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2014

ACUTA / NACUBO / ACUHO-I

STATE OF RESNET

REPORT

ResNet Trends & Practices
Across Higher Education



The Association of Information
Technology Professionals in
Higher Education



The National Association of
College and University
Business Officers



Association of College and
University Housing Officers -
International

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INTRODUCTION

“The ACUTA/NACUBO/ACUHO-I Study reveals that schools are making strides in providing better coverage and bandwidth, but are grappling with a laundry list of needs—holistic planning, better communication between departments, tighter security, etc.—while processes like resource allocation and diagnostics haven’t kept pace. Administrators are trying to build better and bigger networks with yesterday’s tools. It’s our hope this study will provide a knowledgebase of practices and priorities to help administrators anticipate, plan ahead, and to address the challenges as they scale infrastructure to meet demand.”

- Dee Childs, Chair of ACUTA Environmental Scanning Committee and Chief Information Officer at University of Alabama

The Association for Information Technology Professionals in Higher Education (ACUTA), the National Association of College and University Chief Business Officers (NACUBO) and Association of College and University Housing Officers-International (ACUHO-I), are pleased to present research findings from the 2014 ACUTA/NACUBO/ACUHO-I State of ResNet study.

This is the third installment of a comprehensive five-year tracking study that measures the pulse in Residential Networks (ResNet) practices and policies in higher education. The goal is to provide year-over-year analysis and report on evolving trends. New this year, the scope has widened and represents nearly twice as many stakeholders, with over three times the number of chief business officers responding compared to last year. It is also the first time that ACUHO-I has partnered with ACUTA and the first time that respondents extend beyond information technology and chief business officers to include housing officers.

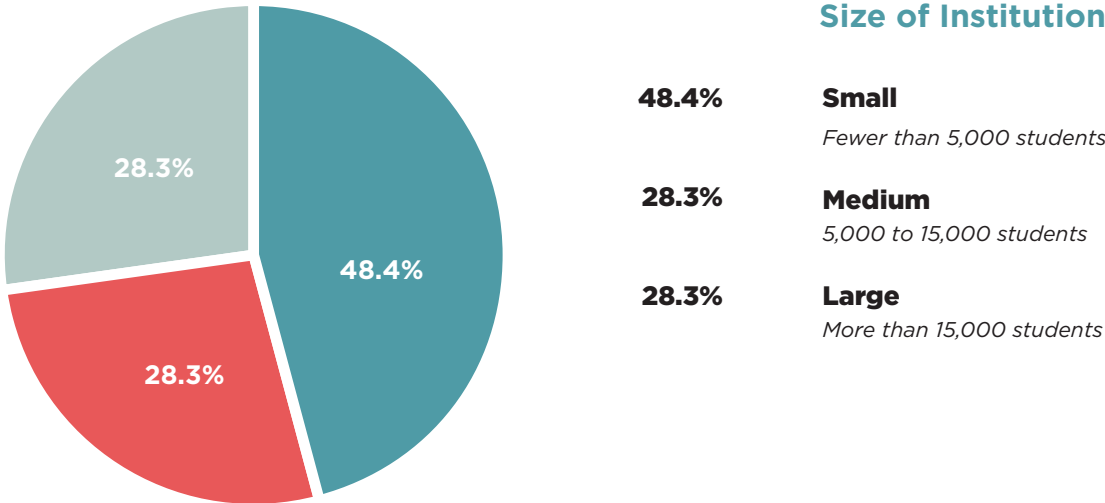
This research, which includes data from more than 400 higher education institutions, is designed to help administrators and chief business officers address such issues as the unprecedented growth in bandwidth and connectivity demands, budget restrictions, planning, policy considerations, staffing, and support. These insights will make it possible for colleges and universities to better meet the challenges of today while fostering greater collaboration and planning to meet the challenges of tomorrow.

METHODOLOGY

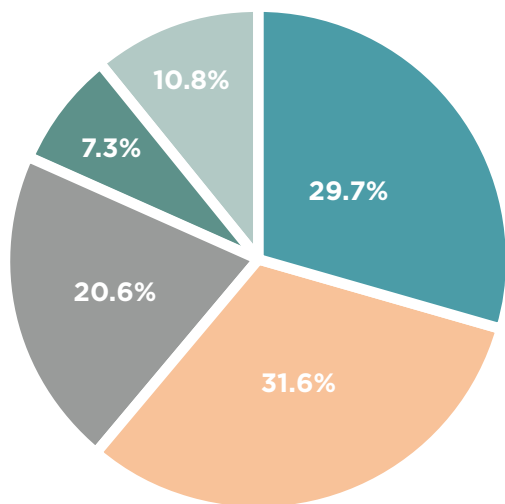
For the third year, market research firm Forward Analytics was contracted to perform the ResNet industry research and to report quantitative market intelligence that can benefit higher education institutions and enhance residential computer networking for university/college students. Forward Analytics worked closely with ACUTA, ACUHO-I, and NACUBO representatives to design the 2014 survey and conducted polling in November and December of 2013. This year three unique questionnaires were developed to accommodate the expanded representation of three associations/audiences. The survey for IT leaders has remained fairly consistent throughout the years.

A total of 509 surveys were completed, representing 412 universities or colleges (some institutions had multiple respondents). With a sample (total) population of 1700 U.S. higher education institutions, the response rate represents a statistical significance of +/- 4.2% at the 95% confidence interval. With 412 unique institutional respondents, it can be said that if the survey were repeated 100 times, 95 in 100 times the research findings would vary at most +/- 4.2%. This level of sampling is deemed significant for supporting business decisions and strategic planning.

The survey sample has the following characteristics:



Nearly two-thirds of the respondents had between 1,000 - 5,000 on-campus students (beds), with 100 respondents having 5,000+ on-campus students.



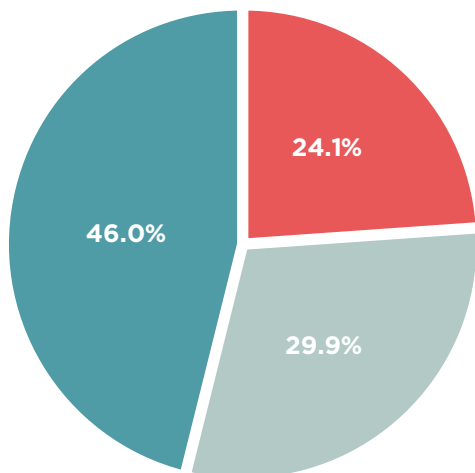
Number of On-Campus Students

7.3%	Under 500
10.8%	501 - 1,000
29.7%	1,001 - 2,000
31.6%	2,001 - 5,000
20.6%	More than 5,000

Of the 509 total responses, 153 respondents indicated their primary job was related to business and 122 to housing, while 234 respondents primarily handled IT.

