ENEA

WORLDWIDE MOBILE OPERATOR SURVEY

5G DATA MANAGEMENT

Revealing how operators are addressing 5G architectures, edge deployment, and a network data layer.

MOVIC

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EXECUTIVE SUMMARY

While marketers and advertisers are promoting 5G and its capabilities, it's easy to forget the reality facing network operators: not only are they tasked with deploying 5G networks – a massive undertaking in itself – but they also have to ensure that existing services interoperate smoothly as 5G networks deliver on their promise and provide a long-term, substantial return on investment (ROI).

As such, it's vital for operators to deploy 5G networks that deliver technologically – high speed, low latency, high throughput services – which require significant changes in the core network.

Some of the key decisions to be taken along the way include when a Standalone (SA) 5G architecture is to be deployed and, crucially, whether current and 5G data will continue to be managed in vendor unique silos or via a network data layer that supports multi-vendor service components. To help answer these and other questions an operator survey was commissioned in late 2019.

IT'S CRUCIAL TO LAY THE RIGHT FOUNDATIONAL SERVICES TO BEGIN THIS TRANSFORMATIVE PROCESS BEFORE COMMITTING TO A 5G PRODUCTION ROLL-OUT.

VP Transmission Planning, Operator in APAC

41 mobile operators responded (see next section for details). Some of the clear findings that came back included the following:

- 37% of operators plan to begin 5G SA deployment within two years.
- The vast majority of operators will move to edge deployments but over half have no strategy for doing so.
- Over half of mobile operators will move to a network data layer in order to gain a unified view of their data and to exploit the advantages it brings for network analytics, automation and data monetization. Most will do so in parallel with their 5G roll-out.

This executive report discusses some of the key questions and results of the survey. Other questions in the survey are not included in this summary but may be summarised elsewhere.

Who responded to this survey?

This report has been created with feedback from members of the **Technology Innovation Council (TIC)**, a unique research initiative that enables telecommunications service provider executives to provide insight into business and technology trends. **For this report, 41 mobile operators worldwide participated, including:**

- 39% of operators in EMEA
- 34% of operators in APAC
- 27% of operators in the Americas

All members of the TIC have first-hand insight into operator networks:

- 21% are C-level
- 23% are Senior VP/VP
- 28% are Directors/Heads of Department
- 14% are Managers

> “5G INVOLVES A NETWORK TRANSFORMATION LIKE NO OTHER, ENABLING A NEW CLASS OF SERVICE PROVIDER.”
>
> VP Transmission Planning, Operator in APAC

1

TIMELINE FOR DEPLOYING 5G STANDALONE

37% of operators plan to begin to deploy 5G SA within two years.

NEW MOMENTUM FOR A NEW DECADE

37% of operators plan to begin to deploy 5G SA within two years. (27% of operators within 12-18 months with a further 10% within two years).

With the maturity of 3GPP standards, service providers now see a path for standalone (SA) and non-standalone (NSA) infrastructure. When 3GPP Release 16 **freezes at the end of Q1 2020**, it should provide final inputs on the Phase 2 framework and protocols etc. This will enable communications service providers (CSPs) to move confidently to the new 5G Service Based Architecture (SBA) infrastructure.

This timeline is supported by operators in our survey, 49% of whom plan to deploy 5G SA within the next four years, with the majority starting to do so in the next 18 months, as in Figure 1 on the following page. (Sum of 12-18 months, 2 years, and 4 years). On the flip side, well over a third (39%) have no agreed timeline for 5G SA deployment.

> “THERE ARE NO HARD DATES TO MOVE FROM NSA TO SA; HOWEVER, WE ARE BUILDING REQUISITE CAPABILITIES AROUND ORCHESTRATION, DIGITAL INFRASTRUCTURE, CATALOGUE AND ORDERING IN SUPPORT OF 5G SA .”
>
> Head of Wireless Planning, European Operator

WHEN WILL YOU DEPLOY A 5G STANDALONE CORE?

