MOREnet
Community • Technology • Results

MOREnet Update

MOBIUS Council Meeting
February 29, 2008

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Glossary

- **Quality of Service (QoS)** – a networking term that specifies a guaranteed throughput level ensuring that critical traffic flows through a network.
- **Megabits per second (Mbps)** – a data transfer speed measurement for networks. When used to describe data transfer rates, a megabit (MB) equals 1,000,000 bits.
- **Gigabits per second (Gbps)** – a data transfer speed measurement for networks. When used to describe data transfer rates, a gigabit (GB) equals 1,000,000,000 bits.
- **Dark Fiber** - name given to individual fibers within a cable bundle currently in place but not being used.
- **Optical Wavelength (Lambda)** – the length of a light wave as measured from crest to crest which determines its color. Optical equipment uses individual colors to define a finite capacity on a circuit.
- **Tail Circuit/Local Loop** – is the physical circuit from a member site to the telephone company/telecommunications provider's network.
- **Great Plains Network (GPN)** - a consortium organized under the University of Missouri to aggregate connectivity to Internet2 – the high performance networking access for the research and education communities. States in the consortium: Arkansas, Kansas, Iowa, Minnesota, Missouri, Nebraska, Oklahoma and South Dakota.
  - GPN also provides a collaboration forum for research initiatives by it's members.

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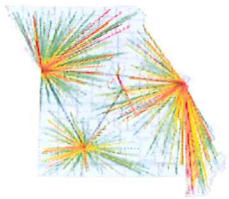

MEMBERS

- **26 public & 42 independent higher education institutions**
- **518 school districts**
- **347 public library buildings**
- **130 telehealth sites**
- **112 UM Extension offices**
- **State government**
- **20 affiliate organizations**

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MOREnet Operations

- Started services in 1990
- Staff and operations through UM System
  - Functions as an 'independent business unit'
- 110 FTE; housed off-campus
- Funding sources
  - Core appropriations to UM through House Bill 3 (Higher Education)
  - Contract with State Library through House Bill 12 (Elected Officials)
  - Member Fees
  - E-rate

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MOREnet Council

- Strategic planning and budgeting oversight
  - Activities and initiatives oversight
  - Endorse appropriations request
- Membership
  - Department of Elementary & Secondary Education
  - Department of Higher Education
  - Missouri Office of the State Library
  - University of Missouri
  - K12, higher education and public library member representatives
  - Ex-Officio: State CIO and MOREnet Executive Director

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Services: July 2006 to June 2007

- Technical support – 6,500 consults
- Training – 50 courses / 10,000 contact hours
- Conferences and seminars
- Interactive video – 4,000 sessions
- Security response center – 2,000 incidents
- Online resources - electronic journals and databases
- E-mail / web hosting
- Emerging technologies research

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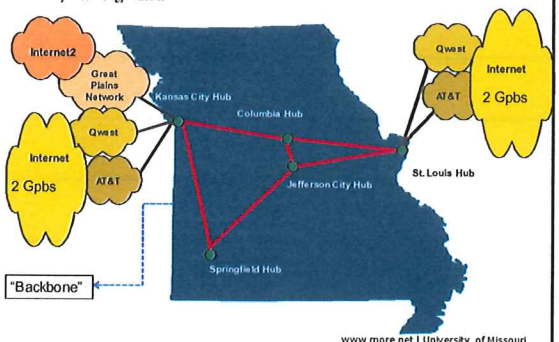
Shared Network



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Next Generation Network (NGN)

a cooperative project between MOREnet and UM

Goal is to provide exponential increase in backbone bandwidth and flatten ongoing costs

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We will operate a 'private' fiber-optic based backbone network

- 20 year lease on 1,000 route miles of 'dark fiber'
- Own and operate the optical equipment to 'light the fiber'
- Can support forty 10Gbps lambdas
- Will start with two 10Gbps lambdas
  - One dedicated to the MOREnet Consortium
  - One dedicated to the UM campuses
  - Can add additional lambdas as needed with relatively small incremental costs
- Replaces our current 1-2Gbps leased-circuit based backbone
- Deploy August – December, 2008

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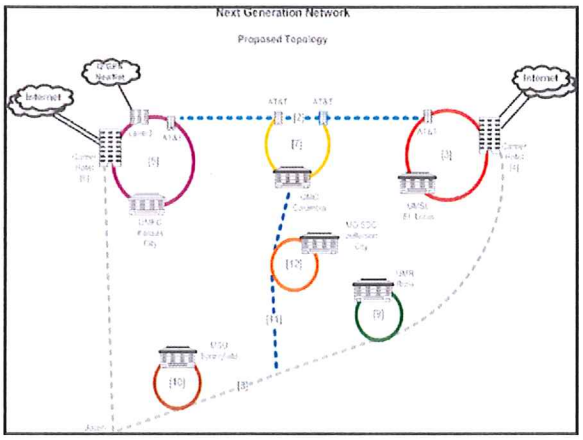

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A required first step, but

- Majority of current connectivity costs are in tail circuits
  - The physical connection from your institution to the backbone
  - Growth in tail circuit capacity is approximately 40%/year
- Increasing tail circuit capacity means continual increase in ongoing costs
  - Substantial in most rural areas

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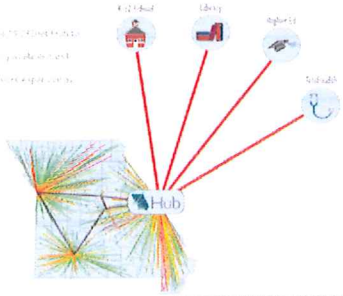
A New Approach to Member Connectivity

Meeting Bandwidth Demand at an Affordable Cost

Current Model



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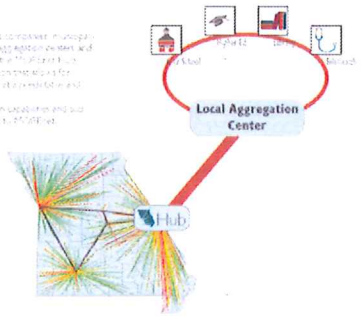
New Model



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So, What Does It All Mean to MOBIUS Members?

- End-to-end network management
  - One-stop shop
  - Rapid response
- Network performance
  - Monitor utilization/proactive upgrades to your tail circuit
  - QoS to ensure MOBIUS packets get through
    - Like the dedicated 'ride share' commuter lane during rush hour
- Extends the reach of your libraries
  - High school students can use MOREnet to access your local library resources, search MOBIUS catalog, etc.

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Enable Future Services & Applications

- High-capacity infrastructure enables differentiated services
  - High-Definition Video
  - Transport to off-site Disaster Recovery sites
  - Distributed digital catalogs
  - Other high storage/high bandwidth applications

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If Bandwidth to Your Institution is Virtually Unlimited, then ??

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