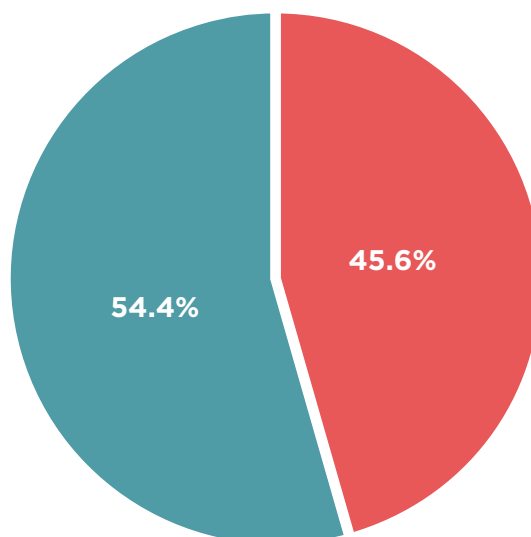
Job Responsibility

IT	46.0%
Business*	29.9%
Housing	24.1%



Governance

54.4%	Public
45.6%	Private



Among the institutions represented in the survey, slightly more than half were public universities or colleges.

* Jobs related to the accounting, budgeting, and financial services functions of colleges and universities

EXECUTIVE SUMMARY

For the purposes of this study, ResNet is defined as Internet, cable television and phone service available to residents living in on-campus residence halls. The following 2014 ResNet Trends and Practices report works to further explain the current state of ResNet from the perspectives of IT, business and housing officers. It also explains how universities and colleges are reacting to the diverse and quickly evolving challenges of ResNet services. The report delves into the following topics: Bandwidth Management, Wireless Coverage and Capacity, Service and Support, Planning and Measuring, Funding and Technology Costs, and Outsourcing.

Schools are exploring ways to accommodate demand for more bandwidth

- Increasing bandwidth, rather than shaping and limiting bandwidth, is a more popular approach to bandwidth management that schools are using to cope with demand
- Three out of four institutions allow an unlimited number of devices to be connected to the residential network
- The number of schools offering speeds of 1 Gb or more jumped by 25%
- Bandwidth management practices declined slightly, with the most popular practice being limiting by shaping protocol
- The number of respondents who outsourced or considered outsourcing some or all ResNet services to trim costs has jumped from 22% to 32%
- Schools are more likely to outsource email and bookstores than outsource ResNet
- Tablets are expected to be the device that consumes the most bandwidth in the coming years

More schools are providing robust wireless and mobile connectivity

- More than 61% of universities and colleges now provide robust wireless coverage (four bars or more) throughout 81-100% of their campus, a 16% increase from 2013
- Campuses offering poor wireless connection (0-20% of their campuses) declined almost 11 percentage points from last year
- Administrative or academic areas rank at the top for wireless connectivity, while residential areas, such as residential rooms and dining facilities, ranked last
- The number of schools that are considering augmenting cellular reception declined by 20%

More types of support available, but 24/7 support still scarce

- Schools are utilizing newer channels, such as texting, live chat and social media, to meet communication preferences
- Only 13% of schools provide 24/7 support, 30% provide more than 60 hours of support, and 32% provide 41-60 hours of support
- Traditional methods of communications remain strong. Phone support and support through online documentation has increased for all devices over the past year

More plans in place now, but better diagnostics and communications needed for greater effectiveness

- The number of schools with strategic plans in place grew by 27.8%, but one-third of schools still do not have a plan, and another 9% were unsure if they have a plan
- One in five officers do not meet with their business, IT or housing counterparts to discuss the ResNet
- Although 64.7% of housing officers and 68.3% of chief business officers would like to be able to benchmark their ResNet services, 55% of them do not have access to benchmarking data. Three out of four housing and chief business officers are unhappy with the data/reports they have received
- Although security is valued highly by chief business officers, more than a third of schools do not have an Information Security and Internal Audits (ISO) team

Schools adopting different models to cope with rising ResNet costs

- 56.2% of chief business officers and 40.3% of housing officers expect infrastructure costs to increase by 5% or more in the next two years
- Only 38% reported an increase in ResNet funding, while 10% reported a decrease
- One in five respondents indicated that they are not recovering any of the costs of support and management of their network
- Small, predominantly private institutions fund ResNet centrally, and medium to large, predominantly public institutions use a fee/recharge system
- Schools using mixed funding models and mixed resources (a combination of student fees and central university funds) experienced a decline of 12.2 and 16.3 percentage points respectively

FINDINGS

Bandwidth Management

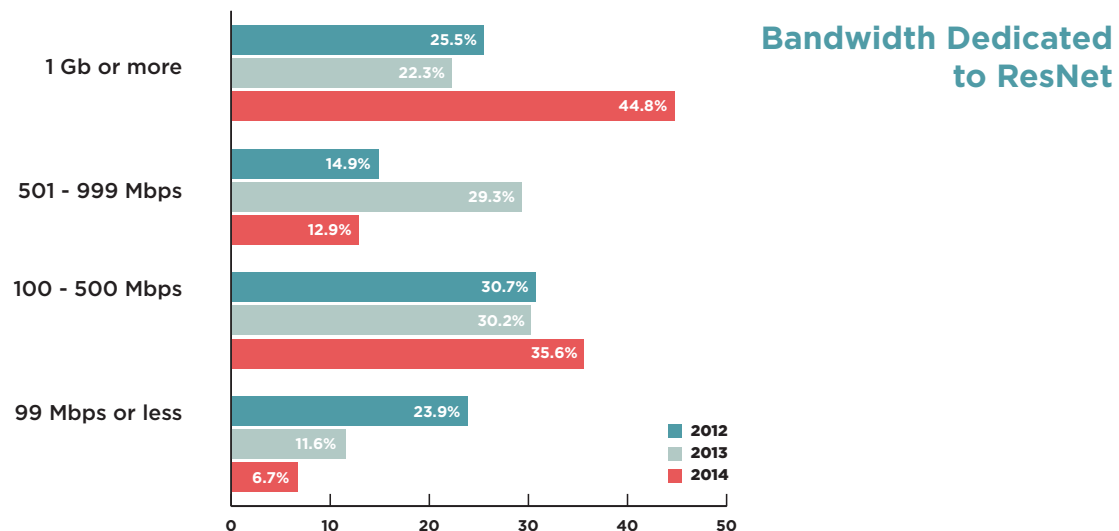
Key Takeaways:

- More schools are coping with demand by allowing unlimited devices to be plugged into the ResNet and increasing network speed
- More schools are offering speeds of 1 Gb or more
- Increasing bandwidth, rather than shaping and limiting bandwidth, is a more popular route for schools as they rise to meet the challenges of device proliferation
- Tablets are expected to be the largest consumer of bandwidth in the years to come

Snapshot of Bandwidth Management

As demands on the network increase, schools feel the pressure to maintain ResNet because it is an amenity that is highly valued by students. More than 93% of chief business officers and housing officers find a high-performing ResNet (coverage and capacity) to be very important or important in attracting and retaining students. Yet, 39% of housing officers and 18% of IT Officers are very concerned or concerned about the ability of their provider to meet future demands of the residential network.

