

ARUBA EDGE SERVICES PLATFORM

A MODERN, FLEXIBLE AND SCALABLE ARCHITECTURE

EXECUTIVE SUMMARY

The need to support robust networking and new application services places incredible demands on today's IT staffing. An inherently siloed legacy infrastructure with inconsistent hardware and software platforms spanning local and wide area networks requires excessive manual network operations. This reduces the network operator's ability to manage device provisioning and ongoing operations. As a result, teams are unnecessarily taxed and unable to provide proactive support along with value-added line of business productivity enhancements.

A modern, microservices-based infrastructure coupled with cloud services management can provide higher scale and resiliency for the enterprise. Cloud services offer flexible options for operating expense and capital expense control. When combined in a hybrid approach, these services also provide deployment agility for specific IT staffing needs, application requirements, workloads and use cases. However, there are multiple options available and enterprises need help to determine an optimal deployment path. There is a market need for a different approach to the development of a networking architecture and subsequent infrastructure deployment. Ideally, the architecture will have dynamic policy and security capabilities, and connectivity diversity leveraging significant depth in switching, Wi-Fi, and SD-WAN platforms. This complete, end-to-end approach benefits enterprises from an ease of deployment and ongoing management perspective.

The Edge Services Platform (ESP) from Aruba, a Hewlett Packard Enterprise company, offers all of these capabilities. A complete partner ecosystem breaks down the siloes, enabling IT service teams to provide business lines with broad cloud services, data management expertise, flexible policy management, highly integrated security capabilities, and a diversity of deployment scenarios spanning on-premises and cloud platforms. This paper examines the ESP strategy and Aruba's completeness of vision in delivering proactive and intelligent network management capabilities to meet the needs of network operators.

BROAD CLOUD SERVICES AND DATA MANAGEMENT

Aruba Central provides the cloud services platform with unified network operations and security to simplify the deployment, management, and service assurance of wireless, wired, and SD-WAN environments. Products such as ClearPass Policy Manager, ClearPass Device Insights, User eXperience Insights, and Meridian provide significant capabilities leveraging artificial intelligence (AI), machine learning (ML), and location-based services for network visibility and insights. We believe Aruba's ESP architecture is a compelling, full-stack solution integrating connectivity, visibility, and security for multi-domain deployments across campus, data center and branch. Capabilities include:

- A streamlined network operations interface providing quick and easy access to the data required to manage, analyze and maintain multiple networks, devices, and clients across wired, wireless and SD-WAN areas without the need to change between multiple applications or dashboards.
- A single, centralized management and control instance providing a global or site view of all managed devices with granularity down to list views encompassing device usage, utilization and noise statistics in addition to WAN uplink and tunnel status.
- Zero Touch Provisioning (ZTP) capabilities to simplify network deployment. Configuration parameters can be defined centrally for Aruba access points, switches, and branch gateways using a group and device level hierarchy, regardless of location. Set up is simple — devices are unpacked and powered up by any installer because each device automatically connects to the Aruba Central management console and is provisioned using pre-built features and settings specified by the customer.
- The intelligent consolidation of information from a shared Aruba customer data lake improves analytics and provides better network visibility, performance, and issue remediation based on shared deployment scenarios.

Moor Insights & Strategy believes the fully integrated Aruba technology stack establishes its networking infrastructure leadership. This technology stack not only facilitates easier deployment and ongoing management but also has the potential to significantly reduce operating expenses and redirect IT staffing resources to a more value-added line of business support.

DYNAMIC POLICY AND SECURITY

Aruba's flexible and consistent policy framework helps network administrators build wired, wireless, and SD-WAN policies leveraging user roles, device types, certificate status, location, and day-of-week, among other parameters. This provides flexibility and customization based on user needs and application demands. Aruba Dynamic Segmentation also automatically and continuously enforces policies to ensure consistency, traffic security and micro-segmentation.

Aruba's ClearPass Device Insights enhances core network discovery and profiling capabilities to identify a wide range of IoT devices across many environments. This is a daunting task today for many network operators, but the application leverages a combination of deep packet inspection, machine learning, and a crowdsourcing function that classifies device "fingerprints." From a best-practice perspective, Aruba recommends the following blueprint for maintaining proper visibility and control without negative impact to the line of business or user experience:

1. Identify which devices and operating systems are deployed as well as their quantities and connection points. This provides a needed baseline for device visibility on the network(s) and will also support continuous insight into the future device landscape and potential security threats over time.
2. Enforce policies regardless of user, device type or location to ensure a more consistent user experience and security posture.
3. Protect resources with dynamic policy controls and real-time threat remediation which can be extended to third-party systems. Implement a proactive versus reactive network management plan with a unified approach to block unwanted traffic and prevents unauthorized device changes.

The management of IoT devices can be incredibly difficult for network operators. Many are headless and in essence blind without associated user profiles, and there is no cohesive set of standards. Moor Insights & Strategy believes that Aruba brings exceptional capabilities in providing visibility, management, and security of these devices with a proven platform backed by a broad customer deployment.

CONNECTIVITY DIVERSITY

Aruba offers operational flexibility, efficiency and performance for branch, mid-market and enterprise switching, Wi-Fi, and SD-WAN installations through its ESP architecture.

