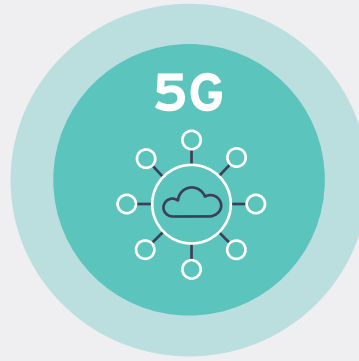




5G, CLOUDONOMICS & AGILE, DIGITAL BSS

The next level in transformation

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Cloud and 5G in parallel

See how cloud and 5G are developing to deliver transformational change

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Clouconomics

Why it's more than just CapEx savings

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The era of the cloud-based telecoms service provider

From Communications Service Provider to Digital Service Provider - cloud-native, open, agile systems are the foundation on which all services are built and deployed

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5G and cloud - transforming service providers

From delivering 'faster dumb pipes' to establishing '5G as a platform'

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Digital BSS on cloud and edge cloud

Agile BSS extending to the 5G edge will give service providers the ability to take centre stage in the 5G value chain

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INTRODUCTION

5G is here and never did we need it more. The criticality of top-notch connectivity for work, play and industry has reached new levels of consciousness in this first half of 2020.

Until 5G, 40 years of global mobile industry evolution has been focussed on resolving macro-scale issues such as reliability, coverage, mobile voice & messaging, global roaming, Internet access and more recently, intensive video consumption & production.

Let's get started with a declaration: 5G cannot be considered as '(4+1)G'.

“Losing out on 5G would be the result of doing the same thing over and over again and expecting different results” 5G ≠ (4+1)G'

It is different at every level. 20 times faster, 90% lower latencies, 10 times the capacity, and density of a million devices per square kilometre. The very structure of how its components are built, how they interact, the way they are resilient and scale dynamically up or down is like nothing that came before.

Figure 1 below illustrates the fundamental shift in delivering mobility. All things considered - 5G is not just evolutionary, it is revolutionary.

Figure 1: Generational changes to mobility

Coverage era



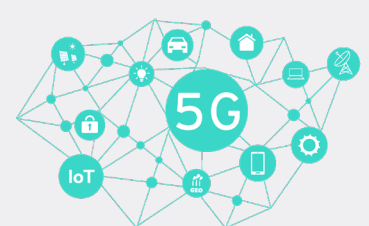
Service providers create the global mobility market

Devices era



Device vendors and apps define the experience

Integration era



The 5G network + cloud becomes a platform

HYPER-SCALE & CLOUD IN 5G

The notion and relevance of hyper-scaling applied to 5G may be understood through the lens of what revolutionised the complex worlds of large-scale compute, storage & software tooling technology.

Today we are all familiar with and consume the hyper-scale technology and business construct via the moniker of “cloud”.

“Cloud” is a disarmingly clever umbrella concept that hides an unimaginably wide array of complexity and integration problems that ‘someone else’ has solved in order to deliver a set of highly topical, consumable, resilient, distributed, supported, and enterprise-grade cloud services.