More schools than ever are saying “yes” to student demand as smart devices of every stripe explode across campuses. In fact, three out of four colleges and universities surveyed allow an unlimited number of devices to be connected to the residential network. Universities and colleges are also increasing their Internet bandwidth across the board. This year’s data presents a significant jump in the number of institutions offering 1 Gigabit (Gb) and a continuing decline in those providing slower connection speeds (500 Megabytes per second (Mbps) or less).



Bandwidth Management Practices

Devices are consuming bandwidth voraciously and raising institutional costs. Despite this, campuses are witnessing a decline in bandwidth management practices from 2013, with about a five percentage point decline in those capping individual Internet bandwidth usage for campus residents, as well as schools allowing students to pay for additional bandwidth. The most common bandwidth management practice is shaping and limiting bandwidth by protocol or blocking activities, such as p2p sharing, music downloading, etc.

Percentage of Institutions Utilizing Bandwidth Management Practices		
	2013	2014
Shaping and limiting bandwidth by protocol	72.4%	66.7%
Blocking activities, such as p2p sharing, music downloading, etc.	N/A	52.0%
Capping network- wide throughput available to streaming video	22.9%	18.6%
Implementation of cache servers	22.9%	21.1%
Providing minimum guaranteed service levels by user	12.9%	15.2%

Future Bandwidth Consumers

In all three years of the study, tablets are forecasted as the largest bandwidth consumers in the years to come. In 2014, we see a considerable decline in expected bandwidth consumption for all devices except smartphones. A possible explanation for these trends could be ever-larger screens on phones, and the popularity of phone-tablet hybrids (phablets) replacing computers as the computing device of choice.

In order to provide students with flexibility and easy access to the ResNet, nearly one-quarter of institutions allow campus residents to install personal network support, like switches or mini-hubs, but fewer than 20% of schools allow residents to install wired routers or allow wireless routers. Fifteen percent of schools permit the installation of servers. In contrast, 60.1% of universities prohibit the installation of network devices in campus residences. These figures are comparable to the findings of the 2013 and 2012 ResNet Trends and Practices study.

Largest Bandwidth - Consuming Devices		
	<i>2013</i>	<i>2014</i>
Tablets (iPad, Android)	83.5%	73.4%
Desktop and laptop computers	75.0%	69.3%
Video systems (DVD/Blue-Ray Players, Apple TV, Roku, Slingbox)	63.6%	49.3%
Smartphones (iPhone, Blackberry, Android)	63.2%	64.2%
Game boxes (PS3, Wii, XBOX 360, etc.)	60.7%	46.7%
Smart TVs	51.7%	37.2%
iPod/ iPod Touches	33.5%	20.5%
e-Book Readers (Kindle, Nook)	27.8%	13.0%
Wireless Printers	14.1%	5.8%

Wireless Coverage and Capacity

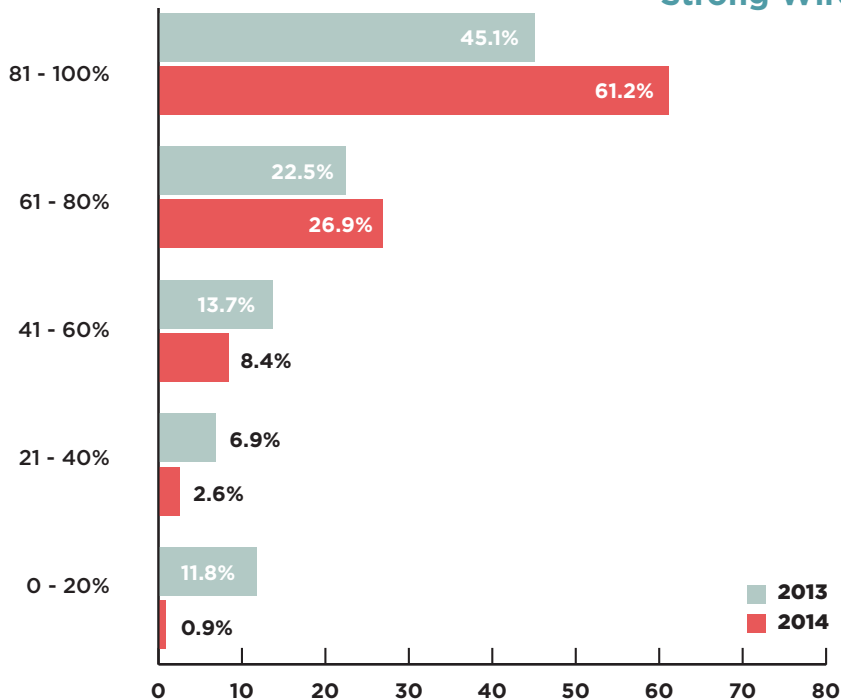
Key Takeaways:

- More schools are responding to increasing demand by providing robust wireless connectivity
- Wireless coverage is better in administrative or academic areas, not in residential areas where students spend much of their time, such as residential rooms and dining facilities
- The number of schools that are considering augmenting cellular reception is declining, pointing to improving mobile connectivity among respondent schools

Snapshot of Current Wireless Coverage

Spurred by the BYOD (Bring Your Own Device) phenomenon, reverse learning and other technological shifts in learning and entertainment, administrators are responding to demands for “anytime, anywhere” wireless access. 2014 data measures 61.2% of universities and colleges providing robust wireless coverage (of four bars or more) throughout 81-100% of their campus, a 16% increase from 45.1% of institutions in 2013. At the same time, the campuses offering poor wireless connection (0-20% of their campuses) declined almost 11 percentage point from last year. In addition, four out of five chief business officers say they support coverage for the entire campus or coverage, rather than limit coverage to the extent of available funds or only for the most densely-populated areas.

Percentage of Campuses With Strong Wireless Connection



Although our research shows that majority of institutions offer robust wireless coverage throughout their residential buildings, not all spaces enjoy seamless coverage. The areas where residents spend the most time – dining facilities, residential rooms and outside areas adjacent to residential spaces, are not getting as robust coverage as the academic and administrative areas.

Percentage of Campuses Offering Robust Wireless Coverage in 81 - 100% of Residential Areas	
Academic spaces in residences, including classrooms and study areas	73.0%
Residential computer labs	73.0%
Administrative areas (front desk, area offices, residential staff offices, etc.)	71.2%
Common areas and community spaces	69.9%
Dining facilities	69.3%
Residential rooms, suites, or apartments	59.0%
Outside areas adjacent to residential spaces (courtyard, park, breezeways, etc.)	19.6%

Wired Ethernet Ports

Despite the reported increase in strong wireless coverage, only 16.2% of institutions will remove existing wired Ethernet access ports in residential buildings, which is still three times more than in 2012. Another 17.5% are unsure if they will remove Ethernet access ports. These figures are comparable to 2013. Presently, the majority of institutions include wired Ethernet access ports in new residential construction by offering one port per student (61.9%), one port per resident (13.2%) and/or provide ports upon request (7.3%). Six percent of institutions did not include Ethernet ports in residential construction completed over the past three years.

