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Transforming IT into a business

Miami-Dade County modernizes network services with a creative spin on Network-as-a-Service

Objective
Modernize networking services to accommodate VoIP, PoE, and wireless services while standardizing on a single platform

Approach
Deploy HPE solutions in a continuous, five-year cycle to deliver highly available Network-as-a-Service to county departments

IT Matters
- Delivers exponentially faster software updates (minutes vs. days)
- Enables fourfold faster site deployments (1 day vs. 3-4 days previously)
- Centralizes network administration, reducing on-site configurations and troubleshooting
- Transforms IT into a revenue generator, with departments paying a per-port fee

Business Matters
- Boosts wireless coverage by 50% at existing sites; delivers guest network capabilities
- Delivers a continuous upgrade cycle, avoiding business disruption
- Modernizes telephony (VoIP vs. PBX), adding communications flexibility
- Improves both network performance and support, while reducing network complexity

Miami-Dade County is the largest county in the state of Florida by population (approximately 2.5 million). It's also the state's third largest in terms of land area. The IT department is responsible for networking infrastructure and support that enable the county's 25 departments to deliver services to the public. The county is in the midst of a five-year refresh cycle to replace all its access layer devices with networking gear from HPE.

Modernization for the masses

Delivering hundreds of necessary services to more than 2.5 million customers on a daily basis is a tall order. Trying to accomplish it with an outdated access layer network infrastructure is another matter altogether. That's the position Florida's largest county found itself in at the end of the last decade.

"Some of our phone systems were based on PBX technology that was decades old, we had no PoE (Power over Ethernet) capabilities, and portions of our network access layer were about 12 years old," recalls Erick Gomez, systems support manager for IT at Miami-Dade County. "When we initially looked at modernizing some of our network services, we took one look and realized there was no way to make it happen with our existing architecture."

Reimagining the access layer

After a thorough inventory, Gomez and his network team realized they would have to replace the entire network access layer, and that it wouldn't be cheap. "We were going to need tens of thousands of Ethernet ports and hundreds of access points," Gomez

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>
> — Erick Gomez, Systems Support Manager for IT, Miami-Dade County

remembers. "And we knew the county executives weren't going to like the price tag being somewhere between seven and eight figures."

But the team also realized that performing the upgrade piecemeal would only delay the disruption and end up costing more in the long run. "In the past, each department within the county would just buy a couple switches at a time to fill whatever needs they had," Gomez relates. "That created a number of problems. We ended up with a lot of different product lines over a lot of generations, so maintenance and management really became an issue."

Economies of scale

Aside from reliability and manageability problems, it was a policy that also put the county at a tremendous financial disadvantage. "If I go to a vendor and order two switches, I'm probably going to pay full price, and I'm not going to get a whole lot of attention from them," Gomez says. "We're a huge organization with 20,000 employees and a $4 billion annual budget—I thought we should really try and leverage that."

The next step was finding a technology vendor that could meet Miami-Dade County's vast and diverse networking needs. "We knew we needed an access layer platform that would enable us to do everything from

VoIP (Voice over Internet Protocol) phones, to outdoor wireless networking," Gomez explains. "And we knew we needed a vendor that offered built-in redundancy with the ability to scale massively."

Meeting the needs of the many

Based on technologies such as HPE IRF (Intelligent Resilient Framework) and HPE IMC (Intelligent Management Center), Gomez and team identified HPE as a top choice. "We really liked the idea of higher availability through IRF, and the ability to manage the network from a centralized software tool such as IMC," Gomez says. "From our perspective, HPE has some of the best networking technology available."

So the County put out to bid an order for networking gear totaling 32,000 Ethernet ports and 700 access points over five years. "We were quite happy with the attention that got us," laughs Gomez. Among the team's choices were HPE FlexNetwork 7500 Switch Series for modular flexibility, performance, and connectivity; HPE FlexNetwork 5500 EI Switch Series for secure, reliable, and multi-service Gigabit Ethernet; as well as Aruba 2620 Switch Series for PoE delivery to wireless access points and VoIP phones. HPE won the bid.

Working in conjunction with technology partner Computer Systems Support, Inc. (CSS)—an HPE Partner who has helped the county with server and storage deployments for the past 15 years—the county began its installation and deployment process. Because of the scale and scope of the deployment, CSS also provided important continuity and support for Gomez and team.

