5G standalone: Has the party ended just as it began?

Based on insights from our Telco Cloud Deployment Tracker this article examines when, if ever, 5G standalone adoption will become widespread.

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August 2024

A persistent theme we have addressed across recent updates of our Telco Cloud Deployment Tracker (including our recent Q2 2024 report) is the question of when the pace of 5G standalone (SA) deployment will pick up.

5G SA has received substantial hype for quite some time across the industry, yet year after year the volume of deployments we have tracked has failed to match the great deal of discourse surrounding it.

This therefore begs the question of what has caused the slow pace of 5G SA rollout, and will it ever pick up?

A recap of 5G SA deployment to date

The 5G SA core is the true 5G network core: it is cloud-native by design and built upon service-based architecture (SBA): modular components, potentially from multiple vendors, that can access each other's services via common interfaces. It is important to emphasise that the 5G SA core is not the only network core used to provision 5G services, with existing 4G/LTE cores reconfigured to provide 5G non-standalone services (5G NSA).

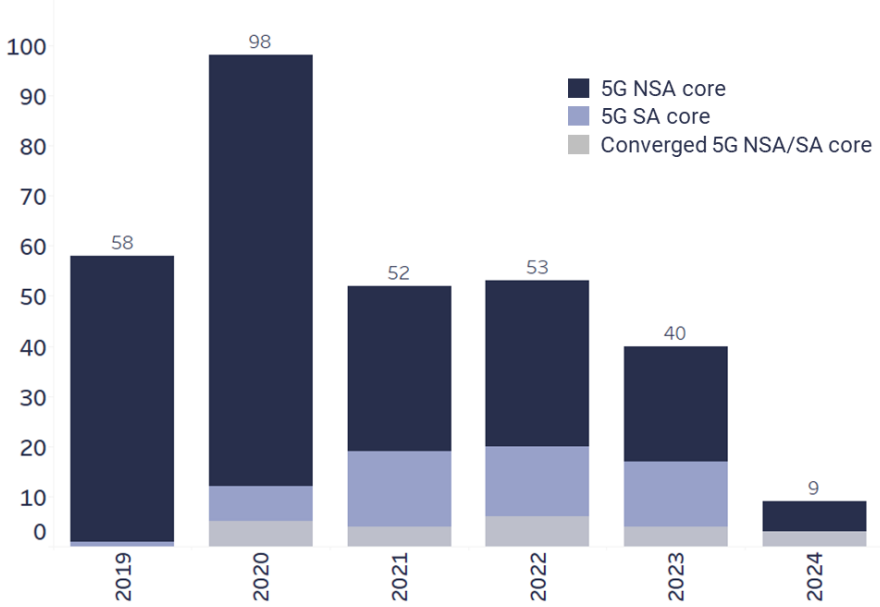
Telcos opted for NSA when initially launching 5G services, namely to achieve a quicker time to market and leverage existing investments in 4G/LTE cores.

It has long been felt that 5G NSA was an interim solution, however, and telcos would eventually need to deploy 5G SA cores in order to support a wave of next-generation services that would help them drive growth, beyond enhanced connectivity.

This determination to deploy 5G SA cores in preparation for the development of advanced use cases has been adopted by some telcos, particularly those operating in the six largest economies (by nominal GDP size): USA, China, Germany, Japan, India and UK. This is a process we have visualised in our article: 5G Standalone deployment globally - Insights from leading markets.

However, as illustrated by Figure 1 below, we are yet to reach the inflection point where deployments of 5G SA outnumber those of 5G NSA in a calendar year.

Figure 1: Global deployments of 5G core by type, 2019-2024 year to date



Source: STL Partner - Telco Cloud Deployment Tracker Q2 2024

It is important to note, while there have been few 5G SA deployments recorded, some have been significant in scale, e.g. Reliance Jio's 5G SA core launched in January 2023 that, as of today, reportedly supports services across 7,764 towns and cities in India. 5G NSA deployments today, by contrast, tend to relate to initial 5G launches in developing or smaller markets, and as such are smaller in scale.

Despite this, it remains the case that the current state of 5G SA adoption is far from ubiquitous.

Why has 5G SA deployment failed to live up to the hype?

