

WHITEPAPER

The telco quest for new value with Network APIs

Driving the consumption of open networks with enterprises and developers

Published by



In partnership with



Executive Summary

This whitepaper explores the pivotal factors propelling the adoption of telco open networks among enterprises and application developers, creating differentiated services across verticals through on-demand connectivity and intelligence.

The new age of digital applications is reliant on network connectivity more than ever; very often network performance and/or device intelligence can create a make-or-break situation for these applications. With programmability of the network and infrastructure at their disposal, developers and enterprises now have an opportunity to meet customer experience metrics leveraging reliability, availability, and latency sensitivity.

The advent of Network APIs promises to unlock network intelligence, empowering developers to tailor solutions to diverse verticals with precision. Mobile Network Operators (MNOs) recognize the imperative to bridge the gap between telcos and developers.

Standardization efforts like the GSMA Open Gateway and other industry initiatives are laying the groundwork for collaboration, fostering innovation and driving scalability.

As MNOs navigate the complexities of the Network API era, diverse routes to market are emerging, from direct engagement with customers to partnerships with aggregators and hyperscalers. Pricing strategies will also play a pivotal role in attracting early adopters and driving adoption, emphasizing the need for flexibility and experimentation.



Leveraging 5G investment and maximizing ROI with Network API-driven innovation

Mobile Network Operators (MNOs) started developing 5G as early as 2015. The first commercial services were launched in South Korea in 2019. Connections reached 1.6 billion in 2023 and according to the GSMA will reach 5.5 billion by the end of the decade.

Regarding market penetration, 5G has shown to be successful. This success though comes at a cost. The GSMA estimates MNOs will have allocated \$480 billion in mobile CAPEX from 2020 to 2025, with more than 80% earmarked specifically for 5G initiatives.

The advent of 5G also comes with lofty goals. It is anticipated that unmatched speeds, minimal latency, and the implementation of network slicing are poised to revolutionise various industries spanning autonomous vehicles to zoology, and everything in between.

It could be reasonably argued though that 5G is yet to live up to

its hype. It is delivering faster network speeds where it is available, but there are precious few examples where 5G is delivering greater value to the MNOs. But that is not to say it won't happen.

Learning lessons from the past

The cellular industry has been here before. In the early 2000s when MNOs bet the bank on 3G, the IT industry moved into mobile and we saw a boom in OTT development. Arguably, MNOs moved too slowly and were too protectionist, before the advent of the iPhone and all

