



ALE | Where
Everything
Connects



Digital Age Networking

in Education

Brochure

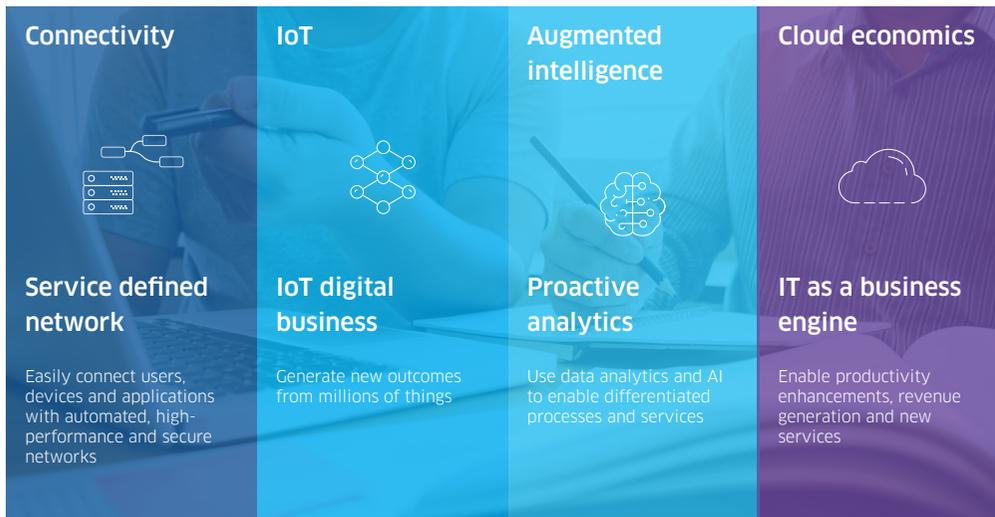
Alcatel·Lucent 
Enterprise

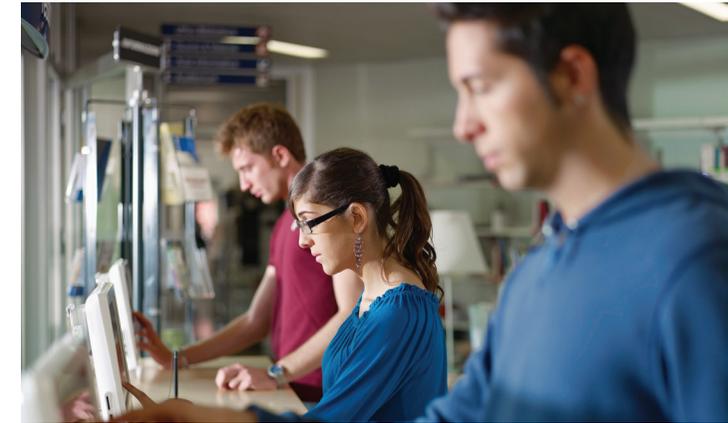
Education

ALE Digital Age Networking provides a state-of-the-art network infrastructure that enables digital transformation in the education sector. It empowers educators to use next-generation digital learning tools, which can help improve student success, provide a superior experience, help with retention, and ultimately achieve excellence in education. Furthermore, ALE network solutions help improve campus operations by enabling IoT systems, simplifying staff activities, and reducing the overall cost per student. They also help improve school and campus security with automated and secure management of CCTV and other surveillance systems.

Digital Age Networking is based on 4 pillars:

- Connectivity
- Internet of Things
- Augmented intelligence
- Cloud economics





Connectivity

In any education institution there are multiple groups of users with different needs. Students need access to the latest education technologies such as on-line courses, Learning Management Systems (LMS), and collaboration tools to communicate with their peers and teachers. Educators need access to grade systems, student information, research systems, as well as all the learning tools. Other staff requires access to administration systems, financial information, security systems, among others. The ALE Service Defined Network simplifies the diverse need for connectivity, while ensuring that individuals only have access to the applications and systems for which they are authorized.

In a university environment there are many new technologies that are bandwidth hungry – demanding high-performance and unified experience on both wired and wireless networks. Research activities can collect, store and process massive amount of data, for example, a particle accelerator, astronomy image processing, and

genome studies. As well, student entertainment and social activities make extensive use of videos including, social media, video streaming, and sport events. And, new learning technologies can consume tremendous amount of bandwidth for online courses, blended learning, and augmented reality. The ALE Service Defined Network leverages [Shortest Path Bridging \(SPB\)](#) which makes it simple to create a wide variety of network services, while maximizing all available links to provide better performance and a resilient network fabric.

