WHAT CAN YOUR NETWORK DO FOR YOU?

It's time to think about your infrastructure as a platform

INTRODUCTION

Mobile, IoT, and cloud technologies have turned traditional networking upside down. The days of the network just providing connectivity are gone — today's wired and wireless network must deliver more than connectivity — it is expected to provide actionable insights about the use of mobile and IoT to justify future investments, so that businesses can adopt new technologies and serve the needs of GenMobile — while keeping the network secure and without breaking the budget.
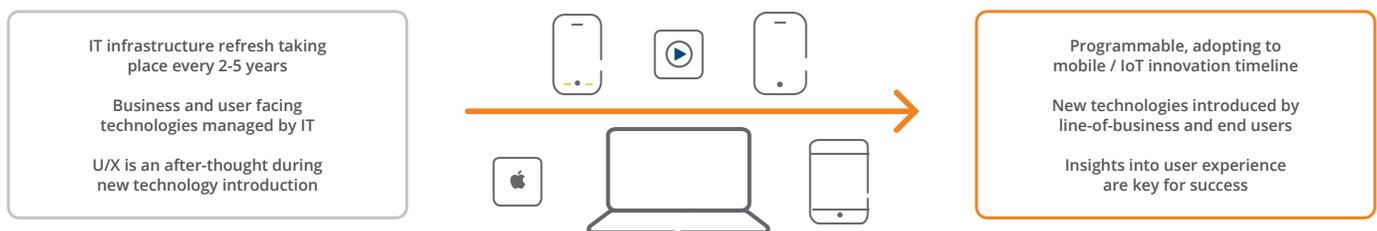
These new technologies and the pace of change complicate things for IT. Today's IT leaders are accountable for the success of mobile and IoT initiatives, and asked to provide relevant data and insights about the success or failure of such projects, even if they are not the only ones making the technology decisions surrounding digital connectivity.

At Aruba, we believe that there's a need to change the discussion around IT services delivered with a long list of infrastructure investments. It's time to think of the infrastructure as an asset for the business — one that can be programmed in real-time to ensure secure connectivity, and one that can provide relevant, contextual, real-time insights to help you quickly understand the success or failure of digital initiatives.

Another trend complicating things for IT is infrastructure refresh cycles. They usually take place every couple of years, but now the introduction of mobile and IoT initiatives are taking place every couple of months. Since it's not realistic to refresh the infrastructure every couple of months, we have to look at the infrastructure as a programmable asset, something that can adapt to new digital technologies rather than become a barrier for innovation.

Secondly, business and end user facing technologies that used to be managed very closely by IT, are now being introduced to the work environment by line of business leaders and end users, without IT's permission. This means that predictability needs to be brought back to IT operations so that they can keep their budget and resource allocation under control.

Lastly, user experience used to be an afterthought when new technologies were introduced to the work environment. Now IT and business leaders think about user (employees) and customer experience. The type of insights that business leaders get, the type of experience that the users have, usability of those technologies, certainly will play a very important role in justifying future investments in new digital technologies.

IT infrastructure refresh taking place every 2-5 years

Business and user facing technologies managed by IT

U/X is an after-thought during new technology introduction

Programmable, adopting to mobile / IoT innovation timeline

New technologies introduced by line-of-business and end users

Insights into user experience are key for success

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Rethinking the way we look at IT infrastructure

INTRODUCING THE ARUBA MOBILE FIRST PLATFORM

To help our customers turn these massive shifts in IT infrastructure requirements into great opportunities, we're introducing the Aruba Mobile First Platform.

Services offered by the platform include secure policy management, indoor location, analytics and network controls, including delivery via the public cloud. Software components of the platform are easy to consume by third party IT and business services, operational technologies powered by IoT, and end user facing mobile applications.

The Mobile First Platform is developer ready — in addition to the many ways any existing application can be enhanced via integration with the platform, the developer community can take advantage of the available extensions, APIs, software development kits, and build services and applications that have not been thought of before.