The launch of commercial 5G NSA services has turned out to be somewhat anti-climactic, shifting hopes that the deployment of 5G SA would be the force that yields the wave of next-generation services that 5G had initially promised, including network slicing and massive IoT. However, beyond some isolated examples of network slicing services (such as Deutsche Telekom's 5G Live Video Production service), these next-generation services have been few and far between.

Instead, 5G SA is still largely used to deliver enhanced connectivity services such as Enhanced Mobile Broadband (eMBB) and Fixed Wireless Access (FWA). This has done little to convince many telco CFOs of the need to invest in 5G SA, given 5G NSA has so far proved sufficient to meet the connectivity needs of most consumers and enterprises.

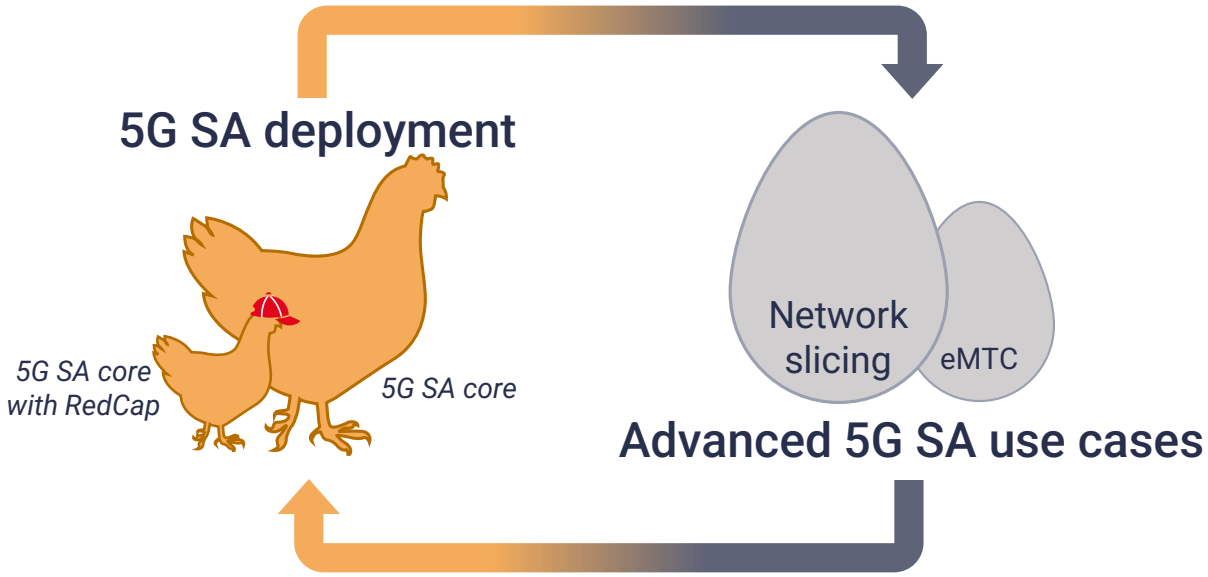
Therefore, as of today, 5G SA has not yet been established as a technology capable of generating significant ROI in the short-to-medium term.

The longer-term outlook for 5G SA is unclear as well. Most operators are reaching, or have already arrived at, the end of their 5G investment cycles, and as such will now be looking to the infrastructure requirements for future standards, namely 5G Advanced (often called 5.5G) and 6G. As outlined by Release 18 of the 3GPP standards, 5G Advanced does not require a 5G SA core (although some of its most innovative features will, as explained later on in the article). Consequently, telcos who have yet to deploy a 5G SA core may indefinitely park this ambition given they will still be able to launch 5G Advanced services with existing 5G NSA

infrastructure. The key benefit this postponement unlocks will be capex savings: an imperative for an industry that is now reportedly the second largest source of distressed debt (debt that is likely to default), trailing only the real-estate industry.

This approach adopted by many operators has created a vicious cycle, whereby the more operators hold off on deploying 5G SA, the lower the impetus to develop 5G SA use cases, and so on…

Figure 2: Which comes first: Deployments or the use cases?