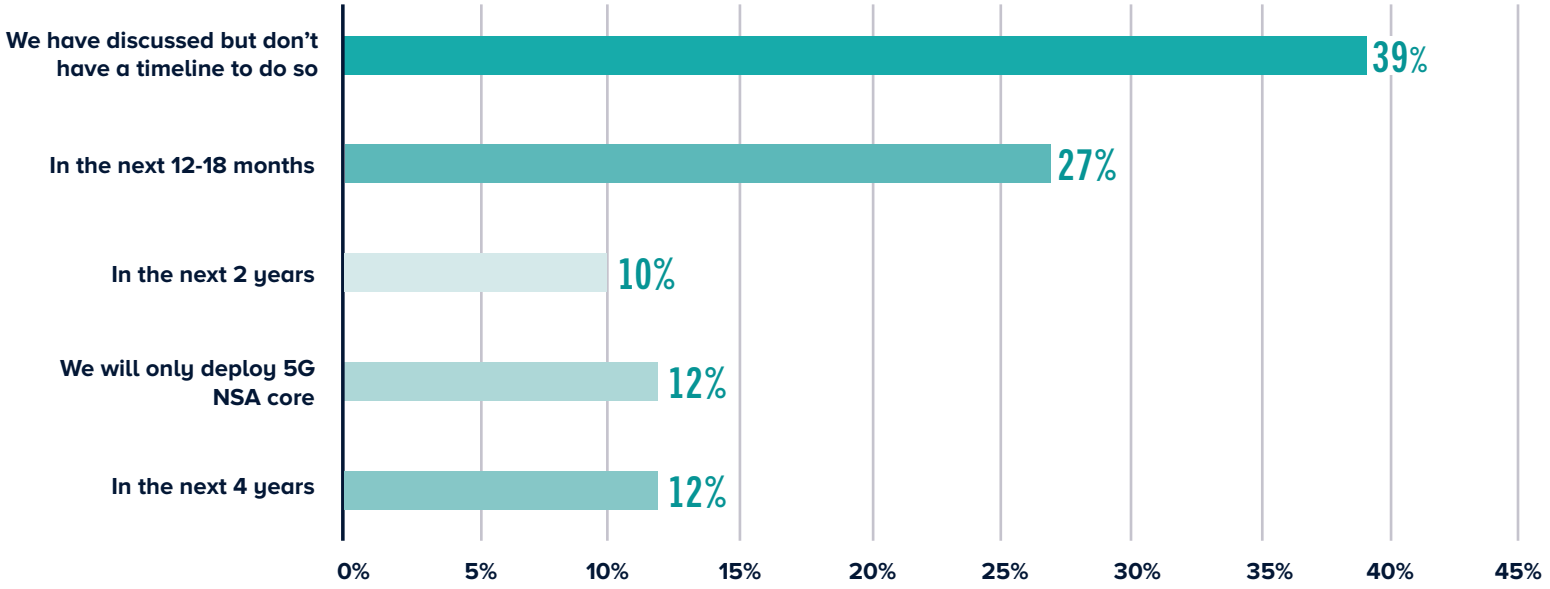

Figure 1: When Will You Deploy a 5G Standalone Core?
Source: Technology Innovation Council

SELECTED COMMENTS FROM MOBILE OPERATORS

One service provider in India said that a number of uncertainties are driving his response:

> "THE STANDARDS FOR HIGHER-END SERVICES LIKE ULTRA-RELIABLE LOW-LATENCY COMMUNICATION (URLLC) ARE STILL EVOLVING. 5G INVESTMENTS ARE LIKELY TO BE USED ON A CASE-BY-CASE BASIS BECAUSE OF THE EXPANSIVE NETWORK TRANSFORMATION REQUIRED TO SUPPORT THEM. ALSO, SERVICE PROVIDERS IN INDIA ARE UNDERGOING A CONSOLIDATION PHASE, WHEREBY CAPEX IS HARD TO COME BY."

Service Provider, India

Another operator explained that his company's hesitancy is based on a lack of valid business cases to deploy 5G SA:

> HOWEVER, WE ARE DEPLOYING SOME TRIALS TO LARGER TERRITORIES WE SERVE.

> "WE HAVE DEPLOYED 5G NON-STANDALONE (NSA) CORE AND ARE DISCUSSING DEPLOYING 5G SA AS WELL."

2

EDGE DEPLOYMENT STRATEGIES

The vast majority of operators – 85% – will move to edge deployments but over half have no strategy for doing so.

