Schools everywhere are recognizing this truth: next generation classrooms will require next generation Wi-Fi. The challenges are complex, demanding, and very real. Budgets are tight and school districts face cost/benefit decisions that will, quite literally, tax every community to find affordable and truly effective systems.

The proliferation of devices that will be demanding Wi-Fi connection is staggering. Laptops, iPads, smart phones, e-readers, printers – the list goes on. Anytime/anywhere learning is no longer a lofty vision of 21st century educators: it is a requirement if students are to be transformed into 21st century learners.
Bring-your-own-device (BYOD) is becoming a watchword for schools at the forefront of technology, and the demands on Wi-Fi networks are enormous. More than 73 percent of teachers say they and/or their students use mobile devices to complete assignments (Pew Internet), but without Wi-Fi, they are simply cut off. As the push continues for every student to be connected 24-7, school districts are scouting the technology terrain for the Wi-Fi network that will lead them into that fabled land of the 1-to-1 environment.

Schools that have Wi-Fi will face the necessity of upgrading. Schools that don’t have it will need to start from scratch. And whether your district is just getting started or upgrading, one of the overriding considerations will have to be ensuring that your solution is capable of meeting Common Core requirements. On the surface, it seems an almost overwhelmingly complex task. The good news is that it doesn’t have to be.

Today, there are solution providers that do offer simple, stable, secure and smart Wi-Fi networks. Savvy leaders will seek out and find a leading provider of next generation network wireless solutions, one that can enable schools of all sizes to securely address their networking needs.

Indeed, the very best Wi-Fi network solutions ensure that:

- The Bring Your Own Device phenomenon is handled with ease.
- The number of devices on the network is not a limiting factor.
- A 1-to-1 learning environment becomes a powerful and dynamic reality ready for contemporary teaching and learning.
- Improved productivity and lower capital and operational costs address affordability issues.
- Common Core requirements are met and learning is transformed.

School districts throughout the country are discovering that establishing their Wi-Fi networking is no longer an insurmountable obstacle. Rather, it is the door that opens education to limitless possibilities for students and teachers alike.

**Big Solutions for Big Challenges**

For a large district, consider Los Angeles Unified School District’s Virtual Learning Complex, a secure enterprise Wi-Fi network with 84,000 APs for millions of district-issued devices and BYOD-
allowed endpoints. Deputy Chief Information Officer, Shahryar Khazei, comments on this robust, multi-faceted project:

“For several years we envisioned, and began planning for, an optimized learning environment focused on the individualized potential of each student,” explains Khazei. “Called the Virtual Learning Complex (VLC), the environment would enable anytime/anyplace learning for a large portion of our students. In addition to engaging students in optimized learning, the VLC would draw in our other three stakeholder groups — students’ families, teachers/principals and central/local administrators.

“Designing and implementing the VLC meant putting powerful tools in the hands of our students and other stakeholder groups, and also building the appropriate infrastructure, including campus Wi-Fi, to support their use. Those of us on the technology staff at the second largest school knew if we were going to garner public support for this huge project, we needed to invest in the right wireless networking and security tools for the job. We turned to Aruba [Networks] to help unify, manage, and secure a multi-vendor Wi-Fi infrastructure.”
As a large district, it was critical that the wireless network be enterprise-grade and support both security and multi-vendor requirements.

The network:

- Enables 21st century teaching and learning.
- Assists in meeting Common Core requirements.
- Includes a secure and proprietary Access Management System (Aruba ClearPass),
- Includes a vendor agnostic system for centralized, comprehensive policy establishment and enforcement.
- Provides industry-leading mobile device management (MDM) integration and utilizes Aruba AirWave Network Management for centralized, granular visibility to optimize wireless performance.

"Since we have a multi-vendor Wi-Fi infrastructure designed to support millions of devices, the ability to effectively secure and manage such a large-scale environment is paramount" Khazei observes.