The ALE Service Defined Network also uses automation. ALE switches include [Intelligent Fabric \(iFab\)](#) technology and can be up and running in just a few minutes without any configuration. IT can leverage technology student interns to do the install, moves, adds, and changes. It's as simple as connecting the cables and power on the switches. This frees up time for the highly skilled professionals to work on new strategic initiatives.

Brochure

Digital Age Networking



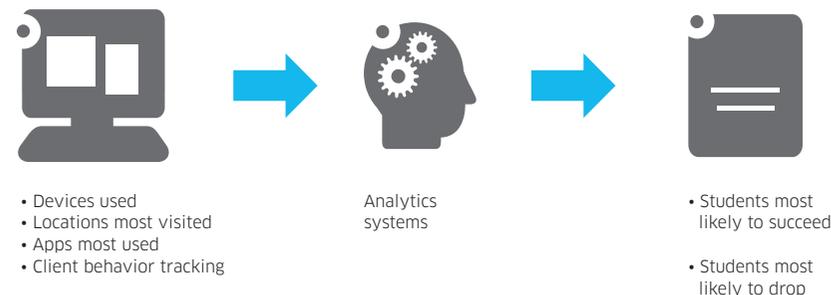
Internet of Things

The use of the Internet of Things (IoT) in education spans multiple areas. In the education sector, there are many devices that support learning and research, for example, smart boards, 3D printers, robotics, and projectors. IoT also helps to ensure a superior experience for students and staff. It starts with student's personal devices such as, video games, Apple TV, Amazon Alexa, as well as university IoT devices such as digital signage, vending machines, smart washing machines, and parking sensors. Campus operations also can be optimized with connected and intelligent systems like HVAC, lighting systems, sprinkler systems, and sensors in the washrooms. Another area where IoT provides significant benefit is in ensuring campus safety. IoT enabled devices such as surveillance cameras, door locks, smoke detectors and other sensors help to provide early alerts about dangerous situations.

All of these IoT devices must be onboarded and then provided with the required network resources for proper operation and monitoring. IoT enablement technology automates these activities; as well it ensures the network is secure and that only authorized individuals have access to authorized systems, consequently minimizing the exposure to cyber attacks.

Augmented intelligence

Augmenting human intelligence using big data, proactive analytics and artificial intelligence (AI) technologies can benefit educational institutions in many ways. They can provide specific and quantifiable information about the user connectivity experience and access to applications, and can compare it to benchmarks in other institutions in order to develop recommendations for improvements. Another important aspect that educators are trying to understand is what determines student's success. ALE Digital Age Networking collects a variety of information such as, where students congregate and with whom, class attendance, applications' usage, and devices used. This information combined with data collected from other systems can feed into an AI system to help assess which students are more likely to succeed and which ones are more likely to drop out. While there is still a long journey to get to that point, intelligent networks can contribute to the process.



Cloud economics

Cloud technology is one of the pillars of Digital Age Networking. It can be used to enable new business models, simplify operations, increase flexibility and scalability, and create new innovative services. Following are a few examples of the role of cloud used in the ALE Digital Age Network.

