aruba
a Hewlett Packard
Enterprise company

SOLUTION OVERVIEW

Accelerate manufacturing and industrial digital transformation with non-stop data access secured by ZTNA and SASE

Digital transformation initiatives targeting improved efficiency, productivity, reliability, safety, and physical security depend on access to data from Operation Technology (OT) and Industrial Internet of Things (IIoT) devices, as well as contextual information like location and identity from Information Technology (IT) networks. Converging data and context creates situational awareness of current operating environments Hyphen referred to as "hyper-aware" facilities - and enables predictions of future environments across time and space. Real-time, highly reliable, secure access to data and context are foundational to digital transformation.

Connecting and protecting disparate devices and applications is no mean feat. Today's distributed enterprises have facilities, remote sites, and people spread far and wide. Applications workloads may be processed locally on the factory floor, at a remote data center, in a private cloud, and/or at a hyperscaler cloud provider. Diagnostics and management services need to span the far-flung enterprise, rapidly identifying faults and non-optimized communication pathways before they become impactful. And securing communications across such a distributed enterprise requires thoughtful integration of zero trust network access (ZTNA) and secure access secure edge (SASE) frameworks from edge to cloud.

Based on these above challenges, let's look at how adopting an advanced SD-WAN platform can help industrial and manufacturing customers tackle these challenges.

ARUBA SOLUTIONS FOR HYPER-AWARE INDUSTRIAL AND MANUFACTURING FACILITIES

Aruba EdgeConnect SD-WANs are engineered to deliver secure, high-availability access to OT, IT, and IIoT traffic over virtually any WAN pathway. Today's distributed enterprises are both agile and cost sensitive, and need a seamless fusion of 4/5G, satcom, Internet, and MPLS connections to reach devices and people wherever they work or roam. Aruba EdgeConnect can simultaneously send stateful data over any combination of paths, delivering higher availability than either path on its own while maintaining connectivity should one path fail. For example, Internet and MPLS can be used in tandem, and cellular reserved for overflow traffic say during an alarm storm. The result is higher uptime without higher costs.

Deep packet inspection and policy rules ensure that enterprise-critical applications and traffic get the highest priority, best path, and lowest latency. The ZTNA and SASE architecture dynamically segments traffic over secure tunnels from edge to cloud, ensuring that traffic is directed only to the correct application. Automated remote monitoring and management allow massively scalable global deployments to be handled with minimal IT resources.

Aruba EdgeConnect SD-WANs deliver real-time, non-stop, secure access to data and context on which digital transformation initiatives and hyper-aware facilities rely. Economical for small sites, they can be massively scaled to meet the largest multi-national deployments with ease

Enterprises in these spaces often have strict security and compliance requirements that prohibit use of the Internet, or public cloud providers. Adaptability and extensibility of the SD-WANs are essential to meet the broad range of typical use cases and cost objectives.

Operating costs extend beyond just WAN expenses and include both on-site equipment and IT labor required to support dispersed, sometimes global, deployments. Simplicity is the watchword for cost control throughout the deployment life-cycle.

Finally, industrial and manufacturing operations demand the highest level of security to protect network integrity, trade secrets, and process information. ZTNA and SASE frameworks are table stakes, and the SD-WAN needs to seamlessly extend micro-segmentation from IT, OT, and IIoT devices at the edge all the way to the target applications, be they on-premise or in private/public clouds.

ADAPTABLE NETWORK EXPERIENCE AND COST REDUCTION

Aruba EdgeConnect tunnel bonding combines multiple WAN transport services - including MPLS, Internet broadband, satcom, and 5G - to create a single, higher-bandwidth logical link. Tunnel bonding enables low-cost Internet broadband, where its use is permitted, to deliver equal or better performance as expensive and complex MPLS.