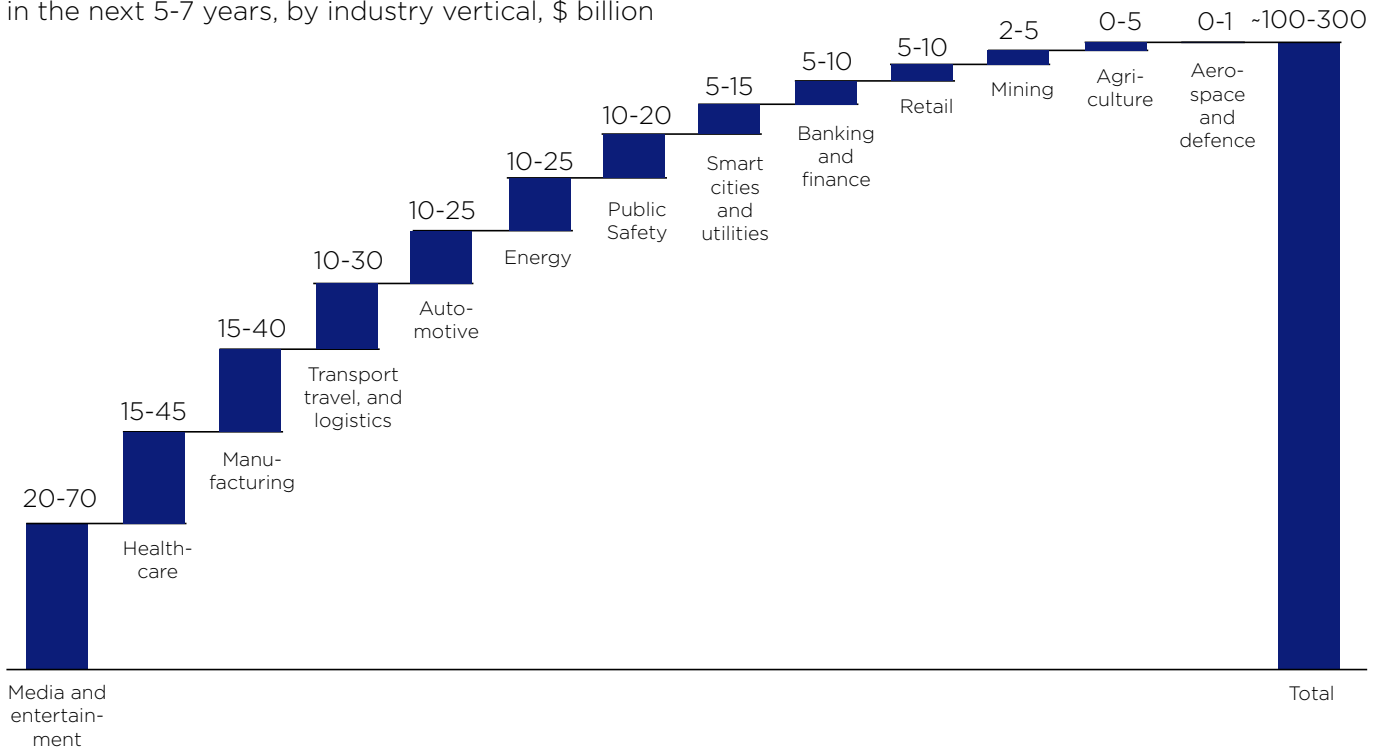
you can eat data turned carriers into connectivity pipes.

More recently, MNOs missed out on the emergence of Communication Platform as a Service (CPaaS) which sees the integration of real-time, cloud-based, customised communication services like video chat or two-factor authentication directly into an existing application.

The CPaaS industry was worth \$14.3 billion in 2022, according to IDC analysis, and is forecast to grow to \$29.7 billion by 2026. This is not just a massive missed opportunity, but also a threat to existing and future MNO revenues.

Network APIs offer telcos a route to a multi-billion dollar market for connectivity and EDGE-related services in the coming five to seven years.

New potential revenues enabled by network APIs in the next 5-7 years, by industry vertical, \$ billion



Source: McKinsey analysis, GSMA intelligence. February, 2024

No one size fits all

Network APIs have been heralded as the keys to unlocking network intelligence and placing that power in the hands of application development will ensure MNOs are able to maximize their investments in 5G. GSMA/McKinsey research values the revenue opportunity Network APIs can enable at around \$300 billion between now and 2030¹.

Exactly how MNOs derive revenues from Network APIs is the big question. GSMA/McKinsey divides that \$300 billion across 13 verticals as shown in the diagram above.

We start to see the complexity inherent in the challenge. Each of the verticals identified can be divided further in subsets of 1000s of services and devices. There is no one size fits all Network API solution that connects to the existing underutilized network when exposed externally with same network capacity to enterprises with different needs.

For instance, media and entertainment providers (the largest slice of the pie) might need on-demand slicing for live streams, auto-bandwidth boost based on connection quality for 'premium' users, immersive experiences in

cloud gaming, or direct carrier billing for online purchases. Other verticals have a similarly diverse set of requirements.

Second guessing the enterprise requirements is not where the MNOs' expertise lies. That insight lies in the hands of developers. Bridging the telco-developer divide is the real challenge and will require MNOs to take a different go-to-market approach rather than the more 'traditional' build it and they will come approach.