Cellular Reception

In areas where traditional connectivity is difficult to implement or sustain, 56.4% of institutions are considering an array of services to augment residential cellular reception on campus (a big decline from 76% in 2013). Thirty-nine percent of institutions plan to deploy in-building Distributed Antenna Systems (DAS), 23.1% outdoor DAS, and 21.4% outdoor cellular sites/towers. Other considerations are small cell technology, or Femtocells, (13.6%) and in-building cellular connection (12.8%).

Forty-four percent of institutions have no plans for cellular augmentation because the cellular reception on the campus is satisfactory, augmentation is too expensive or there is a perception that the carrier is responsible for providing satisfactory cellular coverage.

ResNet Service and Support

Key Takeaways:

- More schools are using online resources such as social media as communication channels
- Fewer than one in five schools provides 24/7 support
- Schools are more likely to provide support for devices used for academic purposes

Snapshot of Support Services

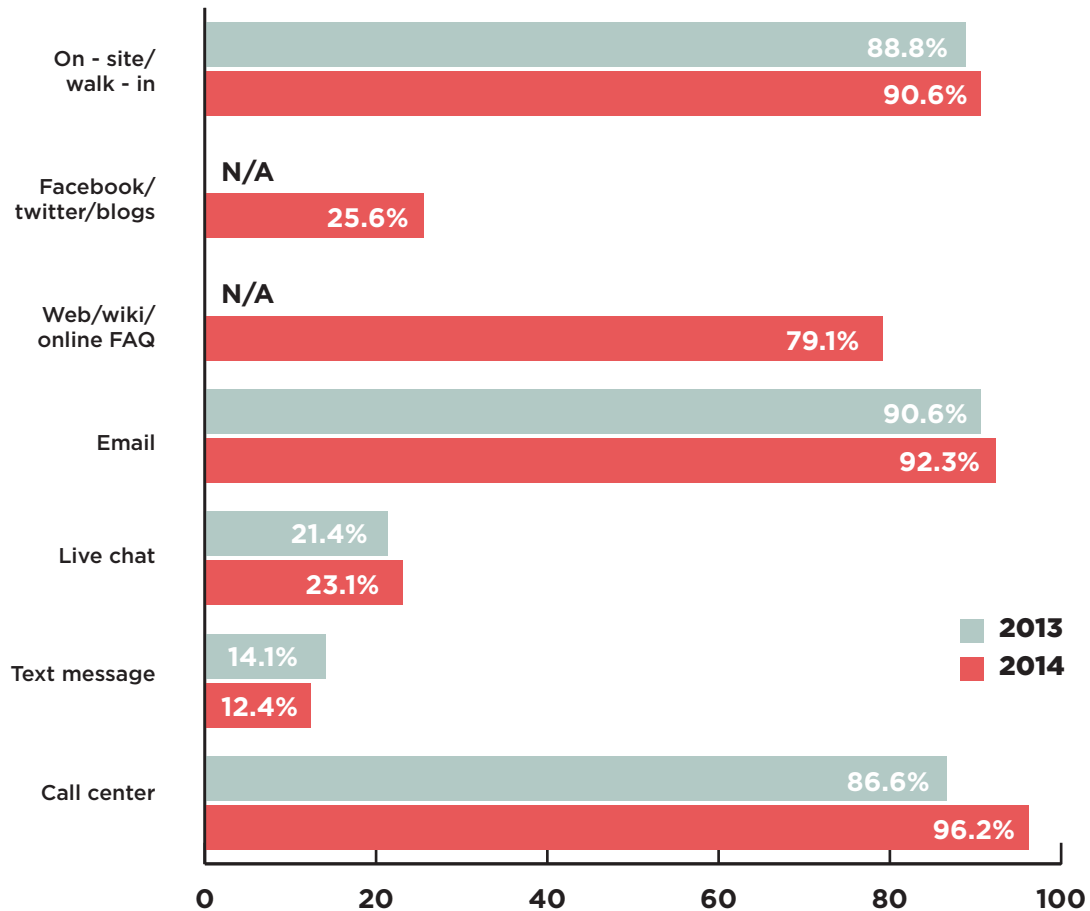
College campuses are increasingly challenged to provide support for an ever-widening array of devices. As in 2013, Central IT (Networking, Security, etc.) continues to be responsible for maintaining the physical infrastructure and providing end-user support. About one in five schools uses Student Affairs to provide end-user support. Within the housing departments, manpower allocated to the ResNet is scarce, with a majority (91.9%) of the surveyed housing officers saying that ResNet makes up less than 20% of their daily responsibilities. Furthermore, more than half indicate that there is no full-time staff working within their housing/residence life IT department.

Research shows that 75% of institutions allow an unlimited number of devices to be connected to the residential network. And the majority of universities and colleges provide connectivity and technical support for most network devices.

Options for support

The growth of mobile and social networking has generated entirely new communication channels, and institutions now provide residents with a variety of options for network support. Increasingly (in 6 of 7 categories), support teams have expanded their service entry-points to accommodate users' specific communication preferences, which now include text, wikis/online FAQs, live chat and social media. Phone support and support through online documentation has also increased for all devices over the past year.

Network Support Options



However, support is still limited to a 9-to-5 timeframe despite round-the-clock student needs. Only 13% of schools provide 24/7 support, 30% provide more than 60 hours of support, and 32% provide 41-60 hours of support.

When polled on the types of ancillary devices that receive technical and connectivity support, respondents indicated that connectivity support has increased over the past three years. Also, the majority of campuses provide technical support for devices that are more likely used for academics (desktop and tablets) and not amusement (smart TVs and video systems).