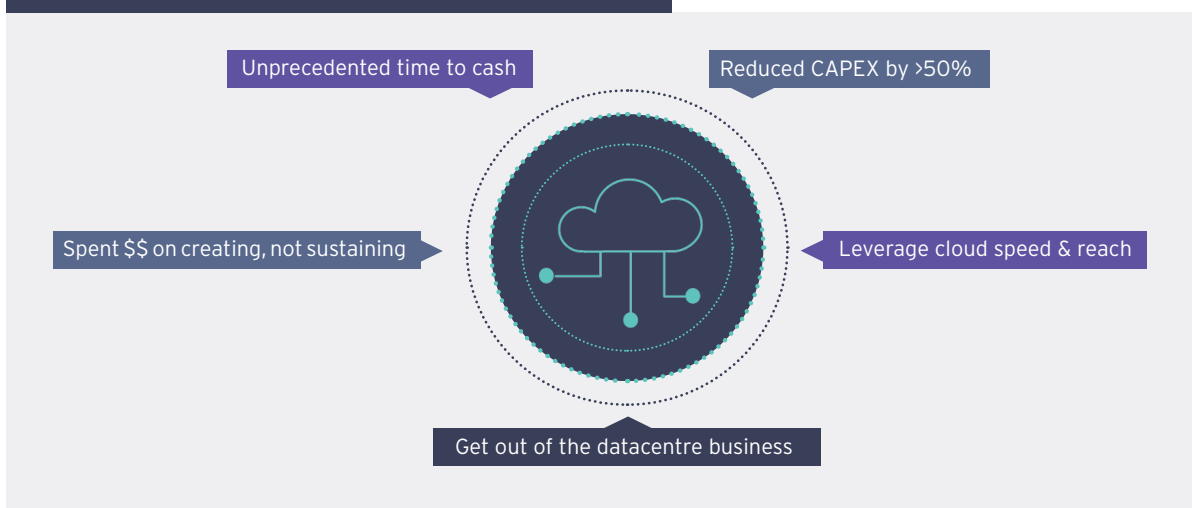
Presented as constantly evolving catalogues of bang up-to-date functions and services, cloud services are selected, combined, sized and paid for by enterprises for their own internal purposes, or increasingly to be part of their own provision of some end-to-end propositions to their own market segments. As such, cloud then becomes an integral part of the technical and commercial success and correct functioning of those organisations who adopt and consume. Cloud has become the new platform.

Cloud adoption by service providers directly delivers on a whole series of deep business improvements which are highlighted in Figure 2.

Shifting to cloud leaps the service provider forward - as far as possible from the frustrating world of being tied up in endless and highly constrictive knots comprising huge stacks of hardware and underlying software.

Investments all go forwards, no more backward spending to ‘keep it all standing up’. Service providers can now enter the world of cloudonomics.

