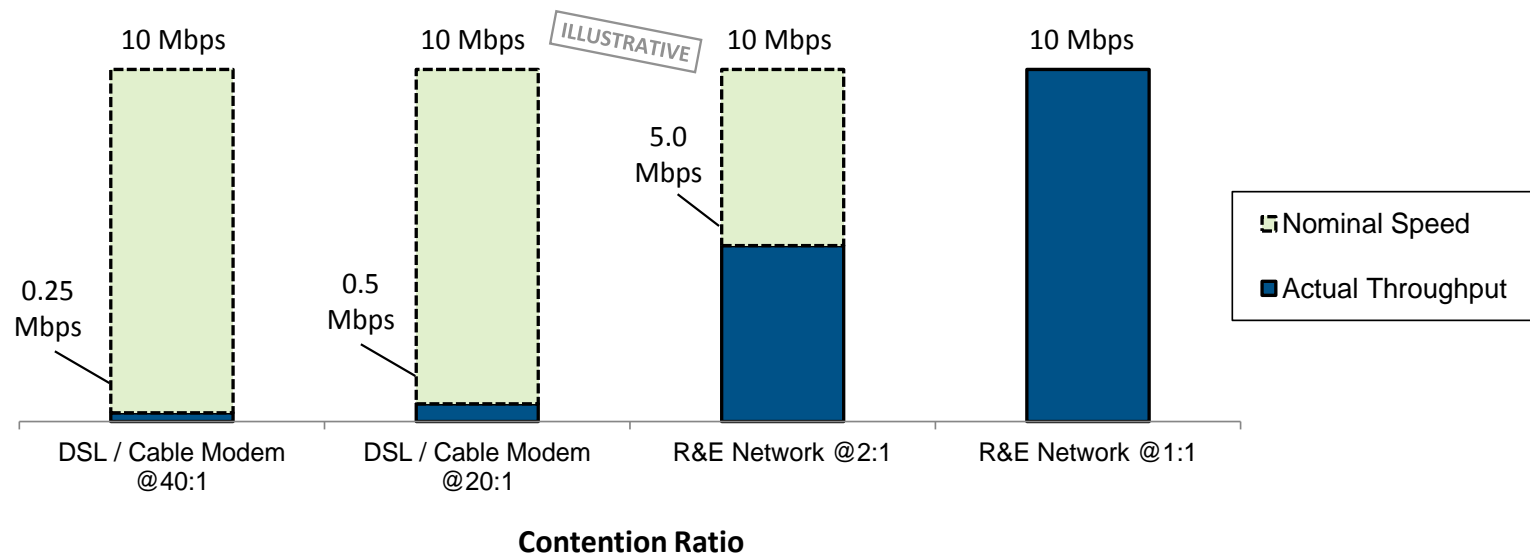
NCREN – Applications at the high end



Zones denote increasing importance of premium connectivity:

- 1 Basic connectivity is sufficient
- 2 Premium connectivity is helpful
- 3 Premium connectivity is critical

NCREN – No Contention to run this traffic



Cost Avoidance

	Lease	Ownership IRU	Permanent
Projected Use	\$85,360,000	\$23,839,000 Providers would not allow	\$39,900,000 (Capital, O&M and refresh)

Federal Stimulus

- ARRA provides \$7.2B to enhance broadband access
 - \$4.5 B to Commerce BTOP
 - \$2.7 B to Agriculture RUS (ATMC \$16M)
 - **All Capital Funds – No Operating Funds**
- Why did MCNC apply?
 - Limited fiber available in rural NC – we were already partnered with the willing
 - Ensure NCREN's capacity to provide efficient service and maintain low cost to our public schools, Universities and Community Colleges
 - Assist state with implementation of Healthcare Information Exchange with ITS.
 - Bring middle mile closer to underserved consumers and small businesses – Help still needed to reach last mile in some areas.

