



ComSource

Residential Networks

Balancing campus WiFi performance & cost to empower your students

RESNET TEAM



Ron Terra

Account Executive

rterra@comsourceny.com



Josh Carroll

Systems Engineer

jcarroll@comsourceny.com



Mike Hurley

Account Executive






mhurley@comsourceny.com



EXPERTISE








Collaboration

-  Unified Communications
-  Video Conferencing
-  Digital Signage
-  Call Center
-  Wireless & Mobility








Data Center

-  Servers & Virtualization
-  Data Storage
-  Hyper Converged
-  Hybrid Cloud
-  Data Protection








Networking

-  LAN/WAN/SD-WAN
-  Performance Assessments
-  Route & Switch
-  Endpoint Mobility
-  Residential Networks



Security

-  Breach Prevention
-  Policy Review & Assessments
-  Incident Management
-  Incident Response
-  Physical Security

FOCUS: Residential Networks



Collaboration



Unified Communications



Video Conferencing



Digital Signage



Call Center



Wireless & Mobility



Data Center



Servers & Virtualization



Data Storage



Hyper Converged



Hybrid Cloud



Data Protection



Networking



LAN/WAN/SD-WAN



Performance Assessments



Route & Switch



Endpoint Mobility



Residential Networks



Security



Breach Prevention



Policy Review & Assessments



Incident Management



Incident Response



Physical Security

AGENDA

Students & Devices

- Attracting & Retaining
- Connected devices
- Tech Expectations
- Bandwidth appetite

Campus & Curriculum

- Coverage & Connectivity
- Classroom Tools
- Supporting Curriculums
- Mobile vs WiFi

Infrastructure & Budget

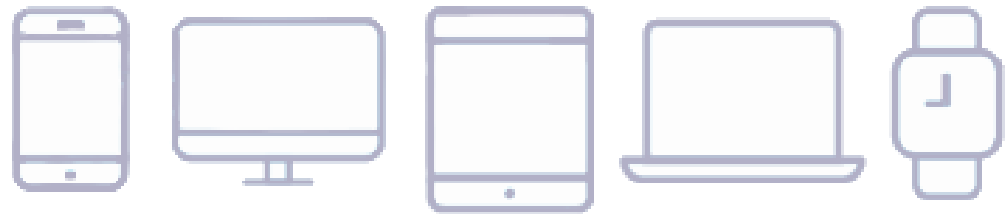
- Budget & Funding
- Diagnostics & Insights
- Security
- Aligning RLHA / IT / Officials

Manage & Support

- Speed & Reliability
- Improve vs Maintain
- Help Desk & Support
- Hardware Lifecycles

Students

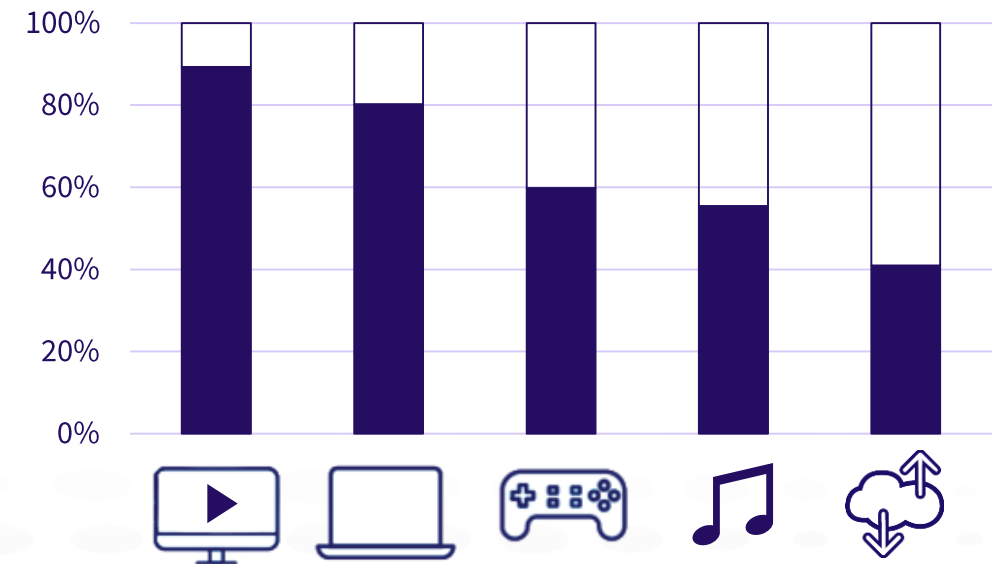
More Devices & Applications than ever.



