TRANSITION TO DIGITAL LEARNING

In many ways, the connectivity and access to the internet has transformed education at all levels. The ability for students to access learning materials on-line as well as for instructors to share lessons and collaborate has revolutionized teaching and learning. Where education used to be concentrated in school buildings, it can now be accessed by millions of people (almost) anywhere.

80% Of schools can deliver common area access.

280% Of schools can deliver common area access.

PHASE WIRED ONLY

ACCESS
• Lab-centric classrooms

USAGE
• Interactive E-Books
Google Docs / Office 365

PHASE WIRELESS/REMOTE

ACCESS
• Student-centric classrooms
Secure campus / remote access

USAGE
• Courseware and denser files
VR, video and gaming

PHASE CAMPUS-WIDE

ACCESS
• Community and industry
Collaboration between schools and nations

USAGE
• Pervasive video conferencing and streaming
Big data analytics

PHASE SOCIAL/COMMUNITY

ACCESS
• Global / Internet of things

USAGE
• Virtual teaching
Pervasive computing

PHASE HIGH DENSITY NET ECOSYSTEM

ACCESS
• Machine learning/AI

USAGE
• 802.11ax + LTE + IoT
5/10 Gbps edge
100 Gbps backbone

5 Million
Households with school-aged children do not have access to the internet.

75% Of school systems surveyed do not have any off-campus strategies for providing connectivity to students at home and after school.

80% Of schools cite institution-wide network coverage—although it is inadequate for more advanced digital curricula and tools.

Most instructors described their network as “unreliable.”

Sources: Learning Counsel Digital Curriculum Strategy Survey and Assessment Tool 2016; Pew Research Center, 2014
THE DIGITAL CLASSROOM OF TOMORROW PROMISES AN OUTSTANDING EDUCATION.

The classroom of tomorrow promises an outstanding education. Blended learning, digital curriculum and other modern learning models can better engage students and help educators be more effective.

With this digital transformation, lesson plans now depend on consistent, reliable connectivity to the school Wi-Fi network. Instead of leaving tools locked in the classroom, students walk in the door with their Chromebooks, tablets or other devices every morning, and take them home with them each night.

As such, there are three major concerns that IT administrators in K-12 school districts are currently facing:

1. **A FAST AND RELIABLE NETWORK IS NO LONGER OPTIONAL.**

   Don’t let your campus network become a roadblock. Invest in a wired & wireless network that supports future ready technologies and delivers proven performance, reliability, and scale for K-12.

   **THE TOP PRIORITY FOR IT IS BROADBAND AND NETWORK CAPACITY.**

   More devices are coming onto the network, stretching the limits of aging infrastructure. SETDA recommends 3000Mbps per 1000 students by 2018. Plan for growth, not rip-and-replace.

2. **NETWORK AND BROADBAND SCALING**

3. **SECURITY AND STUDENT DATA PRIVACY**

4. **TRANSITION TO DIGITAL LEARNING**

   **FACING THE TASK OF PROTECTING STUDENT DATA FROM MISUSE OR BREACH.**

   49 of 50 U.S. states have drafted legislation or enacted laws to protect student data.

   **THE TRANSITION FROM TEXT-BASED CURRICULA TO BLENDED LEARNING**

   Avoid network down time. Even a three minute interruption can disrupt a 50 minute class.

HOW DOES THIS FIT IN MY SCHOOL

Whether you manage a single school building, a district, or an office of education, Ruckus has you covered. As the #1 Wi-Fi vendor to Service Providers, our solutions are designed to be centrally managed or offered as a service (including cloud-managed).
WHY CHOOSE RUCKUS FOR YOUR SCHOOL PROJECT

As your school continues its digital transformation to 1:1 mobile learning, Ruckus helps you address the top three challenges of school IT: network scaling, securing student data privacy, and network reliability for digital instruction. Our goal is to help you provide a safe and reliable learning environment at an affordable price.

RELIABLE WI-FI

Our passion is highlighted by 100+ RF patents that provide the strongest wireless connections and enable our access points (APs) to automatically adapt to non-ideal placement or changing conditions. Moreover, it has been independently proven that only Ruckus can sustain 60 HD video streams with just one AP*. Supporting more students with fewer APs means significant savings for your school.

SCALABLE SWITCHING

Our switches support long distance stacking between closets, floors and buildings, while Ruckus Campus Fabric allows up to 1,800 ports to be managed under a single IP address. In addition, entry-level switch uplinks can be upgraded from 1GbE to 10GbE with just a software license. Similarly, our high-performance access switch uplinks can be upgraded to 40GbE or 100GbE.