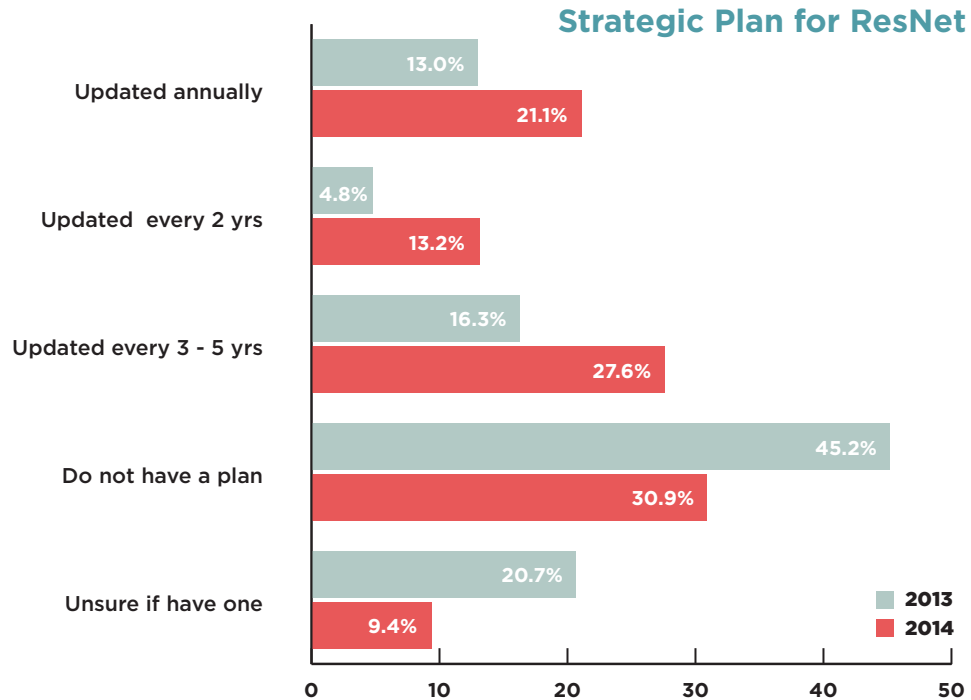
Planning and Measurement

Key Takeaways:

- Although the number of institutions with a ResNet strategic plan has increased from 2013, nearly one-third of universities and colleges still do not have a plan in place
- To build effective plans, schools will benefit from leveraging diagnostics and better communications between housing, IT and business departments
- One in five officers do not meet with their business, IT or housing counterparts to discuss the ResNet
- Three out of four housing and chief business officers are unhappy with the data/reports they have received
- Although security is valued highly by chief business officers, more than a third of schools do not have an Information Security and Internal Audits (ISO) team

To adequately meet the breadth of today's network needs, some schools have strategic plans in place for the ResNet. Such a plan may include an approach for management, as well as costs and performance information for wireless internet (Wi-Fi), Internet bandwidth, cable TV, IPTV, VoIP and related services.

Although the number of institutions with a ResNet strategic plan has increased from 2013, nearly one-third of universities and colleges still do not have a plan in place. Another 9.4% are unsure whether they have a strategic plan and/or how often it's updated.



Communication

Strategic planning requires that officers set specific targets, work in lockstep toward common goals, and then be able to measure the results of those efforts. The 2014 study found that communication is lacking between departments, as one in five officers does not meet with their business, IT or housing counterparts to discuss the ResNet.

Diagnostics

Although 64.7% of housing officers and 68.3% of chief business officers would like to be able to benchmark their ResNet services, 55% of responding chief business officers and housing officers do not have access to benchmarking data.

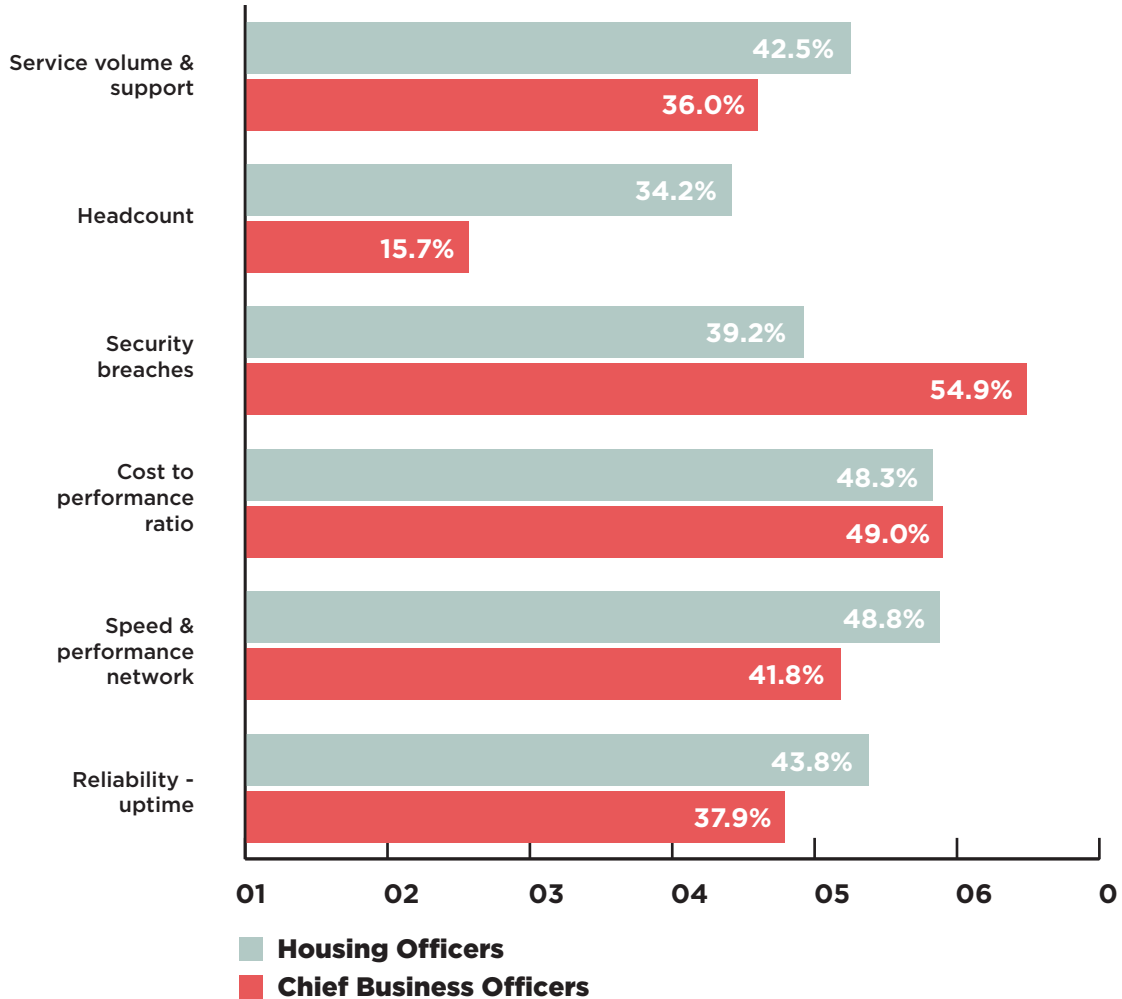
An example that calls for better measurement: When asked to rank various factors in terms of relative importance, chief business officers value reliability (uptime) and security over cost predictability. The following table illustrates the ranking factors and weighted scores (which is the sum of all weighted rank counts).

Drivers of IT Telecommunications & Networking Services Ranked by Importance - Chief Business Officers		
	<i>Rank</i>	<i>Weighted Score</i>
Reliability (uptime)	1	687
Security	2	628
Performance (speed)	3	563
Operating Cost Predictability	4	475
Capital Cost Predictability	5	380

Although the chart below shows that more than half of chief business officers value information regarding security breaches, more than half (54.9%) would like more data on security breaches.