With the platform components, not only we can gain contextual insights about user, device, and application state, but we can also influence the way the infrastructure behaves. For example, if there is a need to update the policy enforcement for a specific device owned by a specific user, we can program the network to route traffic differently to improve data security, and change the way physical spaces interact with mobile devices based on their location or identity.

Another key element of the Mobile First Platform is our ecosystem of technology partners. This allows our customers to innovate at the speed of the ecosystem, not at the speed of a single vendor — to solve their toughest IT challenges surrounding mobile collaboration, open workplace initiatives, BYOD and IoT security, and customer engagement, among others. This means that IT organizations can quickly respond to business and end user demands, and eliminate unpredictability in their operations, faster than ever before.

With our technology ecosystem partner programs, developers get a chance to work with and market to a large number of marquee Aruba customers worldwide, and help us address customer challenges that we can't address alone across different vertical industries and regions. Members of our technology community continue to invest their time and resources to our ecosystem program and demonstrate their trust in our ability to offer support and services in scale, given our proven track record as the leading provider of secure mobility solutions for many large enterprises worldwide.

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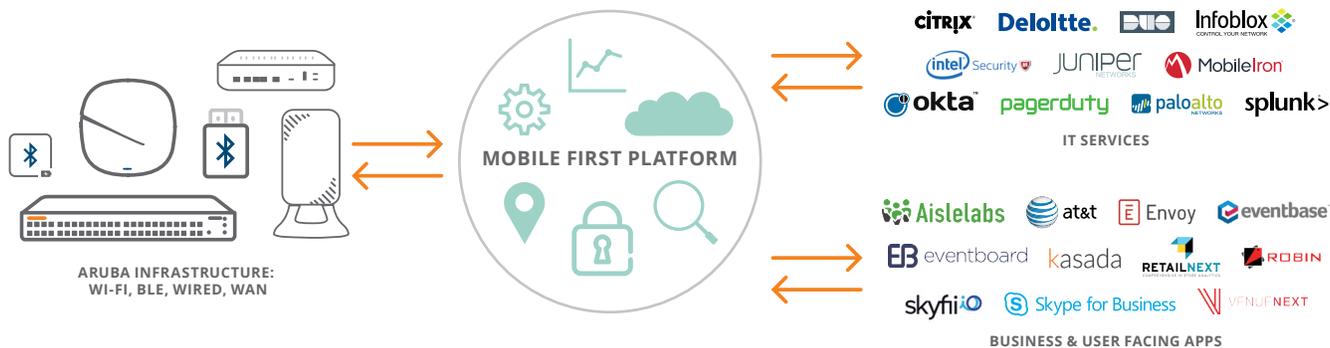
Insightful, easy to consume and developer-ready

WHAT'S INSIDE THE ARUBA MOBILE FIRST PLATFORM?