A CASE OF "LIVING ON THE EDGE WITHOUT FALLING OFF"

The vast majority of operators – 85% – will move to edge deployments but over half have no strategy for doing so.

As seen in **Figure 2**, around 85% of operators are planning edge deployment, yet over half of ALL respondent operators have not yet determined the strategy for doing so. The business case needs to be much clearer before operators will feel more comfortable.

This is probably why 32% of operators are going only with limited, specific use cases first as follows:

- Two operators will pilot Industrial Internet of Things (IIoT) and Smart Factories.
- Two operators are focused on **Smart Cities**.
- One operator has a pilot focused on a **Federation of Edge Platforms** from different telcos.
- One operator is trialling vRAN edge processing.
- One operator is trialling Security at the edge.
- One operator is exploring how Edge Cloud Management solutions can be automated and orchestrated from core to edge.

Ten percent of operators are launching with a specific use case, including Retail and Security to bring the user plane closer to the customer.

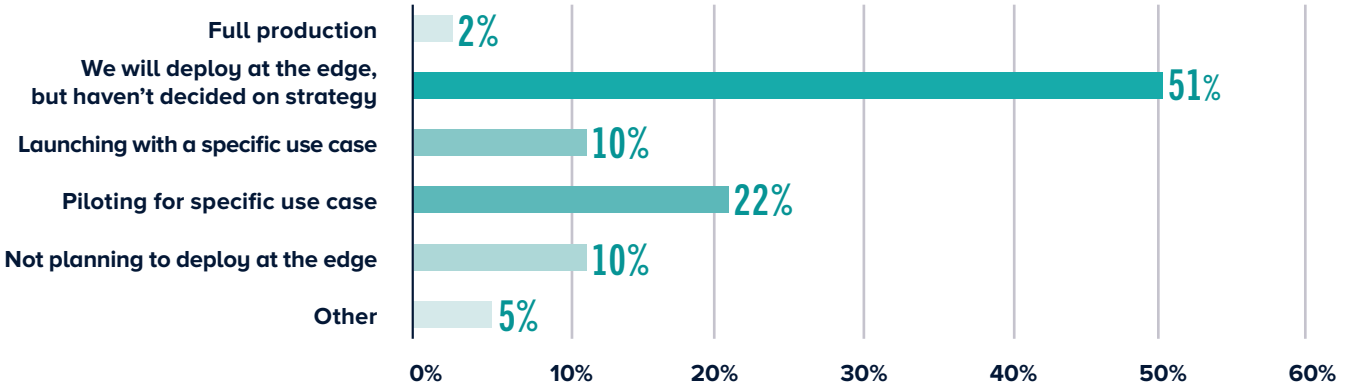

Figure 2: What is Your Current Strategy for Deploying at the Edge?
Source: Technology Innovation Council

PILOTING AND COMMITTING TO PRODUCTION ROLL-OUT

"IT'S IMPERATIVE FOR US TO PILOT USE CASES LIKE CONTENT DELIVERY NETWORKS (CDNs) AND VIRTUAL RADIO ACCESS NETWORKS (VRANs), AS WELL AS ENTERPRISE-LINKED USE CASES FOR WHICH RETURN ON INVESTMENT (ROI) IS CLEARLY DETERMINED UP FRONT BEFORE COMMITTING TO A PRODUCTION ROLL-OUT."

VP of North American Operator

3

WILL OPERATORS DEPLOY A NETWORK DATA LAYER?

Over half of operators will move to a network data layer but most of these will only do so as they roll out 5G.

A COMMON VIEW ON THE NETWORK DATA LAYER

Over half of operators will move to a network data layer but most of these will only do so as they roll out 5G.

The next 18 months are critical for operators to make far sighted choices that will create a flexible multi-vendor service architecture. Key decision is how to create a data environment that drives new services and creates the flexibility needed for future business.

According to the C-level Exec Phillipines Operator, mature CSPs who have a better handle on their data would be able to move ahead with automation, monetization and unified view while CSPs with disparate data structures would need some time to cleanse and standardize their data across applications before they reap the benefits.

> "MATURE CSPs [...] WOULD NEED SOME TIME TO CLEANSE AND STANDARDIZE THEIR DATA ACROSS APPLICATIONS BEFORE THEY REAP THE BENEFITS."
>
> C-level Exec with Philippines Operator

HOW WILL YOU DEPLOY A NETWORK DATA LAYER?