Khazei contends that it is important for LAUSD to have a wireless environment that supports a mixture of brands and product lines, not only for mobile devices but for networking infrastructure as well. "Whether students and teachers are working with district –issued devices or BYOD we want to supply the same high-quality teaching and learning experience," he notes. "We are constantly evaluating infrastructure technologies and end-user devices to ensure we have the best, most cost-effective solutions."

Security is a critical issue for the district. “We need the flexibility to differentiate student access from that of employees and teachers,” Khazei says. “It's also important for us to have the ability to differentiate devices by location, such as a classroom versus a hallway or a playground. During assessment periods, students may be taking tests on iPads or tablets. So we need Wi-Fi and network access solutions that are intelligent enough to differentiate and prioritize traffic in a manner that is efficient and easy to use. For example, the network should be able to determine that a tablet being used in a hallway has a lower priority than tablets in use where students are being evaluated in the classroom – and accordingly may slow or denied access to the hallway tablet to give full bandwidth to the classroom devices participating in the exam.”

We need to know specifics," Khazei states. “This includes the total number of devices on our
network at any given time and the exact APs to which the devices are connected. It's also very important to know the amount of bandwidth each device is consuming."

LAUSD requires technology that meets instructional requirements and aligns with Common Core State Standards and Smarter Balanced Assessment Consortium online testing. "Our goal is to provide reliable wireless access that's like electricity or any other utility," Khazei explains. "Teachers and students should just expect secure Wi-Fi to be there, ready for them to use." That is why the district selected Aruba to unify and manage its multi-vendor Wi-Fi infrastructure in support of 1-to-1 computing initiative that serves 640,000 k-12 students.

Affordable Wi-Fi through Modernization and Upgrading

When Goddard Public Schools in Goddard, Kansas, learned through a survey that a majority of its students already owned Wi-Fi-enabled devices, a clear strategy emerged for transforming the teaching and learning paradigm in a highly cost-effective way. "We realized that a robust, secure wireless network could not only enable new teaching initiatives,” observes Mitch Krueger,

---

**PROFILE**

**Commitment to Modernization**

**Goddard Public Schools**, located in Goddard, Kansas, serves more than 5,500 students preK-12. Equipment and facilities are continuously upgraded, keeping students and teachers on the leading edge in technology, giving them an advantage in both collegiate and vocational settings. More than 87% of its students continue their education in college or vocational training.

As a result of their forward-looking philosophy, Goddard takes seriously its commitment to modernizing and upgrading its technology. Their technology mission is to provide fully integrated and secure information technology resources that are accessible to support the mission and goals of the district, and to educate all students for lifelong success.

Director of Technology for Goddard Public Schools Mitch Krueger has been instrumental in planning for and implementing a 1-to-1 initiative. He cites Aruba Networks as having "helped us create a technology-centric learning environment and enabled us to leverage BYOD district-wide."

---

www.edtechdigest.com

Telling the story of 21st-century education transformation.
Director of Technology for Goddard Public Schools.
“We wanted to move away from static labs towards a 1:1 environment that took full advantage of BYOD for technology-centered learning. “We also envisioned extending wireless access to the public library and other ‘hot spots’ where people could use, and benefit from, BYOD access.”
When a BYOD approach is introduced, it essentially converts the world into a classroom. Students can work on assignments, conduct research over the Internet, and collaborate with peers wherever they are. One of the keys to making this happen is to build a secure, flexible, and easy-to-maintain wireless network. The other essential is to be able to do this in a way that is affordable and generates community support.
Working with Aruba has allowed Krueger to achieve both of these essential objectives.

“We calculated that about three-quarters of devices connecting to the network could be personally-owned,” Krueger comments. “Over the long term, we could achieve savings by purchasing and replacing fewer district-owned machines. After piloting Aruba equipment, we knew that we could quickly undertake a modernization program by replacing our existing system.”