Aruba Mobile First Platform is the intelligent software layer that programs the Aruba infrastructure in real-time, and is designed to share rich, contextual insights with third party business, IT and end user facing applications to accelerate adoption of mobile and IoT powered digital technology initiatives.
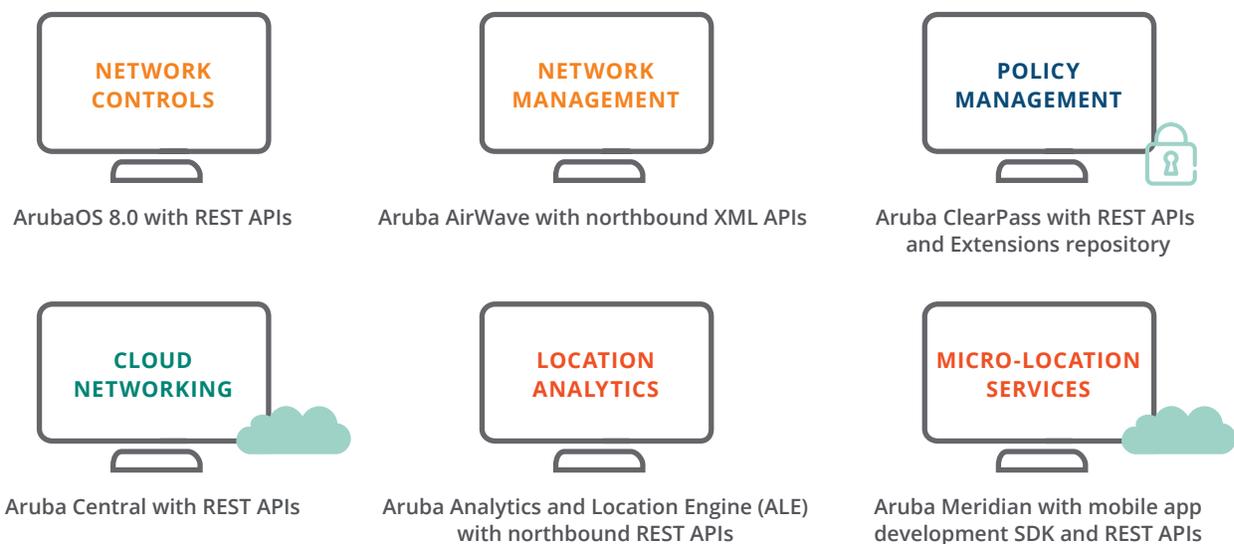
The tools that are available to our ecosystem partners and developers are as follows. To gain access to real-time network controls and insights, we're enabling our wireless network operating system, ArubaOS, with a new set of REST API with its 8.0 release. In the network, services are deployed via the public cloud, and a similar REST API library is still available.

On the policy management side, our REST API library has improved since its first release, but we are also opening our doors to third-party cloud hosted applications, with our new Extensions Repository, to improve the way we apply policy in the infrastructure. We'll talk about this more later. Our existing set of API libraries and software development kits (SDK) for network management, network analytics, and indoor location-based services continue to be available to our ecosystem partners and customers.

SIMPLIFY CAMPUS WLAN OPERATIONS AT MULTIPLE LEVELS

Acting as the brains of a large scale wireless network, the new ArubaOS 8.0 is designed to deliver the highest levels of reliability to mobile users. ArubaOS 8 can be deployed on a server appliance, significantly easing the consumption model for this wireless network operating system. That means that expanding the reach of a controller based WLAN to new buildings or to new sites will simply mean reusing the same software download, installed on new server appliances — without having to wait for the hardware-based controller appliances to arrive — speeding up IT operations in the process.

With the 8.0 release, major features that enable app classification, seamless roaming, RF management, and a variety of others can be updated in real time, without requiring network outages. In addition, multiple operating systems within the same network infrastructure can be managed from a single Mobility Master appliance. IT administrators can introduce a new version of the operating system only to a portion of their environment, without having to upgrade the entire network. These capabilities increase the level of programmability of the wireless network infrastructure in real-time, and significantly reduce operational expenses for ongoing maintenance.