Figure 2: Telco deep business improvements from Cloud adoption

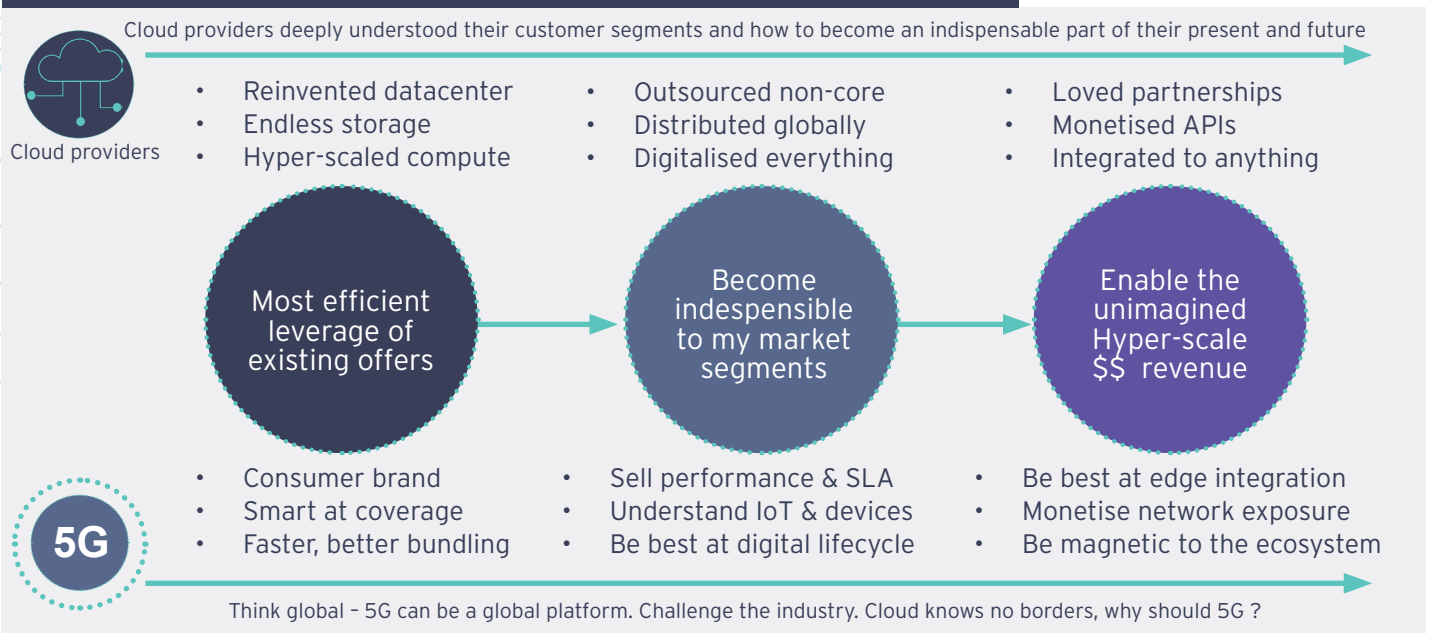


HYPER-SCALE & CLOUD IN 5G

For readers with a more networking background, we can equally create similar comparisons to the MPLS and SDN revolutions that hyper-scaled massive delivery and segmentation of national or global IP, ethernet and optical networks. MPLS and SDN in their own rights became technical and business platforms that skyrocketed the basic underlying technologies into highly consumable and adaptable products that equally became a component part of the success of enterprises who bought into and integrated these platforms.

5G has launched the mobile industry, lock stock and barrel, into exactly this dynamic. 5G lands service providers directly in the path of cloud technologies and market dynamics. This is well illustrated below, reinforcing the parallels with how cloud came to define its own dynamic and forceful position in today's world.

Figure 3: The parallel of today's 5G opportunity with how Cloud providers transformed the world



CLOUDONOMICS

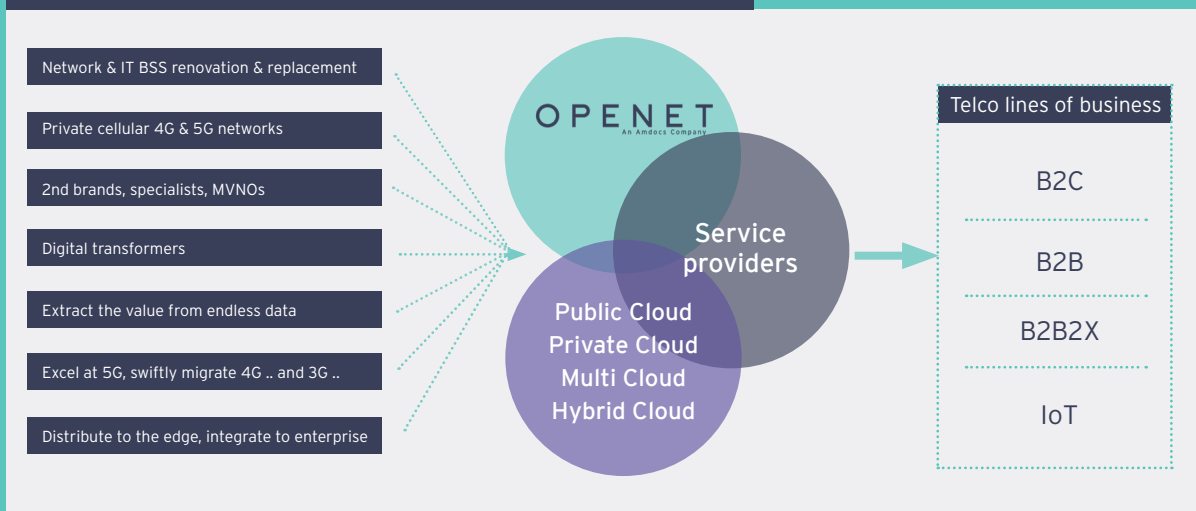
Clouduconomics? Is that in the dictionary? Not yet.

In the telecoms world the most obvious benefit of clouduconomics is the savings obtained when moving a service provider's network and IT stacks to the cloud. It can be considered a baseline fact that any traditionally-built service provider can save over 50% of related CapEx by moving just their IT stack to the cloud.

But clouduconomics is more than CapEx savings. It also comprises the operational savings that are made when leaping off the continuous hardware / software upgrade roundabout. Such a jump permits service providers to get out of the non-core business of owning, running and maintaining datacenters, instead allowing investments to be directed at creating instead of sustaining.