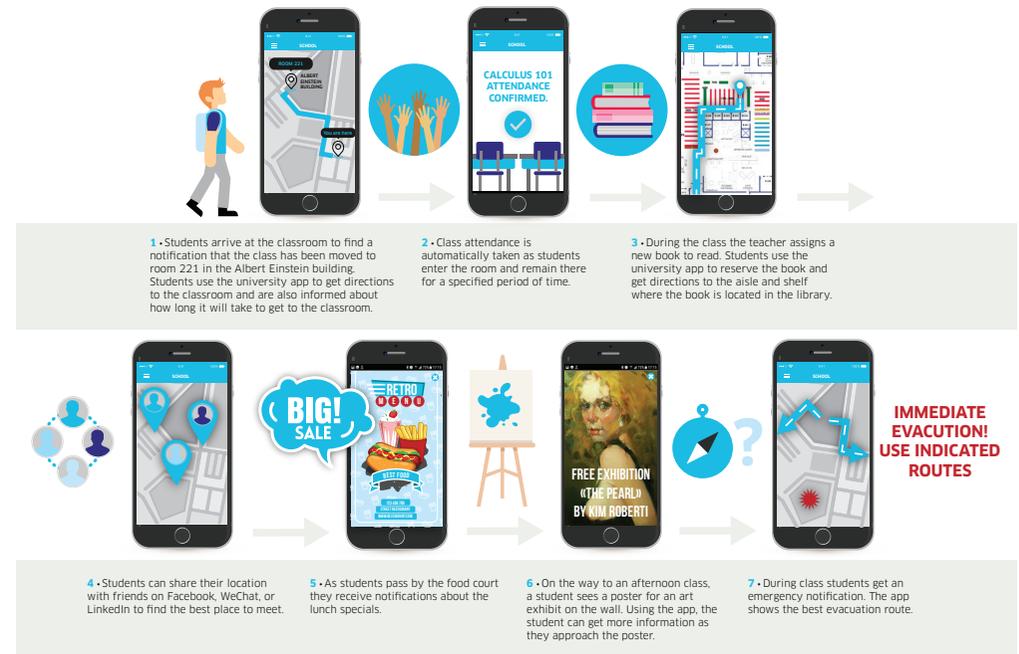
Digital evolution in the school environment is on the rise. In many cases, governments are promoting modernization programs that require every student to have access to a tablet or laptop. These devices are either provided by the schools or the students are encouraged to bring their own devices. An explosion in the number of devices simultaneously connected, and access to high-definition educational content, is driving many current network infrastructures into obsolescence. Unfortunately, in many cases, especially in the K-12 or primary school environments there are not enough funds available to start the network refresh. [Alcatel-Lucent Network on Demand](#) (NoD) provides these institutions with a financial alternative. With NoD, educational institutions can upgrade without making a CAPEX investment. Instead they pay a monthly fee for services. This cloud-based model is becoming popular. For example, a county in the UK, with approximately 300 schools, was pressed to offer Internet access in the schools while trying to manage austere budget restrictions. ALE was able to present a NoD financial model that allowed them to continue to provide support to the schools, including a refresh of the WLAN.

Another area where cloud-based technology plays an important role is with location-based services. [Alcatel-Lucent OmniAccess® Stellar](#) Location-based services can be combined with university apps to offer services that provide a unique and differentiated experience for students. LBS can also help institutions create new revenue sources as well as benefit from operational savings. Enhanced services can be offered to students and visitors. Some examples of LBS include: finding the parking spot closest to class, providing directions from the parking spot to the classroom, automated class attendance, directions to the shelf in the library where a book is stored. LBS can also provide an additional revenue source. For instance, a university can offer local shops the opportunity to send promotions and advertisements to students and visitors when they pass by the shop. Students could get notifications about the meal of the day, or special sales in a store that sells university apparel. LBS can also help optimize operations and deliver cost savings. Self-guided information at monuments and objects in art expositions, emergency evacuation notifications, and staff coordination – all provide optimization of resources. Asset tracking also helps save costs by

Brochure

Digital Age Networking

Location-based services in education



optimizing the utilization of equipment such as, oscilloscopes, microscopes, 3D printers, projectors and others.

Cloud-based network management solutions can simplify deployment and operations. [Alcatel-Lucent OmniAccess Stellar](#) WLAN can be 100% cloud managed with the [Alcatel-Lucent OmniVista® Cirrus](#) cloud-based network management system. OmniVista Cirrus offers an easy to deploy, effective way to manage and monitor Alcatel-Lucent Enterprise switches and OmniAccess® Stellar access points. It provides advanced policy capabilities for guest access and BYOD as well as advanced analytics for smarter decision making. As it resides in the cloud it is always kept up-to-date with the latest software release and all licenses and support are included. Subscriptions are available for one- three- or five-year terms.

ALE Digital Age Networking provides a foundation for education institutions to digitally transform without restrictions and enables the adoption of new technology to help deliver excellence in education.



We are ALE.

We make everything connect by delivering technology that works, for you. With our global reach, and local focus, we deliver networking and communications. On Premises. Hybrid. Cloud.

ALE | **Where
Everything
Connects**