As seen in Figure 3, the vast majority of operators recognize that the maturity of standards gives them options for handling data.

Although only 2% of CSPs plan to keep vendor data specific data silos, another 10% have no plans to deploy a network data layer and silos and a huge 37% remain undecided. The winners are likely be the 15% of operators who are implementing a network data layer for both 4G or 5G, followed by the 32% who will roll it out with 5G.

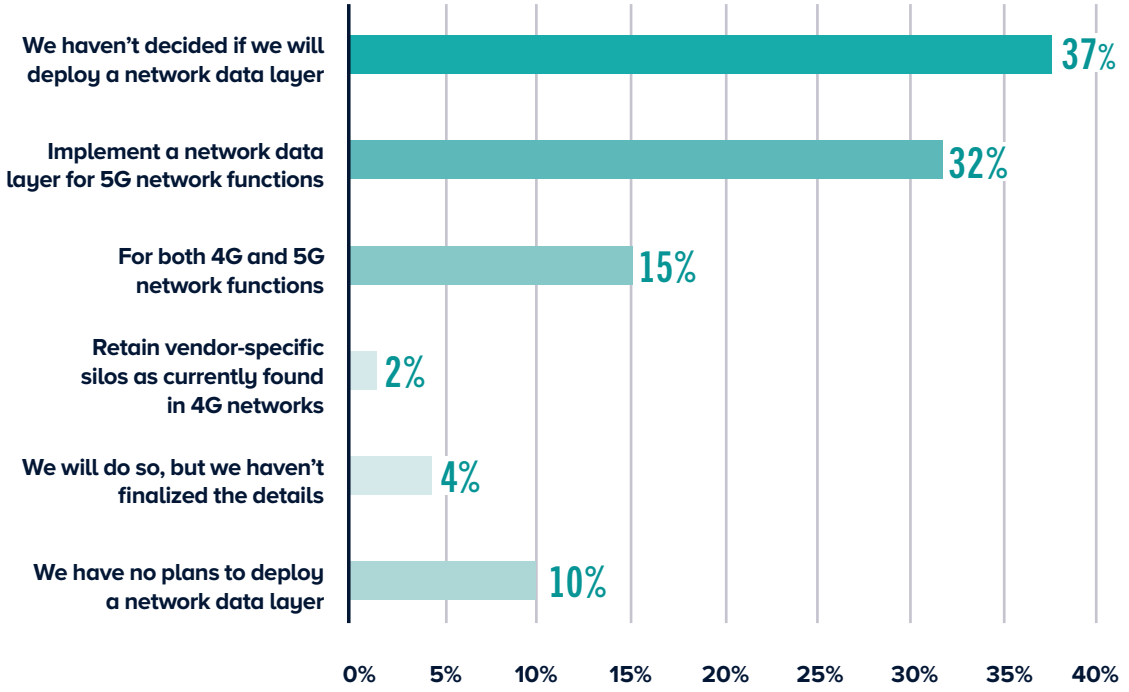

Figure 3: How Will You Deploy A Common Data Layer?
Source: Technology Innovation Council

WHAT ARE THE MOST IMPORTANT FACTORS FOR CHOOSING A NETWORK DATA LAYER?

Figure 4 shows that a network data layer and data handling have to match the flexibility needed by the business.

The top four factors identified by operators were:

- Core unified view of the customer data (19%)
- Deployment in slices or at the edge in an automated way (15%)
- Support for monetization (15%)
- Telco-grade resiliency, scale and cost (13%)