Clouduconomics really can deliver business resolutions to the most pressing change imperatives that the mobile industry is feeling. Just some of these are illustrated in Figure 4.

Figure 4: 2020 - 2022 change imperatives in the mobile industry



Success in these imperatives, further OpEx savings, new market penetration and revenue increases all come from the time saved by having systems built with the principle of configuration over customisation. Additional revenues are earned by having a faster time to market and getting new, more responsive offers out to more market segments quicker than the competition. Allowing these market segments to consume 5G truly as a platform, with a full digital experience just as is being done today with cloud, will be the nail in the coffin for the telcoms 'old world' that log-jammed on paperwork and bureaucracy.

CLOUDONOMICS

All these gains are consolidated and assured through the levels of automation, auto-scaling and resilience achieved when the foundational BSS software has been fully rebuilt ahead of the 5G revolution, leveraging and complying to Cloud Networking Foundation best practices.

This combination, hidden in the details of fundamental product design, architecture, execution and partnership between agile, digital BSS and cloud providers delivers the true benefits of 'cloud native'.

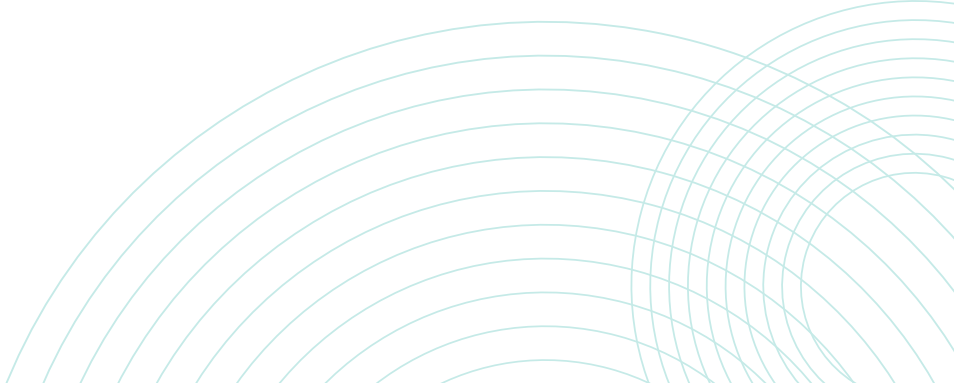
Digital BSS works in cloud or multi-cloud environments to drive down unit costs and time to market whilst driving up agility and insertion success for service providers into multiple lines of business. Our view is that in this way, 5G becomes a platform - hot on the heels of cloud-as-a-platform. 5G-as-a-platform can, in its own way transform and address business needs.

THE ROAD TO CLOUDONOMICS

Cloudonomics enshrines the business case that is driving the emergence of the cloud-based service providers. It is a construct that leverages a single cloud or multiple clouds (multi-cloud) within a single service provider environment to create the technical and commercial context for change.

The cloud, or clouds, may be public and/or private and are - over time - interchangeable. It would be entirely appropriate and best practice for any service provider to continuously monitor the market forces which will drive technical, geographic and commercial advantages into their lap from any given cloud provider.

The move to cloud is shaking up the traditional service provider business model. In reducing network and IT costs by running open cloud-based systems, new market entrants can undercut established competitors by passing a percentage of the savings onto customers in the shape of competitive pricing strategies.