A single student typically brings
5-7 internet-connected devices to campus



Biggest Threats to Bandwidth Capacity



Internet-dependent use cases across campus

Entertainment

- Video/movie streaming
- Video game streaming, live gameplay (console, VR)
- Web-based apps (music, videos, rich content)
- Mobile apps / e-readers

Communication

- Text, Voice, Video chat
- Email
- Social Media
- Voice Assistants



Classroom

- Online learning platforms
- Digital / Interactive textbooks
- E-books
- Collaboration – peers & faculty
- Audio/Visual – record & stream lectures, events

Dining Halls

- Coverage & Speed in high-density student areas
- Payment Systems
- Online food ordering
- Building security
- Digital signage

Utilities

- Printing: In-dorm wireless printers
Print labs
File sharing / Cloud / Data transfer
- Laundry: Reserving & monitoring machines online
- Dorm: Voice assistants, IoT (lights, locks)
Smart TVs / streaming devices

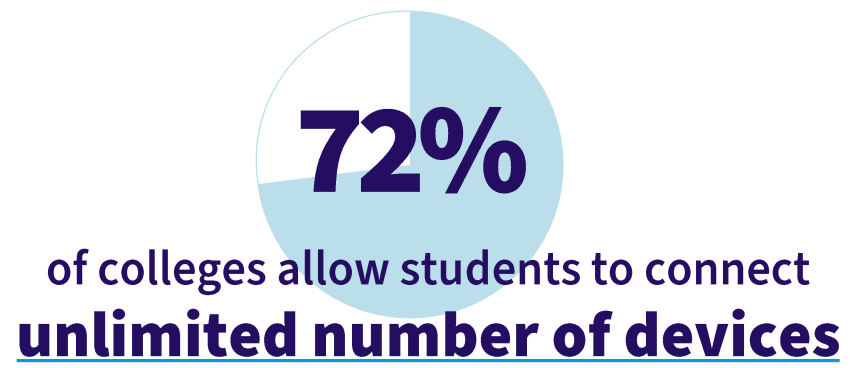
Transportation

- Buses/Rail: In-transit WiFi
- Uber ordering/tracking across campus
- Signage
- Video security

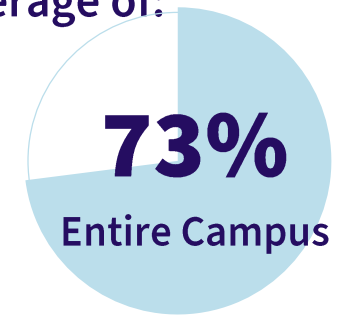
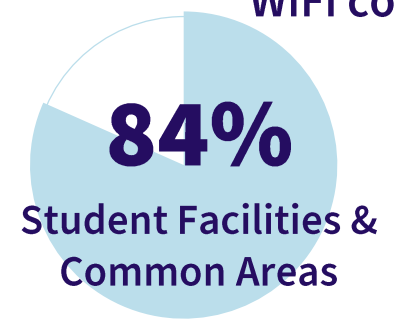


BANDWIDTH

Growing Appetites; Connectivity and Coverage



Schools reporting 81-100% (high-quality) WiFi coverage of:



↑ 20%
since 2016

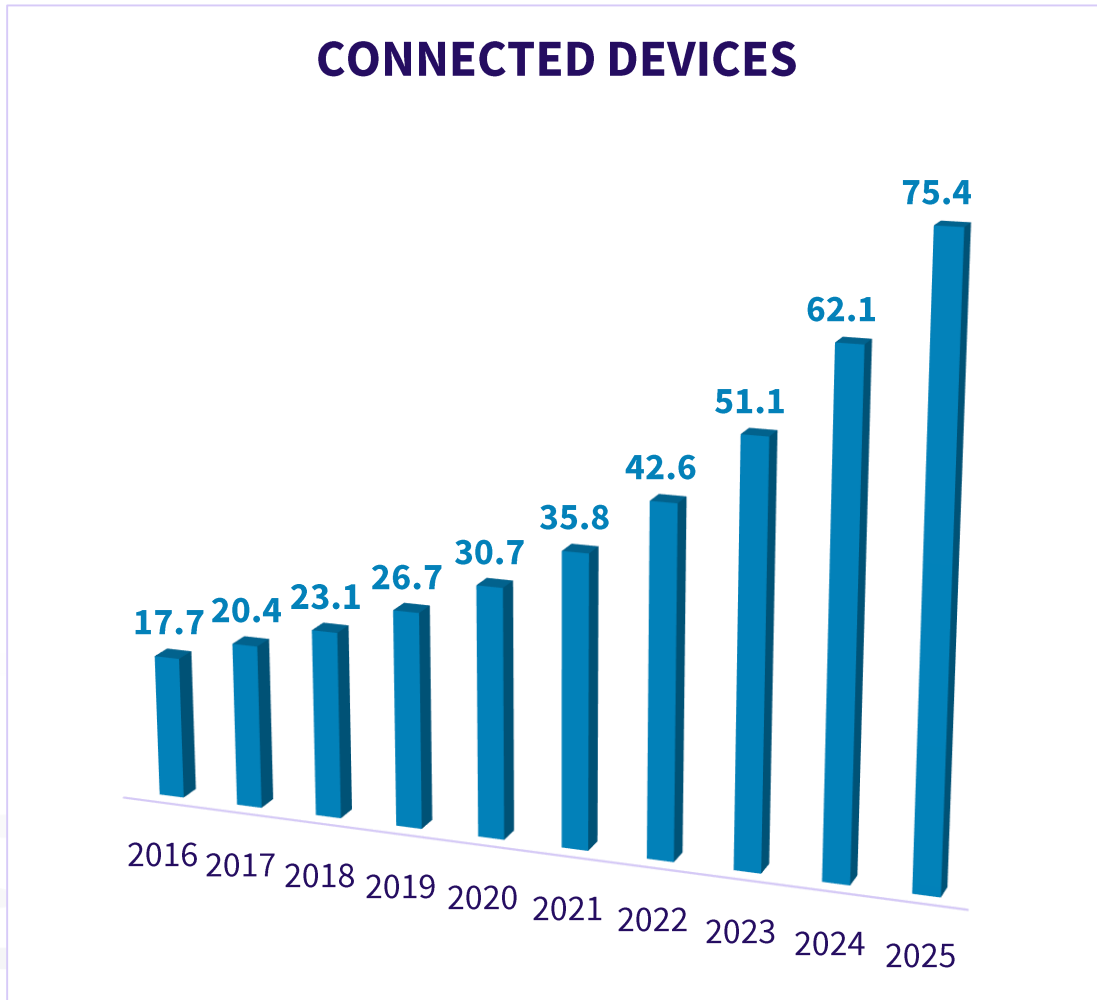
% of Schools Reporting **Bandwidth Usage Assumptions**



% of Schools **Capping Students' Bandwidth**



IoT Internet of Things



The IoT trend is nothing to ignore.

Internet-enabled devices have quietly infiltrated everyday lives. Now that they are inexpensive and becoming readily adopted, this area of technology will grow exponentially in the years to come.

If your current ResNet solution does not allow for access, students will find a way on their own.