The lack of information could be potentially worsened by a lack of manpower dedicated to security - more than a third (36%) of university or colleges do not have an Information Security and Internal Audits team. Eighty-four percent of institutions have a team of between 0 and 4 staff members. And 10.5% of institutions have a team of between 5 and 9 staff members, while 5.3% have 10 or more.

More ResNet Diagnostics Needed

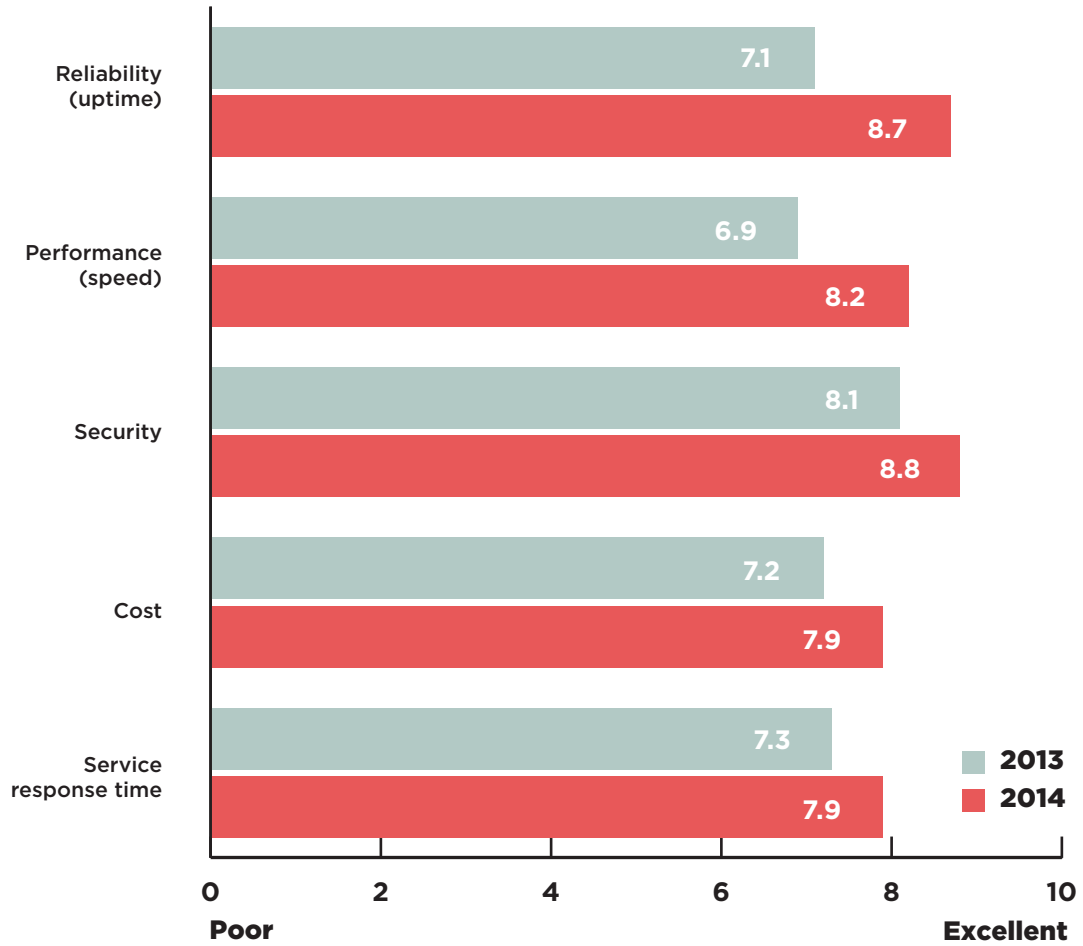


Levels of Satisfaction with ResNet Services

The majority (64.7%) of responding universities and colleges measure student satisfaction with ResNet services. The housing departments (66.7%) are primarily responsible for measuring ResNet satisfaction, while 23.5% of institutions rely on IT for evaluation.

This study provides a measure of satisfaction with ResNet services among housing officers. Generally, they are satisfied with the performance of the ResNet services available to their on-campus residents. However, satisfaction drops when comparing the performance of wired vs. Wi-Fi ResNet services. This decline is especially apparent in the areas of reliability and performance. housing officers were asked to measure the performance of ResNet services on a scale of 1 to 10, where 1=poor and 10=excellent. The following chart provides the average rating.

Housing Officer Satisfaction with ResNet Services (Average Rating)



Funding and Technology Costs

Key Takeaways:

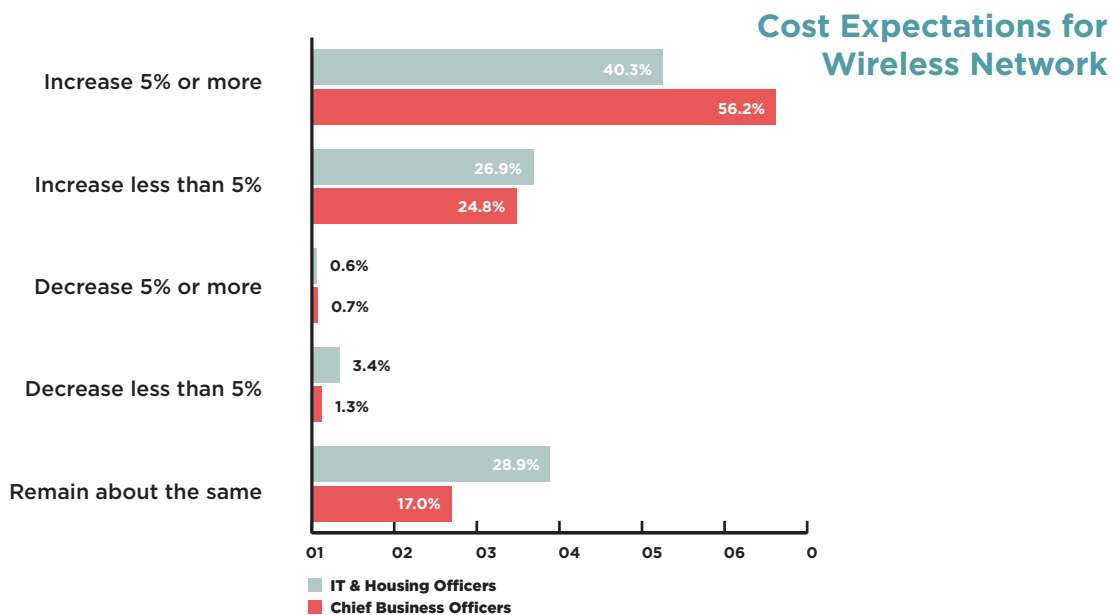
- Most respondents expect wireless infrastructure costs to rise
- Funding models follow the size and type of university—small, predominantly private universities are funding ResNets centrally, and medium to large, predominantly public universities have a fee/recharge system
- More than one in every five respondents (over 100 universities) say they are not recovering the cost of support and management of their network

Uphill Battle with Wireless Costs

Universities and colleges today face an uphill battle with wireless costs and tightening budgets. All three groups of respondents expect the cost of wireless network services to increase over the next two years. Chief business officers anticipate the most dramatic rise, with more than 56% seeing increases of 5% or more, while 40.3% of Housing and IT officers expecting costs to rise by 5% or more. At the same time, only 38% of respondents saw ResNet funding increase, with 10% experiencing a decline.