“Aruba was super-helpful with engineering the new setup,” says Krueger. “A senior systems engineer spent two weeks onsite and then assisted us remotely throughout the balance of the deployment.”
Beyond the classrooms, Goddard’s Aruba network enables local public safety officials to monitor and secure school facilities. “Our maintenance personnel use district-issued Apple iPads to connect to our HVAC server and administer those systems remotely,” says Krueger. “Also, our building administrators and local police department can access and remotely monitor security cameras throughout our facilities using their mobile devices.”

“Our Aruba network is enabling a 21st century, technology-centric learning environment,” Krueger says. “But it goes beyond that. It is also improving the comfort and safety of our schools. That kind of ‘right now’ access makes us very happy we chose Aruba.”

Simple, Stable, Secure — and Smart

At Oyster River Cooperative School District in New Hampshire, the district’s networking infrastructure just couldn’t keep up. “We wanted to enable a BYOD approach,” says Josh Olstad,
the district’s Information Technology Director, “but our existing network was unable to support the different types and number of devices. Even normal classroom demands frequently overwhelmed the district’s infrastructure.”

Teachers were unhappy with the situation. The district was transitioning to the New Hampshire College and Career Ready Standards (a version of the Common Core Standards). The technology was not in place to meet new teaching and learning goals. “We realized early on that it was going to be extremely important to invest in the right infrastructure,” Olstad states.

“Historically, everything was fairly manual. We’d configure switches port-by-port. Everything was static and didn’t allow for changes. It was time-consuming for our limited IT staff. Modernizing required that we replace wired networking switches as well as our old wireless infrastructure,” says Olstad. The task began with consideration of solutions from multiple leading manufacturers. The ultimate choice was to work with Aruba Networks. Installation went smoothly. The overall task was completed in less than three weeks — and it was done in the summer so classes were not disrupted. In addition to switches, critical components of the new

---

**PROFILE**

**Investing Wisely in Next-Gen Technology**

The Oyster River Cooperative School District serves three towns in New Hampshire. Just 50 miles north of Boston, the district and its students have easy access to a wide array of cultural and educational opportunities.

Established in 1954, this is one of the oldest school districts in the state. It serves over 2,000 students in four schools. An elected, seven-member school board governs the district. The Oyster River Cooperative School District has a long history of providing excellent educational opportunities for its students, beyond what might be expected of a relatively small district in southeastern New Hampshire.

Committed to excellence in education, the district is able to recruit and sustain an excellent teaching staff and outstanding administrative leadership team. Josh Olstad is the district’s Information Technology Director. In concert with Aruba, he has played a key role in helping the school to modernize its outdated information system and to invest wisely in next generation technology and infrastructure.

---

“We realized early on that it was going to be extremely important to invest in the right infrastructure.”
—John Olstad, Information Technology Director, Oyster River Cooperative School District
infrastructure included Aruba Instant Access Points (APs) and the Aruba ClearPass Access Management System. This configuration reduces deployment, maintenance and build-out efforts. “The district needed to streamline network management,” Olstad notes, “and that is precisely what Aruba delivered.”

The benefits from deploying ClearPass are abundant,” Olstad continues. “We adopted ClearPass Policy Manager and ClearPass Guest. As a result, we no longer spend all that time going port-by-port for configuration. ClearPass also provides Authentication, Authorization, and Accounting) services, assisting Oyster River with comprehensively managing network policies, onboarding and managing devices securely and admitting guest users, all from a single platform. It just made sense to dynamically push out policies to switch ports and users. Plus it gives us significantly more flexibility for policies based on devices and privileges. With all the policy flexibility, security is much easier to manage.”

Oyster River is also benefiting from Aruba AirWave Network Management, which optimizes the district’s wireless network from the same centralized platform as ClearPass. In addition, combining AirWave with ClearPass enables Oyster River to give teachers, students, staff members and guests an exceptional network experience. “Whether it’s an enterprise device, like a tablet, or a consumer device, like an e-reader, we know what’s on our network,” says Olstad. “And we can optimize settings for each device type.”

