Information Technology at North Georgia:
Innovation and NGN Update for Leadership Lumpkin

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Agenda

- Classroom Technology Upgrades
- Distance Learning Technology
- IT Services & Infrastructure at North Georgia
- The North Georgia Network (NGN)
- Please feel free to ask questions, and I will be glad to spend more time discussing areas of particular interest

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Classroom Technology

- Currently 120 classroom spaces
- All 120 are technology-enhanced
- 1,356 course sections are being offered this semester to 6,145 current students
- 711 sections have an active online component (52.4%)
- 20 lecture-capture/streaming enabled rooms
- 15 distance learning enabled rooms

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Sample Classrooms: Language Lab

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Interactive Whiteboards (Rogers 116)

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Library Technology Classrooms

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Visual Arts Lab

Sample Boardrooms/Conference

Capital Improvement Project

- The $1 Million 2011 Capital Improvement Plan classroom technology upgrade project, completed in August 2011, achieved the following goals:
- **Upgraded 120 classrooms to a standard of excellence for 21st century teaching and learning**, including functional (projection, classroom controls) and cosmetic (instructor furniture, cabling) upgrades, to make North Georgia's classrooms world-class learning environments.

User-friendly Classroom Controls

Previous Standard Controls

CIP Classroom Upgrades

- **Enable faculty to seamlessly interact with standardized classroom technology in any building** in order to support the President's vision of flexibly scheduling University space.
- **Provide centralized support and management of all classroom technology components.** The Help Desk, from a central monitoring and reporting console, should be able to troubleshoot remotely and dispatch technicians for repair within *10 minutes* of any classroom technology failure, in many cases before the problem is even noticed by faculty or students.

Classroom Management Software

Modern classroom management software allows technicians to proactively monitor bulb life (i.e. replace bulbs near end-of-life instead of waiting for them to fail), projector controls, usage, etc., and even shut down projectors automatically overnight if left on.

Server-Based Resource Management Software
- Enterprise-wide room control, scheduling, and monitoring
- Supports Extron TouchLink™, IP Link®, MediaLink®, and PoleVault® as well as third-party control systems

Extron GlobalViewer® Enterprise
Enterprise-Scale A/V Management for 5 to 5,000+ Rooms

Extron **GlobalViewer® Enterprise** software is the next step for managing and supporting larger A/V installations. It provides powerful enterprise-wide room

Learn More

CIP Classroom Upgrades

- **Include asset management for real-time security of all classroom equipment** and full inventory reporting. If a projector is removed, the central monitoring station and Public Safety will be notified immediately.
- **Enable easy addition of other novel technologies** including classroom lecture capture, addition of videoconferencing, digital room signage, scheduling software, etc. with little marginal expense.

CIP Classroom Upgrades

- **Provide a rich, interchangeable selection of classroom technology equipment** (digital document cameras, lecture capture setups, interactive whiteboards, mobile interactive video carts, mobile laptop lab carts, student response 'clickers', etc.) that can be assigned to several rooms per semester and/or checked out occasionally to enhance the teaching and learning experience.

Distance Learning Technology

- We currently have 15 video teleconferencing classrooms and boardrooms on campus, including newer high-definition (HD) video teleconferencing capabilities
- Three rooms are used primarily by Nursing for up to 180 students per course at three sites simultaneously for up to four hours a day (Dahlonega, Gainesville, and Cumming)

Online Learning Support

- Blackboard Vista: over 700 sections (over 50% of all course sections) have an active component in Vista, our online Learning Management System – allows 24x7 access to lecture slides, assignments, tests, grades, and more
- Wimba: Synchronous audio/video and content online learning system, with lecture capture capabilities

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Online Learning Support (cont.)

- Lecture capture capabilities (Ensemble and Polycom) currently in use in School of Science & Health Professions and the Mike Cottrell School of Business
- Allows recording of both video and content (professor and computer in two windows)
- Lecture streaming allows live or recorded access to full class for students who are out sick or traveling with work, etc.

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Who we are

- IT at North Georgia comprises 35 FT staff and 20 student techs in 6 units: IT Service Desk, Technical Support, Engineering, Application Development, Security and Infrastructure Services (see us at http://northgeorgia.edu/IT)
- CIO – former faculty member in Computer Science
- Talented, dedicated and service-oriented staff

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Our services

- IT provides a full service catalog to over 7,000 users on the main campus and at four remote locations
- The IT Service Desk is the point of contact for all IT services, including faculty/staff personal computer needs
- New for Fall 2011: IT Service Catalog, Microsoft Student Option, 100% wireless campus, & more

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North Georgia IT Service Catalog

Accounts
Account Management, NorthGeorgia netID…

Business Systems
Banner, Application Development and Advisory Services…

Data Center & Servers
Server Hosting, Storage…

Desktop Computing
Standard Desktop Support, Computing Labs…

Email, Calendar & Collaboration
GroupWise, Google Apps for Education…

Help Desk Services
Help Desk…

Instructional Technology
Classroom Support, Distance Learning…

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IT Service Catalog (cont.)

