

# SA's slow WiFi standards adoption is a feature, not bug for WiFi 7

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Enterprise environments require multiple applications to cater to the needs of a diverse group of stakeholders. These applications necessitate different types of network technologies, each with its own speed and latency requirements, to function at their best. Among these technologies, WiFi has not only been gaining popularity but also expanding in capabilities, and the forthcoming generation of wireless is set to present new opportunities for local businesses in the coming year.



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Much of this hinges on the introduction of the WiFi 7 standard, which the WiFi Alliance anticipates will be finalised and fully implemented by the end of the first quarter of 2024. Several WiFi equipment manufacturers have already begun selling routers and access points equipped with WiFi 7, and a handful of user devices, such as high-end smartphones with similar capabilities, are already available in the market, ready to fully utilise the standard.



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South Africa has often lagged a year or two behind in the adoption of new WiFi standards. However, this delay could be a blessing in disguise: with the delay in the finalisation of the WiFi 7 standard, the country is poised to bypass the current top standard, WiFi 6e. Here are some trends we can anticipate as WiFi 7 adoption accelerates.

## 1. Enabling high-bandwidth, low-latency applications

Where WiFi 6e delivers up to 10Gbps of bandwidth, WiFi 7 brings a theoretical peak bandwidth of up to 30Gbps and latency of below 5 milliseconds. Such low latency enables applications such as real-time automation, where artificial intelligence (AI) and machine learning (ML) can be used to run a factory or manufacturing operation without any data packet losses that can lead to errors.

For consumers, the introduction of this wireless technology standard could see more people taking more to social gaming and eSports, as well as 8K streaming as the experience improves. In addition, PC and console enthusiasts will also be able to enjoy multiplayer gaming while being on a wireless connection because of the low latency.

Then, after being talked about for years, next-generation wireless headsets might finally drive increased adoption of applications such as virtual reality, augmented reality and even mixed reality for both personal and professional uses.

## 2. Smarter next generation networks

Current generation access points deliver 'best effort' networks, with latency increasing as the access point gets loaded, similar to what can be experienced when using other wireless technologies such as 4G/LTE or 5G. This is unlike using optic fibre, for example, which can have service level agreements (SLAs) in place and provide a guaranteed experience.

On the other hand, next-generation networks will be 'deterministic' networks, with software-programmable WiFi radios to ensure optimal network capacity and efficiency, thereby providing higher reliability and lower latency.

Being designed as an end-to-end network fabric also brings onboard new capabilities such as Ethernet Virtual Private Network (EVPN) and Virtual Extensible Local Area Network (VXLAN). EVPN and VXLAN provide enterprises with the flexibility to better manage their campus and data centre networks even as a growing number of endpoints - such as mobile devices, Internet of Things (IoT) devices and more - are added to the network.

## 3. Unified management across access technologies

Within the enterprise, there will be a growing focus on implementing unified policy management for multi-radio access technologies; this could see various standards including WiFi 6e, WiFi 7, Private 5G and wired access points all working together under a single enterprise network.

This ensures that consistent policies are being applied across the different technologies, which also results in a seamless handover when users switch between different technologies.

*“ We are also seeing IoT play a greater role in the enterprise with more sensing devices being rolled out ”*

In response, vendors are incorporating more IoT technologies into their access points, while organisations can also use unified policy management to include low-power wireless networks that are dedicated to IoT or machine-to-machine (M2M) devices, such as Zigbee, as part of their single enterprise network.

## 4. User experience as a priority

WiFi 6 and WiFi 6e brought improvements in bandwidth capacity even when used in high-density deployments where there

are a lot of users simultaneously connected and, as is usual with any new generation, WiFi 7 has to provide a lot more than that. Where the focus to date has been on increasing overall bandwidth and improving network speeds, WiFi 7 will shift the priority to ensuring a quality WiFi experience for the end user.

This includes capabilities such as 8x8 MIMO, or Multiple-Input Multiple-Output, which is a wireless technology that uses several transmitters and receivers (in this case 8 each) to transfer more data at the same time.

These dedicated radios can also track users as they walk around and even transfer them seamlessly between access points to ensure the best user experience.

## 5. Improved wireless security

With WiFi being so ubiquitous, it makes use of WiFi Protected Access (WPA) technologies to keep information passing across WiFi networks safe. The current standard, WPA3, provides the latest security protocols and more robust authentication, including 192-bit security to protect more sensitive data.

However, WPA3 cannot be enabled unless all devices on the network support this latest security standard. When it comes to wireless security, the standard in use falls back to what can be used by the least capable device on the network, so for example, if you have devices that still use WPA2, then that is the standard at which the entire network will be secured.

*“ With cybersecurity threats on the rise, we are likely to see more older equipment and devices being retired from networks in order to maintain higher levels of security. ”*

What enterprises do need to keep in mind is that making the switch to WiFi 7 could create bottlenecks in other areas of the network and they may need to upgrade or even redesign their infrastructure, such as making use of managed switches, in order to cater for increased bandwidth across the network.

If other equipment such as routers, switches, and cables are not up to standard, they will not stand to gain from the full benefit that WiFi 7 brings. Here, they must work with a technology expert, such as Vox, who works closely with major equipment vendors and can do a comprehensive needs assessment and provide qualified reasons as to why specific solutions and technologies should be used in an organisation's network.

Ultimately, WiFi 7 is about bringing more choice for customers; wireless has long competed with wired networks, and the arrival of WiFi 7, is game-changing, as it ushers in an era where those opting for a wireless connection no longer need to worry about the drawbacks of increased latency and dependency on 'best effort' networks.

## ABOUT THE AUTHOR

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