Who Pays for ResNet Costs & How Costs Are Recovered

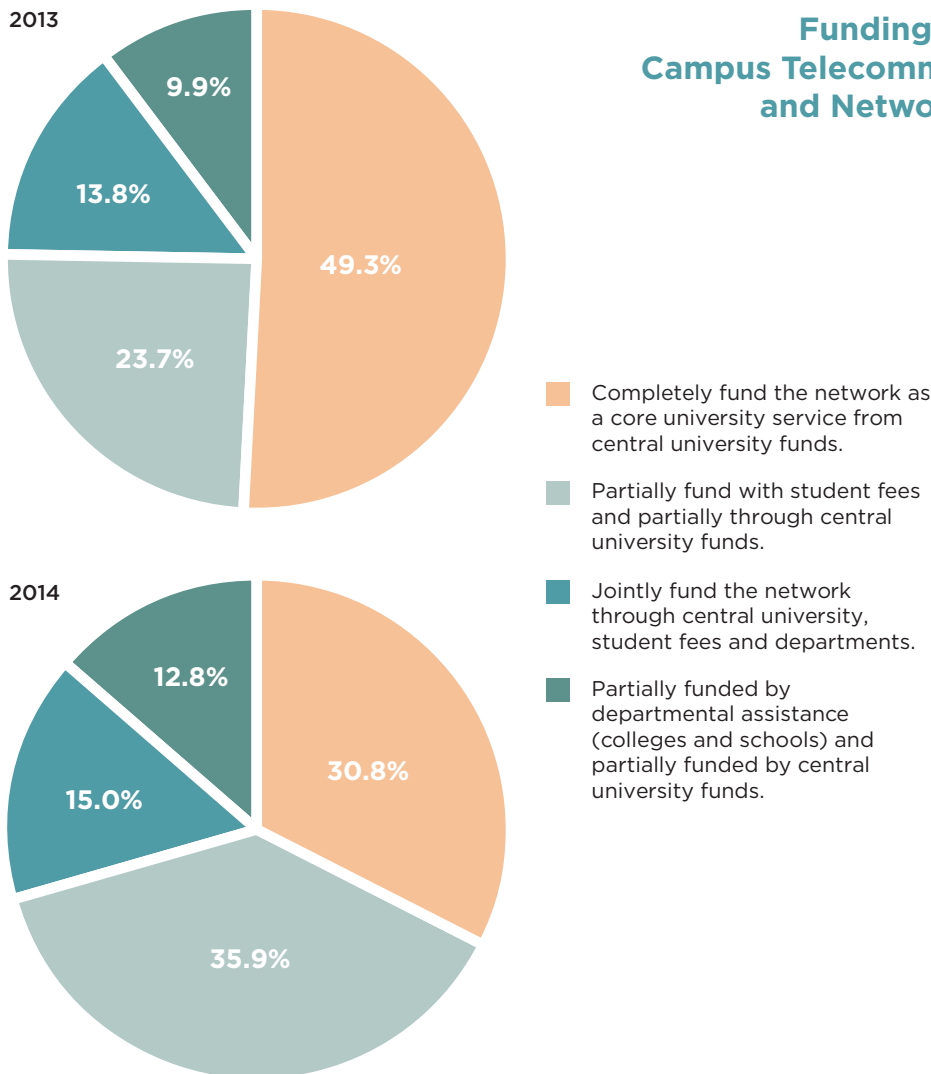
At a majority of universities and colleges, Central IT pays for ResNet and recovers some or all of the costs through resident fees or interdepartmental charges to Housing. This compares to prior years, where it was significantly more common that Central IT paid for ResNet and did not recover the cost. Still, more than one in every five respondents indicated that they are not recovering any of the costs of support and management of their network.



Annual budgets for telecommunications and network services closely resemble the size of institutions. The majority of institutions (41.8%) have a budget of less than \$750,000; more than a third (35.3%) budget between \$750,000 and \$2.5 million, and 23% have a budget of more than \$2.5 million.

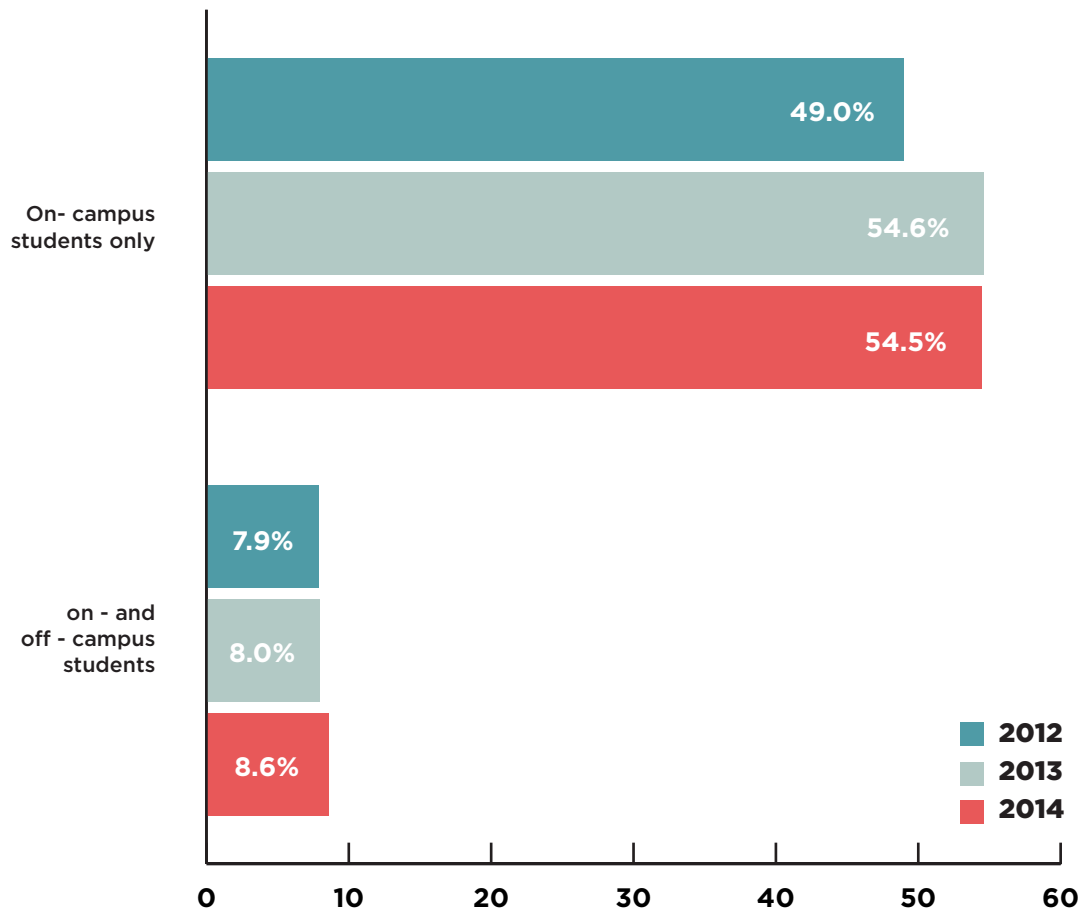
Funding models are closely related to the size and type of university. Small, predominantly private institutions fund centrally, and medium to large, predominantly public institutions use a fee/recharge system. As compared to 2013, this year fewer schools (16.3% less) utilize mixed-resources and instead rely solely on central university funds. There was a 12.2 percentage point drop in funding models that include a combination of student fees and central university funds. Some schools indicate that their services are fully funded by college/school departments.

