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**Internet2**

**@**

**The University of the  
Virgin Islands**

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- **Two campuses (St. Thomas & St. Croix)**
- **Approximately 2500 students**
- **Heavy reliance on videoconferencing**
- **Mostly a commuter school**
- **Information & Technology Services component is responsible for faculty technology training**

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**This presentation discusses:**

- **New Internet2 Network and Design**
- **Applications to Use the Internet2 Network in the Future**

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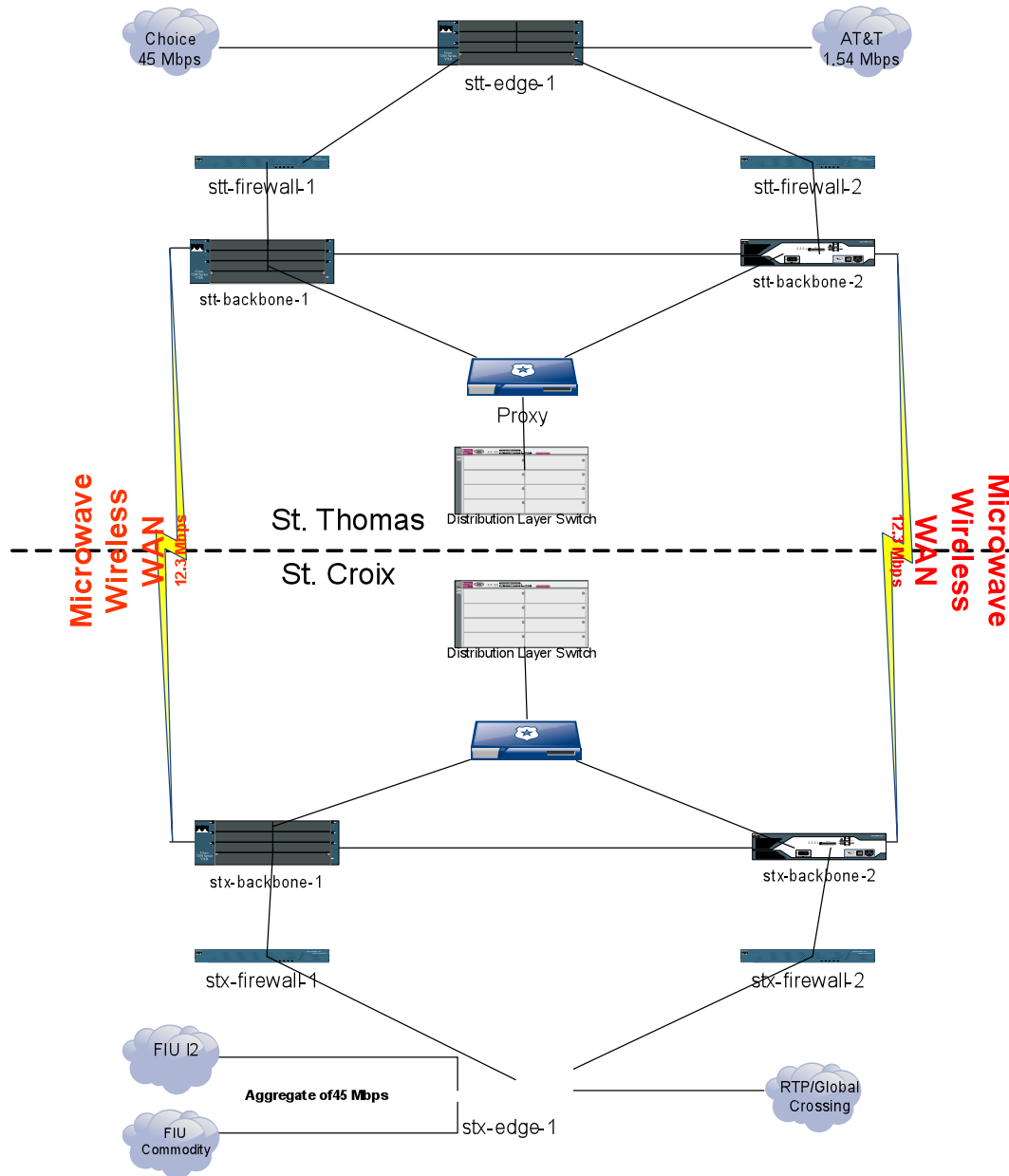
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# UVI Internet2 Network and Design

