

Meru Mobile *FLEX* Architecture

Bringing new levels of choice and control to enterprise wireless LANs

Mobility has transformed work from a location to an activity. Smartphones, tablets, and laptops enable workers to stay connected with customers, coworkers, and their families. People commonly own multiple mobile devices and often use them at the same time. Email and Internet access are mainstays, and workers increasingly rely on mobile unified communications, collaboration, video, and business apps.

The bring-your-own-device (BYOD) phenomenon has taken flight, and personally-owned mobile devices are regularly used for business—whether or not it's officially sanctioned by corporate IT. Along with the rise of BYOD is the bring-your-own-application trend, in which workers use a variety of mobile apps and consumer-grade services for work. And the next wave of productivity will come as organizations mobilize their core business applications.

To support the explosion of mobility, wired networks are giving way to wireless networks. Sooner or later, all client-network access will be wireless. IT is under intense pressure to extend the wireless LAN (WLAN) beyond common areas and conference rooms to support the booming number of mobile devices, bandwidth-intensive applications, and skyrocketing number of mobile users. Your organization needs a WLAN that delivers seamless coverage, simple scalability, and predictable performance.



MOBILEFLEX ARCHITECTURE

Give IT control and choice over BYOD and consumerization of IT

Meru Networks created Mobile**FLEX**, a unified architecture that gives IT decision-makers the choice and control they need to address the exploding demand for wireless LAN capacity and bandwidth to keep their mobile users productive—today and tomorrow. The richness of Mobile**FLEX** features include robust support of 802.11ac, the latest standard from IEEE, support of service discovery tools like Apple® Bonjour®, and Meru’s unique support for Context-aware Application Layers [CALs].

The Mobile**FLEX** architecture enables IT to provide users with the reliable, predictable access to the applications and content they need to stay productive, while preparing the infrastructure to support the next generation of applications [see Figure 1].

Mobile**FLEX** consists of five building blocks:

- **FLEX Access** for unified, flexible access;
- **FLEX Control** for flexible wireless LAN deployment options;
- **FLEX Management** for integrated and stratified network and security management across wired and wireless networks;
- **FLEX Policy** for simple, consistent access control and support for BYOD and guest access management; and
- **FLEX Solutions** to support the next-generation of applications.

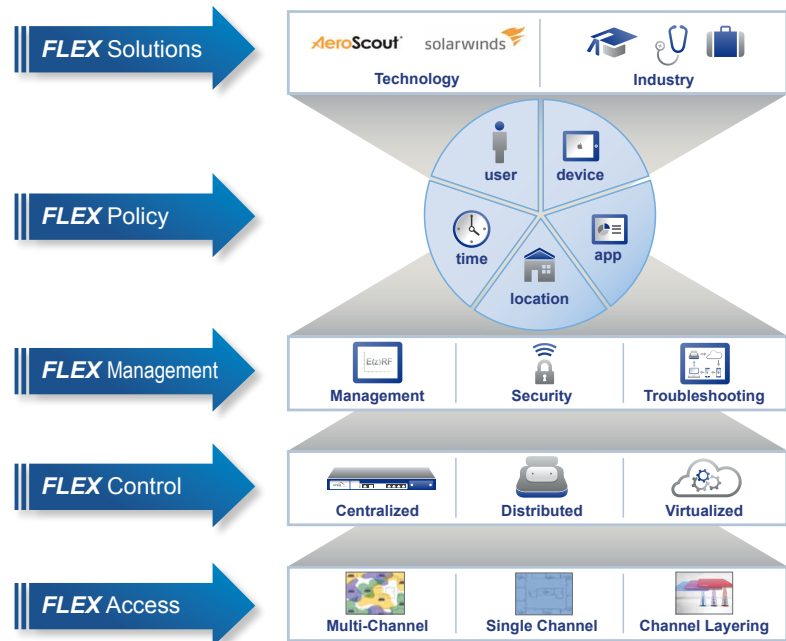
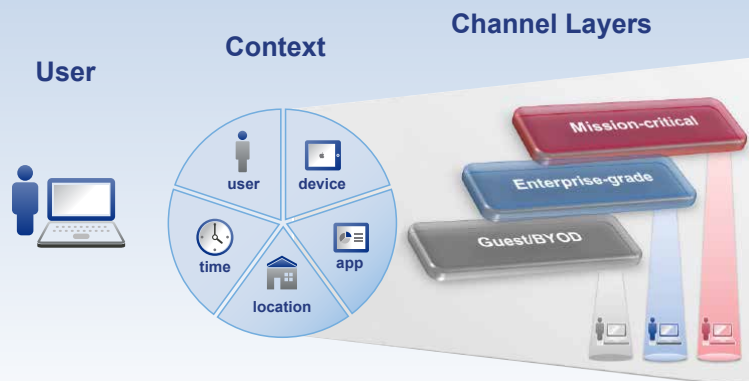