Opens up major security vulnerabilities



Shadow IT

/'SHadō/ /' ,ī 'tē/

(noun)

1. When students go rogue and install personal networking equipment

Degrades performance of sanctioned ResNet wireless



Engagement, Expectations and Competition

Ease of, and quality of, internet access is an increasingly important factor for students' happiness and academic success

98%

of business officers believe a **superior ResNet strategy** critical for upholding the Mission and academic excellence of their school

1 out of 2

IT officers are concerned over network performance and management needs

68%

of business officials have growing concerns over ResNet management & budget

CREATING

Future Opportunities in Today's Classroom



Colleges are adopting more technology-driven curriculums to attract students and stay ahead of the competition

Game Design & Programming E-Sports Management



Business / Data Analytics



Robotics/Drones



Web/Mobile Development & Design



Data Science



Cyber Security



New Ways to Learn



The use of online learning tools has grown **7-10%** annually since 2015



Streaming Lectures



File Sharing



Collaboration



MOOC's

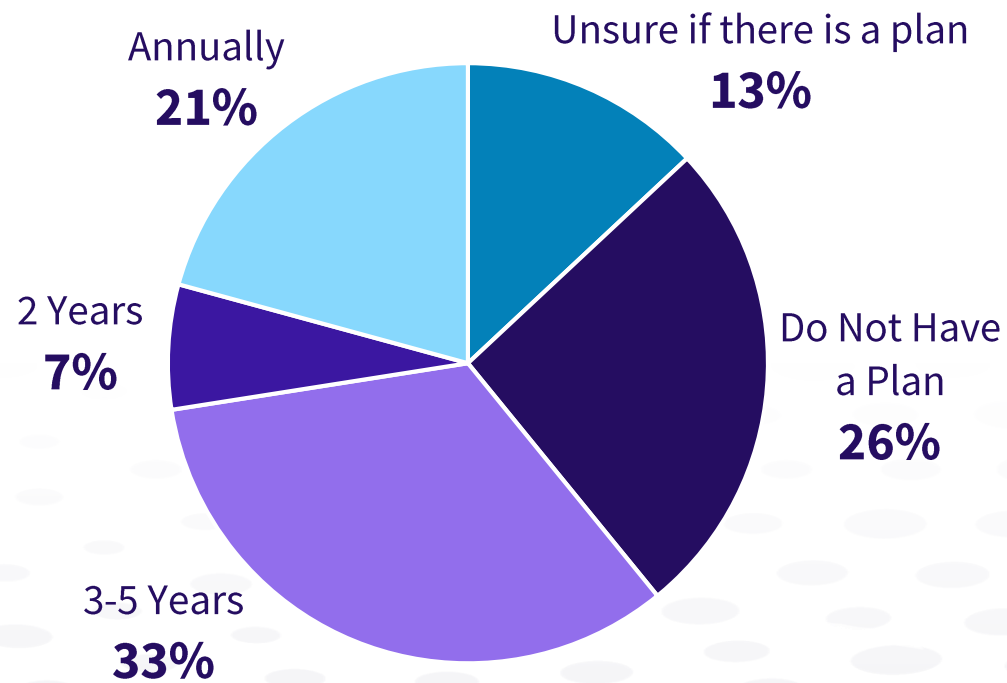


Virtual Reality



Test / Note Taking

How often do schools update their ResNet strategy & roadmap?

