ALE | **Where Everything Connects**

Education in a digital world

Using mobility to improve learning

Alcatel·Lucent

Enterprise

Modern challenges in education

Education organizations are looking at wireless technology to help transform their services to meet today's challenges.
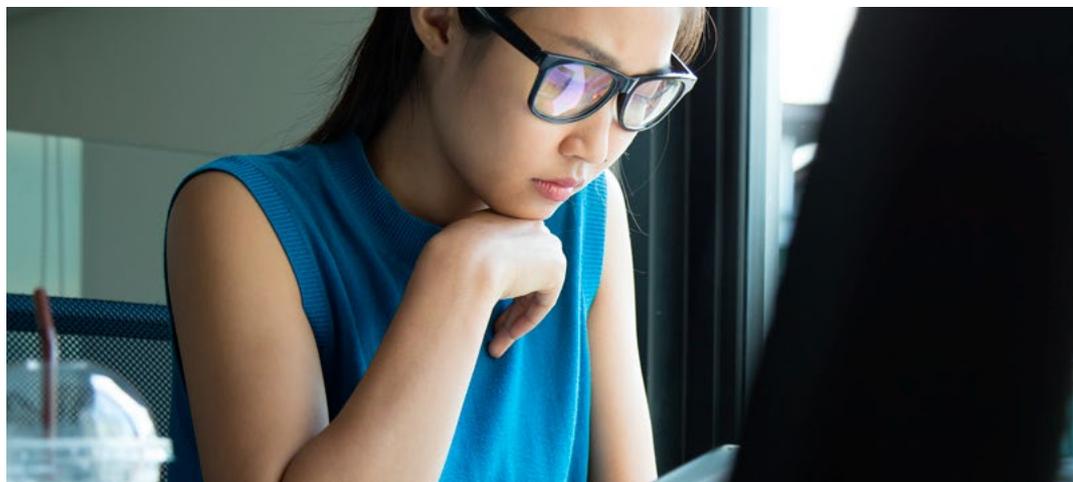
Meeting student expectations

In education, more than in any other field, you are dealing with a digital generation. They are tech savvy beyond their years and comfortable with virtually any device. Wherever they are they expect to be connected. You need to meet this demand for constant mobility – from students at all levels – with a wireless network that has the speed, capacity and reliability to handle:

Multimedia digital textbooks – the source materials for learning at home and in the classroom that are evolving into **immersive textbooks**, with collaborative sharing in real-time.

Bring your own device (BYOD) – the **1:1 ratio** of at least one device for every student in the US is evolving to many devices per student. Typically, students arriving at a university will have more than three devices - a video game console, a smartphone, a laptop and so on.

Blended learning – where studying at home and on campus has now become 24x7 education with most learning taking place outside the classroom.

Personalized curriculum – to differentiate the learning process through analytics, assisted by **artificial intelligence.**

Game-based learning – making it more pleasant to study, which is now taking off into **virtual reality.**

The story in universities is similar, but student expectations go further. They want connectivity everywhere, and that extends from simply empowering learning to running their entire life.

They are attracted by an environment that they can share through social media, where they can interact with their neighbors, and participate in different groups, such that they have an experience that goes far beyond the university campus.

To achieve this means connectivity across campus, in dorms, the sports hall, and classrooms – wherever they are.

These trends in education demand a huge consumption in bandwidth for which you need high-performance Wi-Fi at the lowest cost possible. Simply adding to legacy systems only decreases performance. What's needed is better Wi-Fi technology.

Getting up-to-date with educational technology

How do you embrace the new education technology while keeping the network secure and manageable by limited staff?

Teachers – want to improve learning with classroom technology that's easy to use with minimal training while increasing student engagement and ultimately their success.

Administrators – are looking for simpler, low-cost operations that can meet regulatory needs and provide a safer environment for staff and students.

IT – wants to enable education technology that is easy to administer, cost-effective, reliable and secure.

Education leaders – are looking for the technology differentiator that can enable educational excellence and promote true digital learning, while maximizing the budget.

Top priorities for education[1]

There are clear expectations for IT to support educators in developing:

- Personalized learning
- Digital content and curriculum
- Professional development
- Online testing
- Mobility and common core (state) standards

The technology priorities needed to achieve these changes are:

- Upgrades to the network infrastructure
- Greater student data privacy
- More advanced data management / analytics
- Robust cybersecurity policies

[1] 2015 Digital Schools Districts Survey, CDE

Minimizing the cybersecurity threat

The growth in mobile and IoT devices opens up education networks to increased cyber threats – from ransomware attacks to online bullying to theft of confidential student data. The increasingly sophisticated attacks make it more costly and complex for IT to recover. In addition, it's important to secure the network from misuse. User profiling enables IT to limit who can access what and when, such as restricting internet use during exams but allowing it at other times.