The challenge with Internet and cellular links is that they are more prone to packet loss, jitter, and outages. Aruba's EdgeConnect Forward Error Correction (FEC) feature automatically reconstructs lost packets, while Packet Order Correction (POC) re-orders any packets that arrive out of sequence at their destination when load-balancing traffic across multiple WAN transport services. Slow links are addressed by Aruba Boost WAN Optimization which applies TCP protocol acceleration, data deduplication, and compression to speed traffic flow.
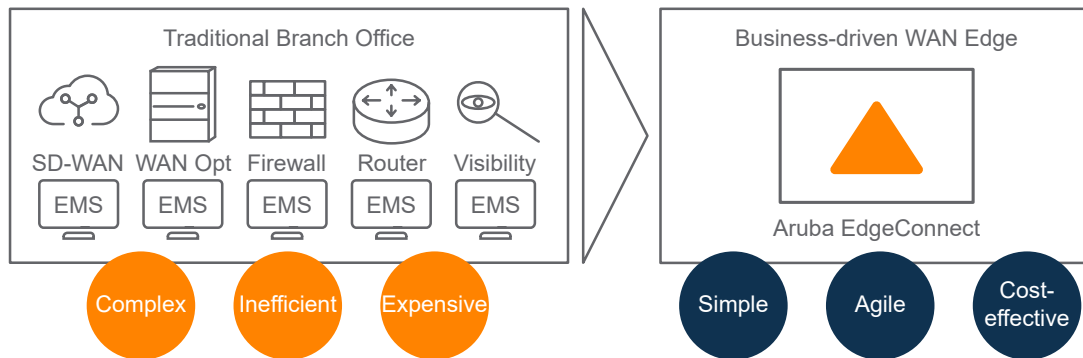

Figure 1. Aruba EdgeConnect requires less on-premise equipment and staff, lowering costs and improving up-time without sacrificing manageability.

SIMPLE DEPLOYMENTS

Aruba EdgeConnect SD-WAN integrates in one gateway a WAN optimizer, router, and firewall, eliminating the need for three separate appliances. Integrating functionality into a single device raises the system mean time between failure, reduces equipment and installation costs, and minimizes maintenance life-cycle costs.

To lower IT workloads Aruba EdgeConnect SD-WAN is centrally orchestrated and features zero-touch provisioning including security parameters. Central orchestration includes remote set-up and diagnostics, eliminating the need for local specialized IT staff and needless truck rolls. On-site personnel are freed to focus on other projects.
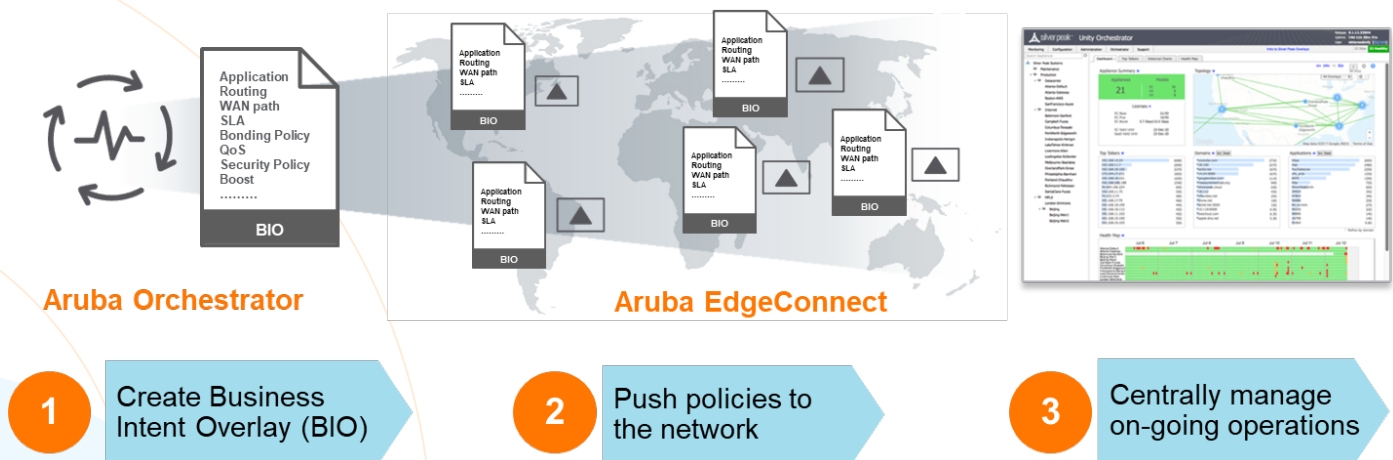

