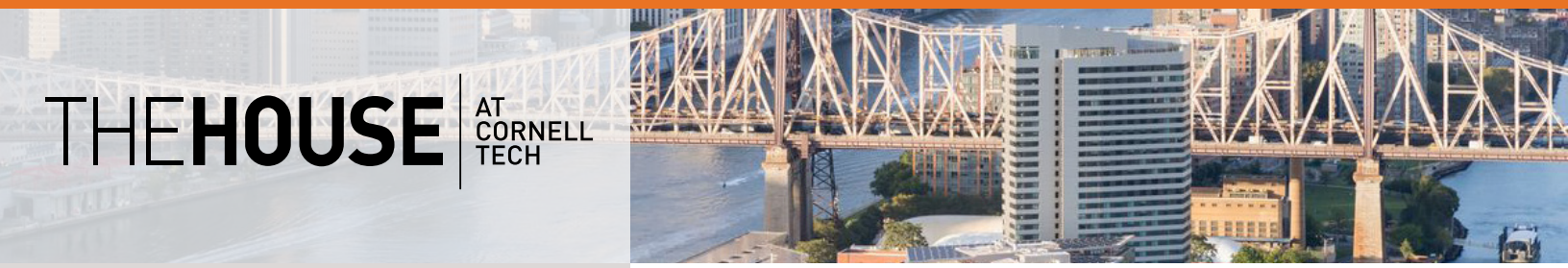
THE HOUSE AT CORNELL TECH
Sustainability and Performance

RUCKUS™ an ARRIS company

CASE STUDY



OVERVIEW:

The House at Cornell Tech, located on Roosevelt Island in New York City, is the world's first residential high-rise building built to Passive House Standards. A reliable, high performing Wi-Fi network was required to support the 500+ technology graduate students and the requirements associated with high-bandwidth applications.

REQUIREMENTS:

- Ability to support Wi-Fi calling
- Seamless roaming throughout the entire building
- Future-proof solution capable of supporting the high demands of graduate technology students

SOLUTION:

- H510 in-room wall-mounted access points (APs)
- R510 APs in all common areas
- T301 outdoor APs for all outdoor areas
- Deployment of Ruckus SmartZone 100
- Guest network with captive portal which is critical since there is no cell coverage from 8th floor and up

BENEFITS:

- The Ruckus Wi-Fi solution provides the performance required to support high-bandwidth applications
- Reliable coverage to support Wi-Fi calling
- Easy management with the on-premise Ruckus SmartZone 100 appliance to manage all Ruckus APs

OVERVIEW

The House at Cornell Tech, located on Roosevelt Island in New York City, is a residential high-rise building built to Passive House Standards. This means that it is estimated to use 60-70 percent less energy than similar buildings built to code standards. It's built to the highest sustainability standards and is projected to save 882 tons of CO2 per year, equal to planting 5,300 new trees. What does this have to do with Wi-Fi deployment? A technologically advanced building structure that houses technical graduate students must also have state-of-the-art technology, including Wi-Fi that can support all of today's applications.

THE CHALLENGE

There were two primary challenges with The House Wi-Fi deployment. One was the need for a high performance, reliable Wi-Fi network that can support the needs of a large number of technology graduate students with a great number of devices running bandwidth-intensive applications. The second challenge was ubiquitous coverage throughout the entire building. Managed service provider, Elauwit entered the project during the cabling process so any changes to the existing cabling plan were difficult. According to Taylor Jones, CTO at Elauwit Networks, "The deployment of Wi-Fi access points was somewhat dependent on the cabling, which was not always in the ideal location for a managed network system that was chosen to be deployed. This required a Wi-Fi solution that was able to overcome the typical building challenges while not having the advantage of placing Wi-Fi access points in the ideal locations." In addition to managing the services, Elauwit, based in Charleston, SC and serving multifamily communities across the United States, designed the network, sourced the electronics and installed the equipment. Elauwit has formerly been recognized as Ruckus Multi Dwelling Unit (MDU) Partner of the Year.

THE SOLUTION

Ruckus was the obvious choice to provide the Wi-Fi infrastructure based on its industry-leading technology. Ruckus' patented BeamFlex+™ antenna system is the only technology that can penetrate the walls and other obstacles that existed due to the Passive House Standards.

Ruckus' H510 indoor AP is deployed in roughly two-thirds of the 352 rooms. The H510 is an excellent choice since it was designed specifically for in-room deployments and supports the latest in Wi-Fi technology including the 802.11ac Wave 2 standard. "The H510 enables more bandwidth to more devices which is critical to support the high number of devices expected between the graduate students and faculty living at The House at Cornell Tech," according to Jeffrey Bond, President at Bond Broadband Advisors and technology consultant to the developer.

To accommodate the building common areas, Ruckus' R510 APs (2x2:2) were

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TAYLOR JONES
CTO at Elauwit Networks

deployed. "Ruckus' R510 delivers the ideal combination of performance, reliability, and coverage for medium-density indoor locations," stated Bond. For all outdoor areas including the pool house, the T301 outdoor AP (2x2:2) was utilized. The combination of the Ruckus H510, R510 and the T301 provides The House at Cornell Tech with a complete solution that meets the various needs of the residents including supporting Wi-Fi calling and other bandwidth-intensive applications. An on-premise Ruckus SmartZone 100 (SZ100) manages the indoor and outdoor Wi-Fi APs. SZ100 makes it easy for IT to manage the network, enhance security, minimize troubleshooting and makes upgrades easy.

The Wi-Fi network is providing residents of the building with all the bandwidth they need to support the applications they want, both video and voice. In fact, both traditional cable and telecom service providers have installed their services in the building, but to date, less than 10% of residents have signed up for the traditional services. The majority of residents are using the Wi-Fi network for all of their voice, video and data needs. The ability for the Wi-Fi network to support all resident needs enables them to save money since broadband Internet (150Mb down / 150Nb up) and over-the-air TV service is already included in the rent. To ensure ample capacity is available to users, a 2.5Gb primary circuit and a 500Mb redundant circuit provides connectivity to The House.

In the first few months that The House has been open, the network has seen significant use including 1,000 devices connect daily with the majority being wireless devices. In addition, 800 users have logged into the guest network, and overall, the network is currently passing 2TB of traffic daily.

"Ruckus is providing a Wi-Fi network that delivers ubiquitous coverage throughout the building and industry-leading products to provide students and faculty with the performance needed for all their Internet and entertainment needs," Jones concluded.

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