Establishing a bridge between telcos and developers

Standardization in telco is the holy grail. It has enabled a fragmented landscape of organizations and technologies to coalesce with great success in the past. The GSMA Open Gateway initiative is aiming for standardization of Network APIs via the Linux Foundation's CAMARA project. It is a laudable goal; standardization will enable interoperability among different MNOs, providing seamless connectivity and communication between networks.

An open platform will foster innovation and encourage the development of new applications and services that can enhance user experiences. It will also allow for scalability, accommodating the growing demands of mobile communications without significant limitations, and facilitate access to mobile networks for a wider range of users, including smaller operators and developers.

GSMA Open Gateway has a lot of support and early signs are promising. MNOs in Latin America, Spain, and South Africa have launched Network APIs to help developers combat fraud. At the

time of writing 41 Network APIs are available on the [CAMARA Project's Github page](#).

The Open Gateway though is not the only approach being taken; Deutsche Telekom and T-Mobile US have introduced Network APIs and a Joint Developer Platform in Germany and the US, and AWS is teaming with MNOs including Verizon, T-Mobile, Orange and Telefonica to make their network APIs accessible to developers.

Engaging with developers will be the key to success since every application within every vertical will have very specific needs. In

healthcare, hyper-precise location information could be used in connected ambulances, real-time continuous data sharing could be leveraged for teleconsultations, remote patient monitoring could reduce time spent in hospitals or asset tracking could help speed up treatment and save costs.

In manufacturing, AR/VR-based machinery could carry out automated health checks and maintenance, product quality could be checked and assured, object/motion could be detected on production lines or the shop floor leveraging the network APIs like Quality-of-Service, Device Status

and Traffic Influencing Services. The list of use cases really is limited only by the imagination of the developers working in that vertical.

However, attracting API developers to telco environments is a major challenge. Making Network APIs easy to use and affordable is absolutely essential. There is an industry requirement for a seamless platform to developers/publishers that includes end-to-end monetization. That platform needs to empower applications and devices to dynamically control and tailor their network experience. It needs to be intent driven, network-aware, and developer-first.

MNOs must offer support and resources to help enterprise developers integrate and utilize the network APIs effectively. This should include documentation, SDKs, developer forums, and dedicated developer support teams.

Introducing NGAGE®, CNPaaS Platform

Comviva's NGAGE CNPaaS is an award winning, industry leading, Gen-AI-enabled Communication

and Network Platform as a Service, that provides on-demand network capacity and capabilities through universal, simplified, and standardized APIs. The CAMARA compliant solution uses intent, network awareness and developer accessibility, enabling applications and devices to adaptively manage and customize their network interactions in real-time. It streamlines the use of network features such as quality of service, location services, slicing, and others across a variety of network environments, encompassing edge, private, public, and hybrid clouds.

Through simplifying intricate network infrastructures, harnessing an extensive developer network, and delivering network-aware solutions spanning various sectors, NGAGE CNPaaS enables MNOs to enhance network monetization, elevate average revenue per account, and stimulate revenue expansion through cooperative enterprise collaborations.

NGAGE promises to revolutionize enterprise advanced networks, shifting them from a focus on connectivity to one controlled by applications and devices. It

intelligently identifies and responds to user intent in real-time, leading to heightened business efficiency, operational productivity, and personalized customer experiences, thereby helping telcos capitalize on their network assets.

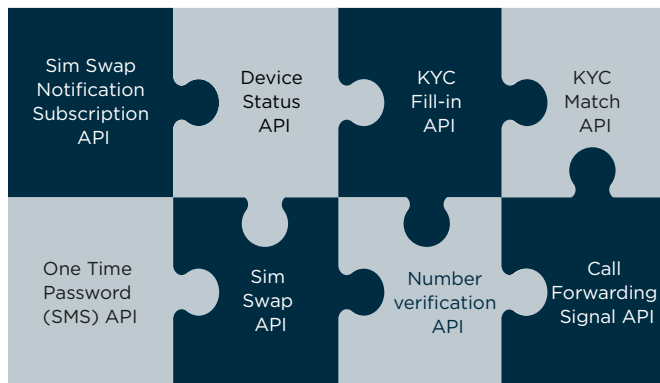
Unlocking the potential of Network APIs hinges on a fundamental change: opening up 5G and 4G networks to application developers. NGAGE plays a pivotal role in this transition by offering developers a streamlined approach to innovate on a large scale and promote the adoption of mission-critical use cases enabled by service and intent APIs.