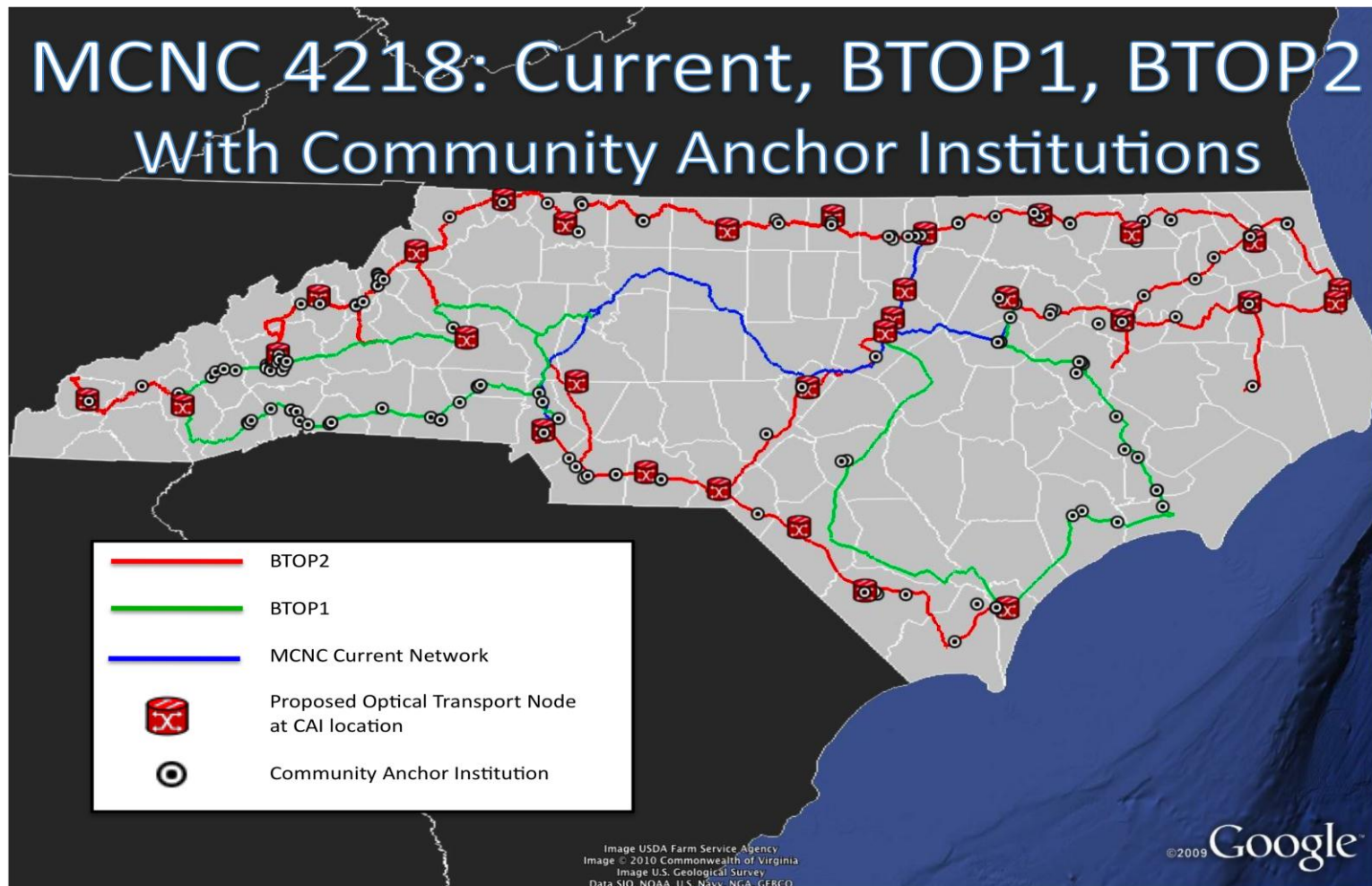
MCNC and BTOP

- 2 Rounds of Funding-Part of ARRA
- \$146M total, Including \$42M in private match
 - Uses no State Funds
 - \$7.7M From MCNC Endowment
 - \$24M Golden LEAF (Golden LEAF Rural Broadband Initiative)
- 82 mostly rural Counties – 69 fully or partially underserved
 - 2500 miles of middle mile fiber
 - 4000 Community Anchor Institutions
 - Partner for Rural Last Mile
 - ATMC

For Rural Broadband

- This is middle mile-not last mile
- Need to build public/private partnerships to reach areas like Graham, Jackson, Transylvania
- MCNC will have the fiber assets to help but we need to be part of a plan, not the entire solution
- Have to work with private sector
 - Can't scale to meet consumer market
 - Not our mission

NCREN at the end of the BTOP Build



Counties in round 1 & 2

Encompass 32,597 square miles or 67% of NC's total square miles

Geographic Area(s): Alexander, Alleghany, Anson, Ashe, Avery, Beaufort, Bertie, Bladen, Brunswick, Buncombe, Burke, Cabarrus, Caldwell, Camden, Carteret, Caswell, Catawba, Chatham, Chowan, Cleveland, Columbus, Craven, Cumberland, Currituck, Dare, Davidson, Davie, Edgecombe, Franklin, Gaston, Gates, Graham, Granville, Greene, Halifax, Harnett, Haywood, Henderson, Hertford, Hyde, Iredell, Jackson, Johnston, Lee, Lincoln, Madison, Martin, McDowell, Mecklenburg, Mitchell, Moore, Nash, New Hanover, Northampton, Onslow, Pasquotank, Pender, Perquimans, Person, Pitt, Polk, Richmond, Robeson, Rockingham, Rutherford, Scotland, Stokes, Surry, Swain, Transylvania, Tyrrell, Union, Vance, Wake, Warren, Washington, Watauga, Wilson, and Yancey counties.

Advantages to NCREN Connectors

- Stable costs through owned “dark fiber”
- 170 Community Anchor Institutions – Direct Fiber
- Non profit model reduces costs
- Intranet performance for latency sensitive applications and research

Critical Success Factors

- Stable operating funds from NCREN Connectors
- Last mile public/private partnerships
- Statewide help from all levels of government and all agencies to facilitate build

Follow the Progress of the Build

Fastest progress of any BTOP award that involves major construction – over 30% complete



<http://www.mcnc.org/btop/progress>



<http://www.facebook.com/pages/Golden-LEAF-Rural-Broadband-Initiative/172558849447133>



<http://www.twitter.com/GLRBI>

Next Step with Libraries

- Demand Aggregator
- Pricing determinations
- Can we better what you have?
 - We will be forthright