



Discover the power of **WiFi 6**

How the new
standard addresses
today's WiFi
challenges

This is **Enterprise.**
This is Optus.

yes OPTUS

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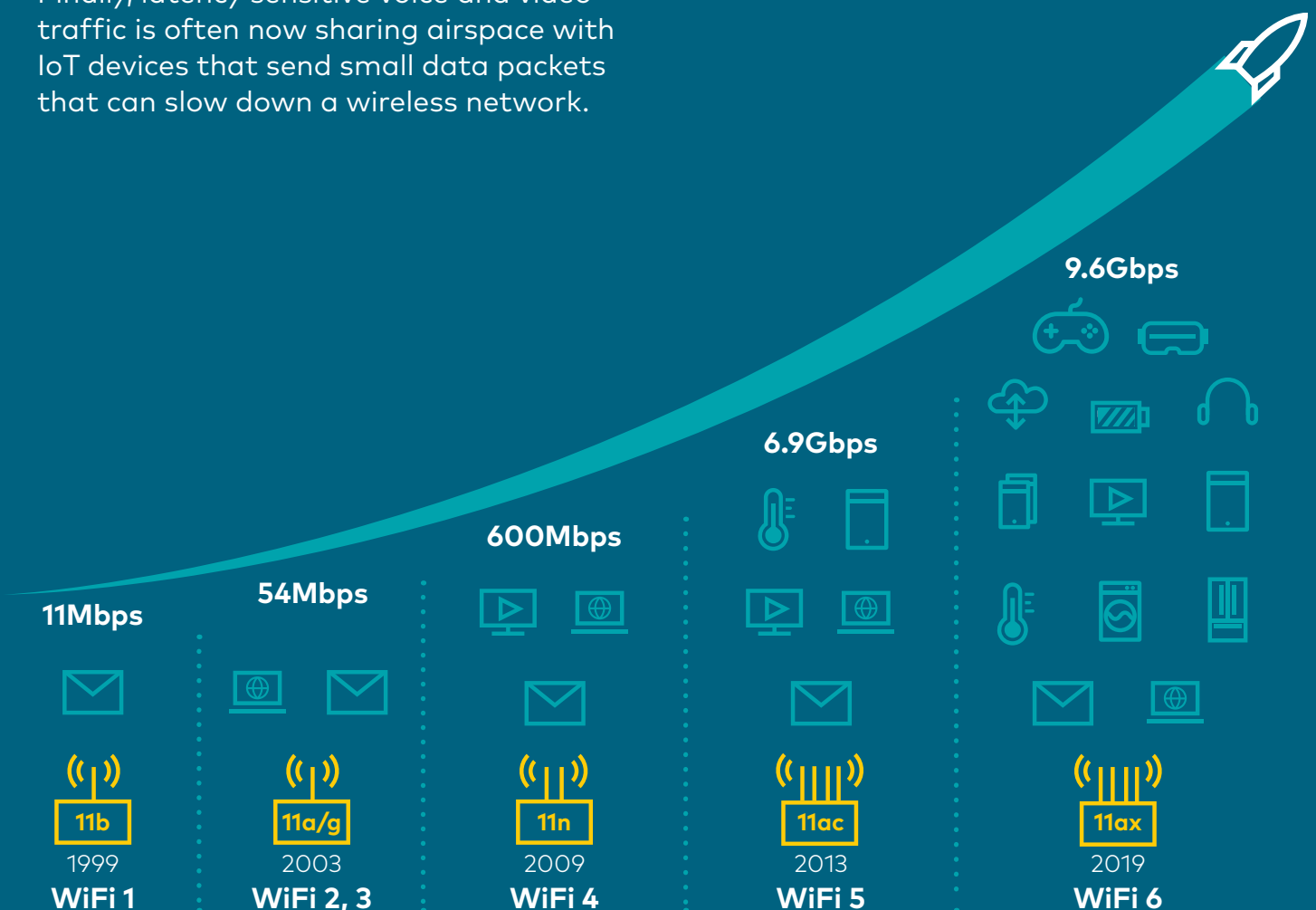
The Wireless Advantage: introducing WiFi 6

The demand for wireless access from users has shifted from a nice-to-have to a necessity. As a result, network performance has become a business-critical requirement. Both workers and consumers now expect a reliable WiFi connection and companies need to offer an amazing experience or risk business or productivity losses.

