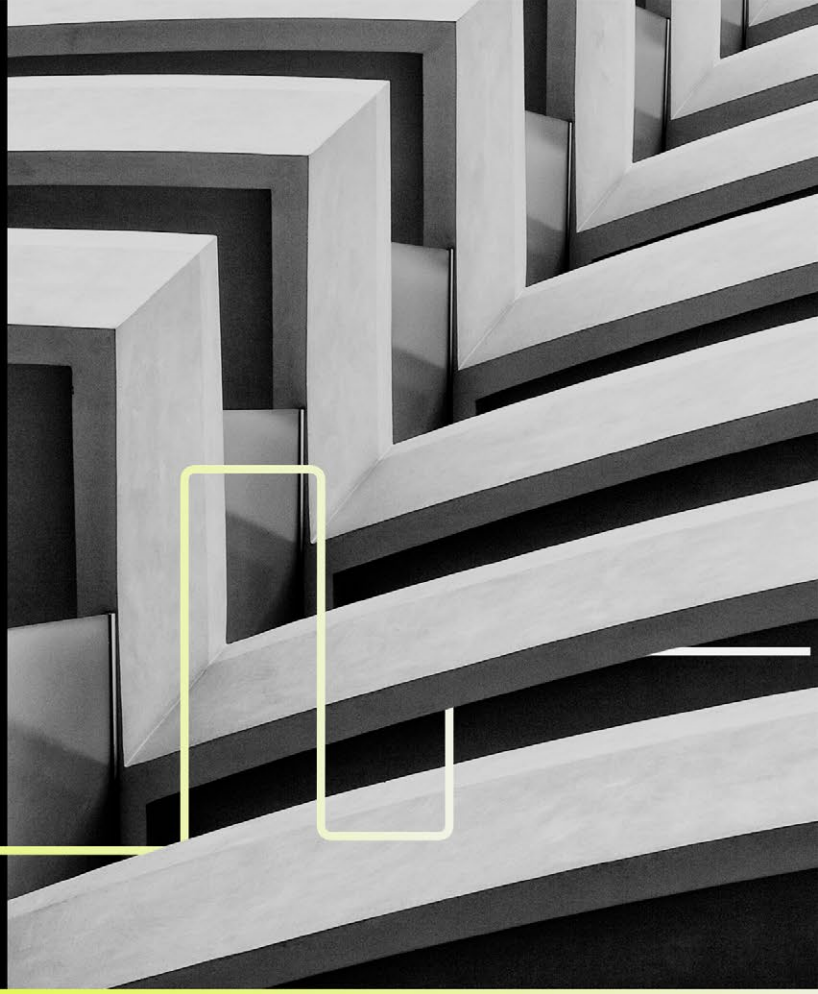
Lightpath



WiFi Whitepaper

Why Modern WiFi Matters

and what it takes to keep your enterprise covered

Lightpath

Table of Contents

The demand for WiFi is exploding

Seamless, always-on WiFi is now the expectation with the proliferation of the Internet of Things (IoT), and employees and customers alike have become increasingly dependent on continuous internet access for all things. According to a recent Gartner report, the market for Internet of Things devices such as smartphones, tablets, laptops, etc. will reach nearly 21 billion connected devices by 2020.[1]

Studies have shown that free WiFi encourages customers and guests to stay longer, spend more money, and come back more often. Unfortunately, most existing WiFi networks were designed for yesterday's coverage models, not the device density and demand that exists today. Organizations can be left behind by not adequately supporting their current infrastructure. This creates a business critical need for improved WiFi in all industries including retail, hospitality, education, health and others.

Along with more "things" comes the demand for higher-speed and higher-reliability connections 24/7/365. Daily, organizations transfer multiple terabytes of data across WiFi networks by hosting numerous users operating their devices to record and share (even in real-time) communications. As reported by the Wi-Fi Alliance, 71% of all mobile communication flows over Wi-Fi.[2] This requires more than just coverage for any institution. This requires a density rich network that will adapt to interference and support high bandwidth and device capacity for optimal performance.