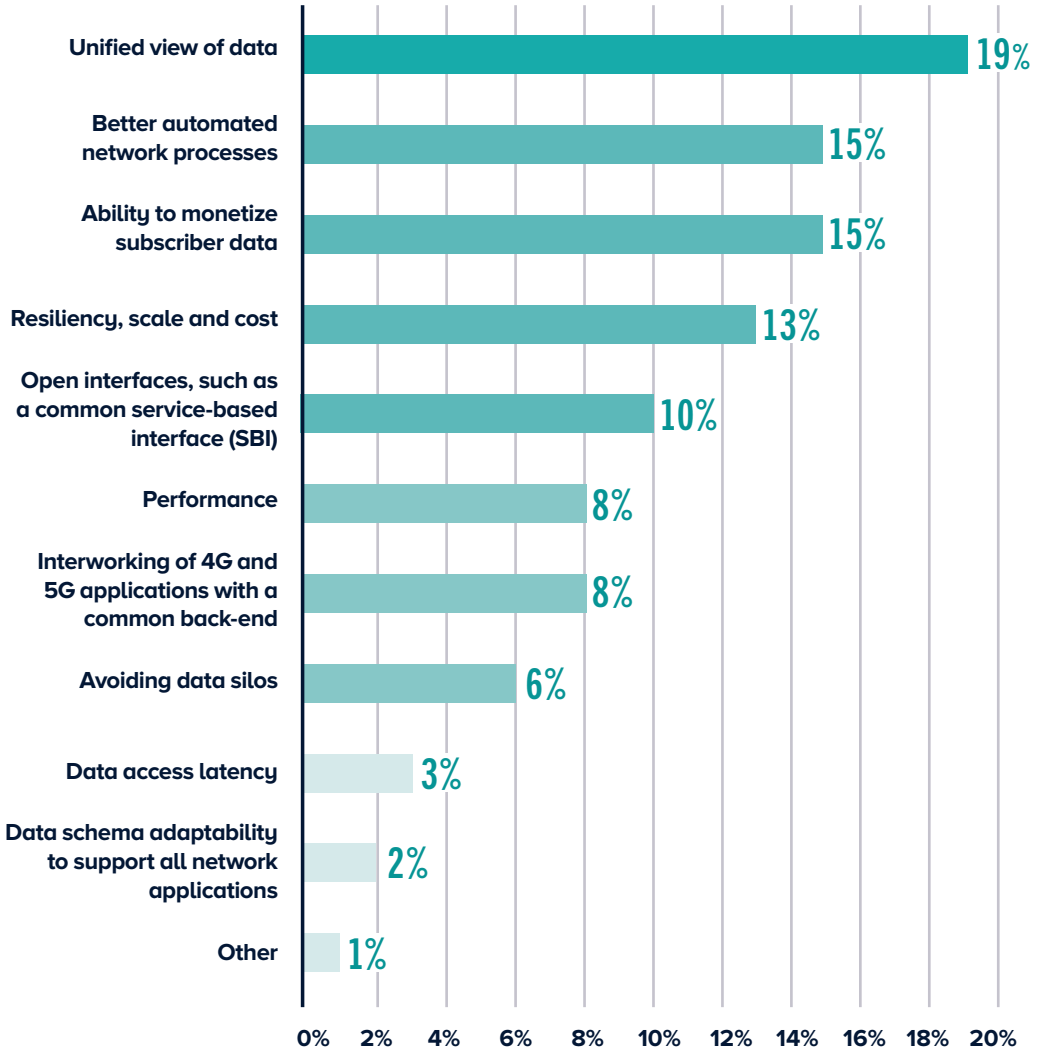

Figure 4: What are the Most Important Factors for Choosing a Common Data Layer?
Source: Technology Innovation Council

Operators are cautious, as they are aware that all data are not created equal. Different use cases demand different approaches to achieve the desired levels of latency, throughput and data store centralization or decentralization, as well the type of synchronization and automation for 4G/5G interworking.

Many CSPs wrongly believe that the adoption of a network data layer will impact the way data flows are matched, or the customer profile is unified, or how the session data are handled, since they know that these factors can determine how resilient, scalable, efficient, practical and deployable distributed network data is.

In fact the opposite is true - a network data layer not only allows legacy data stores and processes to continue to perform as they always have, but allows for a very low risk experimentation with distributed data processing at the edge or slow migration to cloud native software that externalizes its state information.

As CSPs see their peers not only increase flexibility and reduce OPEX, but monetize new data and service value with **less disruption than vendor specific solutions**, network data layer adoption is likely to accelerate.

“DIFFERENT USE CASES DEMAND DIFFERENT APPROACHES TO ACHIEVE THE DESIRED LEVELS OF LATENCY, THROUGHPUT AND DATA STORE CENTRALIZATION OR DECENTRALIZATION.”