Figure 2. Aruba EdgeConnect requires less on-premise equipment and staff, lowering costs and improving up-time without sacrificing manageability.

ADVANCED SECURITY

Aruba EdgeConnect SD-WAN's embedded, zone-based firewall extends ZTNA micro-segmentation from edge to cloud, protecting IT, OT, and IIoT IoT devices, the networks over which they operate, and the applications to which they connect. Devices can only connect to their target destinations and applications consistent with policy settings. Micro-segmentation is initiated automatically, including following adds, moves, and changes. This feature ensures that security isn't compromised during reconfigurations, a common issue when unskilled technicians reconfigure conventional SD-WANs.

When traffic is sent over the Internet, EdgeConnect First-packet iQ™ identifies and classifies applications on the first packet transmitted. This secure Internet breakout feature automates traffic steering to the correct destination based on defined security policies. For example, trusted cloud application traffic such as Office 365 or UCaaS can be sent directly to the Internet. Other Internet-bound traffic - SAP, Salesforce, Oracle - might be redirected to a cloud security service before being forwarded to a SaaS provider. Or untrusted applications can be backhauled to the enterprise data center or micro-data center for advanced security inspection.
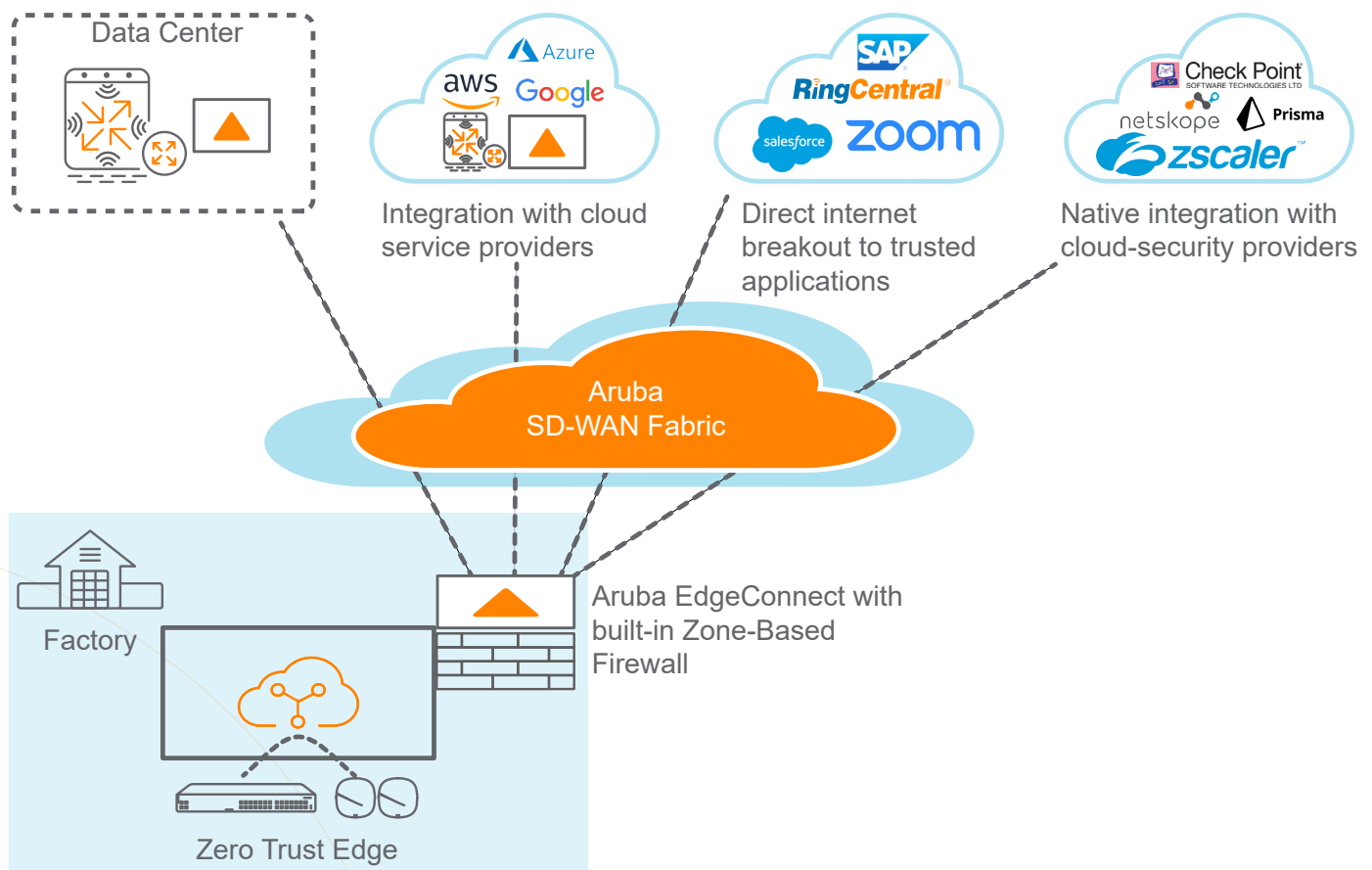

