



DISH goes “cloud telco” with AWS: what does this mean for DISH’s 5G O-RAN strategy?

DISH Network has announced a strategic collaboration with AWS, which sees DISH outsourcing its 5G network infrastructure to hyperscaler public cloud: what does this mean for DISH’s 5G O-RAN strategy and other partnerships?

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In April 2021, DISH **announced** that it would be using Amazon's public Elastic Compute Cloud (EC2) to host a fully virtualised 5G network. DISH is the fourth national mobile network operator (MNO) in the US cellular market, currently in the process of building a greenfield, open RAN-based 5G network across the country. The first stage of the partnership will see DISH deploying a standalone, cloud-based 5G open radio access network (open RAN) in the US, beginning with Las Vegas later this year.

DISH Network's partnership with Amazon Web Services (AWS) marks a pivotal development in cloud-native networks and telco-hyperscaler partnerships: **DISH will be the first major telecoms operator to host its operational network on public cloud infrastructure.** DISH's centralised (CU) and decentralised unit (DU) functions – two of the three major open RAN functions – will be running on AWS cloud infrastructure. This means that DISH will be dependent on AWS for the performance, availability, security, and resiliency of its 5G RAN and mobile core.

What is the DISH partnership with AWS?

DISH is essentially leveraging AWS's existing public cloud infrastructure to rapidly scale its 5G standalone (SA) rollout in a cost-efficient manner, while benefiting from AWS's wider cloud capabilities. DISH will connect its full hardware and network management resources through the AWS cloud platform to enable secure, rapid scaling and innovation, as well as on-demand responsiveness to customers' wireless needs.

- **Accelerate its planned 5G SA network build:** DISH is using AWS's edge computing portfolio (Local Zones, Wavelength and Outposts) to fulfil its deployment commitments to the FCC and build a network covering 70% of the US population by 2023. AWS's cloud sites in major metropolitan areas (Local Zones) will be hosting critical RAN components (5G RAN CUs, some 5G core and IMS components) for DISH, while 5G RAN DUs will be running on DISH-hosted AWS Outposts; some 5G core and IMS components will also be hosted in AWS Regions.
- **Reduce cost of its 5G rollout:** By using AWS to host virtual base stations on its network, DISH is reducing the capital outlay required to build out its planned national 5G network, which it claims will only cost as little as \$10 billion. In comparison, AT&T has spent just under \$15.7 billion in capital expenditures in 2020, most of which went to building its 5G network. As well as reducing CapEx, DISH may also be able to reduce OpEx costs as it will be able to scale its computing needs up and down on the AWS cloud platform on-demand according to customers' traffic demand.
- **Leverage AWS's cloud capabilities:** The partnership enables DISH to tap into AWS's developer ecosystem and expertise in machine learning, security, and cloud-based orchestration. AWS's standardised EC2 application programming interfaces (APIs) will accelerate DISH's pace of innovation by simplifying the process for customers to create new 5G applications for different industries and connect with data on DISH network attributes, such as user equipment latency, bit rate, quality of service, and equipment location.

Implications for other DISH partnerships

Prior to the AWS deal, DISH had named partnerships with 35 selected vendors across radios, tower, backhaul network core, and security. While these vendors have been verified to run on this AWS-DISH infrastructure,

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and many are already telco infrastructure partners with AWS, DISH's partnership with AWS has potential implications for some of these vendors.

- **VMware:** Dish [announced](#) in July 2020 that it was using VMware's telco cloud platform for infrastructure and application orchestration. VMware's RAN Intelligent Controller (RIC) is central to DISH's multi-vendor, open RAN strategy, allowing DISH to work with multiple best-of-breed, pre-integrated VNF/CNFs vendor systems. DISH will use VMware on top of AWS services – for instance Outposts, which are already integrated to function with VMware's control platform – with DISH and VMWare retaining control over the software and platform layers. VMware will also play a role in managing CNFs, VNFs & everything in-between, help onboard and test network functions, and serve enterprise customers who require VMware functionality.
- **Mavenir and Altiostar:** [Mavenir](#) and [Altiostar](#) have previously signed on to provide intelligent cloud-native software for DISH's RAN. Part of the DISH-AWS partnership involves DISH running some of its DUs on AWS's custom designed, ARM-based Graviton2 processors, rather than Intel's x86-based FlexRAN platform. Dish has used FlexRAN for its first wave of 4T4R network buildouts, but a new generation of acceleration will be needed to meet the higher compute capabilities for planned Massive MIMO Open RAN. AWS also claims that Graviton processors have 40% better price performance than x86 for a number of workloads. Altiostar and Mavenir's solutions are built on Intel's FlexRAN platform but the DISH-AWS partnership now means that they will also need to ensure that their software is also integrated with AWS's Graviton2 processors, which may become a headache down the line in managing this as a bespoke integration.

Is DISH's 5G O-RAN strategy a model for other telcos?

STL Partners has written extensively on how telcos should manage partnerships with hyperscalers, including our reports on ['Microsoft, Affirmed and Metaswitch: What does it mean for telecoms?'](#) and ['Telco edge computing: How to partner with hyperscalers'](#). AWS collaborating with a greenfield operator like DISH marks a significant juncture in how telco-hyperscaler partnerships could evolve.

While DISH's decision to outsource physical infrastructure to AWS public cloud is a valid strategy to meet their cost and 5G rollout targets, AWS ultimately stands to benefit more from the partnership than DISH. As AWS extends its platform reach further to the edge via a cloud-based telecoms network, DISH becomes less "telco cloud" and more "cloud telco". This potentially poses risks of lock-in with AWS's cloud infrastructure and capabilities, while sustaining vendor dependency with VMware's telco cloud platform and pre-certified, best-of-breed vendors. By handing over control to their mission-critical cloud infrastructure, DISH becomes highly dependent on AWS's toolset to innovate, customise and adapt its cloud-native network functions in the future.

In summary, DISH's ambitious 5G SA rollout targets necessitate outsourcing its network to a hyperscaler cloud platform and leveraging AWS's cloud capabilities, data centre infrastructure and partner ecosystems. In the long run, more operators will inevitably follow suit to migrate some (if not all) of their RAN and core functions to the cloud providers, for which DISH will become a critical proof point.

However, it is still viable for operators to retain ownership of their telco clouds by taking a blended approach. This is about exploiting multiple cloud infrastructures to capitalise on emerging opportunities in 5G and edge

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computing over a distributed network, while retaining control over the development of their physical infrastructure and CNFs by incrementally rolling out cloud-native core and RAN functions.

To find out more about how hybrid cloud-native approaches may serve as better models for other operators to follow, see [2020 in review and focus on North America: How should telcos do cloud?](#) for an in-depth comparison of four approaches by US MNOs DISH, AT&T, T-Mobile US, and Verizon.

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