How Managed Wireless LAN Solutions Can Help Transform Your Business
In today’s business environment, employees expect anytime, anywhere access to company resources from any device, while business leaders look to IT departments to deploy tools that improve productivity and lower costs.

**Several technology trends are driving enterprise mobility strategies.**

» The number of wireless-enabled devices continues to grow by leaps and bounds. According to ABI Research, more than 10 billion wirelessly connected devices were in use in 2013 and **more than 30 billion devices are expected by 2020** – a 200% increase during a seven-year period. Corporate wireless enabled devices have exploded from a handful of laptops a few years ago to today’s stable of smart phones, tablets, surveillance cameras and a whole slew of other wirelessly connected devices.

» The Bring Your Own Device (BYOD) movement has become mainstream in the corporate world. Employees want to use their own devices in the workplace to access information. The influx of new wireless devices demand robust management capabilities.

» Over the past few years, wireless technology has evolved at a faster pace than wired technology. With multiple user devices spread across disparate locations, wireless connectivity has become a critical business requirement.

This white paper examines how your business can use the latest wireless LAN (WLAN) technology to improve your company’s mobility initiatives.

**Topics include:**

» The Evolution of Wireless Technology

» The Emergence of Managed WLAN

» How Managed WLAN Supports Today’s Businesses

» Prime Applications for Managed WLAN

» Reasons to Deploy a Cloud-Based Managed WLAN Solution

» FairPoint Communications’ Managed WLAN Solution – A Differentiated Solution
The technology environment in the early days of wireless was significantly different from today. When first introduced in 1997, WLAN technology only supported a handful of devices. Given the speed and reliability advantages of wired networks, at the time, the majority of an organization’s connected devices were wired. Businesses simply augmented their main wired networks with wireless technology.

Wireless technology and standards have evolved, enabling organizations to shift their strategies to include more wireless capabilities. And, now with the current 802.11ac standard, which supports high-definition video, streaming media, cloud computing, real-time video conferencing and other complex, content-rich applications, businesses can deploy wireless throughout their organizations. In fact, many of today’s devices used in business applications only connect wirelessly, leading many organizations to rely on wireless networks as their primary network access technology.
Table 1 provides a summary of how wireless standards have evolved over the years:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Introduction Date</th>
<th>Wired Speeds (MBPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11</td>
<td>1997</td>
<td>10</td>
</tr>
<tr>
<td>802.11b</td>
<td>1999</td>
<td>100</td>
</tr>
<tr>
<td>802.11a</td>
<td>1999</td>
<td>100</td>
</tr>
<tr>
<td>802.11g</td>
<td>2003</td>
<td>100</td>
</tr>
<tr>
<td>802.11n</td>
<td>2009</td>
<td>1000</td>
</tr>
<tr>
<td>802.11ac Wave 1</td>
<td>2013</td>
<td>1000</td>
</tr>
<tr>
<td>802.11ac Wave 2</td>
<td>2015</td>
<td>1000</td>
</tr>
</tbody>
</table>

Source: ZK Research, 2014

Over the next few years, most wireless equipment vendors will release 802.11ac-compliant devices. Such a substantial increase in the number of wireless endpoints will cause a growing number of businesses to implement 802.11ac-compatible networks.

**802.11ac networks improve the mobile experience in significant ways:**

**INCREASED SPEEDS** – Users will experience the same or better speeds on the wireless network.

**GREATER CAPACITY** – Compared to 802.11n, 802.11ac networks can handle more users, devices, content, downloads and video streams – up to triple the capacity of older networks.

**INCREASED COVERAGE** – The 802.11ac standard concentrates the wireless signal so data reaches the target faster. Traditional Wi-Fi broadcasts radiate the data signal equally in all directions.

**DECREASED POWER USAGE** – Enhanced capacity and coverage capabilities lead to improved battery life for tablets, laptops and other wireless devices on the network.