Much has changed in recent years. First, workers demand much more flexibility in where they work – they don't want to be tethered to a desk by a blue cable. Second, devices such as printers that used to run on wired networks can now be wireless. Finally, latency sensitive voice and video traffic is often now sharing airspace with IoT devices that send small data packets that can slow down a wireless network.

To accommodate the growing number of mobile and Internet of Things (IoT) devices, as well as the diversity of traffic being generated, wireless networks needed a more efficient way to handle traffic and ever-increasing capacity demands. To solve this problem, a new standard called WiFi 6 – also known as 802.11ax – has been developed.

Now is the time for enterprises to take advantage of all that WiFi 6 can offer.



What is WiFi 6

WiFi 6 addresses today's biggest WiFi challenges: performance and the increasing density of devices and diversity of applications. To counter these challenges, WiFi 6 increases throughput capacity by up to four times that of WiFi 5.

Think of it as adding more lanes to a freeway, with each of these lanes now being for dual occupancy vehicles. Instead of single drivers competing with each other to use the freeway, the use of carpools or buses allows people to use the freeway more efficiently and ultimately relieves congestion.

Another advantage of WiFi 6 is its ability to help improve device contention and the battery life of devices. How? A feature called Target Wake Time (TWT) lets devices remain inactive until it's their turn to transmit data. This improves the battery life of smartphones, tablets and IoT devices, and ensures less congestion, energy savings and an overall better experience.

With WiFi 6, IoT handling is also enhanced by giving low-power, low-bandwidth devices such as sensors their own channel – similar to providing a dedicated bike lane – that stops low-bandwidth traffic interfering with latency sensitive traffic.

Advantages of WiFi 6 over WiFi 5



Higher data rates – 40% higher than WiFi 5



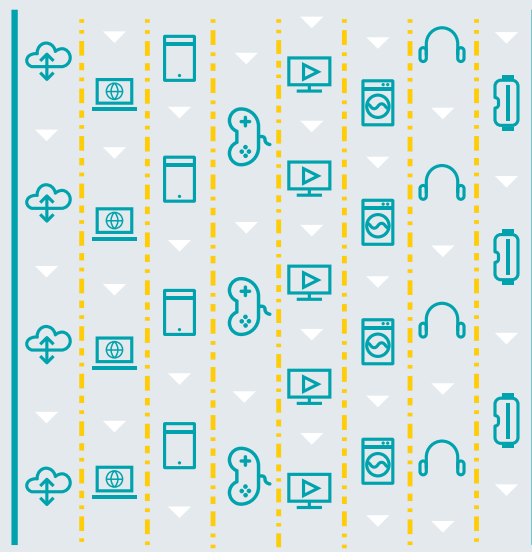
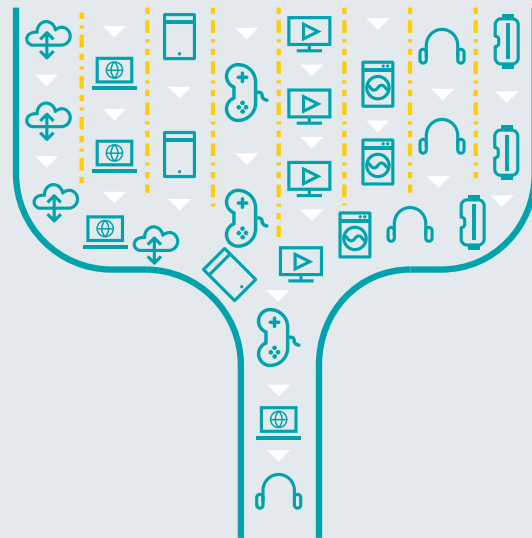
Increased capacity – improved average throughput per user (at least a fourfold increase in congested environments)