Figure 1: Meru Mobile**FLEX** is a unified architecture that delivers the reliable, high-performance wireless access that users want, while providing IT managers with the security and control they need.

Through the Mobile**FLEX** architecture, Meru enables organizations to create CALs, separate dedicated channels for different applications and usage contexts, whether those are mission-critical enterprise applications, voice, or customer-facing applications, so that each application has the performance that it needs—even over a dynamic and shared wireless infrastructure.



FLEX ACCESS

More deployment options for exploding mobile needs

Most IT managers are familiar with the steps typically required to deploy a wireless LAN. First, you do an expensive and time-consuming site survey to assess your environment. Then you design a coverage plan for the wireless LAN that minimizes dead spots and RF interference and ensures that neighboring access points use non-overlapping RF channels. Ultimately, the Wi-Fi client device is in control—it chooses which access point it will connect to.

Meru is different. Meru's **FLEX** Access architecture makes it simple to deliver consistent wireless LAN services, even in dense client deployments and for real-time applications like voice and video. Meru virtualizes RF resources so you can count on smooth, predictable performance to support today's bandwidth-intensive applications and highly dense client deployments. Meru's Air Traffic Control® technology coordinates which access points communicate with which client devices when they are in the same interference zone, so that your users enjoy a more consistent, predictable experience. Airtime fairness keeps traffic flowing across your wireless LAN by ensuring that every client gets the same amount of Wi-Fi time while allowing every transmission to move at its highest potential speed.

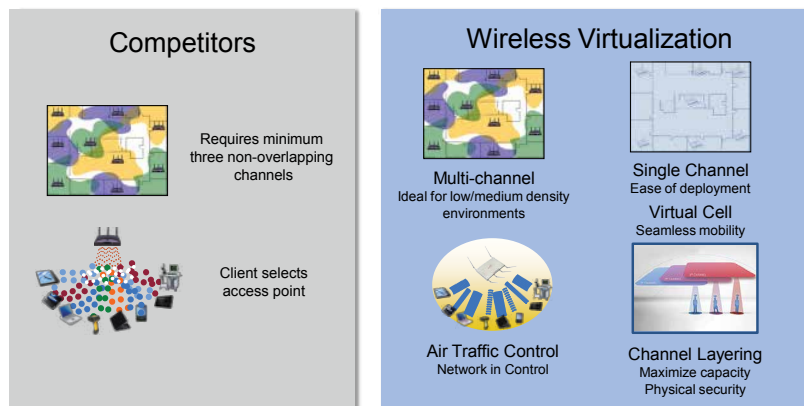
Meru makes it easy to scale wireless capacity and coverage across a variety of locations to meet your growing mobile requirements. Whether users are in home offices, remote offices, on a large corporate campus, outdoors, or sitting in lecture halls or stadiums, they can count on reliable wireless LAN coverage with Meru.

The **FLEX** Access architecture also provides you with multiple RF layer deployment options so the performance and user experience can be optimized based on the individual context—whether application, user, device, or location. The options are:

- **Multi-channel** – This mode uses three or more non-overlapping RF channels to deliver Wi-Fi access on both 2.4 GHz and 5 GHz networks. This mode is the conventional microcell approach.
- **Single channel** – Meru's innovate single-channel mode significantly simplifies deployment by eliminating cumbersome RF channel planning. IT can add capacity quickly without the burden of site surveys.
- **Virtual cell** – Virtual cell allows you to personalize device access and is ideal to deliver superior voice quality, especially in areas of high mobility. With virtual cell, users see a single, seamless layer of coverage because their mobile devices believe they are always connected to the same access point. Behind the scenes, Meru makes the decisions about when clients will roam to a new access point.
- **Virtual port** – Virtual port provides a dedicated link for every device, anywhere in your network. It allows you to deliver the flexibility of wireless with the quality of wired networks, and create policies for specific devices.
- **Channel layering** – Channel layering delivers high wireless capacity and is ideal for highly dense client environments, such as lecture halls, stadiums, arenas, and trading floors. Adding capacity and coverage is as simple as adding access points. Additionally, Meru's support of CALs allows applications to be mapped to dedicated channels and provides isolated, secure, and high-performance layers.