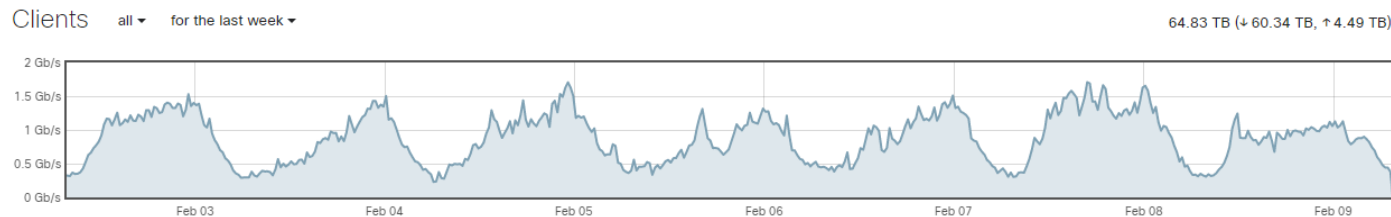


Technology Enhancements Outpace ResNet Planning



PERFORMANCE

Planning to keep pace with students' demands



**Usage peaks
9PM – 12AM**

Little to no tech
support available
during these hours

Tops out over
1.5Gbp/s per Device

**TV Streaming
Video Games**

51.4%
of all traffic

5TB+
streaming data per day

Applications details

#	Description	Usage	% Usage
1	Miscellaneous secure web	14.35 TB	25.2%
2	Netflix	10.60 TB	18.6%
3	YouTube	6.55 TB	11.5%
4	Xbox LIVE	5.17 TB	9.1%
5	UDP	4.43 TB	7.8%
6	PlayStation	3.45 TB	6.1%
7	Miscellaneous video	2.79 TB	4.9%
8	Miscellaneous web	1.77 TB	3.1%
9	CDNs	1.19 TB	2.1%
10	Facebook	1.11 TB	1.9%
11	iTunes	1.08 TB	1.9%
12	Instagram	983.47 GB	1.7%
13	Amazon Instant Video	543.23 GB	0.9%
14	iCloud	437.83 GB	0.8%
15	Miscellaneous audio	363.62 GB	0.6%
16	microsoft.com	338.03 GB	0.6%
17	apple.com	296.78 GB	0.5%
18	Google HTTPS	217.27 GB	0.4%
19	Twitter	212.39 GB	0.4%
20	Non-web TCP	166.04 GB	0.3%
21	Blizzard	135.41 GB	0.2%
22	Microsoft OneDrive	81.91 GB	0.1%
23	Software updates	70.67 GB	0.1%
24	hulu.com	56.50 GB	0.1%
25	Google	56.20 GB	0.1%

PRIORITIES

What Insights do Stakeholders Want?

HOUSING

- **User Satisfaction**
- **Speed & Performance**
- **Reliability (Uptime)**

BUSINESS

- **Costs-to-Performance Ratios**
- **Security Breaches**
- **Support Costs**

61%

of business officers are
dissatisfied with the available
ResNet reporting & insights today

INVESTMENT

Concern over Budgets & Costs



ComSource
ResNet

68% of officials are concerned lack of budget will have a negative impact on ResNet performance



43% expect increased ResNet costs in the next five years



50% are concerned rising support costs will prevent new investment in Residential Network infrastructures

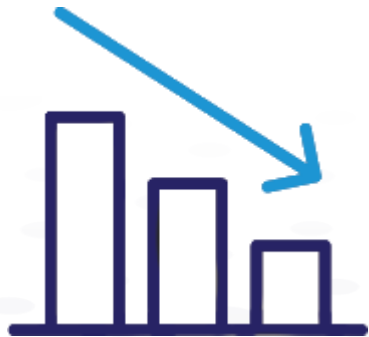


End User Support More Important Than Ever

More devices on campus, yet...

Investment in campus-operated Help Desks is on the decline

The number of schools offering a live help desk has **declined 5% over the past 5 years**