Media & Event Support
Special Events, Technical Design, Media Production…

Network & Wireless
Wireless and Wired Network, Remote Access…

Organizational Support
Project Management, Customer Support System…

Security & IT Policy
Security Incident Response, IT Security Awareness…

Software
Software Licensing…

Telephone
iPhone, VoIP, BlackBerry Service, Directory Services…

Web Services
Web Hosting, Personal Web Pages, Web Development…

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Our infrastructure

- Over 7,000 network ports up to 10 Gbps, 200 wireless access points supporting 4000+ wireless devices per day, 200 network printers, 70 servers, 80 TB of storage, 3 server rooms, supporting:

- 120 classrooms, 50+ buildings, 30+ computer labs, 7000 users, 1900 computers, 60+ administrative applications, 1300+ custom Banner programs, and more…

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Coming soon…

- North Georgia Network (NGN) fiber optic grant ($43 million, 12-county grant application) – construction began January 2011, 260-mile loop complete this month, live in Jan 2012

- Also adding 500 Mb Windstream connection for failover – three connections total to the Internet

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NGN in Brief

- Ultra-high-speed (Terabyte+) broadband fiber optic 260-mile loop through 12 counties
- Over 1000 miles total fiber including middle-mile and fiber-to-the-home/business
- Bringing thousands of north Georgia families and businesses to the right side of the digital divide

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What is NGN?

- NGN is a **501(c)(12)** cooperative (just like EMCs and rural telephone cooperatives)
- Received $33.5M in ARRA/BTOP funds to build fiber connectivity in north Georgia, with $8.8M in-kind & matching locally, including $2.5M from OneGeorgia (through the **Development Authority of Lumpkin County**)

NGN North Georgia Network   NORTH GEORGIA COLLEGE & STATE UNIVERSITY   Trailwave

What is NGN (cont.)

- Focus is **Core 260-mile ring (core fiber loop)**
- Additional middle-mile fiber will connect "anchor" institutions & areas
- Last-mile fiber will serve 6,000+ businesses and home customers in mostly rural, unserved areas

NGN North Georgia Network   NORTH GEORGIA COLLEGE & STATE UNIVERSITY   Trailwave
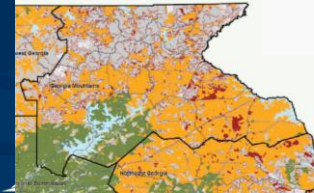
What is "Fiber"?

- Fiber Optic network cable is composed of pure glass/silica strands about the width of a human hair (sample 96-strand)
- Carries laser light signals at speeds currently at 10Gbps per wavelength
- Some fiber can carry hundreds of 'colors' or wavelengths per pair

Why do we need NGN Fiber?

- According to the **Jan. 2011** GTA Broadband Report, 11 of the 13 counties in the Georgia Mountains Reg. Comm. are fully "**unserved**" or "**underserved**" – and over 58,000 people have **no access** to broadband at all

10% of Population Unserved

Regional Commission	Number	Served %	Served Pop	Underserved %	Underserved Pop	Unserved %	Unserved Pop	Population
Atlanta Regional Commission	3	98%	4,095,626	2%	73,024	0%	4,173	4,172,823
Three Rivers	4	67%	320,887	29%	140,630	3%	15,355	476,872
Central Savannah River Area	7	60%	260,282	31%	133,884	9%	41,088	435,254
River Valley	8	59%	208,801	29%	102,712	11%	40,325	351,873
Southwest Georgia	10	53%	193,535	36%	129,985	11%	41,503	365,023
Northeast Georgia	5	50%	278,916	44%	245,089	7%	36,912	560,973
Georgia Mountains	2	48%	286,351	42%	246,186	10%	58,121	590,657
Middle Georgia	6	46%	215,290	45%	213,115	9%	44,344	472,749
Coastal	12	39%	243,497	54%	333,512	7%	40,315	617,386
Northwest Georgia	1	38%	311,385	57%	470,537	5%	41,930	823,770
Southern Georgia	11	33%	126,433	53%	205,415	14%	55,547	387,356
Heart of Georgia	9	9%	26,594	65%	188,886	26%	74,534	290,014
Totals			6,567,597		2,482,975		494,146	9,544,750

Figure 21 Regional Commission Service Sorted by Served Percentage

Why More Fiber?