It also offers integrated security to bolster resiliency in IoT, mobile and cloud applications support across the underlay physical network.

Aruba offers a modern operating system coupled with embedded analytics and automation tools for switch platforms designed to streamline connectivity from branch and campus access to core and data center. Wireless and SD-Branch gateways are engineered to provide enterprise-grade performance and mission-critical reliability for deployments of any size. Aruba access points (APs) are also designed to optimize user experience by maximizing Wi-Fi efficiency and significantly reducing airtime contention between clients.

Additional features include:

- A purpose-built switching portfolio for cloud, mobile, and IoT. Scalable edge access to data center platforms provides the power and futureproofing needed for growing user, device, and application demands. Intuitive management tools and built-in analytics reduce IT complexity by minimizing the time spent on implementing changes and troubleshooting issues. A microservices architecture also promotes programmability and automation while enabling always-on networks, even during live network upgrades.
- Gateways with enterprise-class features. Organizations can centrally optimize the experience for users and deploy IoT connectivity with simplicity. Capabilities include high-performance traffic and data routing, dynamic segmentation, and role-based access. For wireless networking, these devices provide optimized roaming, scalability, and redundancy for campus networks of any size. For SD-Branch deployments, they are optimized for MPLS, internet and cellular connectivity to provide dynamic path selection for routing WAN traffic based on applications, roles, and user-defined service level agreements (SLAs).
- AI-powered access points (APs). RF optimization, rich user and application intelligence, and smart management options improve user experiences, enhance quality of service (QoS), reduce operating expenses through improved power management, and support digital workplace initiatives. These AP products support the latest Wi-Fi 6 (802.11ax) standard and are available in multiple form factors for deployment flexibility. Recent features such as Aruba Air Slice and Air Pass guarantee “last foot/meter” Wi-Fi performance as well as better 4G LTE and 5G handoff. They also include Wi-Fi using smart scheduling, built-in deep packet inspection (DPI) and orthogonal frequency-division multiple access (OFDMA)

technology. Zigbee and Bluetooth IoT devices are also supported, given the additional radio integration into these products.

Aruba built the majority of its core networking architecture organically rather than through acquisitions. Moor Insights & Strategy believes this allows the company to offer a consistent user experience across multiple domains at scale. This has also accelerated its success in deploying SD-WAN services, particularly at the branch level. Recent enhancements centered on improving Wi-Fi performance and switching capabilities also showcase HPE Aruba's dedication and leadership in wired and wireless networking.

RICH PARTNER ECOSYSTEM

The Aruba ESP architecture offers an open application program interface (API) and mobile first design philosophy that serves as a foundation for three core partner programs.

- **ArubaEdge Technology Partner Program** – This product self-certification program benchmarks against reference standards that focus on network device interoperability for mobile and Internet of Things (IoT) devices. Aruba claims this program can accelerate a typically lengthy validation process and bring products to market faster. Participants include Citrix, Microsoft, Siemens and CBRE.
- **360 Security Exchange Technology Partner Program** – This program integrates Aruba security products with third-party IT systems that include firewalls, mobile device management (MDM), enterprise mobility management (EMM), and security information and event management (SIEM). This enables end-to-end policy enforcement and visibility for both mobile and IoT devices supported by partner integration efforts through APIs, system log libraries, and the accompanying extensions repository frameworks. Participants include Palo Alto Networks, Zscaler, MobileIron, and McAfee.
- **Meridian Engage Technology Partner Program** – This program enables any organization to develop mobile apps for asset tracking, mobile engagement, and other use cases through Meridian software development kits (SDKs). Participants include Emerge Interactive, M2Mobi, Mobile 72, and SpaceIQ..

Moor Insights & Strategy believes that Aruba has made exceptional inroads in developing a broad and diverse ecosystem of partners. This provides the company with a competitive advantage, especially with respect to location-based service deployment. Through the acquisition and integration of Meridian Apps in 2013, Aruba has

established a significant lead over its core competitors in this space. We expect to see continued innovation from the company as it leans into its mobile-first heritage and its relentless pursuit of incorporating customer feedback into its roadmap development plans.

CALL TO ACTION

Today's enterprise networking requirements are daunting. The exploding growth of IoT and mobility is increasing the number of devices an organization must support and securely connect. Legacy network architectures, with inherent siloes that require manual network operation simply cannot scale to deliver the capabilities enterprises need to configure and provision with automation. IT operators demand a consolidated approach to managing connectivity across multiple domains and users want a consistent experience both inside and outside of the office walls to maintain a high level of productivity.

Modern networking architecture that supports on-premises, multi-cloud and edge deployments must be rooted in a microservices, containerized design to facilitate agility in developing and deploying application functionality. Cloud services that support public, private, and hybrid approaches also deliver needed levels of privacy, reliability, predictability, and scale. There are only a handful of networking infrastructure providers that can deliver all of these elements end-to-end while serving as a trusted advisor based on years of deployment experience.

For companies seeking a microservices-based architecture for significant dynamic policy and security capabilities, connectivity diversity, a rich partner ecosystem of solution providers, wide and deep cloud services, and data-management expertise, Moor Insights & Strategy recommends Aruba ESP for consideration. With a demonstrated track record as a pioneer of Wi-Fi and wired networking technology, we believe Aruba's consistent focus on mobility and edge will position the company for future success.

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