Figure 3. Aruba EdgeConnect incorporates advanced security features, built on ZTNA and SASE frameworks, to protect the integrity of the devices, traffic, networks, and applications.

SUMMARY

Aruba EdgeConnect SD-WAN delivers secure, high-availability access to OT, IT, and IIoT traffic over virtually any WAN pathway. Adaptable, easily managed, cost-effective, and highly secure, Aruba EdgeConnect SD-WAN is ideal for today's distributed enterprises that need a seamless fusion of 4/5G, satcom, Internet, and MPLS connections.

By simultaneously sending stateful data over any combination of paths, Aruba EdgeConnect SD-WAN delivers higher availability yet is simple to manage - on a local or global scale - without specialized IT personnel.

KEY FEATURES AND BENEFITS

Provide an advanced network experience while reducing costs	
Higher performance and cost reduction	Aruba EdgeConnect SD-WAN simultaneously bonds MPLS, Internet, satcom or cellular links for higher performance and lower operating costs
Bandwidth optimization	Data are compressed and deduplicated, reducing WAN traffic on lower capacity satcom and cellular links
Easily deploy new locations and monitor network activity	
Faster deployments	Zero-touch provisioning and remote diagnostics speed deployments without specialized IT personnel and needless truck rolls
Full visibility	Network health maps provide an aggregated view of appliance status and network health based on configured thresholds for packet loss, latency and jitter
Cloud-ready	Provides end-to-end connectivity with hyperscaler public clouds and private clouds without the need to, and expense of, backhauling traffic to a data center
Improve security and compliance	
ZTNA and SASE frameworks	Native integrations and automated orchestration with multiple cloud security vendors allow enterprises to tailor CASB, SWG and other security features to their needs
Micro-segment IT, OT, and IIoT devices	Zone-based firewall segments traffic into subnetworks, limiting the spread of cyberattacks and malware
Advanced firewall	Application-aware firewall features deep packet inspection and intrusion detection and prevention to control incoming traffic, and monitor, flag and drop threatening traffic

ADDITIONAL RESOURCES:

Designing Hyperaware Industrial Facilities

Aruba ESP in Industrial & Manufacturing

Contact us at **www.arubanetworks.com/contact**

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