NETWORK CONTROLS

ArubaOS 8.0 with REST APIs

NETWORK MANAGEMENT

Aruba AirWave with northbound XML APIs

POLICY MANAGEMENT

Aruba ClearPass with REST APIs and Extensions repository

CLOUD NETWORKING

Aruba Central with REST APIs

LOCATION ANALYTICS

Aruba Analytics and Location Engine (ALE) with northbound REST APIs

MICRO-LOCATION SERVICES

Aruba Meridian with mobile app development SDK and REST APIs

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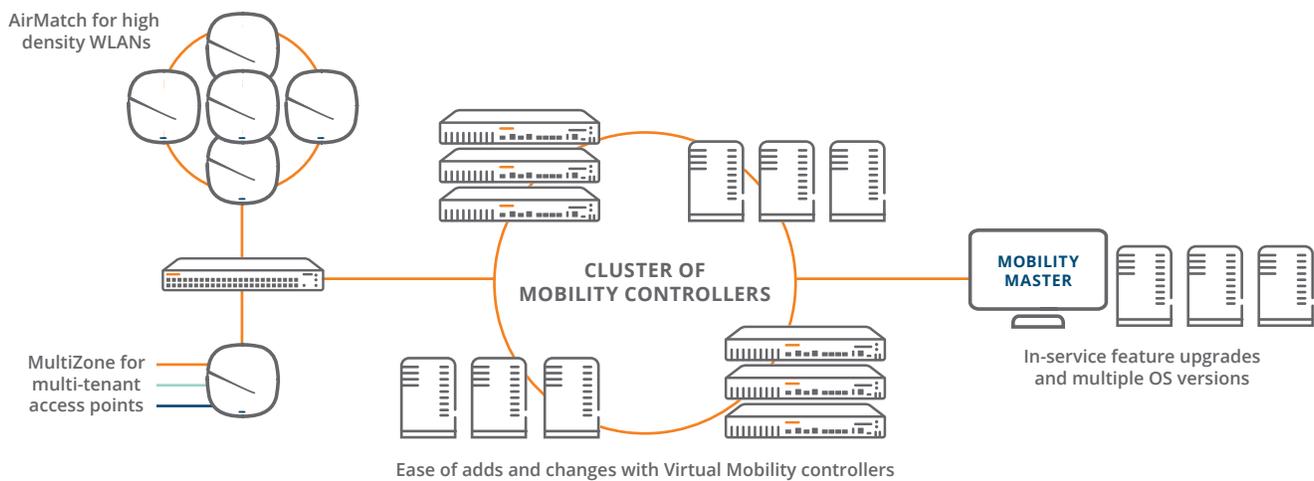**Access insights and program the network in real-time**

With the increased processing power, storage and memory space available within an Aruba Mobility Master, high density Wi-Fi deployments that use pico cell design for RF coverage (auditoriums, stadiums, conference halls, etc.), can now automate RF channel, and channel width and power assignments on access point radios. With machine learning, the new Aruba AirMatch assigns optimal channel, channel-width and power to each access point automatically on a periodic basis to program the infrastructure without manual intervention.

Also enabled via the Aruba Mobility Master, the new Aruba MultiZone allows for the same Aruba access point to offer different wireless networks, terminating on different mobility controllers. This enables multi-tenancy on Wi-Fi access points and allows for data privacy across different networks, without the need to install separate wireless networks. An example would be an airport where retailers, airport staff, airlines and travelers use the same access point infrastructure, with physically separated networking and security enforcement in the backend. As long as there's a partnership between such tenants, the infrastructure can be programmed in real-time via ArubaOS 8 to set up the right set of policies.

ENABLE PREDICTABLE PERFORMANCE FOR ANY APPLICATION

The latest innovations in ArubaOS 8 can significantly improve the digital collaboration experience among visitors and employees. With the support for clustering of Aruba mobility controllers, ArubaOS 8 enables hitless failover for voice and video traffic flows in case the anchor mobility controller fails. This capability is only available because all mobility controllers share network, user, and session state information with each other in real time when they are part of a cluster.

Hitless failover is enabled with the use of the Mobility Master in the network to control network services. Mobility Master now also integrates with a variety of collaboration apps — including any custom ones developed by IT and business leaders via the developers they partner with. With the new Aruba AppRF signatures, developers can create a profile for their new app, upload it to the Mobility Master, and the rest of the network can start applying contextual user, device and location-based policies in real time.