SELECTED COMMENTS FROM MOBILE OPERATORS

This question on adoption of a network data layer generated a variety of IT related comments from operators, including:

DUE TO MULTIPLE CONSTRAINTS AND CHALLENGES IN OUR ENVIRONMENT, WE NEED TO PUSH TO HAVE GREATER AUTOMATION AS OTHER RESOURCES ARE HARD TO GET.

“THIS GENERALLY DEPENDS ON THE MATURITY OF A COMMUNICATION SERVICES PROVIDER (CSP) IN TERMS OF DATA STANDARDIZATION, GOVERNANCE AND ADHERENCE TO INDUSTRY STANDARDS LIKE TM FORUM’S SID INFORMATION FRAMEWORK AND OPEN APPLICATION PROGRAMMING INTERFACES (APIs).”

Another operator said there was a bias toward enabling capabilities and applications over the data models and structures that the applications use:

AS SUCH, THERE IS DIFFICULTY DOWN THE ROAD IN TERMS OF STANDARDIZATION, REPORTING, DASHBOARDS, INTEGRATION AND CONSOLIDATION. WITHOUT A COMMON DATA MODEL, THE AUTOMATION OF NETWORK PROCESSES ENCOUNTER A NATURAL BARRIER CREATED BY THE NEED TO TRANSCRIBE AND MANIPULATE DATA. MAINTAINING MULTIPLE SCHEMAS WILL EVENTUALLY BE OPERATIONALLY TAXING, ESPECIALLY IN OUTAGE SCENARIOS. OPEN INTERFACES ARE HAMSTRUNG IF THE DATA MODEL IS INCONSISTENT AND UNALIGNED.

“FULL ADOPTION OF OPEN APIs REMAINS AN ASPIRATION FOR US.”

4

PARTING THOUGHTS

Overall, the message from operators is clear: the 5G infrastructure capabilities are just beginning to be sufficiently mature to match specific business needs.

CSPs cannot revolutionize their services and their operations overnight; some still believe they are avoiding risk with slow deployment of resources for services at the edge or reluctant adoption of a new data management layer, until they see the proven business case.

Ironically this may lead to financial problems for such overly cautious CSPs who incur the biggest risk of all – the loss of new flexible 5G service opportunities.

Over the coming 18 months leading operators are starting on a new decade of 5G infrastructure deployment that will facilitate a flood of new services for consumer, enterprise, government and wholesale markets at a lower cost per GB than ever before.

As evidenced by the results of our survey and the insightful comments from the 41 operators who provided input, it is clear that they are aware of the challenges they face and the need to build 5G networks right, regardless of the near term pressure they feel.

We conclude that over the next 18-24 months operators will begin to finalize decisions about 5G Service Based Architecture, Mobile Edge Services and the deployment of a network data layer that will impact their long run success or failure.

As these decisions are made and 5G networks move from theory to physical reality over the next decade, service providers will discover the benefits of moving to a new lower cost 5G SA infrastructure platform. The time it took them to deliberate these strategic choices will be nothing more than a distant memory.

DATA MANAGEMENT
FINDING THE SOLUTION WITH ENEA

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Find out more at

enea.com/5gdata

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ENEA OPENWAVE PROVIDES MOBILE OPERATORS WITH 5G-READY PRODUCTS FOR THE MOBILE CORE.

Our Traffic Management Solutions alleviate RAN congestion, accelerate video delivery, and maximize subscriber QoE. Our 5G Core Solutions provide a network data layer to unify subscriber data. Enea Openwave has deployed its solutions in 8 out of the 10 largest multi-territory mobile operator groups in the world.

enea.com/5gdata

Technology Innovation Council

THE TECHNOLOGY INNOVATION COUNCIL (TIC) IS A UNIQUE RESEARCH INITIATIVE DEVELOPED BY SONUS PUBLIC RELATIONS.

It is managed by an experienced telecommunications research analyst. Members of the Council are telecommunications service provider executives who have been personally invited to provide insight into business and technology trends. Members of the TIC are guaranteed anonymity, enabling them to participate meaningfully and provide knowledgeable feedback on business and technology trends.

technologyinnovationcouncil.net

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Join us as we discuss topics surrounding 5G Data Management in bite-sized thought leadership webinars

We interview mobile data industry leaders on a variety of topics including:

CLOUD GAMING • 5G STRATEGIES • RAN CONGESTION • DATA TRENDS

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