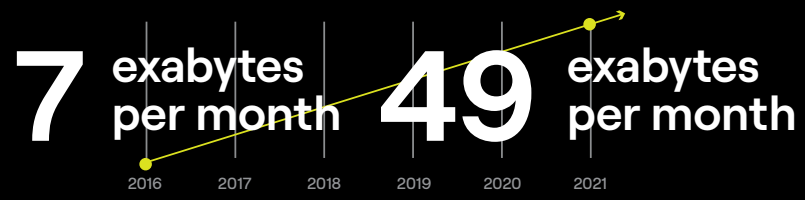
With the growth of BYOD (Bring Your Own Device) policies, employees today are empowered to conduct important business through smartphones, tablets and laptops- and a lot of that data is being routed through enterprise wireless networks. Enabling the wireless network for that data to move efficiently is the cost of doing business, and your organization will be left behind if you can't adequately support your infrastructure.

More Users

9 billion

In 2017, more than 9 billion WiFi-enabled devices were expected to be in use at the end of the year and more than 3 billion devices are expected to be shipped this year.[3]

More Data



In 2016, global mobile data traffic amounted to 7 exabytes per month. In 2021, mobile data traffic worldwide is expected to reach 49 exabytes per month at a compound annual growth rate (CAGR) of 47 percent.[4]

More Devices

59 percent

59% of organizations allow employees to use their own devices for work purposes. Another 13% have planned to allow use within a year[5]

Businesses who offer free WiFi to boost sales numbers have a success rate of 72%

Excellent WiFi isn't optional anymore

Once considered a luxury or a perk — or even a pay-for-use guest service — readily available, reliable WiFi is now a basic necessity. According to a survey sponsored by the Wi-Fi Alliance , 60% of people do not want go without WiFi for more than 1 day; 75% of American respondents surveyed said "that a week without WiFi would leave [them] grumpier than a week without coffee or tea."6 So it is no surprise that iGR reported that 75% of businesses say they consider free wireless access to be either "important" or "very important" to their business now.[7] Given a choice, customers prefer a business that caters to their requirement for seamless, safe internet access. In industries where patrons have many options, including hospitality and retail, offering WiFi significantly increases a business's advantage:

- 62% of local business customers spend more time in store if WiFi is available[8]
- Businesses who offer free WiFi to boost sales numbers have a success rate of 72%[9]

For service providers such as the healthcare industry, customers sitting in a waiting room are more likely to become impatient if they can't connect during their wait. When these customers and visitors are mobile workers themselves, they especially need a reliable WiFi connection to remain productive. In industries where patrons have many options, failing to offer WiFi can actually hurt the business.

In all industries, especially enterprise, it's crucial that companies provide an adaptable office environment for employees to produce their best work. Today's competitive culture is one that's mobile and fluid, mixing work and personal activities, and supporting employees' needs to collaborate anywhere, anytime, throughout their facility. Companies that take advantage of the flexibility afforded by WiFi, like video traveling, are supporting increased productivity, while ones that do not will find it harder to attract and retain top talent.

An organization's back up schedule needs to go beyond the traditional manual scheduling

Industries where Managed WiFi stands out

Education

- BYOD management: Simplify device onboarding and preserve network integrity
- Integrated, industry-leading security effectiveness
- Web filtering: Block access to adult content and malicious websites
- Allow student access to mobile resources, staff access to administrative systems/tools, and an alternative to a wired network

Retail Spaces

- Offer public WiFi to attract patrons and promote customer loyalty
- Enable private wireless access from any wireless device—including handheld point-of-sale terminals
- Ability to monitor bandwidth, traffic, content, and visitors
- Centralized management with visibility across multi-store network

Health Care Offices

- Provide secure access to medical images, electronic medical records, and remote medical systems from mobile devices
- Flawless, uninterrupted performance
- Integrated, industry-leading security effectiveness
- Application control: Policy-based control over any application usage

Professional Services

- Provide strong security, guest access, and control over users, devices, and application
- Enable users to access business network and the Internet with a mobile device
- Application Control: Policy-based control over any application usage
- Centralized management control

Hospitality

- Provide WiFi for Internet access by guests, workers, customers, and visitors
- Centrally manage all wireless APs, switches, and security appliances
- Visibility and control: Prioritize traffic, backup, segregate traffic, etc.