AirMatch for high density WLANs

MultiZone for multi-tenant access points

CLUSTER OF MOBILITY CONTROLLERS

MOBILITY MASTER

In-service feature upgrades and multiple OS versions

Ease of adds and changes with Virtual Mobility controllers

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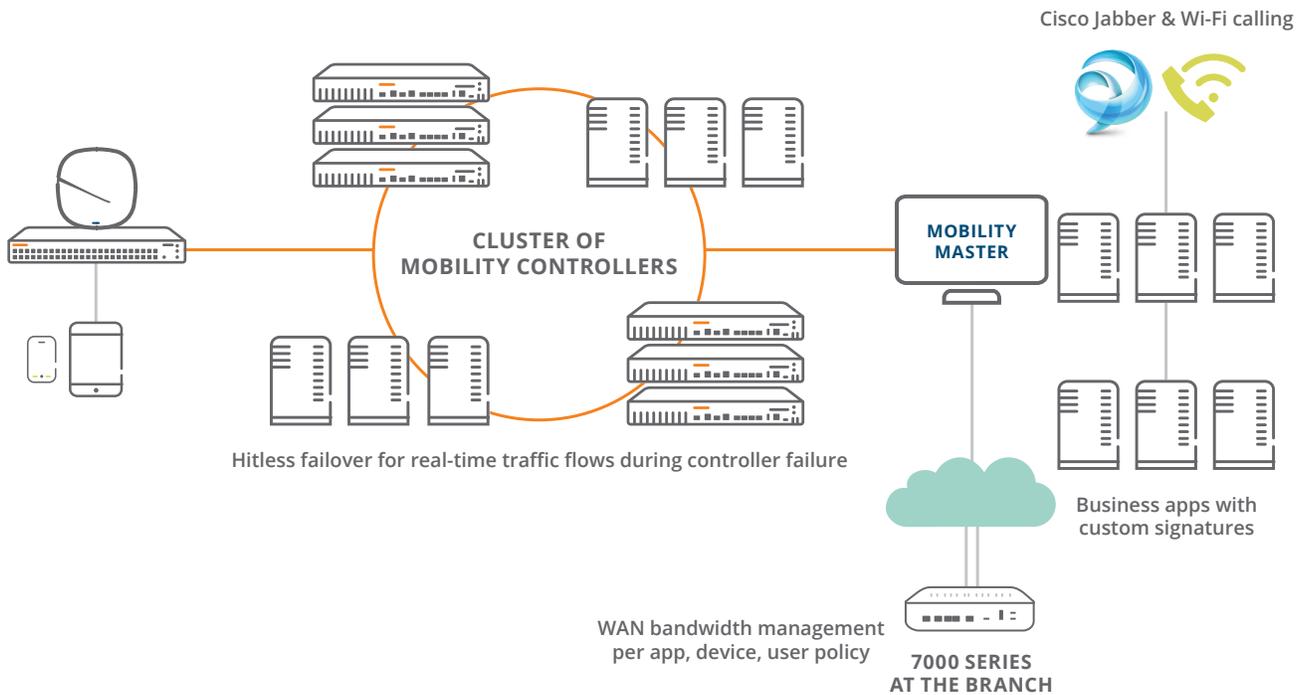**Simplifying campus WLAN operations at multiple levels**

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Enabling predictable performance for any new app

ArubaOS 8 now also classifies Cisco Jabber voice and video traffic calls, as well as Wi-Fi calling. These two applications, similar to Microsoft Skype for Business, are relatively challenging to identify. They tend to use encrypted and stateful session flows, where a degree of packet inspection needs to be performed to program the network infrastructure in real time, applying policies based on device types and user roles.

And then there are the remote and branch sites. As we all know, similar to Wi-Fi, wide area network (WAN) bandwidth is limited and needs to be managed intelligently among a wide variety of apps and devices that need access. With ArubaOS 8, Aruba 7000 Series Mobility Controllers now manage bandwidth on a per app category and type on the WAN uplinks. This gives IT teams and developers the flexibility to deploy critical apps at remote sites by programming the infrastructure in real time based on user and device specific policies.

EXTEND POLICY CONTEXT TO ANY CLOUD APP OR IOT DEVICE

Next, let's talk about policy management, powered by Aruba ClearPass. The new ClearPass OnConnect capability accelerates adoption of IoT devices by enabling SNMP enforcement of device level policies after the device type is profiled automatically. OnConnect does not require IoT devices to go through a series of authentication steps before enforcing device level policies on a multi-vendor wired access network infrastructure.