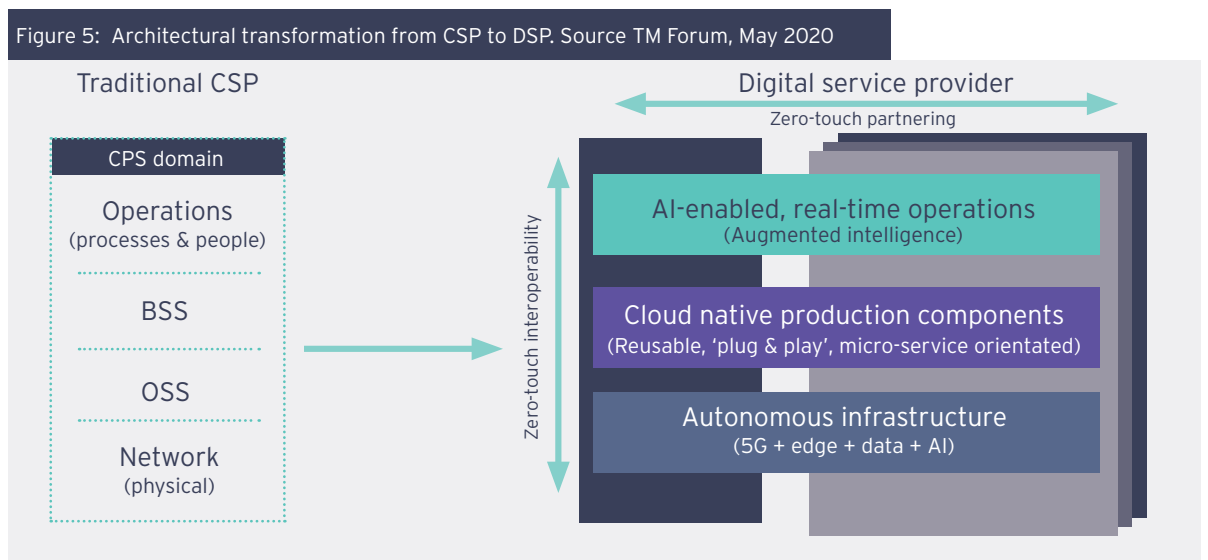


THE ROAD TO CLOUDONOMICS

Some established service providers have already embarked on a total overhaul of their legacy systems, triggered by the arrival of a very distinct inflection point - the arrival of 5G. These service providers are step-changing their BSS to be able to compete with new entrants and carry forward their strong market position to put them in a powerful partnership position with some of the Internet companies and sector innovators whose content and services have driven internet usage and captured sectors of the telcoms markets.

As broadband and 4G accelerated the move towards the app based digital economy, 5G is taking the transformation of telecoms to the next level. We are now in the era of the cloud-based service provider where open, agile systems are the foundation on which all services are built and deployed.

As can be seen in the Figure 5 below, cloud-native network software is the central foundation to help enable the transformation from traditional service provider to becoming a digital service provider. The diagram was published by the TM Forum and was published in their white paper, "A future vision for the software market that the telecom industry needs to survive and thrive" from June 2020. This paper was supported by leading service providers such as Vodafone, Deutsche Telekom, Globe, Orange and Telefonica. In other words - this is the industry view of how IT stacks must evolve.