Financial

- Provide WiFi for Internet access by guest workers, customers, and visitors
- Flawless, uninterrupted performance
- Guest and contractor traffic securely separated from employee traffic

A flaky, sluggish WiFi experience can quickly annoy employees and customers, plus drive up support costs

Slow WiFi is just as damaging as no WiFi

It's not enough to simply hang up some wireless access points and flip a switch. In fact, setting up WiFi can exceed the levels of attention, expertise, and investment needed for an enterprise's wired LAN. Poorly implemented WiFi frustrates users, and hurts productivity.

The typical wireless LAN (WLAN) controller has become a bottleneck, requiring IT to incessantly add more controllers as more users and devices come onto the network. This accelerated ramp up of users, devices, sophisticated applications, and security risks is straining the average wireless network. It's also straining IT staff who need to learn a whole new set of disciplines around RF, security and mobility.

Your IT organization must now accurately manage spectrum, including channel assignments, widths, radio power and interference in each band to maximize speed, create seamless coverage, and integrate layers of security for secure, controlled access, and protection against ever-mutating cyber threats.

Secure onboarding for both employee and guest devices needs to be maintained, along with keeping up with all the device variations out there. The process needs to be fast and secure.

To enable your employees and provide a reliable, cost-effective wireless network solution to your guests, patrons, and partners, an expert team should evaluate your technology, security, and capacity needs across all network layers. A flaky, sluggish WiFi experience can quickly impact organizational performance, annoy employees and customers, plus drive up support costs.

A cloud-managed wireless network offers a far more flexible, cost-effective solution

DIY isn't the only option

Many IT departments will find it difficult to handle the demands of designing, deploying, and supporting their wireless networks without augmenting the team. Instead of using your time and resources to do all of this yourself, an alternate approach would be to set up managed WiFi services.

Managed WiFi allows you to bring in a team with broad and deep experience evaluating, installing, and operating wireless networks, without the need for upfront capital investment. You are ensured the latest technology updates, 24/7 proactive monitoring and support, and expertly configured security to meet all the unique needs of your business and industry.

A cloud-managed wireless network offers a far more flexible, cost-effective solution to delivering nimble, reliable, secure, and scalable wireless access. With this design, management and control of the network take place through intelligent Access Points (APs) and virtual controllers that run in the cloud, eliminating the need for a hardware controller. A cloud-managed wireless network greatly increases scalability to meet increasing BYOD demands and quickly expand coverage across the enterprise. Centralized management provides excellent visibility into the performance of your network, making user management and future expansion easy and quick to accommodate. All at a predictable operating cost.

Staying in control of your network

With more wireless data traffic, maintaining data security is very challenging, especially for public networks. The challenge is even more substantial if the WiFi network is carrying operational data, as a hacker could not only steal data but take down the network. This is especially crucial when it comes to meeting the requirements for strict industry standards such as PCI, HIPAA, Sarbanes-Oxley, etc. Security must be enforced at every entry point to block malicious traffic before it gets onto the wireless network and to prevent unauthorized access.

In addition, many companies need to deploy multiple levels of service for different users as well to keep user and operations traffic separate. For example, you may want to provide a free, slower guest service, a higher bandwidth for premium customers, and another level for employees or for business operations.

A secure, well-performing WiFi network allows your company to focus on its core goals

WiFi has not reached the level of compatibility that wired networks have. You can't mix and match different manufacturer's Access Points and/or controllers like you can with wired switches. If you've inherited multiple locations, unifying management of varied networks can be a headache.

A secure WiFi network makes sure that guests go out to the internet, employees and contractors have secure access to the resources your policies dictate and keeps up with the changing needs of client devices.

When seeking a solution, make sure it has the flexibility to segment use of your WiFi network into multiple levels of service if you need it to. A secure, well-performing WiFi network allows your company to focus on its core goals.

Each device requires a flawless, highly responsive experience, reliant on wireless networks

Prepare for the near future of wireless

Spurring on the unprecedented demand for ubiquitous, reliable WiFi is the dizzying growth of the Internet of Things: the collection of machines, appliances, PCs, phones, wearables, and other network-ready devices. Each device is consuming and generating data that requires a flawless, highly responsive experience, the majority of which relies on wireless networks.