Threats to learning

A staggering one in three universities in the UK face cyber attacks on an hourly basis[1].

Nearly 8 out of every 10 universities have experienced reputational damage due to cyber crime[1].

In June 2017, University College London (UCL – a center of excellence in cybersecurity research – was hit by a major cyberattack[2].

[1] VMware: University Challenge: Cyber Attacks in Higher Education, 2016
[2] http://www.bbc.co.uk/news/education-40288548

By 2020 IoT endpoints will grow to 20.8 billion units[4] with a significant part of that rise in education.

Educating the digital natives

The new education is being shaped by both mobility and IoT.

Mobility – provides connectivity anywhere for teachers and staff as well as for students. With BYOD, there is a growing number of devices to support with a similarly exponential growth in mobile apps. Throughout 2017, an anticipated 270 billion apps will be available to download from the main app stores[3] and many educational apps are now being tailored to mobile devices. Along with more apps to use there are more impatient users who expect a fast response time.

Internet of Things – by 2020, IoT endpoints will grow to 20.8 billion units[4] with a significant part of that rise in education. Incorporating IoT devices in classrooms, campuses and beyond is increasingly common – whether it's for smart boards, audio-visual devices or security cameras – meaning more "things" than ever are connecting to the network.
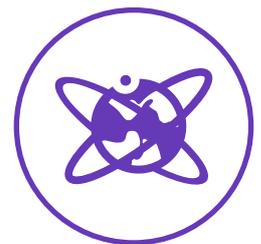
[3] Statista.com: http://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/
[4] Gartner Report: Infrastructure and Operations Leaders: Prepare for the IoT Rush, 1 March 2016

Connectivity everywhere

Mobility everywhere is one of the key building blocks for the digital campus. For this, you need a high-performance wireless network with simplified operations and in-depth security that is IoT ready. The ALE architecture provides the digital foundation for such education networks.

It does so through:

- **High-performance Wi-Fi** – that goes beyond just coverage and bandwidth to control every device and enable connectivity in high-density areas, such as classrooms, halls, football stadiums and the like

- **Unified access** – for easier access for students and staff

- **Greater IT efficiency** – with a simple to deploy and manage network that's essential when IT resources are limited

- **IoT containment** – for an environment that is easy to onboard devices and secure to operate

- **Easy scalability** – with a flexible network that can meet the future demands of education technology

A future-proof network for education

The Alcatel-Lucent OmniAccess® Stellar WLAN Solution delivers a cyber secure educational environment that is simple to operate, lowers TCO and offers the best possible user experience. It includes next generation wireless access points that support:

- 802.11ac Wave 1 & Wave 2 standards
- Gigabit and multi-gigabit Ethernet connectivity
- Location-based services through Bluetooth low energy beacons
- Smooth operations, even outdoors
- Simple and secure student and staff onboarding and management

With the addition of centralized management, you can support:

- Unified wired and wireless networks (when used with Alcatel-Lucent Enterprise LAN solution)
- Role-based policies
- Smart analytics
- Advanced wireless features

One network, many benefits

Through our global reach with local focus, ALE offers enterprise-grade Wi-Fi that works harder for you. It uniquely combines a distributed controller architecture with IoT containment and unified access for simpler management.

- Easy connectivity provides an excellent and secure user experience for students, teachers and administration staff
- A unified network (wired and wireless when used with Alcatel-Lucent Enterprise LAN solution) provides a seamless user experience across campus, while cloud-based management ensures the best quality of service
- A distributed controller architecture provides intelligence to all access points for better performance and high availability
- Expanding access is easier, with easily scalable, high speed Wi-Fi and better radio coverage
- It's a future-proof solution, built on the latest technologies and services to protect your investment

To find out how to connect students and staff anywhere and everywhere with the benefits of mobility.
Visit: https://www.al-enterprise.com/en/ stellar-mobility-wifi

Connected Education

Where education connects with technology that works. For your school, college or university. With global reach and local focus, we deliver purpose built networking and communications for the education environment that enable secure, reliable collaboration between your faculty and students.

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