Better performance in environments with many connected devices



Improved power efficiency



Why you need to consider WiFi 6 – right now

Ask yourself

- Is the proliferation in the number of WiFi connected devices affecting the performance of your WiFi?
- Can you ensure all users have a good experience on your network across your entire premises?
- Are you introducing applications whose bandwidth and latency requirements will not be met by legacy WiFi technology?
- Do you have visibility into the WiFi user experience and the associated impact on productivity?
- Is your WiFi network still “fit for purpose” as you reduce your investment in fixed networking?
- As IoT devices are deployed, how prepared are you for their impact on network performance?
- Because users connect from everywhere today, are you worried about network access security?
- Have you factored in future switching and Power Over Ethernet (PoE) requirements?
- As the number of devices connected to the WiFi network increases, are you concerned older devices will not receive sufficient access through your network?



The transition towards more seamless connections and integrated experiences in the workspace is happening at a pace never seen before. Untethered from blue cables, users are now competing for wireless bandwidth with temperature, lighting and location sensors, as well as surveillance cameras and audio-video equipment.

At the same time, video traffic is increasing rapidly, with social, collaboration, telemedicine, eLearning and other applications generating enormous uplink traffic. Because streaming video requires low latency, IT must ensure that users are not seeing the dreaded "buffering" message, or worse. But how?

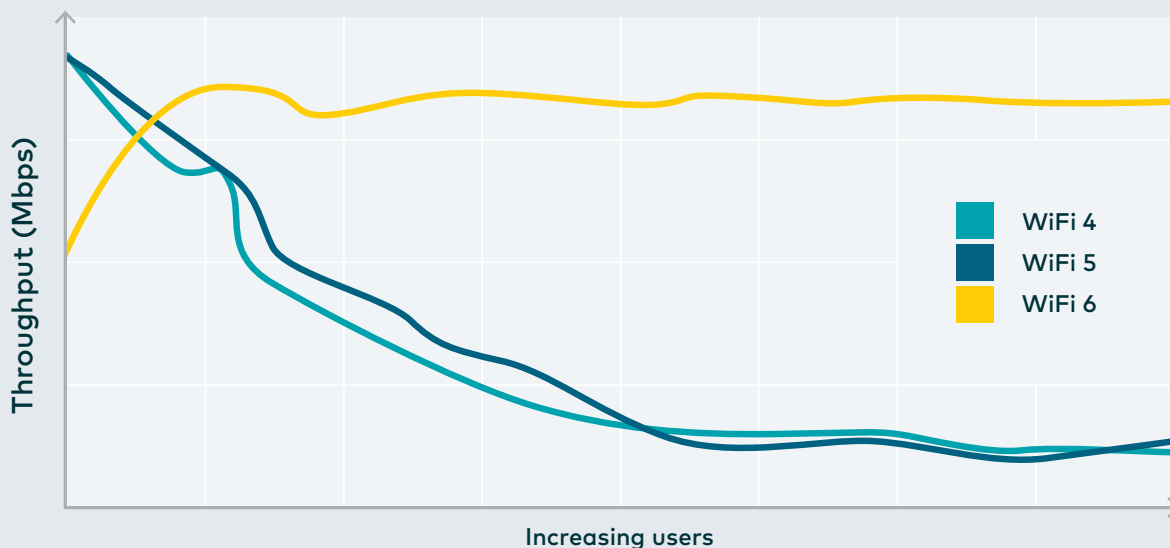
For those still relying on WiFi 5 or even earlier iterations, a move to WiFi 6 offers many advantages, not least of which is the fact that this standard is now mature, having been first ratified in 2019.

Many organisations which had initially planned deployments for 2020 were stymied by the advent of COVID-19 but are now making significant investments. They're also seizing the opportunity to rethink the location of Access Points (APs) to enhance performance, negotiate better maintenance contracts and even upgrade their LAN, given that older infrastructure is unlikely to cope with today's demands.