Comviva is an official GSMA Open Gateway Channel Partner, amongst the selected few in the market working on this global initiative to evolve and drive adoption of Open Gateway Standards. With 16 CAMARA APIs in 8 API families, Comviva helps telcos accelerate their journey of launching pre-validated, ASP integrated, Network APIs to market.

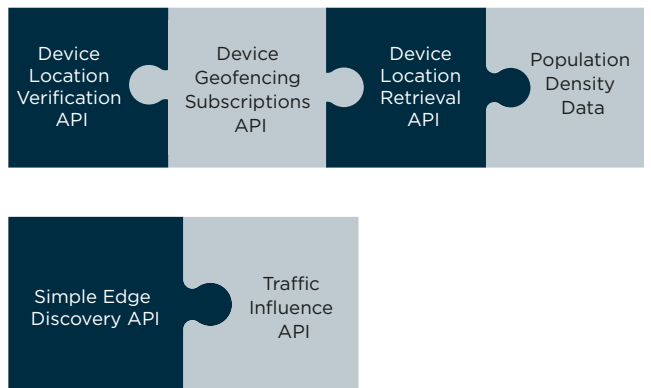
[GSMA Open Gateway.](#)

Required APIs

Anti Fraud. API Product Family: Subscriber Identity



Mobile Connectivity / VAS. API Product Family: Location



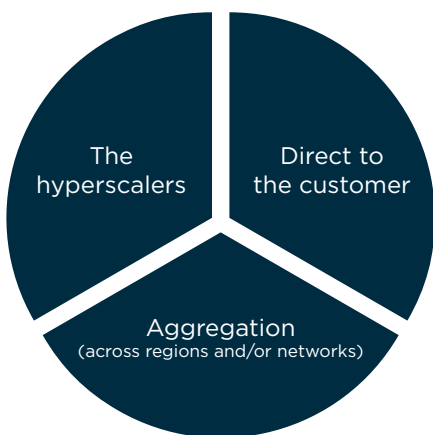
Cloud & Edge. API Product Family: MEC (Mobile Edge Cloud)



Routes to market and monetization in the Network API era

Designing and building a product, even a perfectly engineered product that solves a known challenge, is no guarantee of success. The complexity of vertical markets and the ability of Network APIs to unlock and deliver network intelligence to applications requires MNOs to take a multifaceted GTM approach.

There are, broadly speaking, three routes to market as shown below. No one approach on its own will be enough. As we move from the centre of the concentric circles we'll see MNO value creation increase. But in all likelihood MNOs will need to build an awareness among developers regarding the potential use of Network APIs so it makes sense that they should work with hyperscalers and aggregators in parallel to taking a direct to enterprise approach.



The hyperscalers

Hyperscalers can deliver immediate scalability and reach. Hyperscalers are establishing channels for telcos to reach the market. They provide access to a vast community of developers across diverse industry sectors.

In February 2024 AWS announced plans to create what it described as “a friction-less, compelling developer experience” as part of a new go-to-market-channel for telcos. In the same month Google Cloud announced similar plans highlighting the need “to bring these [Network] APIs closer to the cloud developer ecosystem.”

The importance of making things as easy as possible for developers is not lost on the hyperscalers. However, the service enablement aspect is missing. Simply providing access to Network APIs is not enough. Using a hyperscalers' marketplace to sell the Network APIs further allows telcos to retain control of the pricing through differentiated services and use cases.