ClearPass is also extending its ability to talk to cloud-based SaaS applications and improve security, IT, and end user workflows. Some of the integrations for ClearPass Extensions include Intel McAfee Security for end user device health checks, Kasada for multi-factor authentication, and Envoy for guest registration automation. Integrating ClearPass with more commonly used apps in our social lives — such as Slack, Facebook Messenger, and Amazon Echo — is also possible and is left to the imagination of application developers, who want to take advantage of the rich connected device and user information available within ClearPass.
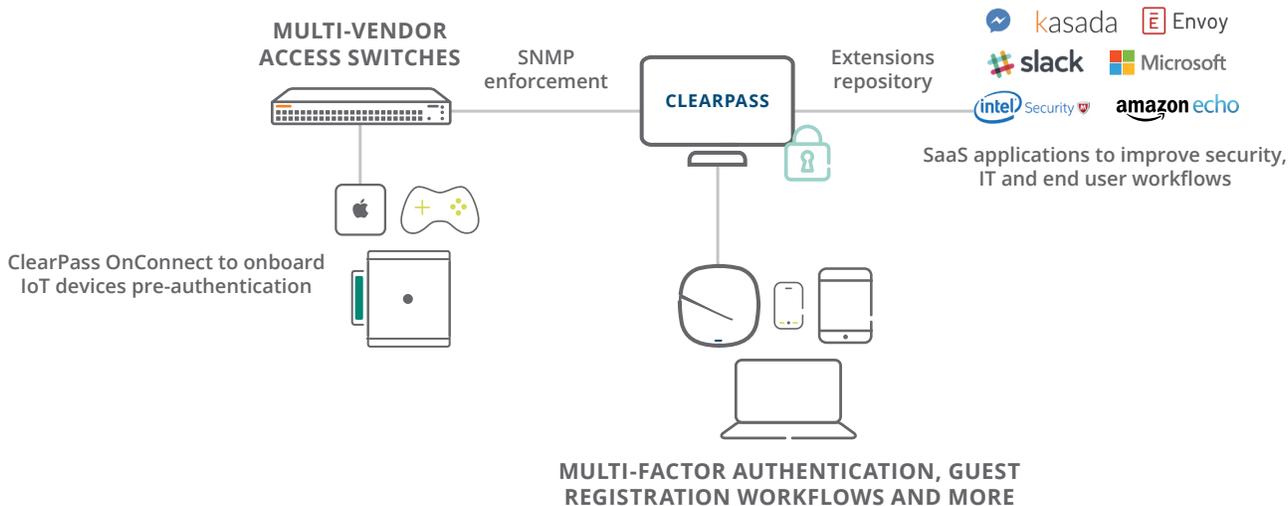
MULTI-VENDOR ACCESS SWITCHES

SNMP enforcement

CLEARPASS

Extensions repository

kasada

Envoy

slack

Microsoft

(intel) Security

amazon echo

SaaS applications to improve security, IT and end user workflows

ClearPass OnConnect to onboard IoT devices pre-authentication

MULTI-FACTOR AUTHENTICATION, GUEST REGISTRATION WORKFLOWS AND MORE

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Extending policies to any cloud app and IoT device

