

SOLUTION OVERVIEW

Education Reimagined

Aruba ESP (Edge Services Platform) is the network foundation for every step of the journey.

In the past few decades, technology has shifted how we live, work, teach, learn, and interact with others. This mobile era has changed everyday things like banking and shopping to how we design and configure our learning spaces. So, it is no surprise that technology will be a key factor in how we get back to school or university post-sheltering in place. And while human behaviors (wearing masks, socially distancing, etc.) will be the most important short-term elements in minimizing a new surge in COVID-19 infections, technology will again be the great enabler of what's possible for the new educational normal— supporting things like classroom density planning and instructional goals—all in a seamless and secure manner to keep students safe and faculty and staff connected.

But what happens when we look longer term—after that initial push back to school? How do we enable a hybrid instructional environment where some students may learn from home, but others arriving at school or on campus and either attending classes or dialing in remotely from on-campus student housing? How do we foster a new educational culture when the experience shifts to this new model? And the role of the network infrastructure as school and university design once again evolves to accommodate this new normal. Because one thing is clear—connectivity, and the technologies that support it, will be even more important in setting the foundation for reimagined education.

The consensus seems to be that the return to school or university will be a three-phase journey.

- The first, teaching, learning, and working from home, is where many educational institutions are today.
- As we begin to move into phase two, many institutions are now planning to return at least some portion, if not all of the student populations back on campus.
- The third phase will be a hybrid environment, which envisions a completely new approach to institutional

instruction, management, facilities, and connectivity – where there's a mixture of administrators, students and teachers that come to the campus on a daily basis, and those that continue to teach and learn from home and visit the school or university only on occasion for important meetings or classes which cannot be taught remotely (science lab, performing arts, etc.) Phase 3 will build on the lessons learned in phases one and two.

THE NETWORK AS THE FOUNDATION

Each phase of the journey has a common set of challenges associated with connectivity, management, and security. **Aruba ESP**—a cloud-native and AI-driven platform—is specifically designed to address these challenges and serves as the foundation for the workplace reimagined. With Aruba Central at the heart of the solution, Aruba ESP provides a cloud experience that can be consumed either as a service in the cloud or on-premises. It can be delivered as a managed service through Aruba partners or via network as a service with **HPE GreenLake**.

This is important because by delivering Aruba ESP through a cloud model, educational institutions can quickly scale up when the situation calls for it – like the recent rush to enable a distributed learning community for academic continuity – while enabling centralized management and AI-powered automation. Aruba ESP provides a single pane of glass for wireless, wired and WAN infrastructure across campus, branch, remote learner, and data center locations for a unified operational model. This becomes increasingly important as the institution is dispersed, because it simplifies network operations and management across any educational environment. And built-in Zero Trust Security means that the network remains secure, regardless of where employees, students, or devices are connecting from.



PHASE 1.

Studying and Working from Home – Secure Connectivity Takes Center Stage

The global pandemic threw the world into a crisis where schools and universities had to quickly enable a distributed population at scale to maintain academic continuity. Aruba was able to use its expertise in remote connectivity solutions to extend the school or university securely and seamlessly to the home – managed by Aruba Central. **Aruba Remote Access Points (RAPs)** not only supply home wireless connectivity that is identical to an on-campus experience (down to the school or university SSID), they also support Zero Touch Provisioning (ZTP), ideal for the non-technical home users. Aruba RAPs also support identity based Zero Trust Security and cloud management designed from the ground up to enable IT to manage and troubleshoot an employee’s network from a remote location.

The **Aruba VPN soft client, VIA**, for mobile devices such as phones and tablets, offers a secure solution that enables access and security from anywhere to provide a complete remote teaching and learning portfolio. These solutions were a much-needed foundation for quickly maintaining academic continuity in the face of the crisis.

ARUBA ESP ZERO TRUST SECURITY AND PRIVACY

Security and privacy go together. Aruba’s Zero Trust Security framework ensures that the data being collected for proximity solutions is always protected. It starts with military-grade encryption that moves sensitive information securely and efficiently throughout your network. User and device access are controlled using Aruba’s embedded **Policy Enforcement Firewall (PEF)** to dynamically micro-segment traffic based on centralized school or university policies defined in Aruba ClearPass Policy Manager. It all adds up to advanced protection that is native to Aruba’s wireless, wired and WAN infrastructure.