- Our University was off-line in August due to a fiber cut by AT&T in Clermont for **37 hours, 22 minutes**
- One week later, we were offline for an additional **3 hours, 25 minutes** due to a second AT&T cut
- Since then, Windstream has committed to secure a different route that does not rely on AT&T
- With NGN added in January, North Georgia College & State University will have **three** total paths of fiber, with over **1Gb of total capacity**
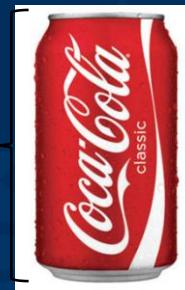
Why More Fiber? (cont.)

- Copper infrastructure cannot keep pace with the needs of 21st century users
- Fiber optics can carry hundreds or thousands of times the capacity, at lower cost & with easier upgrades
- NGN fiber will carry **100Gbps** on day 1, with **1.6 Terabits** of live capacity
- Capacity **10Tb** (and higher) on demand

Fiber vs. DSL/Cable

- If we visualize the average DSL connection in our area (around 1.5Mbps) as equal to the height of a can of Coke…

Fiber vs. DSL/Cable

- 1Gbps Fiber (like the University's) would stretch almost 270 ft high (about the height of the Capitol Dome in Atlanta)

1Gbps Fiber

Fiber vs. DSL/Cable

- 3.6 Terabits (current NGN Fiber capacity per pair of strands) would span over 180 miles – about the orbit of the International Space Station, or 2.4M cans of Coke high!

3.6 Tbps

What's in it for me?

- Near-term: 6,000 customers in the eight county area will have fiber-to-the-home/business available by the end of 2012
- Mid-term: More options, competition, better prices
- Long-term: High-tech jobs, high-paying, low environmental impact industry

What's in it for Lumpkin?

- We are working on route additions with the feds to build 11 additional miles of "middle-mile" fiber in Lumpkin & Dawson counties
- Passing main commercial/industrial areas in both counties
- Plans to build to 400 and 60 via Long Branch when there is more activity there, and additional "GigaParks"

Who's getting connected?

- Initially: Schools, city and county offices, police, libraries, hospitals, "anchor" businesses & institutions
- 6,000 mostly rural homes & businesses
- New distance learning opportunities and industrial & high-tech ultra-broadband
- Major carriers waiting on us to complete the core – including one needing 1Tb+

Who's involved?

- **NGN Community Advisory Board**
  Regional education representative: Bryson Payne (chair)
  County representative 1: Tom O'Bryant (White County)
  County representative 2: Mitch Griggs (Union County)
  County representative 3: Senator Steve Gooch (Lumpkin County)
  County representative 4: Charlie Auvermann (Dawson)
  County representative 5: Bailey Mitchell (Forsyth County)
  State representative: Nancy Cobb, OneGeorgia Authority
  Regional business representative 1: open
  Regional business representative 2: open
  NGN CEO (ex officio): Bruce Abraham

Updates from the Trail, November 2011

- As of Nov. 10, over **500 miles** of core and middle-mile fiber already up in Lumpkin, Towns, Union, Rabun, Habersham, & White counties
- Core completion on schedule for next month

Updates, November 2011 (cont.)

- **Placed the first C-POP at White County High School Oct. 10, 2011, second at Lumpkin Co. Middle School Oct. 31, 2011, 3 more to go**
- 12'x28' custom structure
- **Self-contained:** Dual A/C, DC batteries, 60 KW generator, dry fire suppression, digital video surveillance, vault doors

Updates, Nov 2011 (cont.)

- At Sept. NGN Board meeting, voted to pursue collaboration with **LIT Networks**, a non-profit cooperative of world-class broadband carriers with the **fastest** route between Atlanta and New York (plus Washington, Charlotte, etc.)
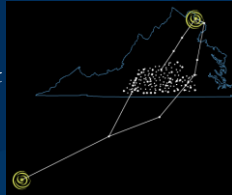
Image courtesy of LIT Networks and the Mid-Atlantic Broadband Cooperative (MBC)

Updates, Nov. 2011 (cont.)

- LIT Networks will be offering a new, highly diverse optical backbone route between 60 Hudson Street in **New York** and 56 Marietta Street in **Atlanta**, Georgia.
- This route is diverse from any major carrier backbone, avoids the Washington DC market, and complements carriers who need diverse layer 1 optical transport services for 1G, 2.5G or 10G services.
- Powered by the same Infinera digital optical network equipment used by NGN

How can I get more info?

- Web site: www.NorthGeorgiaNetwork.com
- Media Contact: Ms. Lee Ann Roy, leeann.roy@northgeorgianetwork.com
- Community Advisory Board Rep: Sen. Steve Gooch, steve.gooch@lumpkincounty.gov
- Community Advisory Board: Dr. Bryson Payne (Chair), *CIO, North Georgia College & State University,* bpayne@northgeorgia.edu

In short:

It's an exciting time to be at North Georgia!

Questions?

Thank you!