# New UVI Backbone I2 Topology



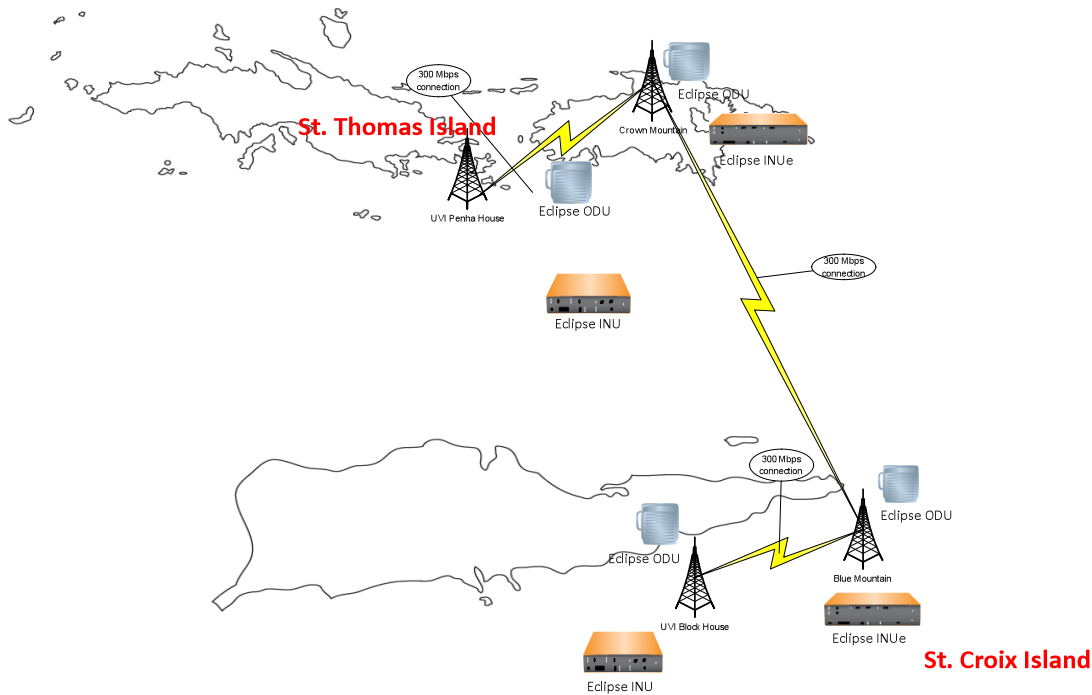


## New UVI Backbone I2 Topology

- Upgraded the Cisco 7206 routing equipment
- Added Cisco 2821 routers as a redundant path
- Implemented Border Gateway Protocol (BGP) to support multi-homing to multiple ISPs
- Upgraded Cisco system software to support BGP and configuration to support I2 routing
- Restructured backbone architecture to create uniformity on both Islands in preparation for multi-homing



## Microwave Wireless WAN 300 Mbps





## Microwave Wireless WAN 300 Mbps

- Installation in May 2010
- Increase WAN bandwidth from 12.3 Mbps to 300 Mbps to accommodate I2 traffic
- Carrier-grade Eclipse wireless backhaul solution from Aviat Networks, formally Harris Stratex
  - Highly scalable software design
  - Optimized wireless nodes that support multi-outdoor units (ODUs)
  - Efficient Terminal Options solutions for transport of OC3 data
  - Scalable Capacity Architecture that supports smooth network upgrades
  - High speed data transport and QoS features
  - Advance Network control through Java-based management tools



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# Applications to Use the Internet2 Network in the Future



## GPS Regional Monitoring Systems

- UVI, St. Thomas campus, supports GPS position monitoring station
- PR Seismic Network Program installed 8 high-rate GPS Networks in PR and USVI – with more to come
- Project seeks to develop Broadband Earthquake Observation System in PR & USVI – D. Smith, Ph.D., is UVI Coordinator
- Stations collect and disseminate high resolution GPS data 24/7
- Internet2 access at UVI will help this process



## GPS Regional Monitoring Systems

- Project is part of an NSF Major Research Instrumentation Project
- Established through MOU between UVI and the University of Puerto Rico, Mayaguez
- Purpose – Improve earthquake monitoring and tsunami early warning system in the Caribbean



## Radar Site Data Collection

- Initiative supports collaborative project of:
  - Clemson University - Cornell University
  - University of Puerto Rico - Univ. of the Virgin Islands
- Imaging radar site located on St. Croix, USVI
- Hundreds of gigabytes of data produced during 2-3 hour evening operation
- Internet2 connection would facilitate data transmission to Cornell from USVI



## Radar Site Data Collection

- Observations and radar site data collected provide an opportunity for educational experiences in upper atmospheric research
- Project also has space weather relevance
- Prof. John Munro, is principal investigator for UVI portion



## Conclusion

- Efficient, redundant, and easily scalable backbone topology
- State-of-the-art Microwave Wireless WAN with increased bandwidth and Java based monitoring tools
- Network enhancements ensure UVI's capacity to support demands for high performance networking in the Territory