



Florida's 100 Gigabit Research and Education Network

FOR IMMEDIATE RELEASE

Florida's Research & Education Network Completes 100-Gigabit upgrade

Florida LambdaRail's advanced ultra high-speed network makes investment that serves a growing community and enables discoveries that drive Florida's 21st Century economy initiatives.

Tallahassee, FL - September 14, 2015

Today, Florida LambdaRail, LLC (FLR), Florida's Research and Education Network, announced the completion of a 100 Gigabits-per-second (Gbps) upgrade to the core backbone of the FLR network. The 1,540-mile network currently serves the sunshine state's research and education communities, including The State University System, State Colleges, and community anchor institutions including K-12 districts, research institutions, hospitals, libraries and many private universities including The University of Miami, The Florida Institute of Technology, Nova Southeastern University, and others.

100 Gbps is the emerging international standard for research networking performance. Across the nation, other regional networks have completed 100 Gbps segment upgrades, but with this upgrade FLR joins only two other regional networks – California and Ohio – to complete system-wide upgrades. Traffic on the FLR backbone routinely spikes at 40 Gbps, underscoring the need for this high-speed instrument that enables FLR's partners and affiliates to share real-time, data-intensive information with each other on a statewide, regional, national and global basis. The sum of all traffic carried by FLR in 2014 totaled nearly 8,000 Petabytes (a Petabyte is 1,000,000 Gigabytes).

"Our mission at FLR is to provide the network tools our members need to meet their research and other data related goals," said FLR CEO Joseph Lazor. "By upgrading our core backbone to 100 Gbps, we are ensuring the tools are in place to support the needs of our members and affiliates well into the foreseeable future. At FLR we are proud of the role we play in supporting important research while also providing Florida's educators and their students with virtual access to real-world information that leads to discoveries beyond the classroom."

FLR was created in 2004 as a 10 Gbps network by a consortium of public and private universities seeking a reliable, high-speed data and communications network capable of handling the unique data transport needs of the university research community. Maintaining its research and education focus, FLR today has 12 partner institutions (9 public universities and 3 private universities) and serves 48 affiliates.

"Our university researchers are analyzing previously unthinkable amounts of data and those demands are increasing all the time," said Elias Eldayrie, FLR Board Chair and Vice President of Information Technology and CIO at the University of Florida. "This upgrade gives us the capacity to meet any innovation challenge. It's exciting to think about what this means in terms of the discoveries and breakthroughs we'll make."

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Research today involves the accumulation and analysis of extremely large data sets, known as Big Data. Until recently, researchers wanting to share data with colleagues in other cities or countries had to ship it on hard disks - a process that has proved time consuming, inefficient, and insecure. The deployment of FLR's 100 Gbps network drops the barriers to discovery by making nearly meaningless the obstacles of time, distance and cost while also dramatically improving data security. The additional development of High Performance Computing tools combined with this high-speed networking environment has led to exciting new possibilities for discovery and collaboration through initiatives such as the Sunshine State Education Research Computing Alliance (SSERCA).

"SSERCA was created from the idea that uniting each university's research computing resources and experts would allow us to tackle bigger challenges than we could individually – that we are stronger together than we are apart. But before the advent of high speed networking, bringing these assets together to cooperatively tackle important problems was essentially impossible," said Dr. Joel Hartman, CIO at the University of Central Florida and Chairman of SSERCA. "By combining our campus-based computing power with the new network capabilities available through the new FLR 100 Gbps network, SSERCA institutions will now have the ability to advance their respective research agendas, which will be of benefit to the state and the nation."

Further supporting the Big Data movement, later this year FLR intends to establish a sub-network exclusively for research traffic known as a Science DMZ. Through the Science DMZ, FLR will essentially be splitting network traffic into two paths: one dedicated to science and research traffic and the other for standard communications traffic such as email and Internet searches. Science DMZs support high intensity research and data flows through dedicated pathways by utilizing specialized speed and security protocols that extend the ability to send data point to point, bypassing switch points where standard internet traffic can become choked.

"Research excellence is dependent on the ability move, manipulate and analyze tremendous amounts of data in real time," said Dr. J. Richard Newman, Senior Advisor for Information Technology at the Florida Institute of Technology. "By implementing a network-wide Science DMZ, we are supporting emerging technologies such as spatial domain multiplexing and enabling discoveries that will benefit important Florida industries such as aerospace and information technology. Florida's standing as a leader in global research and discovery is ensured thanks to this network upgrade."

About Florida LambdaRail • www.flrnet.org

Florida LambdaRail (FLR) is Florida's Research and Education Network. With its 1,540 mile dark fiber network, FLR provides a cost effective, ultra-high speed, inter-connected, broadband service delivery network that enables Florida's higher education institutions and partners to collaborate, connect, utilize and develop new innovative broadband applications and services in support of their scientific research, education, and 21st century economy initiatives.

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FACT SHEET: FLORIDA LAMBDARAIL 100-GIGABIT NETWORK UPGRADE

Investment: \$3.5 million

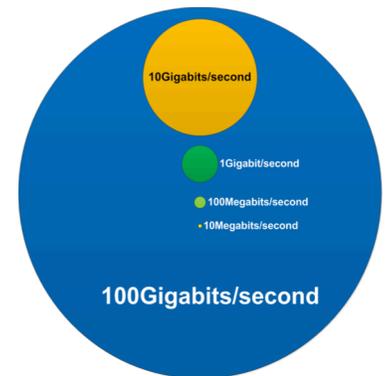
Speed: 100 Gbps (Increased from 20Gbps)

Network Facts:

- 2014 network traffic totaled nearly 8,000 Petabytes (a Petabyte is 1,000,000 Gigabytes)
- 1540 miles of dark fiber
- Cisco 15454 DWDM (Dense Wavelength Division Multiplexing) System
- 28 optical sites
- 7 main Layer2/3 Transport pops form the FLR backbone:
 - Nodes are located in Jacksonville, Orlando, Miami, Tampa, Tallahassee, Pensacola, and Atlanta.
 - Installed at these sites are Cisco's ASR 9k platform offering 1g, 10g, and 100g connections.