90% of schools rely on **passive help desks**, via phone and email support



Only 23% of colleges offer 24/7 support, **almost all of which is outsourced.**



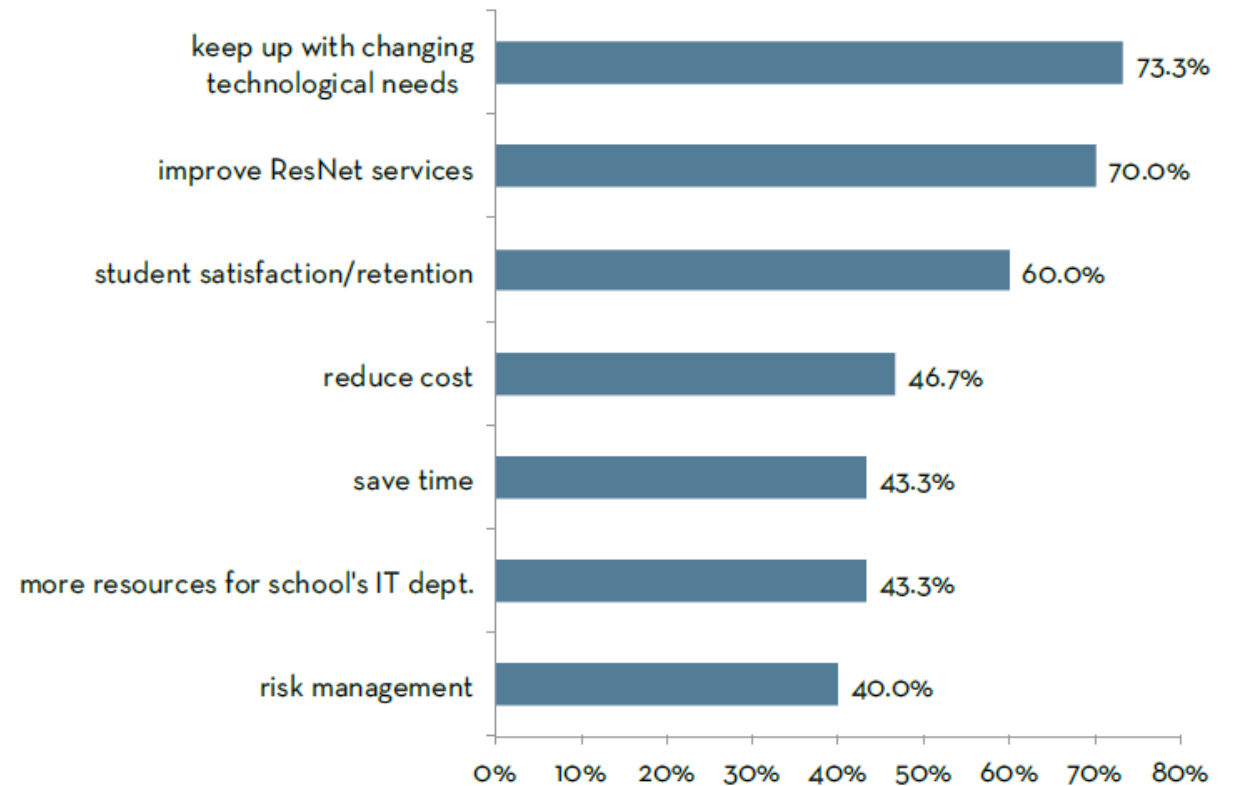
OUTSOURCING

Reigning in costs while supporting the school's Mission



- Since 2016, schools are 2.5x more likely to outsource ResNet services
- Schools typically outsource Help Desk, Cable and IPTV services before moving to a fully-outsourced ResNet partnership.

Why Do Institutions Outsource ResNet?



OUTSOURCING

Benefits of ResNet Partnerships



- Reclaim University IT resources for value-added activities
- Predictable expenses, long term refresh & maintenance strategies
- Dedicated Monitoring and Support
- Full reporting & analytics on network performance, reliability, and Help Desk activities



OUTSOURCING

What to Expect

On-site personnel to assist students during move-ins



Annual performance assessments, planning and benchmarking



Cost Savings, Predictable Refresh Cycles and Quantifiable Results



24/7 Support for Students via Phone, Email, Chat



Best-in-Breed Security

About ComSource



ComSource
ResNet



30 Years in Business



Certified Engineering Staff



40+ Technology Partners



Financial Services & Leasing



- *3 locations in New York*
- *Servicing 15+ Colleges & Universities in NYS*
- *20+ years of Residential Network experience*



ComSource

Thank You

to our friends at SUNY RLHA, SUNY Morrisville, and ACUHO-I for contributing data and information found in today's presentation.

ComSourceNY.com

[@ComSourceNY](https://twitter.com/ComSourceNY)