SIMPLE SECURITY

We make securing every connection to your school network easy, with identity-based policies that facilitate rapid guest access on-boarding. This means an end to passwords and trouble tickets for Wi-Fi access. We also support CIPA compliance by allowing the restoration of content filtering for HTTPS traffic.

EASY CLOUD

Ruckus Wi-Fi is now in the cloud and easier than ever to manage. Plus, our intuitive smartphone app allows you to deploy, monitor and manage APs on the go. And even when your subscription expires, the APs are still able serve your clients.

OPTIMAL FOR CHROMEBOOKS

Our Ruckus Cloudpath Chrome Extension enables simple network provisioning with a single click – and verifies which Chromebooks are school property. Moreover, only Ruckus can sustain 60 HD video streams with just one AP*. We also support CIPA compliance by allowing the restoration of content filtering for HTTPS traffic.

FUTURE PROOF

Our 10G access switch uplinks can be upgraded without replacing the switch. We also support stacking up to 12 switches, while Campus Fabric supports up to 36 switches with a single pane of glass. Our flexible switch deployment options include standalone, stacking and Campus Fabric (with the same switches). With Ruckus Cloud Wi-Fi, you can easily add APs as well as in-building LTE or Internet of Things (IoT) infrastructure. For the latter two, simply plug into pre-existing APs – without ripping and replacing!

AFFORDABLE MULTI-GIGABIT

Our purpose-built multi-gigabit APs and switches are designed to work together. We offered the first entry-level multi-gigabit switch, with up to 16 multi-gigabit (2.5GbE) ports per 48-port switch, and up to 8 x 10GbE uplinks without over subscription. Our premium multi-gigabit access switch offers 24 x 1/2.5/5/10GbE ports with 40/100 GbE uplink ports. These multi-gigabit switches offer full PoE/PoE+ on all ports (up to 90W per port).
BELLEVILLE SCHOOL DISTRICT
Belleville Township High School District 201 serves 4,700 students and 480 faculty and staff. The district covers 120 square miles in Belleville, Illinois. Belleville had been running the Ubiquiti Unifi solution for several years and faced significant challenges with client density.

“We have gone up to 100 clients on a single AP with no connectivity issues, and the cloud user interface makes management and control a snap.”

CURTIS MCKAY
Network Administrator, Belleville

CHALLENGE
Belleville Township High School District 201 is located in Belleville, Illinois, with two high school campuses over 120 square miles, and serves 4,700 students and 480 faculty and staff. The district had been using the Ubiquiti Unifi solution for the past several years, and was plagued with density challenges from the beginning. If more than 30 clients connected to an access point (AP), it would stop functioning. Additionally, if there were several classrooms close together that were using smart devices, the signal overlap made the connection slow and unreliable. Both students and teachers were complaining: students because they couldn’t utilize the cloud-based learning resources and teachers because their lesson plans were falling apart. It was clear that a future-proof network infrastructure was necessary to meet both student and faculty needs.

SOLUTION
Curtis McKay, the network administrator for Belleville, was interested in deploying an enterprise-grade solution with APs that were more intelligent and leveraged features such as channel selection and power bandwidth. The goal was to deploy a wireless infrastructure that could support high density in the classroom, easily connecting more than 30 clients at the same time.

When it came to selecting a platform, Belleville preferred a cloud-managed infrastructure because it would not require any additional hardware at either high school campus. Ruckus partner Bytespeed Systems introduced McKay to the Ruckus Cloud Wi-Fi Early Access Program (EAP), offering him the opportunity to be one of the first to trial Ruckus Cloud Wi-Fi. He also spoke to other school districts who had tested both Ubiquiti Unifi and Ruckus Wireless APs.

WE BRING OUR "A" GAME
Ruckus was one of only two vendors able to deliver stall-free streaming video to 60 clients in an unloaded network scenario—and the only vendor able to do so in every scenario, both with and without simultaneous network data loading. No other vendor came close. Testing was conducted with the Ruckus R610.

Source: Divergent Dynamics independent test report

### WE BRING OUR "A" GAME

**R610**

<table>
<thead>
<tr>
<th>Model</th>
<th>Pre-Loaded</th>
<th>During Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR42</td>
<td>41</td>
<td>28</td>
</tr>
<tr>
<td>AP-305</td>
<td>28</td>
<td>19</td>
</tr>
<tr>
<td>1850i</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>AP250 (Single 5GHz)</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>AP250 (Dual 5GHz)</td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>

**Chromebooks**

<table>
<thead>
<tr>
<th>Classroom 1</th>
<th>Classroom 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Chromebooks</td>
<td>30 Chromebooks</td>
</tr>
</tbody>
</table>

**Mac Minis**

AP on channel 149, 40MHz

1 AP per 2 classrooms

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WHAT DOES RUCKUS PROVIDE?