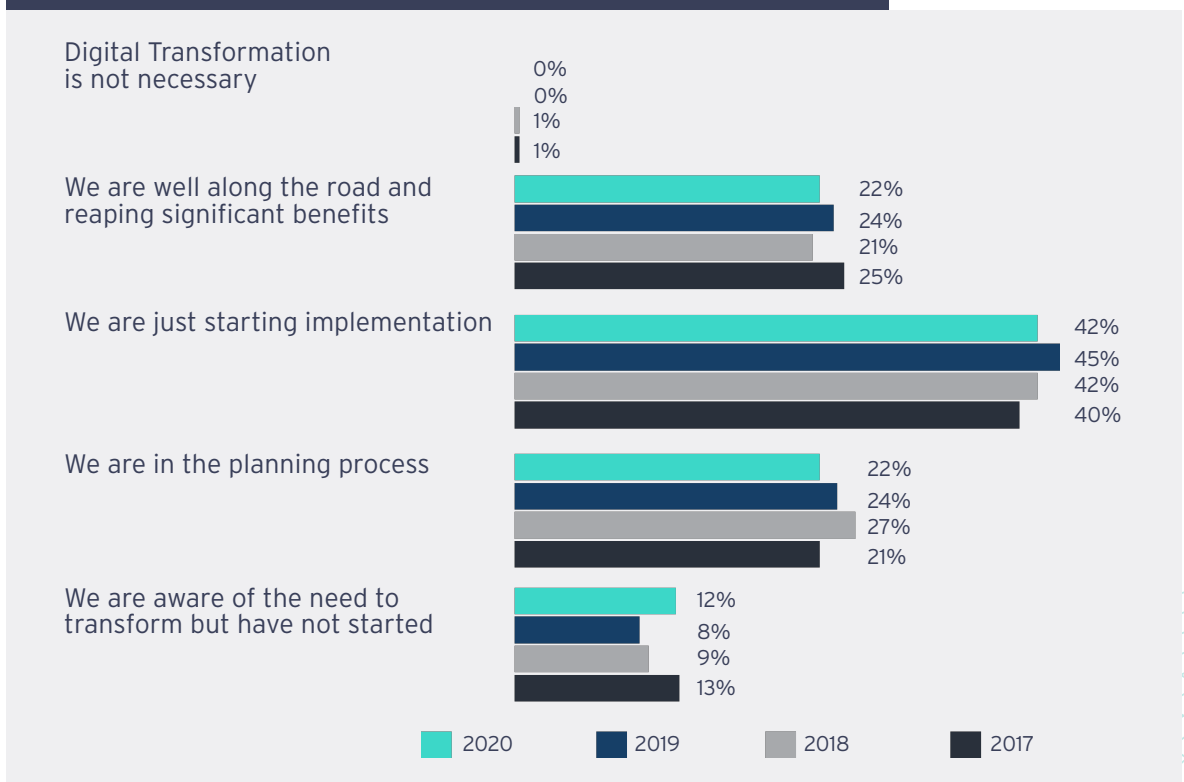


THE ROAD TO CLOUDONOMICS

However, it's worth pivoting to the results of a survey TM Forum carried out with service providers in late 2019 and early 2020, about the status of digital transformation projects. As can be seen in the Figure 6 below, nearly one quarter of service provider respondents to TM Forum's Digital Transformation Tracker survey said they are still in the planning stage of transformation, and 42% are just getting started. Ever since this survey series started in 2017 virtually all service providers have said that digital transformation is key to their business. There is clearly a large opportunity for service providers to accelerate digital transformation by running agile, digital BSS in the cloud and move to the next level of digital transformation to become a cloud-based service provider.

The agile, digital BSS underpinning a successful cloud-based service provider ensures management and monetisation for all services, in as an efficient and easy manner as possible. With 5G, service providers need to be able to take the approach that they can 'monetise anything' - and they need to be able to do it quickly and cost efficiently. Any service or related service delivery motion that can delivered using the 5G platform should be capable of being monetised by the service provider. This goes way beyond selling connectivity and charging for MBs of data.

Figure 6: Status of Digital Transformation in service providers. Source TM Forum 2020



GOOD-BYE BEFORE. HELLO CLOUDONOMICS

5G service providers have a set of aces that were not available in previous generations.

These service providers can control the quality and segmentation (or 'slicing') of the network for delivery of different types of service. With 3G and 4G there was a, perhaps cynical, view that service providers were dumb, invisible, wireless pipes for the internet companies to sell and deliver their services over.

With 5G the tables are capable of turning. Astute service providers have the potential to shift the business and technical structures from delivering 'just faster dumb pipes' to establishing '5G-as-a-platform'. This positional change would permit the service provider to establish the strongest position in the 5G value chain.

With 5G network slicing service providers can establish and monetise dynamic value-based Quality of Service (QoS) and Service Level Agreement (SLA) models for multiple use cases and value propositions mapped against single customer entities - all inside what are essentially private, dedicated 5G virtual networks. This is a game changer for service providers - particularly in the lucrative, highly varied and relatively untapped enterprise market. This is where service providers see the main 5G opportunity.

A recent study by leading telecoms analyst firm, Omdia, showed that almost 73% of service providers believe that most 5G revenues will be derived from B2B, B2B2C and Government/smart cities opportunities. This is now common knowledge in our industry, but what can service providers sell to these enterprises and, more importantly, what and how do the enterprises want to buy?