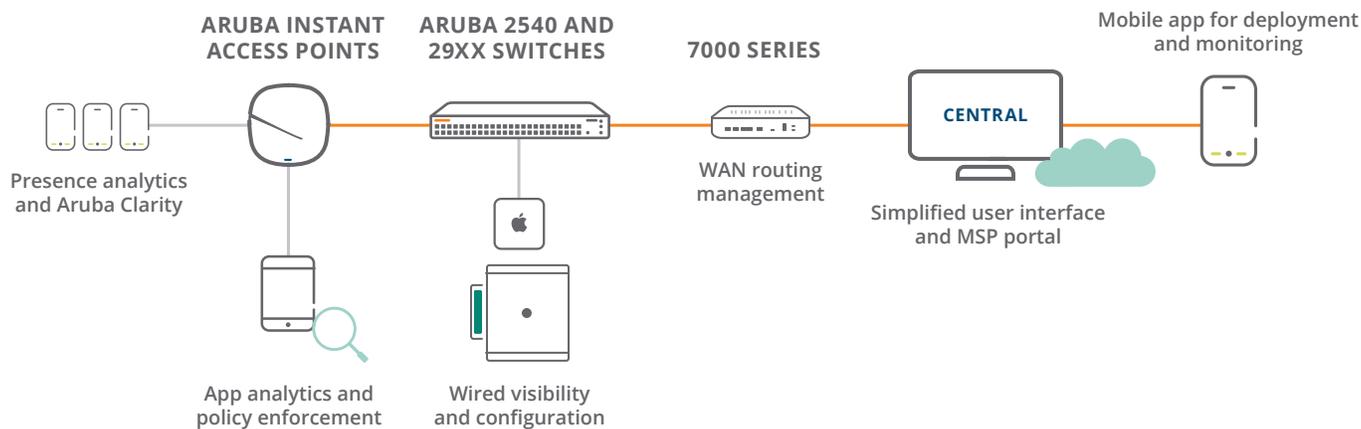## SCALE IT INFRASTRUCTURE TO REMOTE AND BRANCH SITES WITH CLOUD NETWORKING

As you extend our network services to many distributed locations within the enterprise, you might want to explore cloud networking. It's relatively simple to deploy and scale, given that it is deployed as a software-as-a-service (SaaS), with a flexible procurement model and annual subscription options.

Aruba Central, the cloud networking service within the Mobile First Platform, now offers a managed services portal for our channel partners to develop their own managed services offer in the market, without having to invest in a separate portal, and manage Wi-Fi, wired and WAN solutions

for their customers centrally.

The managed services portal available in Aruba Central significantly eases the process of managing for distributed networks for enterprises with multiple IT administration teams, with separate management requirements across different locations.

To make it easy for field engineers to deploy and maintain an Aruba infrastructure, Central comes with a mobile app interface for one-touch device registration and ongoing monitoring. Engineers at remote sites can scan the barcode on the Aruba access points, switches and WAN gateways, and register that device to their Central account automatically. There is no need to maintain a long list of MAC addresses

ARUBA INSTANT ACCESS POINTS

ARUBA 2540 AND 29XX SWITCHES

7000 SERIES

Mobile app for deployment and monitoring

CENTRAL

Presence analytics and Aruba Clarity

WAN routing management

Simplified user interface and MSP portal

App analytics and policy enforcement

Wired visibility and configuration

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Scaling IT infrastructure to remote sites with cloud networking

and serial numbers.

Central comes with visibility to application types, categories and reputations, including web apps, with detailed analytics that can be consumed by northbound services. Presence analytics data is also available via Central, taking advantage of the nearby presence of mobile devices, whether they are associated or unassociated with the Wi-Fi network.

Presence analytics allows a distributed enterprise to better plan for real-estate projects in the future and for public facing enterprises, such as retailers, to better understand visitor behavior — how many users are showing up in specific areas, how much time they're spending, and how they're interacting with the physical environment around them.

With Aruba Clarity, Central monitors live traffic metrics generated by the mobile devices to help predict what type of network services (DHCP, DNS, RADIUS, and WAN services) might be running slower than expected. This helps IT to identify issues before end users start complaining about network connectivity problems. With trend reports on ongoing performance of such services, IT teams can better

plan for future infrastructure investments.

ACCELERATE INNOVATION FOR INDOOR, MICRO-LOCATION SERVICES

With the Mobile First Platform, developers can create indoor location services on smartphones. Powered by Aruba Meridian software and Aruba Beacons, platform partners can enable mobile app users to locate each other in real time.

With recent improvements, battery-powered Aruba Beacons now support up to a five-year battery life, making ongoing maintenance easier. Aruba Beacons continue to be centrally managed by the Meridian software.

