



Five Year Forecast: Priorities for Network Infrastructure & Services

Senior Leadership Roundtable
Presented by William C. Dougherty, Executive Director



August 20, 2019

Network Infrastructure & Services

VISION

To provide innovation in connectivity and computing for teachers, learners, researchers, and all who serve the university.



VIRGINIA TECH

NI&S MISSION

NI&S seeks to *collaboratively* advance the university's mission by:

- providing *reliable, resilient, secure, high capacity IT infrastructure services*
- applying design thinking to *customer challenges* for optimal solutions
- providing *excellent service design and delivery*



NI&S *Brand Promise* and *Brand Character*

Let's explore *what's possible...together.*

We are...

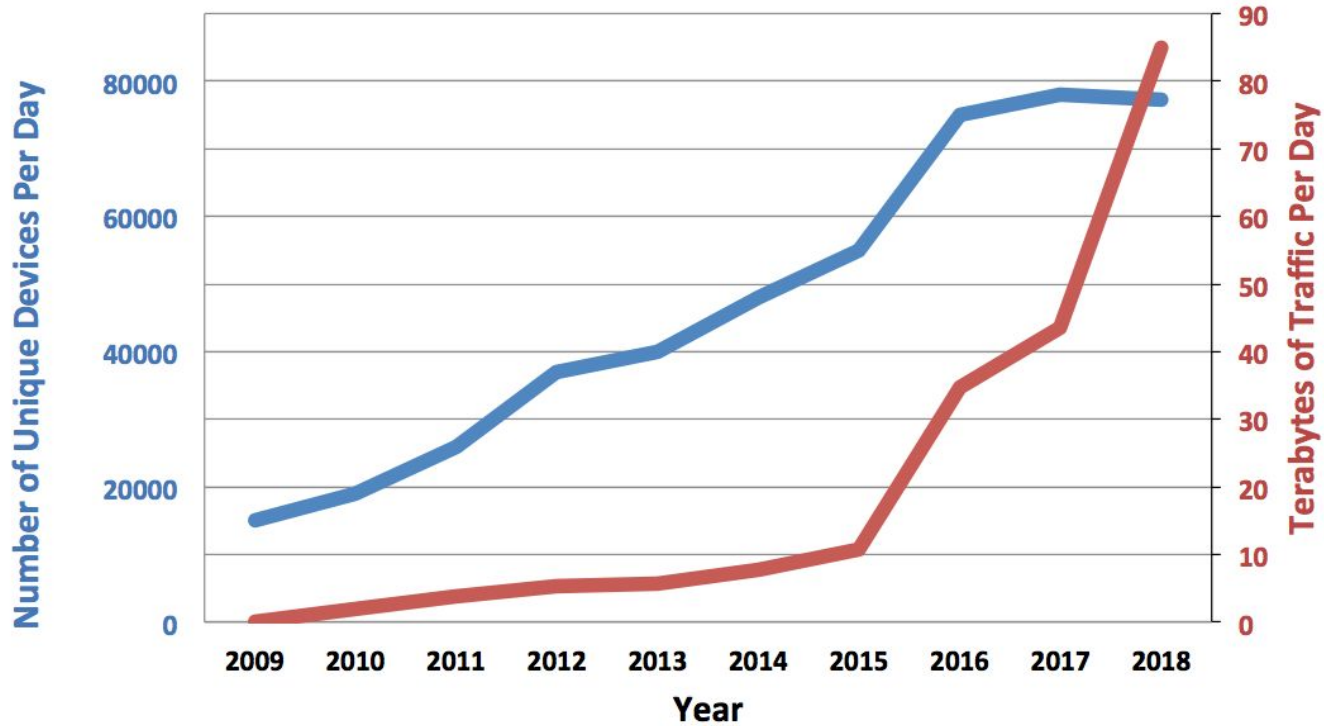
- ***Approachable***
- ***Plain Spoken***
- ***Collaborative***

Network Infrastructure & Services: Don't Forget the *and*!

- NI&S provides over one-hundred service packages to individual users (faculty, staff and students), departments, and non-student private entities
 - While this may seem like a lot, all are related to voice, data (wired, wireless, or distributed cellular signals), computing, and storage
- NI&S understands the future is mobile

Network Services by the numbers → 2019

- Wireless (WiFi) <47,000 subscriptions>
- Wired Access <40,000 active ports>
 - Restricted Limited Access Network (RLAN)
- Datacenter network services <800 active ports>
 - Research/HPC networks
- VPN – <53,000 subscriptions>
- Cable Television <5000 connections>
 - *Mostly in residence halls*
- WAN – MARIA



Upward Demand - Wireless



What will NI&S be doing over the next five years?

Helping the Division of IT and Virginia Tech *Ensure Institutional Excellence* by...

- ★ Expanding→
 - Capacity,
 - Capabilities, and
 - Coverage
- ★ Improving→
 - Applications,
 - Processes, and
 - Reliability

Specifics

1. Develop designs to increase core and border network capacities to 400Gbps interconnects.
2. Develop infrastructure strategies to expand network services for coverage of outdoor locations (WiFi, 5G, CBRS, etc.).
3. Implement segmented/isolated networks to support IoT capabilities.

Specifics

4. Continue implementing strategy/architecture to reliably provide network coverage for a consistent IT experience at all VT locations (NCR, Innovation Campus, Roanoke, etc.).
5. Provide physical redundancy (outside plant/aggregation equipment) to major campus buildings to increase reliability.
6. Develop capabilities to support robust connectivity to Virginia Tech Cloud services.

Specifics

7. Provide data center quality network capabilities in Steger Hall and Roanoke campus data centers.
8. Develop and implement applications to support presence and access based service availability on university WiFi systems.
9. Develop network automation/orchestration applications to provide customer self-service capabilities for order fulfillment and reporting.

Specifics

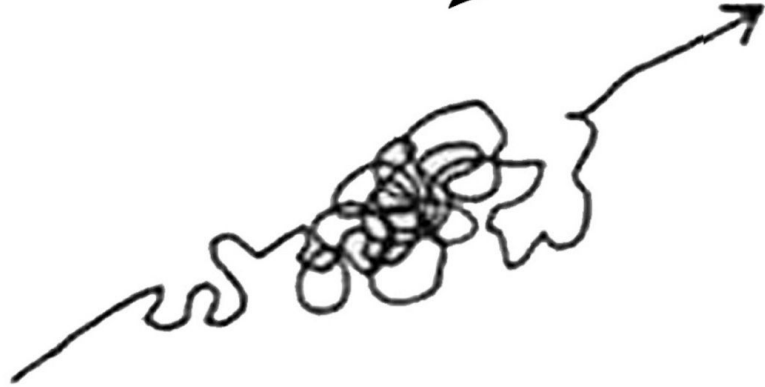
10. Increase network infrastructure coverage to accommodate expected campus growth in the NW region of campus and to replace the Owens cabling center.
11. Expand and improve capabilities and capacity of emergency notification systems.
12. Explore and establish the Next Generation voice service capabilities.
13. Increase coverage, capacity, capabilities, and reliability security camera system continual expansion and improvements.

Success



what people think
it looks like

Success



what it really
looks like