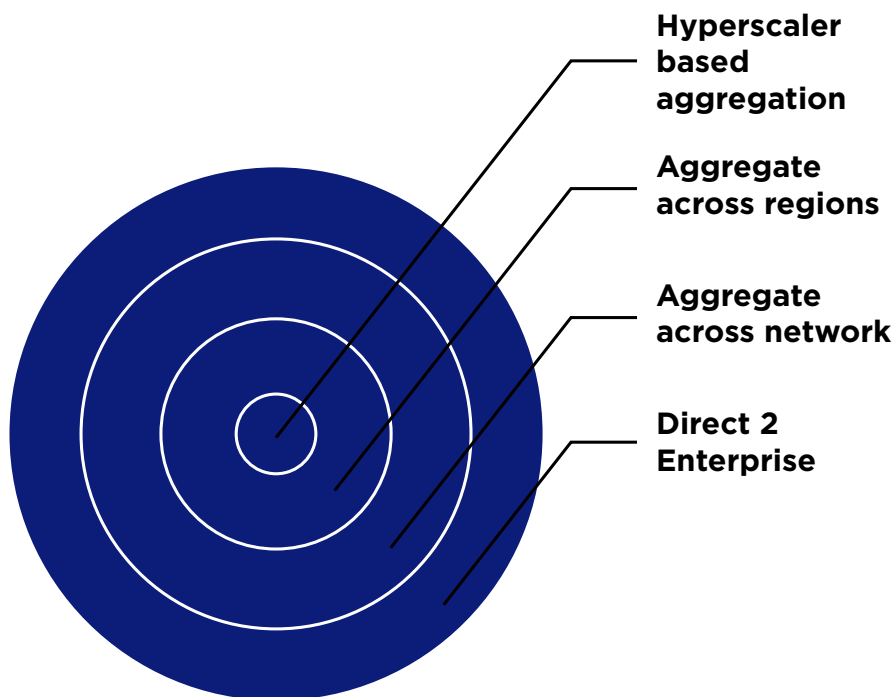
Aggregation

To help with reach and scalability, MNOs are partnering with aggregators. These specialist aggregators come with the benefit of telco expertise. Something that, arguably, the hyperscalers are missing. It is a route that Deutsche Telekom, via a partnership with T-Mobile US, is also looking at to introduce Network APIs and a joint network developer platform in Germany and the US.

Meanwhile in Brazil, as part of the GSMA Open Gateway initiative, mobile operators have established a regional approach with Claro, TIM and Vivo announcing the launch of three Network APIs focused on improving digital security: Number Verify, SIM Swap and Device Location.

Other carriers are teaming up with non-MNO aggregators like CPaaS vendors. Aggregators can help MNOs scale and reach more developers. However, one potential pitfall of teaming up with

Multi-Channel GTM Strategy



aggregators is eroding the value of connectivity (similar to what was seen in the CPaaS domain). Revenue sharing will be a critical consideration with regards to working with aggregators and hyperscalers.

Direct to the enterprise

Selling directly to enterprise customers is arguably the optimal route to market in terms of value creation and retention for MNOs, but it is also the toughest and could be a deterrent to the developer community who would rather deal with a single entity and pay a single fee rather than striking up deals with multiple MNOs. It is, however, a route Deutsche Telekom hopes to take with the creation of a dedicated business unit called Magenta API Capability Exposure,

or MACE.

The challenge inherent in going direct to the customer is reach. MNOs going direct are taking on a lot of heavy lifting. Customer acquisition will be tough. Simply making Network APIs available will not be enough to drive uptake. Hence the requirement to work with hyperscalers and other aggregators. If MNOs rely too heavily on hyperscalers and/or other aggregators though they run the risk of becoming wholesale connectivity providers. It will be a challenging balancing act.

Connecting northside and southside

MNOs should look at leveraging all channels for distribution of their network capabilities and intelligence and remove the entry barrier for developers. They should not get married to any Hyperscaler or aggregator, but rather make Network APIs available on all marketplaces to reach the largest pool of developers. Building momentum in this way will create more direct to customer opportunities.

