RUCKUS®
COMMSCOPE

BURLINGTON COUNTY
RUCKUS helps bring more availability and reliability to New Jersey's biggest county

| The largest county in New Jersey | A total population of 446,301 | Home to Joint Base McGuire-Dix-Lakehurst (MDL), the only Air Force base in the state | The second largest cranberries-producing county in the U.S. |

Customer
Burlington County

Location
New Jersey

Challenges

- Legacy buildings with old wiring
- Unreliable Wi-Fi®
- Unresponsive product support
- Limited budget

Products

- RUCKUS® indoor access points (APs) (R750)
- 134 ICX® switches (ICX 7850, ICX 7550 and ICX 7150)
- RUCKUS One™

Benefits

- Faster and more stable network
- Simple single-pane-of-glass management
- Public Wi-Fi more readily available
- More time being proactive instead of reactive

Burlington County is really big. To provide some context, Kevin Savage, the director of information technology, offers this: "We stretch from Bordentown, which would be the northwestern-most city, down to Palmyra, which is the southwest-most city; from Delaware River, meeting up to Pennsylvania all the way to the Atlantic Ocean. Then, we literally have a very tiny Network footprint in Bass River, which is almost in the Atlantic Ocean."

The largest county in the state, Burlington County consists of 827 square miles in southern New Jersey

and supports 92 public buildings across three cities, six boroughs and 31 townships. In these county facilities, their systems section of information technology is responsible for the connectivity of more than 150 physical and virtual servers, 1,000 computers and 2,500 users for an always-available network.

And if that weren't enough, county buildings are a mixture of very old and new structures. For example, the beautiful, historic Burlington County Courthouse in Mount Holly was built in 1796—long before Wi-Fi was even a word. So, legacy buildings such as this—with their thick brick walls and unique room configurations—are not very friendly to wireless transmissions.

For more information, visit ruckusnetworks.com

In addition, because taxpayers fund the county's IT budgets, keeping up with technology and its aging infrastructure has been a never-ending scrimmage. Erwynn Umali-Behrens, division director of the Network Operation Center, affirms what nearly any government IT department would readily confess: "With the budget of the county, we were seeing things that weren't up to the industry standard. But we have to work with what we have."

It's during this time that the county was regularly experiencing network outages. And despite numerous efforts to contact the equipment manufacturer's support about their unresponsive APs, the support was just as slow and frustrating. How long did it take for them to get answers? Savage disclosed, "Anywhere from one hour to days, depending on the problem."

To make matters worse, COVID hit. Not only did this exacerbate network issues by having county employees trying to work remotely, this also became a point of contention for residents and students who relied on the county's free public Wi-Fi. In spite of more than 95% of residents reportedly having a computer in their household (per the last Census), only 93% of Burlington County citizens had broadband in their homes.[1]This became a perfect storm.

Taking hold of the reins

Despite the mounting challenges to keep the county's large network running, Savage and the IT team continued to look for solutions that could permanently fix their wireless network. This was when they discovered how Northpoint Solutions (an Elite RUCKUS Solution Provider that provides full IT integration for all end user equipment) and RUCKUS could help with their mission..

If there was ever any kind of silver lining to the terrible pandemic, it would be the Coronavirus Aid, Relief and Economic Security Act (CARES Act) that passed Congress and made $2.2 trillion available to communities impacted by COVID-19. Administered by the Economic Development Administration (EDA), the U.S. government made available grants that could be used for "the construction of infrastructure and other economic development projects" that "focused on technology innovation activities that will help communities prevent, prepare, and respond to the coronavirus pandemic." [2]

This was the opportunity that Savage and Burlington County IT Department needed. Working with Northpoint Solutions and RUCKUS Networks, Burlington County created a proposal to upgrade their wireless network to Wi-Fi 6—which would deliver more speed, more throughput, more capacity as well as a more reliable network. Seeing how this upgrade would benefit so many communities now and in the future, the EDA approved aid funds to Burlington County.

Phasing in performance

During the first phase of the network upgrade, Burlington County transitioned their data into the cloud while Northpoint re-evaluated their existing network design. By utilizing a Wi-Fi heatmap, they sought to improve the poor connectivity that occurred in legacy structures. "The heatmap told us where to strategically put the access points for it to be best used," Umali-Behrens explained.

"The timing, the very complexity of our network in itself and just the stakeholders who are involved... [has] been outstanding and so has RUCKUS."

Kevin Savage, PMP
Director of Information Technology
Burlington County Department of Information Technology

Once AP locations were decided, a deployment schedule was next on the list. Unfortunately, municipal

government requires a more delicate deployment schedule. Unlike most enterprise networks, a county has vital emergency services that must always be available. So, to deploy parts of the new network, Northpoint Solutions needed a custom action plan.

"The integration of a county [network] is a lot different than a lot of other agencies, because of the 911 emergency systems and the requirement of [it] being up 24/7," said Dave Haniebnik, president of Northpoint Solutions. "It has to [have] the integration company and IT department coordinate [to make] sure that no police departments at any time were down." Through careful planning, Northpoint and Burlington created a successful approach.

"We and even RUCKUS emergency services were on standby [in case] we had any problems," said Haniebnik. "[G]etting that type of alignment to keep 40-plus police buildings, different police departments up at the same time and keeping everything going was just amazing."

Savage was equally pleased with the flawless deployment. "The timing, the very complexity of our network in itself and just the stakeholders who are involved... [has] been outstanding and so has RUCKUS," he said.