In channel-layering mode, Meru can support increased number of clients in a constrained coverage. WLAN vendors that take the multi-channel approach simply can't match the performance and client density of a Meru wireless LAN.

Figure 2: **FLEX** Access gives IT choice and control when deploying wireless LAN services.

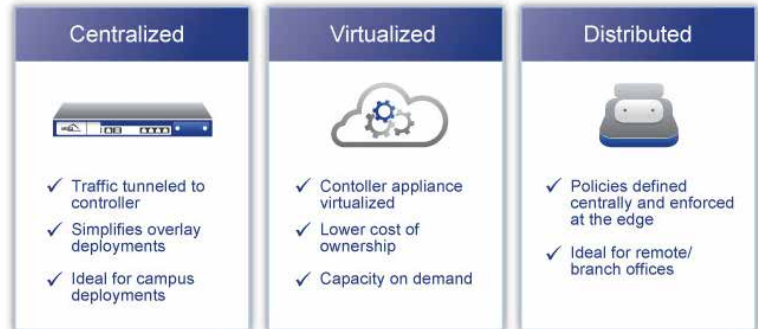


FLEX CONTROL

More deployment choices

Get the flexibility you need to deploy wireless LAN services to fit your environment, whether it's using a centralized, virtualized, or distributed controller. If your IT systems are centralized, such as on a campus, you may prefer the simplicity of deploying a centralized mobility controller to manage your access points. A single Meru controller can manage up to 5,000 access points.

If you run a virtualized data center, consider Meru's unique virtualized controller software, which runs on VMware. Virtualization makes it simple to add capacity on demand. And running Meru on your existing virtual servers lowers your total cost of ownership. For remote or branch offices, you can deploy Meru controllers in distributed mode, which allows you to define and manage policies centrally, and those policies will be enforced at the edge.



Meru supports network service delivery protocols, including Apple Bonjour®, Simple Service Delivery Protocol (SSDP), and WS-Discovery. Bonjour enables services, such as AirPrint™, which allows Apple iOS devices to print wirelessly, and AirPlay®, which allows audio and video to be shared among Apple iOS devices. With support for Bonjour, AirPrint, and AirPlay can be supported in enterprise deployments.

Meru fully supports both IPv6 and IPv4 to meet the growing requirements for IPv6 client connectivity to meet national and international mandates for migration to next-generation IP addressing.

FLEX MANAGEMENT

Unified network and security management

The days of swivel-chair management are coming to a close. Meru Network Management Suite, part of the Meru FLEX Management architecture, enables you to easily manage even the largest distributed deployments.

Ease of operations is built-in, as the Meru wireless network is designed to automatically adjust to deliver the optimal user experience. Meru's single-channel architecture allows APs to act as clients and connect with neighboring APs to test end-to-end connectivity all the way to the application. Meru Networks' E{z}RF® simplifies configuration and maintenance of your Meru wireless network and eliminates the hassle of RF management. And Meru's proactive management allows you to diagnose and fix problems before users notice them.

Integration with Solarwinds® enables unified monitoring and management of both wired and wireless networks. For businesses that need real-time wireless tracking and location services, Meru integrates with Aeroscout®.

As security threats continue to rise, maintaining the security of the wireless LAN is critical. A wireless intrusion protection system (WIPS) is integrated into the Meru network, which ensures strong protection against attackers while lowering your total cost of ownership. For organizations with the most stringent security and compliance requirements, Meru also integrates with AirMagnet® for advanced WIPS capabilities and Palo Alto Networks® for advanced firewall capabilities.

FLEX POLICY

Simplify BYOD, user on-boarding and management

Simplify the task of provisioning BYOD and guest access without sacrificing security or control. With Meru **FLEX** Policy, you can ensure consistent, policy-based access for all users across both wired and wireless networks to maintain ongoing security and compliance.