Meridian software now not only enables developers to create rich experiences between users and placemarks, such as meeting rooms and cafes, it enables developers to create connections between individual users of their mobile app, via
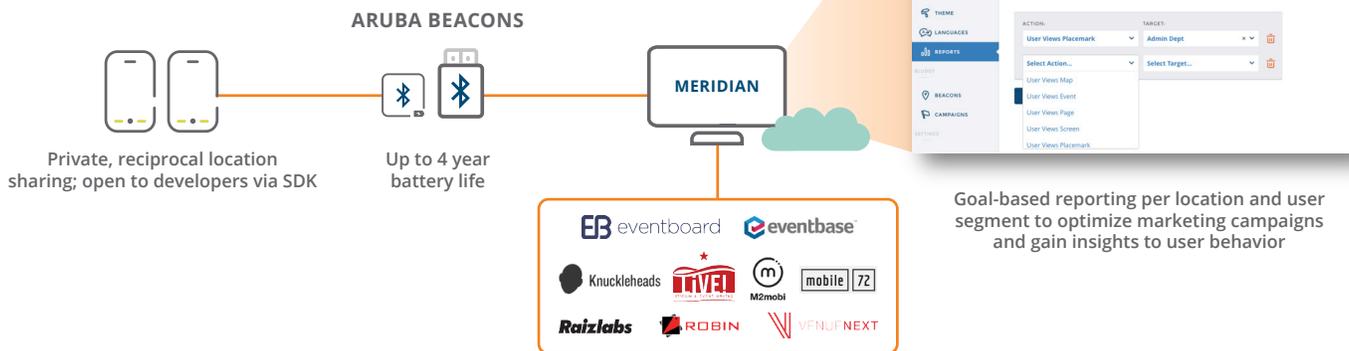

ARUBA BEACONS

Private, reciprocal location sharing; open to developers via SDK

Up to 4 year battery life

MERIDIAN

Goal-based reporting per location and user segment to optimize marketing campaigns and gain insights to user behavior

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Accelerating innovation for indoor, micro-location services

indoor location sharing.

With location sharing available indoors on Meridian powered mobile apps, other users who share their location with you are visible on the same smartphone friendly indoor maps. This creates opportunities for our developer community to take advantage of the service, and to help increase customer and employee engagement on mobile. In education, we can track our friends down in the campus. As a shopper, we can request assistance from the staff member who is closest to our location. Emergency response teams can quickly locate individuals who might be in need. The use cases are endless.

With Meridian, business leaders can get access to beacon powered presence analytics and success rates of pre-defined goals. The new Meridian Goals brings a greater level of insights about user engagement, going beyond simple monitoring of beacon analytics for dwell times at a specific location. It provides businesses with a better sense of how users interact with their mobile app, the push notifications they receive and the physical spaces around them. Better insights for developers will mean increased usability for mobile users and increased effectiveness of engagement campaigns.

CONCLUSION

With the introduction of the Aruba Mobile First Platform, Aruba technology continues to bridge the gap between business and IT priorities — actionable insights for the business powered by the network, new richer experiences for GenMobile, and predictable and secure operations for IT.

The Mobile First Platform is developer-ready and insightful, making contextual information about all things connected in the enterprise available for consumption by third party public or private cloud hosted apps. It is ready for IoT and mobile connectivity, going beyond the traditional networking requirements of the last two decades. With its software powered and easy to consume architecture, it enables Aruba customers to start taking advantage of its unique benefits

quickly, without significant increases in operational expense.

With the platform, Aruba is able to integrate networking solutions at the edge for mobile and IoT, under one roof. Wired Ethernet switching, Wi-Fi access point, BLE beacon and WAN routing infrastructure is made up of a unified set of hardware components across all locations. These components are deployed with zero touch and are centrally managed, significantly simplifying network operations.

To learn more, check out these additional details about the Aruba Mobile First Platform and the list of technology partners and developers who are taking advantage of its benefits.