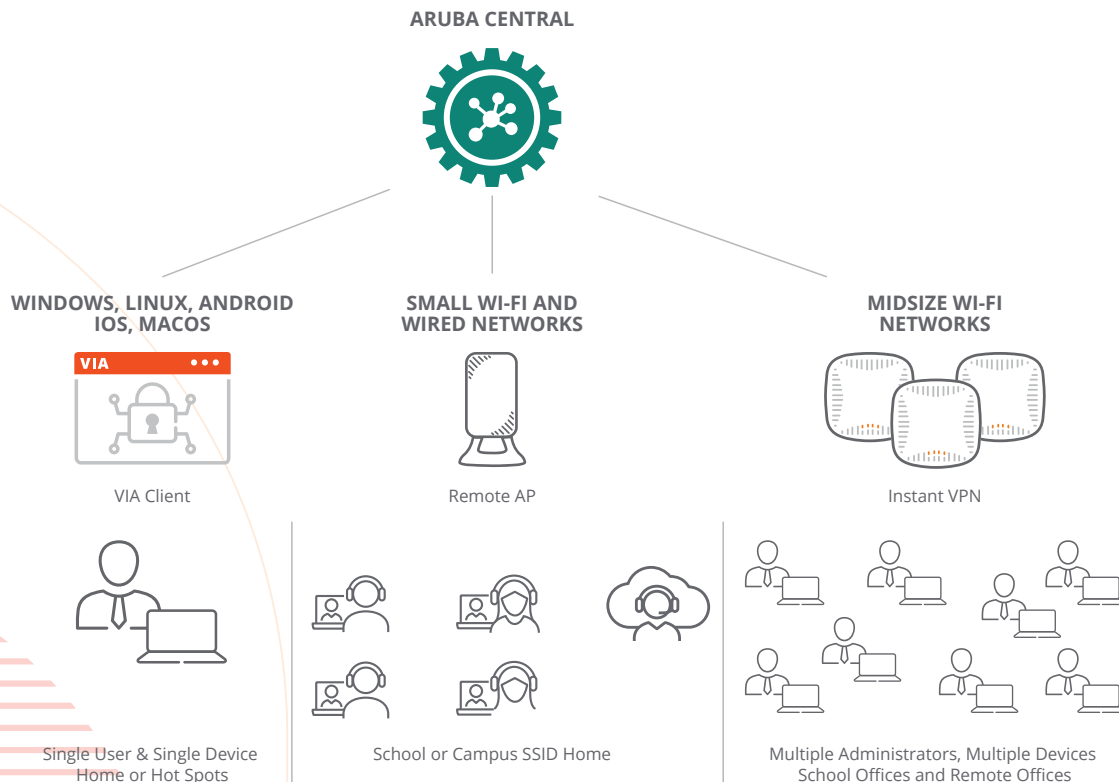


Figure 1: Aruba Cloud-native, Remote Teaching and Learning Solutions



PHASE 2.

Return to the Location-aware Office – Ensuring Faculty, Staff, and Student Wellness and Safety

As school districts and higher education institutions plan for the safe return to the campus, solutions that support density planning and behavioral goals are essential. This makes things like contact tracing possible and means technology can also encourage social distancing. Aruba's 500,000 customers – among them many school districts and universities – already have the network foundation in place to easily deploy these solutions. No need to rip and replace, no forklift upgrades required.

Aruba access points are platforms that include Wi-Fi, Zigbee and Bluetooth radios that deliver the Smart Telemetry – precision indoor and outdoor location data – necessary for these new applications. And to help with this phase of recovery, Aruba is providing AI-powered, cloud-based proximity solutions that will operate seamlessly on existing Aruba networks. These include:

- **Contact tracing** using Wi-Fi and Bluetooth to minimize virus spread by quickly identifying employees, visitors, or customers who may have come into contact with an infected person
- **Hotspot or heat mapping of locations** which carefully pinpoint physical locations that require quarantining and special cleaning schedules
- Purpose-built **dashboards and reports** in Aruba Central to accelerate discovery and investigation
- AI-based **data enhancement** to relieve IT from time-consuming collection and analysis to enable HR to quickly respond and take the necessary action in real time
- Point and click views and filters that provide **precision site, building, floor and access point granularity** across a wide range of user and device attributes
- **Rapid set up** on any existing Aruba infrastructure

Aruba's cloud-delivered services are complemented by a broad range of solutions delivered through our extensive partner ecosystem. Using Aruba APIs, connectivity, and telemetry data, these partners can provide robust return-to-school solutions, with the controls necessary for maintaining privacy and confidentiality.