The advent of WiFi 6 comes at the perfect time as it better utilises spectrum to provide more capacity.

Consistent data throughput



Source: Cisco sponsored research

↑ **27.4%**

Australia's enterprise WLAN market saw a 27.4 % increase year-on-year in the first quarter of 2021, beating out the global growth rate of 24.6%, according to IDC.¹

<https://www.crn.com.au/news/local-enterprise-wlan-market-shoots-up-275-percent-565731>

 **50.5%**

WiFi 6 access points made up more than half of AP revenues worldwide for the first time at 50.5%. This is up from 43.7% in the previous quarter.¹

What is the difference between WiFi 6 and 5G?

And what of all the noise about 5G? While both technologies support large numbers of users and applications with high bandwidth and low latency requirements, 5G will have a larger role to play outdoors. For indoor applications, WiFi will continue to play a critical role given the large number of devices today that are WiFi enabled. And WiFi 6 will set the new standard for delivering an amazing user experience.


WiFi 6



At home


5G



Driving


WiFi 6



At the office


5G



Outside

 
5G WiFi 6



Working remotely

WiFi 6 in action

Retail

For retailers to entice customers into bricks and mortar stores, the ability to provide a differentiated experience will be key, including reliable guest WiFi, digital displays, targeted digital marketing and potentially VR and AR experiences. WiFi is also business critical for staff productivity, particularly for EFTPOS terminals and staff tablets.

According to Forrester², when the majority of online shoppers visit physical stores, they use their mobile phone while in-store in order to compare prices, look up product reviews, and find the best deal. It's in these moments that a next generation wireless network can create a more connected in-store experience.

Through location services, shoppers can find the location of products within your store, check stock availability and view product information. Conversely, when shoppers can't easily access this information, or can't connect their mobile phone at all to a network, this disconnected experience can lead to lost sales.

Consumers are highly accustomed to seamless purchasing experiences. In the online world, retailers remember their name, address, product preferences, and payment details, so they can check out from a digital store through a simple push of a button.

Shoppers should be able to utilise contactless payments using store apps that remember their purchases and notify counter staff of their preferences. With the ability to quickly and easily on-board beacons and IoT devices, retailers have the potential to leverage a next-generation WiFi 6 network to also guide shoppers through their stores to service counters and information desks.

2 <https://www.forrester.com/report/US+Retailers+Adapt+Your+Stores+To+Compete+With+Marketplaces/-/E-RES158457>





Education

In today's highly dynamic learning environments, learning happens both inside and outside the four walls of the traditional classroom, which means networks have to stretch across locations in every corner of a campus. In addition, every day, new devices, applications and users join the wireless network – including students, faculty, and guests – all of whom expect always-on connectivity and the same seamless experiences they get on their home network.

WiFi 6 is designed to handle a diverse number of applications and traffic from a range of devices. With multiple devices connecting to access points at the same time, WiFi 6 can better cope with demanding applications such as voice, collaborative cloud applications and streaming video. This will be crucial as institutions begin rolling out their own fleets of IoT connected devices, each of which will be competing for the same bandwidth.

WiFi 6 performs in ultra high density mobile environments such as large multipurpose rooms, lecture theatres and sporting arenas. If students and faculty are experiencing poor wireless connectivity in these areas throughout the campus, new strategic deployments of WiFi 6 can improve connectivity.

Having the latest WiFi technology also enables institutions to plan confidently for the next stage of their digital transformation. As they move to highly mobile and collaborative learning environments, their network will be able to support an influx of next-generation personal devices and teaching equipment – including VR, 3D printers, video labs and coding kits.

Carpeted Enterprises

The modern workplace is now unrecognisable from the office environment we remember from only a decade ago. Gone are the days when employees clocked in at the same desk and tethered PC each day. Despite the challenges presented by COVID-safe workspaces, employees are now expected to conduct their work in interactive and dynamic locations – moving from space to space, connecting devices and applications to meeting room screens, cameras and conferencing systems.