The 802.11 standard celebrated its 20th anniversary in 2017 and was the first wireless technology effectively available to the masses. Now, our population simply assumes WiFi should be always on, always there, and since some cell phone data plans remain limited (or cost-prohibitive and speed challenged), mobile users continue to seek out and value WiFi. Today the evolved 802.11ac standard is considered the enterprise requirement and enables speeds that are three times faster than the previous 802.11n generation. However, the IEEE 802.11 working group continues to make progress towards better, faster and more flexible options for emerging scenarios. The next emerging standard will be 802.11ax, an architecture that takes the advances in MIMO and learnings from previous WiFi standards to make a huge leap forward in the quality of connectivity, speed and service. Hardware is expected to begin volume introduction in 2019.

New spectrum is opening soon that will enable private wireless networks to operate in the 3.5 GHz band under a sharing regime called CBRS (Citizen's Broadband Radio Service). This system will open up about 150 MHz of new spectrum, which will be regulated differently than WiFi but can be integrated into your LAN.

802.11ah

Sometimes called WiFi HaLow, 802.11ah provides protocols and definitions for operating in the sub-one-gigahertz band (900 megahertz). While this spectrum has limited availability, it has a much longer range and can accommodate low data rates typical of machines. Use cases being considered are home appliances, furnaces, and lighting. The 900 MHz band was in vogue with rural WISPS, and cordless phones but has fallen out of favor in the name of higher throughput.

802.11ad and 802.11ay

The next generation 60 GHz (WiGig) standards will provide much higher throughput than the soon to arrive 7 Gigabit/second 802.ad standard, which doubles current 802.11ac Wave 2 speeds.

The 60GHz spectrum band is appropriate for short range applications, such as those within a room. 802.11ay promises 10 Gig speeds, but it doesn't go very far, due to the poor propagation in the 60 GHz band.

802.11ax

Appearing in 2019, this standard builds on 802.11ac quadrupling throughput with more radios for high-efficiency, high speed local area networks, particularly for dense deployments like stadiums, shopping malls, and subways. It will return these performance gains to the 2.4 GHz band, where 802.11ac is 5 GHz only.

802.11az

This amendment is aimed at new positioning systems, augmenting GPS for indoor locations and reducing power consumption. The next-generation standard adds more information on client positioning, helping with indoor mapping, autonomous system navigation in warehousing, and targeted messaging in retail.

In addition to the improvements to 802.11ac and new CBRS spectrum, we can expect to see more about these in the next few years:

Managed WiFi from Lightpath provides a fully managed wireless data network for secure, comprehensive, and reliable untethered service throughout your business. We set up and manage the network for you, sparing you up-front capital expenses and any potential burden for your IT organization.

Improve productivity and satisfaction for employees and guests alike with controlled access to corporate assets and the internet using networks running on the latest WiFi technologies. And with 99.9% uptime and 24/7 proactive monitoring and management, you can be assured that your wireless network just works.

Sources

[1]Gartner Says 6.4 Billion Connected "Things" Will Be in Use in 2016, Up 30 Percent From 2015. 11/10/2015. Retrieved from Gartner.
[2]Wi-Fi Alliance. Retrieved from Wi-Fi.org
[3]Facts and stats about Wi-Fi. World Wi-Fi Day, June 20th 2018. Retrieved from The Wireless Broadband Alliance.
[4]Global mobile data traffic from 2016 to 2021 (in exabytes per month). Retrieved from Statista.
[5]Michael Lazar. BYOD Statistics Provide Snapshot of Future. 11/16/2017. Retrieved from Insight.
[6]Rik Fairlie. Coffee, TV or Wi-Fi? 10/8/2010. Retrieved from NYT Gadgetwise.
[7]Mobile Industry Statistics. Retrieved from Brick&Mobile.
[8]Steven Scheck. Why Offering Free WiFi to Your Customers is Wise. 11/4/2015. Retrieved from Small Business Trends.
[9]Johanna Brito. Benefits of Offering Free WiFi in Businesses. 5/3/2017. Retrieved from Grandstream.