In order to find this out Cap Gemini ran a survey of over 800 industrial companies in 2019. This survey established that what enterprises want from 5G is guaranteed QoS. Many enterprises are undergoing digital transformation themselves, and 67% believe that guaranteed 5G QoS is critical for the success of this process. The good news for the telecoms industry is that the enterprises are prepared to pay for it, with 79% saying that they would expect to pay a premium for guaranteed 5G QoS.



MAKING IT ALL HAPPEN

With agile, digital cloud-based BSS, service providers can execute such scenarios themselves - quickly and easily by simply changing configuration. In fact the service providers can let their partners or B2B customers change these configuration rules as part of a partner/B2B ecosystem. 5G can deliver many, many different combinations of service scenarios. Service providers are looking to build up cloud-based partner ecosystems and marketplaces to deliver and sell any service that can be delivered over a 5G network.

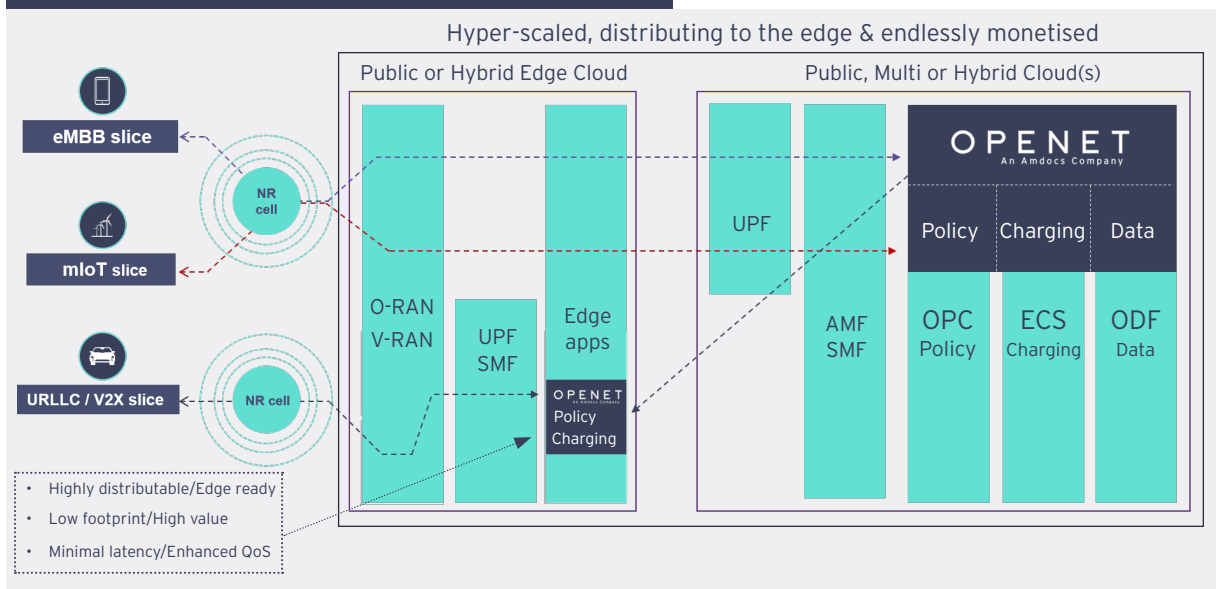
The goal for the 5G service provider is to become highly 'magnetic' and provide simple sign-up for partners whose services can be delivered with the required 'on demand' 5G platform. Only in this way can 5G become an integral success factor within enterprises and other telcoms market segments, with massive scale. These capabilities are no longer stranded logically nor physically far from the service providers' customers. Now with agile, digital BSS, the service provider simply picks from their library of microservices to construct the right combination, making it the most operable, most functional and lightest weight possible into the right slice, for the right enterprise at the right time.

Service providers can then sell these highly configurable 5G-based service models within an app-store style enterprise marketplace. Advanced policy, charging and network plus usage data intelligence rules can be used to manage QoS, network slicing, real-time usage, SLA and pricing of services, as specifically and privately as need be. Thousands of times over.