In particular, the Zoom meeting has become the staple interaction for many people over the last 12 months, and that genie is unlikely to go back into the bottle anytime soon. Now that we're all accustomed to virtual face-to-face meetings in any location, our wireless networks need to facilitate these interactions by enabling any device to send high quality audio and video.

Wireless networks also need to be able to cope with new bandwidth requirements in every nook and cranny of the office environment.

The plethora of user devices, together with more office equipment such as VC units only being connected to WiFi, means that today's WiFi networks need low latency and vastly increased capacity, both of which are delivered by WiFi 6.

With multiple devices connecting to access points at the same time, WiFi 6 can better cope with demanding applications such as voice, collaborative cloud applications and streaming video. This will be crucial as enterprises connect more IoT devices, each of which will be competing for the same bandwidth.





IoT

Previously, IoT devices such as air conditioning sensors and CCTV cameras were connected via proprietary networks. As they increasingly converge onto WiFi networks, the enhanced spectrum management capability of WiFi 6 ensures their low-bandwidth traffic does not interfere with latency sensitive traffic, such as video streams.

With WiFi 6, IoT handling is enhanced by giving low-power, low-bandwidth devices such as sensors their own "sub-channel" known as a resource unit.

In addition to the fourfold improvement gains compared with earlier versions, WiFi 6 not only delivers higher speeds, but will also enable new use cases, including IT/IoT convergence and smart building deployments.

Another advantage of WiFi 6 is its ability to help improve the battery life of devices with a feature called Target Wake Time (TWT) which lets devices remain inactive until it's their turn to transmit data. This improves the battery life of IoT devices, ensures less congestion and delivers energy savings.

Healthcare

As hospitals and healthcare providers strive to meet the next generation of expectations for personalised and digitally enabled healthcare, wireless networks become the crucial enabler for delivering the experiences that physicians, nurses, administrators, patients and their families expect.

Healthcare providers, in particular, have become heavily reliant on wireless connectivity for connecting a wide array of medical devices, computers, mobile devices, and IoT. Unfortunately, this reliance on wireless networks means healthcare organisations are particularly susceptible to network bandwidth issues that directly impact patient and client care.

In addition, healthcare is also a prime target for cyber security attacks and data breaches. With medical records becoming a prized target for cyber criminals, healthcare providers need a wireless network that offers a strong security posture to cope with a rapidly evolving array of threats.

This is where WiFi 6 technology – the latest standard for wireless technology – can step in to securely support hundreds of healthcare devices at the same time without impacting WiFi quality.

Both patients and staff within healthcare facilities can seamlessly roam, with consistently secure and seamless performance, as WiFi 6 solutions provide wireless coverage that:

- Self-optimises the WiFi client experience
- Self-adjusts to avoid RF interference and noise
- Makes performance improvement recommendations, based on a large amount of collected baselining data

Wireless networks are now the frontline of healthcare, and WiFi 6 enables secure and high-performing solutions that provide 24x7 connectivity to support critical healthcare applications and improve staff productivity and the visitor experience.



Turbocharge your WiFi with analytics

While WiFi is a must-have in enterprises and venues today, its contribution to business performance goes far beyond connecting “people and things” when coupled with analytics. Optus Enterprise partner, Purple, is one company that knows exactly what can be achieved, with a platform that has analysed over 160 million unique individuals across 15+ billion visits and 50,000 venues.

Through collecting and analysing this data, they have found that on average, those businesses that have guest WiFi installed see an increase of up to 9% in customer spend. They have also found that on average, those businesses that capture customer data and use that data to send personalised marketing campaigns see an increase of up to 24% in customer spend.



The importance of capturing customer data in the physical world should not be underestimated; businesses that fail to embrace the technology won't be able to personalise and will struggle to catch up and compete.

WiFi is a key means of capturing data in a physical space, alongside methods such as point of sale. By collecting this data, you can begin to understand who your customers are, and also start building a rich profile of how your customers engage in-store or on-site. With this data, businesses can then begin to design new, customer-focused models that enable the delivery of a personalised end-to-end customer experience, and devise powerful marketing campaigns, operations, layouts and pricing strategies.