Each of the routes described above, while being equally valid, contains within it the same challenge: Service enablement. The challenge comes with connecting ecosystems to the north (enterprise, application developers, hyperscalers and vertical industries) with southside telco network and edge capabilities such as on-demand QoS, network slicing, traffic optimization, device selection, edge selection, location proximity and other online network resource.

Responding to real-time business demands, Comviva's NGAGE CNPaaS seamlessly integrates network functions, leveraging insights from network, location, and device data for informed resource management. Acting as an abstraction layer it connects northbound and southbound sides of the Network API equation, supporting all channels for distribution.

Taking advantage of a vendor agnostic abstraction layer such as NGAGE also overcomes potential issues that might exist with a fragmented landscape of hyperscaler, aggregator and direct to customer propositions.

MNOs should also not be afraid of experimenting and failing fast. If MNOs wait too long, they run the risk of missing the opportunity for exponential growth from Network APIs. They can kill the entry barrier by using a commercially available solution that provides the flexibility to trial the wide variety of GTM strategies available.

Pricing strategies

Customer acquisition is absolutely key, and it is much more complex than simply making Network APIs available via different channels. MNOs need to behave like true product companies to extract true value from Network APIs.

Tiered Pricing:

MNOs could offer tiered pricing plans based on usage volume or specific features. This would enable enterprises to choose plans that best suit their needs and budget. For example, MNOs could offer different tiers of Network API access based on the number of Network API calls or the level of data throughput required.

Volume Discounts:

MNOs could provide discounts for developers or enterprise customers based on the volume of Network API usage. This incentivizes enterprises to use more of the MNO's services and Network APIs, potentially leading to long-term contracts and increased revenue for the MNO.

Free Trial Period:

A free trial period could be offered for enterprise customers to test out the Network APIs and assess their suitability for their applications. This allows enterprises to experience the value of the Network APIs first hand before committing to a paid plan. A free trial would also foster the creation of new previously unconsidered use cases, helping to turn the innovation flywheel.

Bundled Services:

Bundling Network API access with other services such as data plans, cloud services, or IoT solutions would provide added value to enterprise customers and encourages them to use Network APIs as part of a comprehensive solution.

Customized Pricing:

MNOs could tailor pricing plans to meet the specific needs of enterprise customers. This could involve creating custom pricing packages based on factors such as the size of the enterprise, industry vertical, or specific use cases.

Revenue Sharing Models:

Revenue-sharing models could be introduced where the MNO, aggregators and enterprises share revenue generated from applications built using the Network APIs. This aligns the interests of all the parties and incentivizes enterprises to develop innovative and revenue-generating applications.

Value-Based Pricing:

The Network APIs price could be based on the value they provide to the enterprise customers. This could involve charging higher prices for Network APIs that offer unique or mission-critical functionality compared to standard APIs. For example, Quality-on-Demand, Traffic Steering/Influencing Service APIs would command almost 10x higher price than the Intelligence API because the value they deliver to the end user is potentially more beneficial and actionable.

Flexible Contract Terms:

MNOs could provide flexible contract terms such as month-to-month or annual contracts, enabling enterprise customers to adjust their usage based on changing business needs.

Competitive Pricing:

MNOs should ensure that pricing for Network APIs is competitive compared to other MNOs and third-party providers in the market. This may involve periodic price benchmarking and adjustments to maintain competitiveness. However, adopting competitive differentiation could lead to value erosion. MNOs should look at bundling APIs with services and applications to reduce commoditisation and comparison.

Price is obviously an important factor. MNOs must use the right pricing levers to create the right environment for the early adopters to start consuming Network APIs and hence reach the tipping point/critical mass adoption sooner.

Conclusion

With 5G MNOs clearly possess a valuable asset that they can leverage to drive Network API consumption and in doing so gain a share of a \$300 billion opportunity. By emphasizing the reliability, speed, and coverage of their networks, MNOs can attract enterprise customers seeking connectivity for their applications. Additionally, MNOs can capitalize on their data assets by offering Network APIs that provide valuable insights and analytics, creating additional revenue streams while delivering value to enterprises.