Minimizing disruption with continuous improvement

Today, the deployment across the county is nearing the end of its full-scale, five-year scope. "To date, we've installed about 25,000 ports, and by next year, we will have upgraded everything we originally set out to do," Gomez explains. "We designed the project to do 20% of the deployment each year, but when we reach the end of our fifth year, we aren't going to stop—we'll go right back to the beginning and start upgrading all over again to ensure we never end up in the place we were in before we started the project."

The continuous upgrade project also delivers peace of mind for his customers. "Because of the way we structured our contract with HPE, we can safely say we'll never have to go through another multi-generation upgrade in the foreseeable future," Gomez relates. "It means the infrastructure never overstays its welcome, and business can continue without disruption."

IT as a revenue generator

It's the kind of refresh cycle that most IT departments, even in the private sector, would want to have, allowing for a clear upgrade path to match business enabling technology trends in the market. So how did Gomez and team manage to make it work at the county level?

"We came up with a system to upgrade all the county's departments by weaning them off of purchasing their own network gear and instead charging them a per-port fee," Gomez explains. "For the individual departments, it meant exchanging capital improvement budget for a managed service, and for the kind of service they're getting, it's a bargain."

Let there be wireless

From a customer perspective, the managed service model is already paying dividends. "What they're getting for that per-port fee includes a host of services they weren't even getting before," Gomez says. "Before the deployment began, WiFi coverage was minimal—maybe half the departments had limited coverage—and guest networks were nonexistent."

Now, every department that signs on to the managed service receives both wireless coverage for employees and Internet access for guests as a matter of course. And sites that previously were considered too remote for coverage are now receiving it. "We have multiple county parks and a mobile home park on wireless now that never had access previously," Gomez reports.

Updates in minutes

From an IT perspective, Gomez and team are already realizing their own economies of scale. In prior years, changing network parameters, such as routing or updating security, was a major undertaking. "Before, anytime we did any tuning to the network, we had to think about it from a number of different perspectives to accommodate the various gear all the departments had purchased," Gomez recalls. "It could take days to figure everything out."

Customer at a glance

Hardware
- HPE FlexNetwork 7500 Switch Series
- HPE FlexNetwork 5500 EI Switch Series
- Aruba 2620 Switch Series
- HPE FlexNetwork 10500/7500 20G United Wired-WLAN Module
- HPE ProLiant BL460 Gen8
- HPE ProLiant DL380p Gen8
- HPE 3PAR StoreServ 10400, 7400, 7200

HPE Partner
- Computer Systems Support, Inc.

Software
- HPE Intelligent Management Center (IMC)
- HPE Intelligent Resilient Framework (IRF)

With a standardized HPE access layer, the team can now roll out changes in minutes. "Today, we know exactly what gear we have and what it can do—it means we can pop out scripts, deliver them to the switches, and all our bells and whistles are installed almost instantly."

Deploying new sites up to fourfold faster

Standardizing with HPE also makes new site deployments smoother and more precise. Because Gomez and team are still deploying the last round of network upgrades across the county's departments, IT is realizing an enormous timesavings each time they bring another site on board.

"Previously, it could take three or four days to get one site online," Gomez recalls. "After we would bring the gear to the site and rack and stack it, we'd still have to do a lot of manual configuration on site."

Now with standardized gear and scripts, the team is spending considerably less time on installations. "Some weeks, we bring up a new site each day, instead of spending several days on a single site," Gomez explains. "With HPE standard in the access layer, it takes away all the guesswork."

Completing the cycle

With the first cycle of county-wide upgrades coming to an end next year, Gomez and his department are making good on their promise to modernize the network at Miami-Dade County. Among the 25 county agencies and their combined 800 total locations, only a few remain to be upgraded. And feedback from the departments has been highly positive.

"The response has been great," Gomez says. "Our customers now understand what they're getting. Performance has improved markedly and the service they receive has improved. And they all enjoy the WiFi."

Reflecting on where his department is on its upgrade journey, Gomez is confident he took the right path. "For a large municipality, it only really makes sense to deploy the network in this way. At the end of the day, what we offer is a commodity—and as an IT department, we have the flexibility to offer this wonderful service with the security, performance and redundancy that our customers need."

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