

CASE STUDY



OVERVIEW

The Dublin Unified School District (USD) serves one of the fastest-growing cities in Alameda County, east of San Francisco. Dublin USD covers 16 locations, including eight elementary schools, two middle schools, and two high schools. The district recognized that it needed a stronger network foundation in order to realize its educational vision and support the steady increase in enrollments.

CHALLENGES

- Build a more reliable, high-performance network to support a 1:1 computing model
- Expand network resources to support more students, BYOD trend, and facilities expansion
- Reduce investment and operational costs

SOLUTION

- Over 300 Ruckus ICX switches including high-speed backbone and stackable switches in network closets
- Over 500 high-performance Ruckus access points, including 802.11ac
- Easier management across locations with Ruckus ZoneDirector wireless controllers

BENEFITS

- Reduced the number of APs installed by 50%, while improving Wi-Fi speed and range
- Increased speed and capacity to support more users, online courses, and facilities expansion
- Improved Wi-Fi reliability gives teachers confidence to switch to digital textbooks, so students can leave heavy textbooks and computers at home

DISTRICT REPLACES UNDERPERFORMING NETWORK TO REALIZE BOLD EDUCATIONAL VISION

Located in Alameda County, 25 miles east of San Francisco, Dublin USD is seeing its student population soar. Buildings are being renovated and new facilities are going up to accommodate growth.

Transitioning to digital learning is one of the highest priorities and passions for the Dublin Unified School District (USD). “Digital learning connects schools to a bigger universe of educational resources,” says Stephen Hanke, Superintendent of Dublin USD. “As we grow, it gives us new ways to reach students, parents, teachers, and the community. It lets us reimagine everything from courses to physical classrooms.”

Moving to the Common Core standard was a cornerstone of the district’s digital learning strategy. But it required that all students have access to technology in order to read across multiple types of media, write, conduct research, and make digital presentations. To provide this access, Dublin USD planned to migrate all of its schools to a 1:1 computing model—rolling out 10,000 Chromebooks—and standardize on cloud-based Google Apps for Education.

CHALLENGE

It was clear that the existing wired and wireless networks were weak links in a bold strategic plan. “Neither the wired or wireless networks were reliable enough to support a fully digital learning environment, Common Core testing, and broad access to online resources,” says Custer Rodriguez, IT network administrator for Dublin USD. “We lacked the capacity we needed. Connecting to the Wi-Fi network was spotty at best. It was also an expensive network—it seems like we were installing APs everywhere just to get better signal coverage. Which meant that we’d be budget constrained trying to scale the network to support projected growth.

“We also need to support a BYOD environment. We factored that usage into our planning, to make sure we chose technology that would support many more types of devices than Chromebooks.”

After conducting an extensive evaluation process, Dublin USD chose Ruckus Networks. “We were confident that replacing our current underperforming network with a Ruckus wired and wireless network would enable us to support leaps forward in technology,” says Rodriguez.



“The Ruckus APs have such great coverage. We’ve reduced the number of APs by almost 50% while dramatically improving Wi-Fi speed and dependability.”

CUSTER RODRIGUEZ

Network Administrator
Dublin USD

SOLUTION

The Dublin USD has two data centers at the district office and one of the high schools. The district office data center hosts the Infinite Campus student information system and multiple instructional systems based on databases that interface with Active Directory.

The IT team deployed a new high-speed backbone to connect the two data centers using Ruckus ICX Switches. The speed and capacity jumped from 1 Gbps to 40 Gbps. “Virtually overnight, teachers were able to access any online assets they needed, because bandwidth was no longer an issue,” says Rodriguez.

There are 10 Gbps drops to Ruckus ICX 24- or 48-port stackable switches in the Intermediate Distribution Frames (IDFs), which are the network closets at each school. “The original switches required separate connections to each switch in a stack. They were cumbersome to manage and expensive to cable,” says Rodriguez. “A stack of Ruckus switches acts like one switch, so cabling and management are much simpler. And the density of each switch is outstanding—we have capacity to spare in every network closet.”

The other major upgrade was replacing the old APs with Ruckus APs for both indoor and outdoor environments. “The first thing we achieved—even before turning on the APs—was lowering our investment cost,” says Rodriguez. “The Ruckus APs have such great coverage that we only need one AP for every two classrooms. We’ve reduced the number of APs by almost 50% while dramatically improving Wi-Fi speed and dependability. We haven’t even had any reports of dead spots or drop offs when students or teachers move around the building. The RF technology in the Ruckus APs is superior to anything we’ve seen.”

The district currently uses two Ruckus ZoneDirector controllers to manage the Wi-Fi networks. The controllers also provide failover for each other.

The IT team replaced the entire wired and wireless network infrastructure in approximately two months. The installation went so smoothly that the district was able to distribute all 10,000 Chromebooks before school ended for the summer. Today, any student in any school can pick up a Chromebook and log in to access class materials and the Common Core testing.

BENEFIT

“Our goal is to successfully implement Common Core and project-based learning across the district,” says Hanke. “We want our network technology to support this digital era, which means it has to be absolutely trustworthy. Students and teachers shouldn’t even know the network is there—the online resources should be available when they need them. The best feedback we’ve gotten is from teachers who tell us that the network just works. They can absolutely rely on it for instruction.”

In fact, Dublin USD has already increased its use of digital textbooks. Which also means that students don’t have to carry overloaded backpacks with heavy textbooks between school and home.

“The network is enabling educational innovations at a greatly accelerated pace,” says Hanke. “With reliable, high-performance Wi-Fi, we can replace fixed computer labs with mobile computing carts, turning virtually any classroom into a computer lab. We can even take classes outside with outdoor Wi-Fi coverage.”



The district is in the process of planning a multi-gigabit upgrade across the campus. “We’ll be able to move to multi-gigabit without overhauling the network,” says Rodriguez. “Ruckus APs are also simple to configure and install. We don’t even have to worry about high-interference areas, high-density concentrations of users, or outdoor spaces. All of those environments were a big challenge with our old wireless network.”

Case in point, one of the high schools has just been renovated and new buildings are being constructed, including a new performing arts center. “Network planning is easy with Ruckus. Everything works together so beautifully,” says Rodriguez. “As a network administrator, it’s gratifying to support the school system’s educational goals and growth, and reduce costs and operational overhead at the same time.”

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STEPHEN HANKE

Superintendent
Dublin USD

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