

Why Business Leaders Need to Understand Standalone and Non-Standalone 5G



WHITE PAPER

5G has more phases and varied capabilities than any preceding generation of wide-area wireless technology. Businesses considering building their 5G plans and strategy need a thorough and complete understanding of all these technologies and options if they are going to get it right. With this knowledge, they can accurately build their plans for moving forward with identifying and deploying the innovative new applications and use cases that will deliver better business outcomes.

One of the fundamental technical details that 5G customers need to understand is the distinction between standalone and non-standalone 5G implementations, two evolutionary stages for delivering 5G services—both now and in the future. An aspect of this is to recognize that some providers may evolve or deploy standalone 5G before others. This data should also be included in the planning effort.

The difference between non-standalone and standalone 5G is easy to understand. Non-standalone 5G is the first stage of 5G, using a new 5G radio (or 5G NR) access network overlaid on an existing 4G LTE network core. Standalone 5G uses the 5G NR access network on a brand new 5G network core. Both approaches provide value, but many of the most exciting new features and innovative use cases of 5G will necessitate standalone 5G networks. It is important for businesses to understand that both the non-standalone and standalone 5G networks must work together seamlessly to provide excellent service and a positive user experience. This interoperability is going to be critical for the next two to four years, as both types of 5G will be used together.

Using the existing 4G LTE network core makes it possible to quickly roll out non-standalone 5G to offer increased network speed. For carriers, this approach has enabled them to provide their business customers with some of the benefits of 5G and improve the employee experience with increased speed and bandwidth for demanding use cases. While non-standalone 5G can't deliver all the eventual functionality 5G is capable of, it is still an important step forward. Commercial 5G customers are also benefiting from deploying pilots or early-stage projects that will pave the way for innovative new use cases. This is most commonly the case for enhanced mobile broadband (eMBB) solutions, particularly where speed upgrades are essential.

The potential for standalone 5G networks, run on a new 5G network core, is vast. This version of 5G will deliver massive machine-to-machine communication solutions; real-time device-to-device networking; and ultra-reliable, low-latency functionality for things like autonomous devices and next-generation IoT. Standalone 5G will provide additional capacity and deliver much lower latency for certain use cases. For many of the truly game-changing applications and use cases—such as Industry 4.0, industrial IoT, commercial augmented and virtual reality, and massive digital sensing—standalone 5G is necessary.

Longer term, standalone 5G will be the connectivity standard for advanced use cases across industries. However, that will take a few years. Standalone 5G will be necessary to enable the use of key 5G complementary technologies. For example, both network slicing and edge computing solutions won't be fully enabled without standalone 5G.

Non-standalone to standalone migration is an evolution that different carriers will complete at different speeds

As more organizations pursue new use cases with greater levels of innovation, they will depend on new apps and use cases that require standalone 5G. It is important to understand that different carriers will likely have different time frames for providing this functionality broadly enough to make it useful for both pilots and running production applications. There could be very different levels of availability and coverage among carriers, making the choice of carrier critically important for 5G. For example, T-Mobile has been the early leader in deploying the first nationwide standalone 5G network.



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An eventual move to standalone 5G should be the focal point of an organization's 5G strategy. However, there is no single technology path or a single product roadmap for deploying standalone 5G. Organizations need to look beyond just the wireless network. Standalone 5G will include other complementary components such as edge infrastructure, dynamic spectrum sharing and robust network slicing functionality. The availability of these additional services and functionality will determine when a 5G network can support specific apps or use cases. Different complementary technologies will be available at different points in time. The need for a comprehensive 5G solution that includes these technologies increases the importance and value of a wireless partner that is moving quickly and deploying standalone 5G.



T-Mobile's standalone 5G network will help extend 5G coverage to support greater innovation.

T-Mobile is committed to standalone 5G

T-Mobile has consistently been a leader in bringing 5G to reality. The company has deployed the first nationwide standalone 5G network. This network still works seamlessly with the existing non-standalone 5G network to ensure a great user experience and provide excellent service levels. In the near term, T-Mobile's standalone 5G network will help extend 5G coverage to support greater innovation. The carrier will continue increasing its standalone 5G network footprint to deliver the best customer experience. In conjunction with an ecosystem of partners, including major device manufacturers and a

large number of software and connected device suppliers, T-Mobile is working to deliver a complete solution. This will allow businesses to take advantage of standalone 5G coverage and availability quickly.

T-Mobile developed this structured approach to support businesses' desire to innovate and enhance digital infrastructure. T-Mobile's vision for delivering next-generation standalone 5G-driven customer experiences is rooted in improving business outcomes. Working with its customers, T-Mobile's products and services expand the range of options for experimenting and piloting standalone 5G use cases for all types of businesses. The carrier will help its customers understand the best options based on location, use case and performance demands, delivering a faster path to success. T-Mobile's leadership during the evolution of non-standalone to standalone 5G will likely provide customers with more options more quickly.

Key takeaways

While there has been a great deal written and talked about regarding the different spectrum options 5G will use, there has been less discussion about the issues driven by the migration from non-standalone to standalone 5G. Understanding this dynamic and how it will impact when and how specific 5G use cases can be deployed is essential in developing a viable 5G strategy. The two 5G options are complementary and should be viewed in that manner. However, as the more exciting use cases for 5G become real, standalone 5G will be the standard and the requirement.

T-Mobile is a leader in 5G with the first nationwide 5G network in America and now the first standalone 5G network in the world. Many of the future standalone 5G use cases will drive substantial competitive advantage and operational efficiencies. Companies that are forced to wait for standalone 5G will start at a disadvantage.

For more information about T-Mobile, its strategy for standalone and non-standalone 5G, and its offerings, visit www.t-mobile.com/business/coverage.

T-Mobile's 5G network: Capable device required; coverage not available in some areas. While 5G access won't require a certain plan or feature, some uses/services might. See Coverage details, Terms and Conditions, and Open Internet information for network management details (like video optimization) at T-Mobile.com.