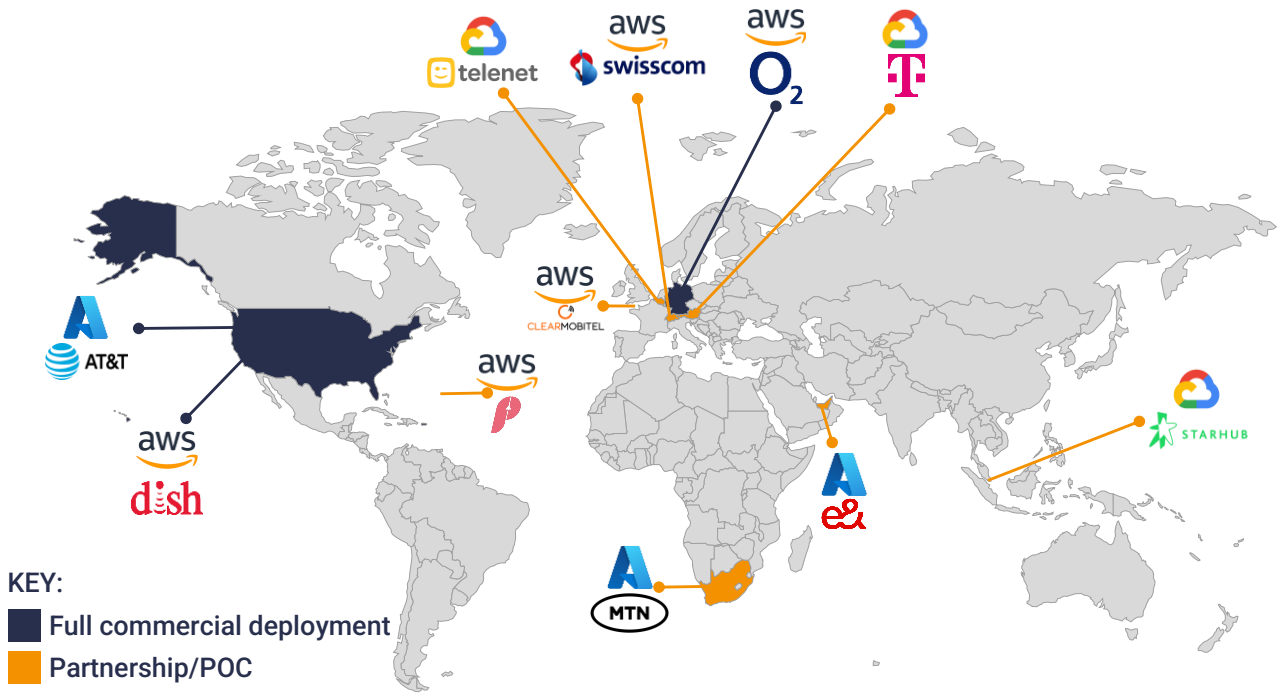
Source: STL Partners

The slow progress of public cloud deployments

At one time a deployment model involving the public cloud seemed a possible channel through which 5G SA deployments could gather momentum. This deployment model was a unique possibility given 5G SA cores are cloud-native by design and as such able to be deployed on the public cloud with ease, at least in theory. This would enable operators to reap the rewards of the public cloud, such as scalability, security, and access to improved tooling and developer ecosystems.

However, as illustrated by Figure 3, deployments on the public cloud have progressed slowly.

Figure 3: Deployments of 5G SA involving the 'big three' are limited



* The data illustrated is based solely on public domain announcements

Source: STL Partners

Not only are deployments limited in number, but even the more significant deployments in brownfield networks, such as AT&T and O2 Telefónica Germany, have a confined scope: as of February 2024, AT&T supported one million FWA subscribers on its 5G SA core. Similarly, O2 Telefónica Germany plans to support up to one million subscribers in its first phase.

We examine the uncertainties that have hampered deployment progress on the public cloud within our recent report, "*Telco Cloud Deployment Tracker Q2 2024: Is AWS winning in hyperscale telco cloud?*" and upcoming report, "*Hyperscalers in the telco vertical: Success and failure stories*".

Looking forward

There are, however, some forces encouraging 5G SA adoption. Notably, RedCap, a feature specified within Release 17 of the 3GPP standards, the benefits of which are optimised when combined with a 5G SA core. RedCap supports reduced-capability 5G-IoT devices, and can potentially bring more ROI to 5G SA investments, as it provides an obvious use case for the Enhanced Machine Type Communication (eMTC) and Ultra Reliable Low Latency Communications (URLLC) features of the SA core. RedCap enables many more, less expensive and more energy-efficient IoT devices with adequate throughput and low latency to run on 5G. We will report on whether this meaningfully impacts 5G SA deployment within upcoming updates of our Telco Cloud Deployment Tracker.

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