To foster adoption, MNOs can cultivate partnerships and ecosystem development, encouraging collaboration among developers, technology vendors, and other players. Through this collaborative approach, MNOs can build a vibrant developer community around their Network APIs, driving innovation and increasing adoption among enterprise customers.

However, MNOs must develop vertical specific solutions tailored to industry needs, offering specialized tools and capabilities that enhance operational efficiency and customer experiences in sectors such as healthcare, transportation, and retail.

Furthermore, MNOs can differentiate themselves through innovative pricing models and continuous improvement of their Network APIs. By introducing flexible pricing options that align with the value delivered, such as pay-as-you-go or usage-based pricing, MNOs can incentivize enterprises to consume more APIs.

Additionally, investing in ongoing innovation and improvement ensures that MNOs remain competitive and responsive to evolving enterprise requirements, further driving adoption and solidifying their position as valuable partners in the digital transformation journey and accelerating their north stars of becoming TechCos and platform players.

How NGAGE CNPaaS Platform helps

As noted previously, engaging with developers will be the key to success since every application within every vertical will have very specific needs. But attracting API developers to telco environments is proving a major challenge. Comviva's NGAGE offers enterprise and developer focused solutions available with ready-to-use templates for different verticals.

NGAGE ensures seamless adaptation of 5G, 4G, Wi-Fi6 or SD-WAN networks to device & application intent, thereby enhancing network efficiency. It controls and prioritizes network policies and rules tailored to various applications and devices, aligning with enterprise business needs.

Additionally, NGAGE provides a low code/no code platform with robust build and run-time security features and intelligent reporting, simplifying network management processes. It offers user-friendly Network APIs, SDK kits, developer portals, and sandbox environments empowering technology partners to rapidly create network and edge-aware applications.



Comviva simplifies business complexity. Our innovative portfolio of digital solutions and platforms bring greater choice, faster time to market and flexibility, to better meet the evolving needs of our customers as they drive growth, transform, and bring efficiency. From maximizing customer lifetime value to enabling large-scale digital transformation, we partner globally with organizations in the communications and financial industry to solve problems fast and transform for tomorrow.

Comviva solutions have been deployed by over 130 Communication Services Providers and Financial Institutions in more than 90 countries and have delivered the benefits of digital and mobility to billions of people around the world. Comviva is a completely owned subsidiary of Tech Mahindra and a part of the Mahindra Group.

For more information, visit us at www.comviva.com

Mobile World Live is the premier destination for news, insight and intelligence for the global mobile industry. Armed with a dedicated team of experienced reporters from around the world, we are the industry's most trusted media outlet for breaking news, special features, investigative reporting, and expert analysis of today's biggest stories.

We are firmly committed to delivering accurate, quality journalism to our readers through news articles, video broadcasts, live and digital events, and more. Our engaged audience of mobile, tech and telecom professionals, including C-suite executives, business decision makers and influencers depend on the unrivalled content and analysis Mobile World Live provides to make informed business decisions every day.

Since 2016, Mobile World Live has also had a team of in-house media and marketing experts who work directly with our brand partners to produce bespoke content and deliver it to our audience in strategic yet innovative ways. Our portfolio of custom work - including whitepapers, webinars, live studio interviews, case studies, industry surveys and more - leverage the same level of industry knowledge and perspective that propels our newsroom.

Mobile World Live is published by, but editorially independent from, the GSMA, producing Show Daily publications for all GSMA events and Mobile World Live TV - the award-winning broadcast service of Mobile World Congress and home to GSMA event keynote presentations.

Find out more at www.mobileworldlive.com

Disclaimer: The views and opinions expressed in this report are those of the authors and do not necessarily reflect the official policy or position of the GSMA or its subsidiaries.

© 2024