New types of learning technology are also being introduced thanks to Aruba. “Before, when staff and administrators approached me about Apple TVs,” Olstad recalls, “I had to tell them we couldn’t support them. Now we can, and we’re confident the network will provide the high-quality experience our end users want.”

“We are very happy that our new network is device-agnostic,” Olstad says. “It used to be that getting an iPad connected was a nightmare. With Aruba it’s simple and secure. We know students and staff can now rely on our wireless network for connecting with their personal devices. In fact, we can see over 400 iPhones connecting to our network – all of which are personal devices. Equally important, we now get a really good breakdown on each type of device. Because we can see how devices are being used we can optimize the network to give everyone the best experience.

www.edtechdigest.com
Telling the story of 21st-century education transformation.

Copyright ©2015 EdTech Digest. All rights reserved.
“Every time I see a middle school principal he talks about how great the network is working.”

—John Andrews, Chief Information Officer, Dysart Unified School District

“Aruba Networks is a home run for Oyster River,” Olstad says enthusiastically. “Before, I’d only hear about the network when it was broken. Now, every time I see our middle school principal he talks about how great the network is working. Aruba has given us so much more than we ever imagined.”

Technology Leadership through Leading-Edge Wi-Fi Networking

“Our district has attracted local, regional and national recognition for our technology leadership efforts,” says John Andrews, Chief Information Officer at Dysart Unified School District in Surprise, Arizona. This includes developing an in-house set of learning management tools to assist educators with delivering individualized instruction and offering 24/7 access to online professional development resources. “We’ve also embraced teacher and student BYOD by encouraging individuals to bring their own devices. It’s part of our culture to continuously take teaching and learning tools to the next level.”

While the school has maintained a technology leadership role, it nonetheless faces the same

Dysart Unified School
District in Surprise, Arizona, is the state’s fastest-growing school system. Since 2000, the 24-school district has more than tripled in size.

Despite unprecedented growth, Dysart still focuses on preparing its students to thrive in the new century. Modern facilities and programs align with the Arizona Academic Standards; the district is committed to maximizing student engagement.

They integrate technology into instructional practices emphasizing 21st-century skills. Technology use by teachers and students for communicating and collaboration, as well as in support of critical thinking and creativity, is essential to learning the skills and competencies necessary to achieve college and career readiness.

Going beyond providing preK-12 students with just the basics, the district works collaboratively with all stakeholders and actively involves parents and community members as partners.

John Andrews is Chief Information Officer of the 25,600-student district. Working with Aruba Networks, Andrews and his team are working to realize the district’s vision for enabling worldwide video collaboration, embracing new e-learning opportunities and improving security systems.

www.edtechdigest.com
Telling the story of 21st-century education transformation.
For the school district, a fundamental consideration in building the network was to ensure that management costs were aligned with available resources.

budget constraints that are affecting all schools. While enrollment has been growing at a rate of 1000 students a year, budgets have not kept pace. “Still, it was important to us to not lose our technology edge. System specifications included the following requirements:

- Secure, scalable, capable of supporting innovation culture, including BYOD, videoconferencing, and online testing.

- Security and centralized comprehensive policy enforcement.

- Optimization of the network for exceptional user experiences.

- Future-ready for adoption of Gigabit Wi-Fi with 802.11ac-compliant access points.

A fundamental consideration in building the system was to ensure that management costs were aligned with available resources. “Our Aruba WLAN, with AirWave and ClearPass, provides a scalable and cost-effective Wi-Fi network, giving us new opportunities to innovate,” Andrews observes. “We needed to move from a hot spot paradigm to pervasive Wi-Fi access inside and outside our facilities.