Beyond marketing, as 2020 taught us all, knowing who is visiting your venue is critical for COVID-19 compliance. The Purple platform can also capture anonymised location data – which can be useful for understanding the movement of people around your venue and visitor numbers in particular locations. This, in turn, can inform critical decision making about the opening of entry/exit points, cleaning and security schedules, and more.



WiFi powered with analytics offers businesses a unique opportunity to drive customer retention, uplift revenue and provide a differentiated customer experience.



Guest WiFi: Collect key demographic data and behavioural insight via a captive login portal to help you better understand your visitor base, build detailed visitor profiles and see how visitors move around your venue.



Analytics: A centralised, enterprise-class reporting suite means understanding the data collected – such as name, date of birth, contact information, footfall and frequency of visits – is quick and simple.



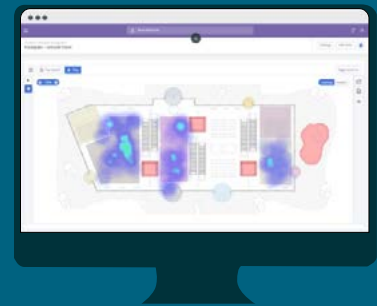
Marketing automation: Built-in marketing automation tools mean you can take immediate action on the data collected. Personalise your customer engagement and send real-time alerts via email and SMS aimed at driving customer spend and increasing retention.

Some use cases for WiFi powered with analytics



Drive revenue directly from your guest WiFi

Improve the experience, build detailed visitor profiles and drive revenue through engagement, increased return rates and advertising opportunities.



Smart occupancy management and accurate location analytics

Optimise venue safety, reassure your visitors, increase operational efficiency and understand exactly how your space is being used.



Navigate the indoors, just like the outdoors

Improve venue safety, accessibility and the overall visitor experience with blue dot navigation, digital maps, route planning and location-based messaging.

Preparing for a migration to WiFi 6

It is anticipated that WiFi 6 will be adopted more quickly than WiFi 5 because of the tangible features it offers, such as the ability to:

- Increase network efficiency and capacity
- Improve performance in environments with many connected devices
- Extend device battery life with Target Wake Time (TWT)

This combination of features provides all the essential elements to address enterprise business demands and support bandwidth hungry applications and the proliferation of devices in busy environments such as stadiums, lecture halls, hotel lobbies, airports, stations, conference centres and schools.

However, WiFi 6 environments require more than just high performance access points (APs). All that wireless traffic has to end up on a wire somewhere.

So, the question is: how will you prepare your network to deliver exceptional WiFi 6 performance?



The following four critical actions can help you ready your network for WiFi 6

1 Make sure your LAN infrastructure is ready for WiFi 6

WiFi 6 APs have more capabilities and require more power, so make sure your switches support the latest Power over Ethernet (PoE+) to deliver 30W per port. If you find your edge switching doesn't support PoE+, it's a good time to replace your switches.

As the additional bandwidth capacity is supported by WiFi 6 APs, you need to make sure your network is free of any bottlenecks, especially the edge switches that connect to the APs. It is recommended that edge switches have at least 10Gbps uplinks to the distribution switches, however, if you need to purchase new switches, 25Gbps are recommended.

2 Choose the right access points

In terms of AP selection, it's important to choose the best device for your environment. Some considerations include:

- How many clients will the AP support?
- What applications will be accessed over the WLAN, for example: business-specific applications, HTTP, HTTPS, video, voice?
- Do you need indoor and outdoor APs or only indoor?