Service providers become capable of selling hugely valuable service level agreements particularly to enterprise customers. The click, purchase, deploy approach to delivering a range of 5G enabled services, comprising partner ecosystem and cloud offers, together with dynamic 5G platform configurations, places the service provider at the centre of the 5G enterprise value chain. This is about as far from that dumb pipe model as you can get.

Selling enterprise 5G services with managed QoS and SLAs enabled by network slicing is just one example how cloud-native, agile, Digital BSS will help service providers take centre stage in the 5G value chain and help define a new era of cloudonomics in telcoms.

Figure 7: Openet Agile, Digital BSS on Cloud & Edge Cloud



ABOUT OPENET:

Openet, an Amdocs company, is a leading software and services provider to communications companies. Our deep domain expertise & understanding of complex systems, underpinned by the tenacity and determination of our people, enable us to radically transform how our customers do business, providing best in class digital and 5G business support systems.

In an industry where the only constant is change, our open and innovative technology is built for change. For the last 20 years we have helped the world's most innovative communications companies manage and monetise their business and evolve from communications companies to digital service providers. This gives our customers the power to enter new markets, open new revenue streams and increase profitability.

Openet. Built for Change.

OPENET PRODUCTS:

Openet Charging:

Real-time convergent charging for digital and 5G services

Openet Policy:

Network policy control for next gen fixed, mobile and converged networks

Openet Data:

Data management, data processing and data governance solution designed to collect and manage data at 5G volumes in real-time

Openet Digital Platform:

End to end Digital BSS/OSS stack containing Openet & our partners' products

Openet Forge:

The digital enablement toolkit which contains Openet's library of microservices, upon which all Openet products are built

DELIVERING BUSINESS VALUE:

40%

Reduction in time to market for new offer creation

28%

Uplift in offer uptake

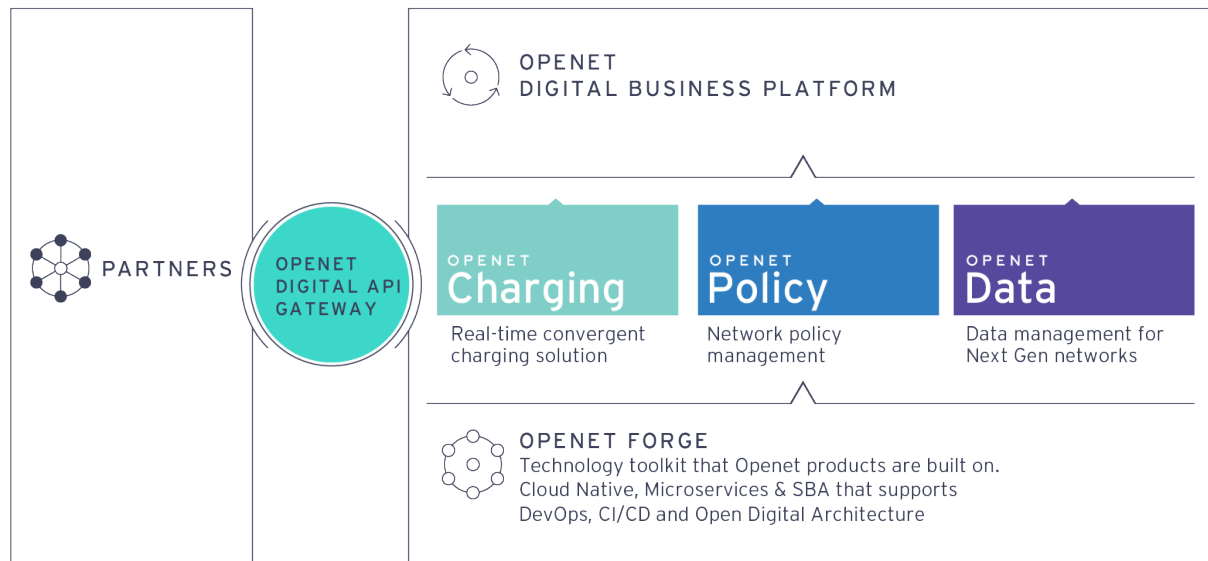
11%

Increase in mobile data ARPU

41%

Increase in mobile data revenues

OPENET PRODUCT PORTFOLIO



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