Before choosing Aruba, Dysart explored several vendor options. “In the end, we settled on a scalable enterprise wireless infrastructure solution from Aruba Networks,” Andrews notes. “Quality and price were important, but in addition, Aruba also offered an exceptional software suite for network optimization and device access management. Proprietary tools such as AirWave and ClearPass were essential to helping us meet our performance and security goals without placing additional burdens on our limited IT staff. The ability to remotely monitor and manage the network, as well as provide user-friendly guest registration, was critical.

“AirWave allows us to optimize our network based on the data and analytics Aruba provides,” Andrews says. “If there is an issue on the network, AirWave ensures we can pinpoint the location or AP involved for fast troubleshooting and resolution. Naturally, this assists us with achieving our desired end-user Wi-Fi experiences.”

ClearPass, Andrews explains, delivers comprehensive network policy management,
secure device onboarding and management plus the ability to admit guest users — all from a single platform. “Using Aruba’s tools we can not only see how many devices are connected to an individual AP, but also visualize individual devices,” he says. “This enables us to bounce certain devices off the network — or restrict a particular device altogether — based on the device’s behavior or other criteria. Aruba’s tools are extremely important for security — and the safety of our young people is priority one.”

Prior to the deployment, “we received calls almost daily about limited availability,” says Andrews. “That is no longer the case. For example, our elementary schools previously had about 20 APs. Now they each have 80-90 APs, ensuring pervasive access. At the high schools, each facility went from 50-60 APs to 120-130 APs.” From a device perspective, elementary schools were previously limited to 250 devices accessing the network simultaneously and at the high schools it was 600. “Now, with the combination of more APs and Aruba’s management software, the number of devices at each location is unlimited.

Dysart’s new WLAN is assisting with a move to all-online testing. “This will save the district significant funds over using paper-based tests, Andrews asserts. Also, the grading and data-gathering aspects of tests will be more efficient and less error-prone. Exam results will not only be immediate, but also integrated into our learning management system. As a whole, these innovations will assist teachers with making the right decisions for each of the students in their classroom.
“Network performance has exceeded our expectations,” says Andrews. “With Aruba, we now have the hardware and software technologies necessary to help us make further innovations,” he adds. “We look forward to the new opportunities it presents for our district.”

About Aruba Networks
Aruba Networks is a leading provider of next-generation network solutions for mobile organizations including educational institutions. The company designs and delivers Mobility-Defined Networks that ensure student success with digital learning and empower teachers with rich classroom tools, while empowering IT departments to make smart investments in next-generation infrastructure.

Listed on NASDAQ and Russell® 2000 Index, Aruba is based in Sunnyvale, California, and has operations throughout the Americas, Europe, Middle East, Africa and Asia Pacific regions. To learn more, visit Aruba at http://www.arubanetworks.com. For real-time news updates follow Aruba on Twitter and Facebook, and for the latest technical discussions on mobility and Aruba products visit Airheads Social at http://community.arubanetworks.com.

STRATEGY
Plan Your Wi-Future

With textbooks being replaced by e-books, 1-to-1 BYOD initiatives, mandated Common Core Standards, and the need to keep student engaged in today’s classroom, the need to modernize, upgrade, and innovate is clear and compelling.

Before you take the leap, keep these considerations in mind:

☑ Start with a robust infrastructure that can support multiple mobile devices and provide the bandwidth for new and emerging applications
☑ Make sure your network will support a stable academic testing environment
☑ Empower your teachers – keep it simple
☑ Support BYOD while keeping the network secure – with limited IT resources
☑ Leverage low-cost technologies
☑ Simplify network management

Talk to a trusted technology solutions firm. Let a leading provider of next generation Wi-Fi Infrastructure show you how to put technology to work in ways you’ve always needed — but never imagined were possible.
LEARN MORE:

Aruba Networks
http://www.arubanetworks.com/solutions/primary-education/

www.edtechdigest.com
Telling the story of 21st-century education transformation.
produced by:

EdTech Digest | Education Research
323.823.4192

www.edtechdigest.com
Telling the story of 21st-century education transformation.