Businesses that leverage 802.11ac will be able to handle more devices and multimedia content. With faster speeds, greater capacity and better coverage, the 802.11ac standard offers an efficient network with better overall performance.
Businesses with traditional wireless networks will be hard-pressed to support the growing number of devices and access points. They will also be challenged to meet the increased demands for mobility and bandwidth. Because of these factors, industry experts forecast strong growth for the new 802.11ac standard in the coming years.

In addition, the 802.11ac standard paves the way for a virtual, cloud-based WLAN solution. The conventional WLAN uses an on-premises hardware controller architecture. If your network has more than one wireless access point, a controller is required to manage how the multiple points interact.

As the wireless network grows, bigger and more robust controllers are needed. However, the hardware-based controller architecture was not originally designed to handle the booming volume of wireless traffic.

A greater number of controllers increases network complexity and cost. Fortunately, innovations in wireless technology have led to next-generation, cloud-based WLAN solutions.

Managed WLAN technology eliminates the need for a physical on-premises controller. It virtualizes the control and management function of the network and allows it to run as a software application. This architecture creates a simpler, more flexible solution in which the virtualized controller can be centralized anywhere, including a service provider’s data center.
Removing the hardware controller from a WLAN delivers meaningful benefits for your organization. A managed solution provides:

**HOW MANAGED WLAN SUPPORTS TODAY’S BUSINESSES**

**CLOUD-BASED MANAGEMENT**
You can control wireless access points across multiple locations. With cloud-based management, you ensure seamless mobility across all locations and can troubleshoot without physically travelling to each site.

**UPGRADE PROTECTION**
An 802.11ac-ready solution eliminates future forklift upgrades as new standards come into play. Wireless access points are upgraded via downloadable firmware.

**SCALABILITY**
In addition to streamlining network complexity and reducing hardware costs, you gain greater control over your network operations and can more easily scale your requirements. You’re able to add wireless access points anywhere in the world. With a single instance of a managed WLAN, you can support thousands of access points and users across multiple locations.

**SECURITY**
In a managed WLAN solution, a built-in firewall turns away unwanted traffic before it enters the network. Hardware-based controllers, in contrast, have two major security vulnerabilities. Potentially harmful traffic enters the LAN through the access point and is discarded only after it reaches the controller. In addition, a centralized physical controller is a prime target for hackers. Being in the data path, the controller becomes a convenient point to intercept traffic. A managed WLAN keeps data sessions on the LAN and centralizes control traffic in the enterprise data center.

**RELIABILITY**
In a managed WLAN, no single points of failure or data bottlenecks exist. By separating the control and data planes, any interruption in the control plane does not affect user connectivity. A failover can take place with zero packet loss to any of the data sessions.

**LOWER TOTAL COST OF OWNERSHIP (TCO)**
The elimination of a physical controller greatly reduces capital costs, the associated operating costs and total cost of ownership for a WLAN solution. You also eliminate a significant amount of cabling requirements. With simplified configuration and management, a managed WLAN solution provides significant cost efficiencies.
Given the limitations of hardware-based controllers in conventional Wi-Fi networks, managed WLANs are quickly becoming the solution of choice for businesses.

**Table 2 compares the capabilities of a traditional Wi-Fi network to a managed WLAN**

<table>
<thead>
<tr>
<th>Traditional Wi-Fi</th>
<th>Managed WLAN</th>
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<tr>
<td>Large number of wireless access points controlled by a hardware-based controller – a single point of failure.</td>
<td>Designed to remove the single point of failure with redundancy built into a cloud architecture.</td>
</tr>
<tr>
<td>No intelligence built into wireless access points.</td>
<td>Designed to scale and be future-proof with firmware upgradeable wireless access points rather than requiring forklift upgrades every 3-5 years.</td>
</tr>
<tr>
<td>Often lacks strong reporting and analytics capabilities</td>
<td>Not a convenience but rather an extension of the LAN to bypass cabling of the entire infrastructure.</td>
</tr>
<tr>
<td>Data pass-through is only as good as the technology, which had to be updated every 3-5 years.</td>
<td>Wireless access points often have a built-in firewall to provide protection throughout instead of through a controller.</td>
</tr>
<tr>
<td>Data and management functions go through the same device.</td>
<td>Separation of data and control planes through a cloud-based controller leads to more efficient streams.</td>
</tr>
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</table>
In general, any organization that has wireless devices accessing its network should consider managed WLAN. With the impressive advantages outlined earlier, a cloud-based WLAN solution makes sense for a wide range of applications. Specific types of organizations that typically represent a perfect fit for a managed WLAN solution include enterprises, financial services organizations, educational institutions, hospitality firms, retail companies, condominiums, assisted living centers, property management companies, real estate firms, construction companies, government entities, libraries, manufacturing facilities and healthcare providers – really any entity looking to move their organizations to a pervasive mobility environment. Some general examples include organizations that:

» Require access for a significant number of wireless devices, such as iPads.

» Have multiple sites with each location supporting wireless devices.

» Operate within a campus environment.

» Want to upgrade existing wireless networks based on older standards.

» Want to prepare for what 802.11ac has to offer, but without having to make a significant investment in a network upgrade.

» Operate an outdoor venue that requires ruggedized access points and specialized equipment.
WHY MIGRATE TO AN OUTSOURCED MANAGED WLAN SOLUTION?

The inherent capabilities of managed WLAN technology make it a perfect hosted solution. In many business scenarios, a managed WLAN solution makes sense. Whether your organization is experiencing high growth or you don’t have adequate IT staff to meet your wireless network requirements, a trusted service provider can translate into better wireless service and potentially lower costs compared to purchasing, configuring, managing and upgrading an in-house wireless network.

In the coming years, more and more organizations will face limitations inherent in their existing networks and will need to make significant upgrade investments. Research firm IHS indicated in its August 2015 report on Network Equipment Spending and Vendor Leadership that WLAN infrastructures are in the greatest need of upgrades. As a result, hosted and managed services will experience a high level of growth since many organizations will want to mitigate the risk of technological obsolescence.

In addition, International Data Corporation (IDC), a provider of market intelligence, expects the cloud-managed WLAN infrastructure market to achieve a 38.8% compounded annual growth rate (CAGR) between 2013 and 2018. IDC believes cloud-managed Wi-Fi is one of the fastest growing segments of the WLAN market. Moving services to the cloud has long been a preferred strategy for a large and growing number of organizations.
Given the pervasiveness of wireless devices, organizations will be pressured to upgrade their network equipment. But, for many businesses, ongoing upgrades will prove cost-prohibitive. Keeping up-to-date on the latest innovations and best practices will pose additional challenges. Since it’s their main business, service providers that specialize in outsourced cloud services are better positioned in terms of technical and process expertise.

Even if your business has an experienced IT staff, you may not want to task them with network monitoring and management. Instead, you can free up your IT staff to work on projects that accomplish your corporate goals. A service provider can offer a budget-friendly solution without having to train, hire or re-assign staff.

A managed WLAN approach eliminates the costs associated with hardware controllers and network management. With the right provider – one with proven experience delivering hosted solutions and expertise in wireless network technologies – you’ll have access to the resources necessary to deal with the flood of wireless devices requiring network access.
FairPoint Communications offers a fully managed, business-class managed WLAN solution with unmatched scalability, flexibility, security and reliability. You receive all the capabilities and advantages of a next-generation WLAN with an attractive total cost of ownership model.

**Key features of the FairPoint managed WLAN include:**

» Cloud-based management and control

» Proactive 24/7 monitoring

» Priority technical support response times and hardware replacement

» Technical issue resolution and help desk support

» Multi-level reporting with detailed usage statistics to the access point level

» Custom dashboards with at-a-glance view of system/network health

» Secure architecture that detects and prevents malicious threats from entering the network

» Comprehensive user authentication options

» Support for multiple encryption protocols

» Multi-country support

» High-performance wireless access points

» Simplified upgrades
With managed WLAN, businesses can transfer the day-to-day network management from their IT staff to the FairPoint team. Your valuable IT professionals can then focus their energies on core business goals.

To arrange a complimentary, no-obligation consultation, please visit our website.