Funding Models for Campus Telecommunications and Network Services



Over the last three years, how institutions levy technology fees has remained consistent. The 2014 survey shows more than half (54.5%) levy a fee to both on- and off- campus residents ; 8.6% charge on-campus residents only and 36.9% of campuses do not levy any fees at all.

How Institutions Levy General Technology Fee



Outsourcing

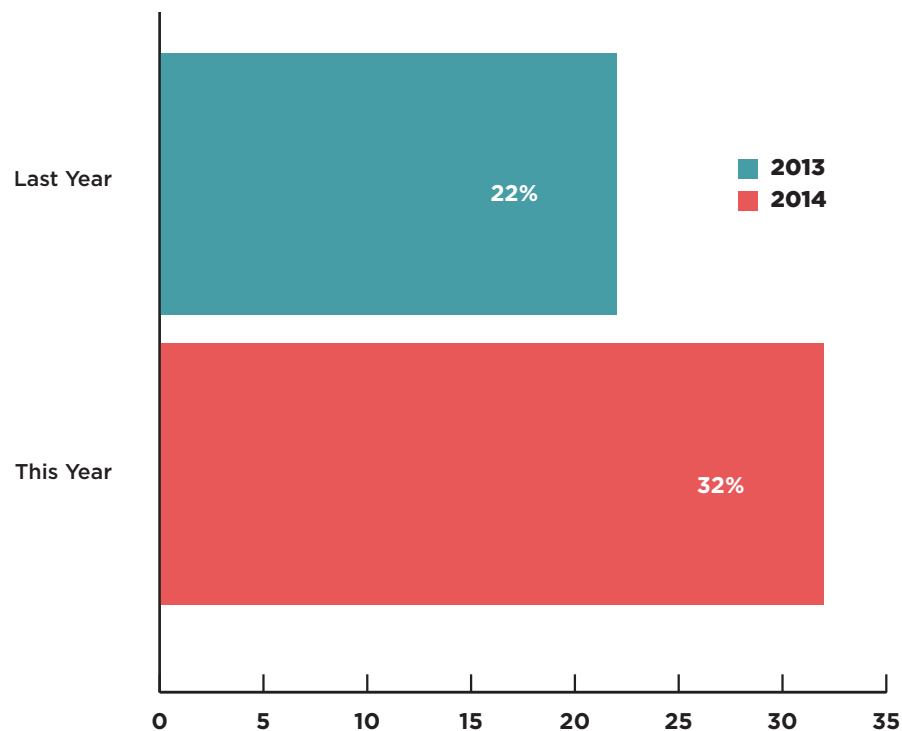
Key Takeaways:

- Respondents who outsourced or considered outsourcing some or all ResNet services to trim costs jumped from 22% in 2013 to 32% in 2014
- More than half of schools surveyed are outsourcing cable
- Of the portions of ResNet, the help desk is least likely to be outsourced

Colleges and universities have been outsourcing more and more of their campus services, including food service and bookstores. While cost-savings seems to be the main reason institutions are moving toward outsourcing campus services, many institutions outsource as a way to improve the quality of the service provided. In the case of ResNet, a private company may potentially provide the resources and expertise to operate the service more efficiently and effectively than a higher education institution.

The past year brought an upsurge in the number of institutions outsourcing or considering outsourcing some or all ResNet services to trim costs, growing from 22% to 32% since 2013.

Percentage of Institutions Outsourcing or Considering Outsourcing to Trim Costs



Cable is now being outsourced by more than half of the institutions surveyed. There has been an 8.6% increase in institutions currently outsourcing or considering outsourcing Internet services. Phone and help desk outsourcing show a smaller increase through the years, with over 8% of institutions considering outsourcing for each of these services.

Percent of Institutions Outsourcing ResNet Services							
	<i>2013</i>			<i>2014</i>			<i>2013 - 2014 Percentage Point Change</i>
	Currently outsourcing	Currently considering outsourcing	Total %	Currently outsourcing	Currently considering outsourcing	Total %	
Internet	10.8%	3.7%	14.5%	14.5%	8.6%	23.1%	8.6
Phone	15.5%	3.0%	18.5%	13.5%	9.9%	23.4%	4.9
Cable	48.8%	2.0%	50.8%	53.3%	8.8%	62.1%	11.3
Help Desk	9.9%	3.3%	13.2%	5.4%	8.0%	13.4%	0.2

2014 data shows that fewer institutions currently outsource or are considering outsourcing help desk compared to other ResNet services. Among the various survey respondents, 80.7% of housing officers never considered outsourcing help desk services versus 66.2% IT Officers and 54.6% chief business officers.

The 2014 State of ResNet Report is brought to you by the Association for Information Technology Professionals in Higher Education (ACUTA), the National Association of College and University Officers (NACUBO) and the Association of College and University Housing Officers - International.

About ACUTA

ACUTA is an international nonprofit educational association serving colleges and universities. Its core purpose is to advance the capabilities of higher education communications and collaboration technology leaders. ACUTA represents nearly 2,000 individuals at more than 700 institutions of higher education, with members ranging from small schools and community colleges to the very largest U.S. institutions. ACUTA's corporate affiliate members represent all categories of communications technology vendors serving the college/university market. www.acuta.org

About NACUBO

NACUBO, founded in 1962, is a nonprofit professional organization representing chief administrative and financial officers at more than 2,500 colleges and universities across the country. NACUBO's mission is to promote sound management and financial practices at colleges and universities. www.nacubo.org

About ACUHO-I

The Association of College and University Housing Officers - International (ACUHO-I) has more than 990 member institutions located around the world, all committed to creating positive residential experiences for their students. We support and promote these members in the pursuit of their goals through education, avocation, and invaluable network connections. www.acuho-i.org



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