How Fast is 100 Gbps?

- Transmit the data equivalent of 80 million file cabinets filled with text daily;
- Simultaneously download an eBook for every one of Florida's 2.7 million enrolled K-12 students in around 2 minutes;
- Transmit 300,000 X-rays in just one minute;
- Transmit 8.5 million electronic medical records in one minute;
- Send smartphone data 50,000 times faster than current average speeds



About FLR:

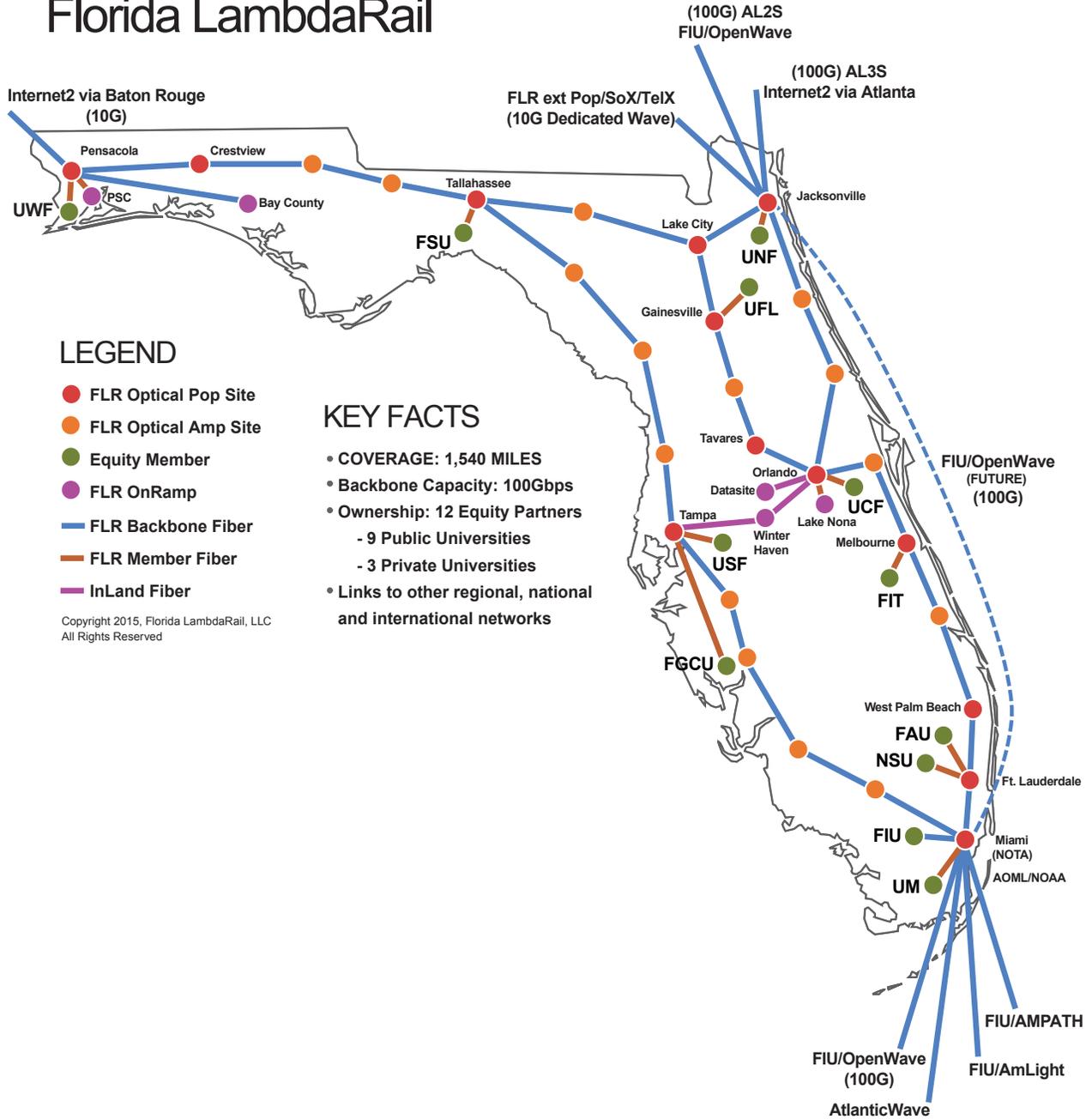
Ownership: 12 Equity Partners

- 9 Public Universities
 - Florida Atlantic University, Florida International University, Florida Gulf Coast University, Florida State University, University of Central Florida, University of Florida, University of North Florida, University of South Florida, University of West Florida
- 3 Private Universities
 - Florida Institute of Technology, Nova Southeastern University, University of Miami

Affiliates: 48, including:

- State Colleges, Public and Private Higher Education Institutions, K-12 Districts and Private Schools, Libraries, Hospital Systems, Research Institutions

Florida LambdaRail



LEGEND

- FLR Optical Pop Site
- FLR Optical Amp Site
- Equity Member
- FLR OnRamp
- FLR Backbone Fiber
- FLR Member Fiber
- InLand Fiber

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KEY FACTS

- **COVERAGE: 1,540 MILES**
- **Backbone Capacity: 100Gbps**
- **Ownership: 12 Equity Partners**
 - 9 Public Universities
 - 3 Private Universities
- **Links to other regional, national and international networks**



FLR
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