User policies can be applied by user as well as client device with Meru's device profiling and fingerprinting technology. IT can enforce policies that allow an employee to use a personal tablet to access the corporate intranet, for example, while the same user can only access email and the Internet from his or her smartphone.

Meru's **FLEX** Policy eliminates the administrative burden of providing guest access with multiple provisioning methods, including self-registration, sponsor-based access, and bulk import, to fit your business needs. With Meru, 802.1X network access control is automated on any mobile device—across iOS, Android and Windows platforms—and on wired and wireless networks.

Meru also supports eduroam¹, which is used by the research and educational community for secure, worldwide site-to-site roaming.

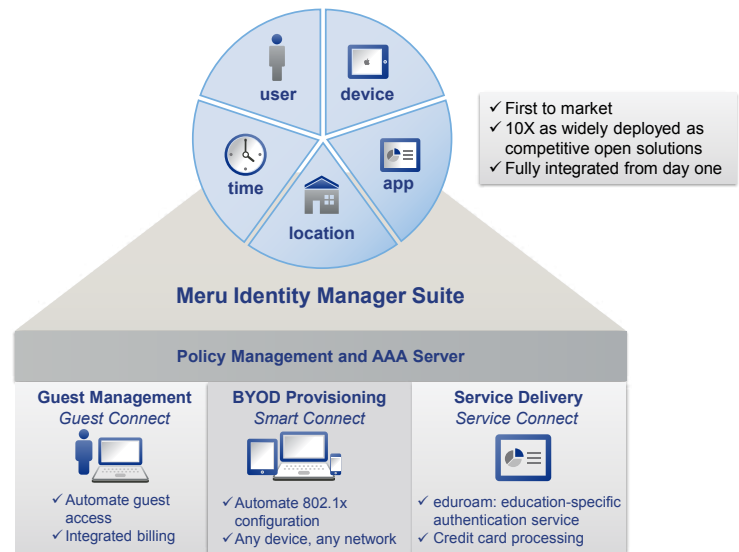


Figure 3: **FLEX** Policy simplifies BYOD and guest access while ensuring secure, consistent access.

FLEX SOLUTIONS

Easy integration of horizontal and vertical applications

The industry's next wave of productivity will likely come from mobilizing general and line-of-business applications, and Meru **FLEX** Solutions provides a platform for easy integration of both horizontal and vertical applications. Meru's Context-aware Application Layers allows IT managers to hone the Wi-Fi network to deliver performance that's uniquely suited to different applications and usage contexts.

In addition, Meru has validated a joint Meru-LanSchool® classroom management solution, with an easy-to-follow configuration and deployment guide. Configuration and deployment of Microsoft Lync® unified communications and other applications are also simplified on Meru.

¹ www.eduroam.org

READY FOR 802.11AC

Ready for higher speeds

Your investment in your Meru network can be protected even as the industry transitions to the new 802.11ac standard. 802.11ac is designed to enable Wi-Fi to meet the demand for high-capacity and high-quality mobile, real-time applications like voice and video and resolve the growing issue of congestion as more and more mobile devices are used.

To achieve gigabit speeds, 802.11ac uses wider channels in the 5-GHz band, and that minimizes the total number of channels available to enterprise deployments. There will be instances where fewer than three channels are available for use, making multi-channel WLAN solutions difficult, if not impossible, to deploy. However, Meru's single-channel architecture will remain ideal for this situation.

MEET EXPLODING DEMANDS FOR MOBILITY

A great experience for users and control for IT

With Meru, you can meet users' expectations to use their laptops, tablets, and smartphones everywhere without sacrificing the security and control that IT needs. Meru's broad portfolio of solutions makes it easy to deliver high-capacity coverage to meet the specific requirements of your environment, including in highly dense environments and high mobility areas, such as conference rooms, lecture halls, stadiums, arenas, and entertainment venues. With Meru's unique Context-aware Application Layers, users will have a superior experience even when using resource demanding applications, such as voice, video, and digital learning. And services like AirPlay and AirPrint will work as your users expect. With Meru, you can easily deploy reliable, secure, consistent coverage all the way from small offices to large campuses.



Meru delivers an all-wireless network that fully supports the enterprise, delivering a consistent, interactive experience for all users. No matter what applications they are running. No matter how many other users are on the network.

For more information, visit www.merunetworks.com or email your questions to: meruinfo@merunetworks.com

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