Managing more complex connectivity with ease

Overall, Northpoint deployed 155 RUCKUS very high-performance R750, Wi-Fi 6, indoor APs with OFDMA, TWT and MU-MIMO capabilities. These APs can efficiently manage up to 1,024 client connections with increased capacity, improved coverage and performance in ultra-dense environments. Furthermore, its BeamFlex+® antennas automatically provide extended coverage and

optimized throughput with patented multidirectional antennas and radio patterns.

To configure and optimize these newly installed APs, Burlington County chose RUCKUS One—an AI-driven converged network assurance and business intelligence system. Powered by artificial intelligence and patented machine learning (ML) algorithms, this easy-to-use platform allowed the IT department to manage the entire network—regardless of where in the county it was located.

With this cloud-managed system, Burlington County IT could react quickly to incidents before they became service-affecting problems, and RUCKUS One even classified issues by severity, so IT knew where to focus first. This was especially useful when legacy wiring caused new issues.

The simplicity of RUCKUS One was a welcomed change. "The dashboard was way easier [to use]," said Umali-Behrens. "[It] even tells us: 'We're going to do a firmware upgrade at this time' or, 'You can schedule a formal upgrade.' Or learn about the licensing status. With [our old APs], they would just go down and we wouldn't know why. So, we would call... 'Oh, we need a new license.' [With RUCKUS One, it's] easy to figure out what it tells you—how much time is left on [license] subscription. "Hey, your licenses are going to be up in 30 days'... and everything like that. It is very user friendly."

Migrating to the next phase

For the next phase of their network upgrade, Burlington County deployed RUCKUS ICX 7850 switches at the core, which provided industry-leading 40/100 Gbps Ethernet port density and flexibility, as well as ICX 7550 mid-range enterprise-class stackable

access/aggregation switches and ICX 7150 enterprise-class stackable access switches on the edge to dramatically boost the network performance.

Another benefit to deploying ICX switches was the ability to manage the entire network under a single-pane-of-glass dashboard with RUCKUS One. "We can also see our switches from there," said Umali-Behrens. "It gets granular all the way [down] to the port, which is awesome. [With the competitor's platform,] it was just the access points."

With each new switch deployed, network performance grew, as did the network stability and reliability. "Phone calls for outages have drastically gone [down]," said Savage. "I don't get nearly the amount of text messages [or] SOS phone calls from directors and other VIPs in the county saying that something was down. I don't have that many phone calls anymore regarding network outages."

Another major advantage to migrating to RUCKUS was how simple and intuitive it was to manage the network. "I don't want to say it was easy, but it wasn't that hard for our guys to jump in and be able to learn it," Umali-Behrens said. "I [also] wanted to learn how to—from start to finish. The biggest [benefit] was the support. [Northpoint or RUCKUS] could give me the answer almost instantly."

When IT support needs support

"When we moved over to RUCKUS, it was just one phone call or one text, and then we get support."

Erwynn Umali-Behrens

Division Director, Network Operations Center

Burlington County Department of Information Technology

With a wireless network that spans hundreds of miles, there will be times when IT support needs some support of their own. Prior to the deployment of the new network, Burlington County would request help with network issues from their previous manufacturer, which, unfortunately, didn't always go well.

"I didn't like jumping through hoops to try to get any kind of support from [our previous provider]," Umali-Behrens said. "From small to big issues, we would be calling them and it would just take a long time for us to get any kind of answers. When we needed to get something fixed, we needed to get something fixed. Their sense of urgency wasn't as important as ours."

Fortunately, things were different now. "When we moved over to RUCKUS," Umali-Behrens said, "it was just one phone call or one text, and then we get support. That was one of the biggest factors for us." Today, not only is support faster; so is their network.

Speeding through the Garden State

When asked to compare the performance of the previous network to the one they're building now, Savage commented: "Night-and-day difference.

We don't have the network outages we used to have. It seemed like all we ever did [before] was put out fires. Instead of being a reactive force of work over here, now, we're actually being proactive." By having a responsive support team from the manufacturer, Burlington County has been able to spend more time looking ahead to how this network can positively affect lives.

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>
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> **Director of Information Technology**
> **Burlington County Department of Information Technology**

To take the network to the next level, the county has been upgrading their cabling infrastructure and internet access. "We are getting new fiber installed," revealed Umali-Behrens. "So, with the [new] cores being connected, we're going to get them at 100 gig."

Today, Savage, Umali-Behrens and the IT team are pleased with the direction

their network has taken. Residents are now able to access free community Wi-Fi in libraries and recreational centers. County employees don't have to combat buffering or loss connections to do their work. And one of the oldest volunteer fire stations in the U.S. now has advanced wireless connectivity.

Aside from being able to build a fast, robust and scalable network, Burlington County has been able to achieve this very cost-effectively. When compared to what another competitor proposed, the county has been able to deploy a brand-new Wi-Fi 6 RUCKUS network for an estimated 30% less without sacrificing performance.

When asked what the future holds, Savage wasn't sure, but he was positive about what it might be. "We're just now coming to terms and getting used to actually having a solid foundation of a network," he said. "We've just now transitioned to being proactive, where we spent way too many years being reactive. Exciting times [are] on the horizon."

[1] https://www.census.gov/quickfacts/fact/table burlingtoncountynewjersey/PST045222

[2] https://home.treasury.gov/policy-issues/coronavirus/assistance-for-state-local-and-tribal-governments capital-projects-fund

About RUCKUS Networks

RUCKUS Networks builds and delivers purpose-driven networks that perform in the demanding environments of the industries we serve. Together with our network of trusted go-to-market partners, we empower our customers to deliver exceptional experiences to the guests, students, residents, citizens and employees who count on them.

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