In addition, the following AP features are worth consideration:

- A dedicated scanning radio for threat monitoring and advanced analytics
- An AP with both an internal antenna and external antenna for flexible deployment options
- Support for secure and easy IoT deployment
- WiFi Alliance certification

3 Survey your sites to optimise coverage and reduce interference

After you have identified the right AP for your needs, it is a good idea to carry out a wireless site survey, especially in challenging environments such as older buildings and critical environments like hospitals. This survey will measure the Received Signal Strength Indicator (RSSI) and Signal to Noise Ratio (SNR) of an AP and will help determine the optimum locations to mount your APs. This will ensure that your network design will be based on data from your environment, not predictions and that subsequent roaming between APs will be seamless.

Optus Enterprise can help you install a robust, secure, adaptive, high performing WiFi 6 enabled network.

4 Deploy AI and ML enabled operational support systems

With the WiFi network such a critical business asset, it is important the root cause of incidents affecting end-users are identified as quickly as possible or even before they occur. Ensure your operational support systems are enabled with Artificial Intelligence (AI) and Machine Learning (ML) capabilities such as Moogsoft used by Optus Enterprise. These systems can manage your wired and wireless infrastructure through a single screen and are essential for operational efficiency, reducing IT workload and optimising the end-user experience. They enable a common interface to:

- Use templates to configure and push policies to wired and wireless devices, thus reducing duplication of work
- Minimise configuration inconsistencies
- Receive and correlate network performance alerts, analytics and heat maps, and real-time network status to ensure any incidents are identified early to minimise the impact on end-user productivity

Six reasons for outsourcing management of your enterprise WiFi

Selecting the right approach to deploying your enterprise WiFi and a service provider that understands your priorities will help ensure that your business can optimise the benefits of wireless connectivity without taxing your internal IT resources or draining your IT budget.

Managed service providers have skilled human resources, infrastructure and industry certifications. They offer services to monitor and manage hardware devices and manage the

availability and performance of networks. They will also ensure the networks' smooth operations and security, allowing enterprises to focus on their core business.

The outsourced model fits in well with these requirements, especially for enterprises without a large IT team on-site to manage the network, and offers many compelling advantages compared with the traditional build-and-maintain model.



1. Reduces capital expenditure on hardware

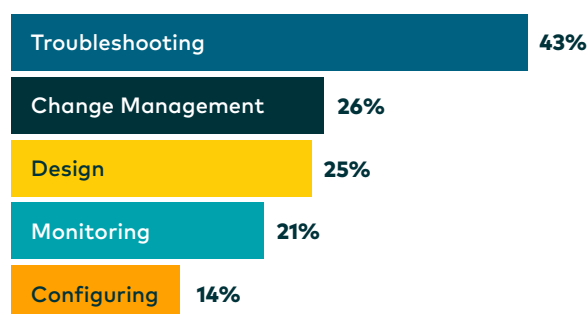
Technology assets depreciate rapidly, and wireless hardware devices can become obsolete within three to five years. A managed service enables you to reduce capital expenditure on hardware, while automatic hardware refreshes give you access to the latest technologies at a predictable cost by rolling capital expenditures into your IT operating expenses for easier budgeting.

2. Reduces workforce overheads and provides ready access to specialised skills

A managed services provider relieves the enterprise's IT team of the everyday tasks related to network management.

With the build-and-maintain model, enterprises need to provide in-house resources for these tasks, resulting in significant overheads as the shortage of skilled workers in the IT industry continues to drive up hiring costs. The need for specialised skills is especially evident when designing a stable, secure, high performance wireless network. With an in-house team, there is also a need to invest in the relevant training and certifications for wireless networking skills. Furthermore, due to the rate of change in the technology, staff will have to be sent for retraining regularly.

From a financial standpoint therefore, outsourcing WiFi to a service provider will cost less than maintaining expertise in-house.



**20% of week
spent troubleshooting
WiFi for majority of
network engineers**

Source: Cisco DNA Customer Survey, June 2016



3. Ensures that the network operates at peak productivity and is secure

A managed WiFi service ensures that the network operates at peak productivity and is securely configured.

The service provider will monitor data such as device status, bandwidth consumption, channel utilisation and radio frequency coverage. Proactive monitoring and testing can also be conducted to provide insights into how the network performs in different parts of the facility.