The Ruckus product portfolio of Wi-Fi, switching, IoT, LTE, software and SaaS lets you deliver a great end-user connectivity experience while reducing the amount of time you spend managing the network. And because Ruckus packs more capability into every network element, you can build that network at a lower cost per connection.

<table>
<thead>
<tr>
<th>CLOUDPATH SOFTWARE</th>
<th>SMARTZONE NETWORK CONTROLLER</th>
<th>CLOUD WI-FI</th>
<th>ACCESS POINTS</th>
<th>ICX SWITCHES</th>
<th>RUCKUS IoT SUITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy Chromebook on-boarding</td>
<td>Wired/Wireless management</td>
<td>Easy management saves time</td>
<td>All students connect reliably</td>
<td>Silent classroom switches</td>
<td>Add IoT during or after install</td>
</tr>
<tr>
<td>HTTPS inspection for CIPA</td>
<td>Visual connection diagnostics</td>
<td>Scales with 1:1 deployments</td>
<td>Fewer APs needed per school</td>
<td>Leading power density (up to 90W)</td>
<td>Keep your AP investment</td>
</tr>
<tr>
<td>Prevents password lockouts</td>
<td>Powerful new mapping tool</td>
<td>High reliability for digital learning</td>
<td>Non-stop VR, gaming and video streaming</td>
<td>Uplink scaling 1/10/40/100GbE</td>
<td>Reduce IoT complexity and cost</td>
</tr>
<tr>
<td>BYOD and 1:1 policies</td>
<td>COE as service provider</td>
<td>Can manage from smartphone</td>
<td>Multi-gigabit (2.5GbE) uplink</td>
<td>Hitless failover &amp; ISSU</td>
<td>Great for STEM learning</td>
</tr>
<tr>
<td>Dynamic PSK</td>
<td>Customization with Open APIs</td>
<td>Ruckus APs, now in the cloud</td>
<td></td>
<td>Multi-gigabit (1/2.5/5/10 GbE)</td>
<td>Go green, save green</td>
</tr>
<tr>
<td>Granular policy guest access</td>
<td></td>
<td>Long distance stackable</td>
<td></td>
<td>Long distance stackable</td>
<td></td>
</tr>
</tbody>
</table>
Ruckus is partnering with Lenovo to bring VR learning to primary and secondary schools with the Lenovo Virtual Reality Classroom Kit.

These self-contained kits are packed with everything educators need to get VR quickly up and running, including Lenovo Mirage Solo VR headsets, Lenovo Tab 4 PLUS 10" touchscreen tablets and thousands of hours of digital curriculum – all linked through Ruckus Wi-Fi access points (APs).

“Teachers are already working hard to develop and deliver digital lesson plans so they don’t have time to become an extension of their IT helpdesk. That’s why Lenovo designed the Lenovo VR Classroom to be simple, scalable and durable,” Nedwich told The Ruckus Room. “Each kit functions as a complete turnkey solution, with VR hardware, software, curriculum and Ruckus Wi-Fi all pre-configured and ready to go. There is no complex setup, or fiddling with settings to get and stay connected. You can just turn on the VR headsets, bring up today’s lesson plan on the tablet and start engaging students.”

A CLOUD WI-FI EXPERIENCE? IT’S AS EASY AS 1, 2, 3…

LET’S GET YOUR TRIAL STARTED

We told you that Ruckus Cloud Wi-Fi simplifies WLAN management. Try it for yourself. No obligation, no credit card required. See how easy it is to set up, monitor and manage.

Includes:

- 60-day trial of Ruckus Cloud Wi-Fi
- Ruckus 802.11ac access point*
- Ruckus Cloud mobile app for anywhere management
- Phone and chat support

* FREE TRIAL AND AP TERMS AND CONDITIONS APPLY. SEE URL PROVIDED BELOW.

WANT TO TALK TO SOMEONE?

Email us:
cloud@ruckusnetworks.com
We’ll get back to you within one business day.

Or Visit:
https://info.ruckuswireless.com/cloud-trial.html?
TOSS OUT THE RULERS, BRING IN THE WI-FI

In days of old, learning involved rulers, chalkboards, creaky desks and plenty of recess. Today, technology has become a central part of learning, and educators know how important it is to keep students engaged.

RUCKUS KEEPS GOOD COMPANY

Ruckus is proud to be a contributing member of many associations serving the Education community. We are also working with leading technology and alliance partners that offer complete, proven solutions that complement the Ruckus wired or wireless portfolio to help our customers meet critical business needs.

GOOD STUDENTS TAKE GOOD NOTES:

- Call Ruckus

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