LOCATION DATA OR AIOPS FOR CONTACT SOLUTIONS?

You will hear a lot about using location data, but how do you turn that into useful contact information?

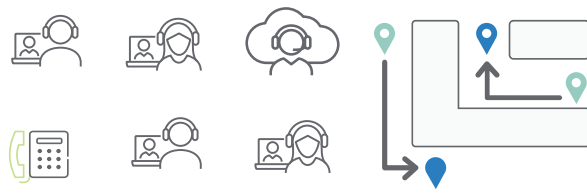
Many wireless vendors will supply a large amount of raw data—which is table stakes, but then it is left up to you to interpret how to use this data for student, staff, and faculty health and safety solutions. How do you distinguish between contacts that are separated by walls from true personal interactions? Given that we all use multiple devices, how do you build a comprehensive contact profile that correlates devices to users? Will the data provide a proximity “risk score” to prioritize action? Aruba offers location solutions that start with precision location data post-processed by AI-based Machine Learning and are visualized by graphically rich applications to solve these challenges. You are provided with accurate contact and location information without the guesswork. This relieves HR from the overhead and delays associated with correlating data and manual analysis, so they can focus on protecting school and university populations.



Aruba Access Points Collect Smart Telemetry Location Data



Data streamed to visualization and AI/ML Proximity Models



HR queries contact tracing SW

Figure 2: Aruba AIOPS Uses Smart Telemetry and AI Modeling to Power Location Solutions



PHASE 3.

The Hybrid Campus – A Long-term Blended Approach for Schools and Universities

As we learn what the new normal really means and the blend of home and physical school or campus environments becomes better understood, the hybrid institution will come into focus. We expect this blended learning space to consist of a new generation of classroom products and form factors that build on current teach-and-learn-from-home solutions like RAP's, while new campus guidelines for density and living and academic space management will require flexibility, intelligence and fluid, seamless connectivity with remote locations for a consistent experience—no matter where everyone connects from.

Reimagined education will increasingly rely on Wi-Fi, Bluetooth, IoT sensors, and other capabilities that build on what we've learned in phases 1 and 2 of the instructional recovery journey. Where can touchless solutions be used more effectively? How does the network play a bigger role in security and crisis management, should any health or other type of emergency arise? What about automatically adjusting physical and environmental factors for everyone based on their preferences?

With a rich set of open APIs and high quality, AI-curated data, Aruba is actively mapping out what new educational environments may look like and the benefits it will provide. Long established partnerships with key leaders in the field of school & campus architecture, design and furnishings will help to redefine next generation instructional and intelligent learning spaces. Additional technology partnerships will address smart building and long-term health and safety challenges, regardless of where students, faculty and staff connect.

WIRELESS ACCESS POINTS AS APPLICATION PLATFORMS

Aruba wireless access points provide the foundation of the new educational environment. With built-in Wi-Fi, Bluetooth, and Zigbee radios supplemented by a simple USB extension, Aruba APs allow you to accommodate any device protocol from a wide range of sensors, cameras, and similar IoT devices. Aruba's cloud-based Developer's Hub provides application developers comprehensive resources that include Aruba Open APIs, native support for tools such as Ansible, and documentation to streamline the development of innovative, next-generation applications.

REIMAGINED EDUCATION STARTS WITH THE NETWORK YOU HAVE

With 14 straight years in the Gartner Wired/Wireless Leader's Quadrant, Aruba's leadership and innovation in secure connectivity is proven and is the foundation for all three phases of reimagined education. Aruba's portfolio and solutions are designed to work in every school or university environment—from small and dispersed rural school districts to large-scale international universities with remote campuses. No matter where the journey may lead, Aruba customers can count on having a network that offers the connectivity, security, management, AI, and data insights necessary for the future.