Software updates are carried out on an ongoing basis to ensure that the infrastructure is up to date with security patches and will not be susceptible to performance degradation or emergency downtime.

The end-user experience can be customised based on business priorities. For example, to ensure optimal performance and productivity, the service provider can work with the enterprise to employ bandwidth throttling and content filtering to control how much bandwidth is used on the network and which websites employees can visit while at work.



4. Provides efficient problem detection and resolution

A service provider can help troubleshoot problems and ensure that minor issues do not escalate to cause business downtime, lost customers or reputational damage.

Underperforming WiFi networks cause user dissatisfaction and can inhibit revenue generation. Solving these problems can be a significant drain on internal IT staff who will have to engage with third-party support and liaise across multiple internal departments to carry out troubleshooting. For a service provider with specialised skills, the issues could be relatively simple to resolve, and it will be able to do this without requiring expensive on-site visits.



5. Provides access to analytics tools and network reports for better WLAN visibility

The service provider not only oversees the wireless performance at all of your business locations, but can also provide access to analytics tools for real-time visibility into your wireless network. Network insights can be made available via a dashboard, enabling in-depth monitoring and reporting for a better understanding of your network's users and which business applications and users consume the most bandwidth. This enables you to make insights-driven business decisions.

If your service provider has a partnership with a third-party analytics provider, these analytics can extend into understanding the demographics and location of staff and visitors at a venue.



6. Futureproofs your network

Enterprises need to keep a lookout for new and innovative technologies that will help increase their competitiveness in the market. However, not every business has the expertise or knowledge to make the most informed decisions in this area. A reliable managed service provider will scan the horizon for new technologies and how these can be applied in the enterprise.

Conclusion

If the density of mobile and IoT devices and video streaming apps is increasing within your organisation, WiFi 6 is what should be considered going forward. In addition to the fourfold improvement gains compared with WiFi 5 or earlier iterations, this latest standard will not only deliver higher speeds, but will enable new business services and use cases, including:

- IT/IoT convergence and smart building deployments
- Real-time application support for enterprise-grade video collaboration and augmented or virtual reality
- Secure WiFi within the enterprise and guest networks

WiFi 6 addresses today's biggest WiFi challenges: performance and the increasing density of devices and diversity of applications. Coupled with powerful analytics, such as delivered by the Purple platform, WiFi 6 will enable the transformation of business environments and delivery of better customer and visitor experiences.

Adoption trends indicate a growing preference for the managed service option for the benefits it offers, such as reduced capital expenditure, ready access to specialised skills, the assurance that the network is operating at peak performance, and proactive, rapid problem detection and resolution.

Another decision point is selecting a service provider who can best meet the needs of the enterprise. This involves careful consideration of the scope of their service offerings, access to analytics and new technologies, and how they can help you take your WiFi forward to address the current and future needs of your business.



About Optus Enterprise

At Optus Enterprise, we draw on our proven pedigree in WiFi deployments to capture your requirements and implement a detailed design to ensure your applications, users and devices can use the network in an optimal, secure way. We also ensure your WiFi infrastructure is positioned and tuned to optimise coverage, throughput, performance and location data accuracy.

The option of a fully managed service frees you to focus on your core business while we monitor your network, and manage and resolve your incidents. We also constantly look forward to what's new and on the horizon, partnering with industry leaders such as Purple, and provide proactive advice on how to harness advances in technology for the benefit of your business.

60+

**independently
accredited
support
personnel**

>13,400

**wireless APs
already under
management**



**Full suite of WiFi
analytics and
marketing capabilities
enabled by Purple**



**Expert professional
services**



**End-to-end WiFi
solutions and
services**



**Enterprise-grade,
AI-enabled operational
support systems**



**24x7x365
NOC support**



**Flexible
pricing models**

**Partnerships with
industry leading
hardware vendors and
analytics/marketing
platform providers**

Get started today

To discuss how Optus Enterprise can help you with WiFi 6 or Purple, contact your Optus account manager or Optus Enterprise.

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