

The background of the slide is an aerial photograph of a city at dusk. On the left, there is a marina with several boats docked. A highway with light trails from cars runs along the coast. In the background, there are mountains and a city skyline with lit-up buildings. A large, semi-transparent teal circle is overlaid on the center of the image, containing the title text.

5G & the transformation to a Digital Service Provider

Communication Service Providers (CSPs) the world over are seeing a sharp decline in connectivity-based voice, data, and messaging service revenues. Studies by industry analysts indicate that voice revenues will decline sharply by 2025. Smartphone and mobile devices are witnessing dramatic enhancements along with a steep fall in costs, making access to information easier; data subscriptions with high-speed and enhanced quota are gathering steam; and 5G is being rolled out with the promise of faster mobile broadband. On top of this is the innovation driven by natively digital services and hyperscale cloud providers, which is bringing on-demand and digital experience in all walks of our life.

One of the outcomes of these changes will be a severe erosion of voice revenues. It is unlikely that CSPs will want to be caught unawares by this. CSPs are fighting back with products that are becoming more generous with unlimited voice calling, and innovative alternate voice and data services. While operators have started planning for the challenges, there are some key issues to be managed in the near-term.

A study by a leading European telecom equipment manufacturer showed that 20 CSPs had grown approximately 10% because they were able to turn the demand for data into profitable business. The rest of the operators in the study showed a growth of about 0.5% over the same period. Going by this evidence, enhancing data services is necessary, but relying on data alone may not be a viable long-term strategy either.



Data revenues too are hitting a plateau

With the growing demand for rich content, CSPs are reporting exponential growth in data traffic

and consumption. But here is the bad news: data revenue is reaching a plateau. This is because data services rate realization is coming down in terms of \$/MB. In the last three to four years alone, data tariffs have been reduced by as much as 60 to 75% in many markets. The math says the growth in demand for data will not bridge the gap left by the fall in prices. Adding 5G eMBB is going to quicken the decline rate, added with increased service performance expectation. Monetization of the 5G investment will rely heavily on providing differentiated services and industry-specific use-cases. Hence, there is an urgent need for CSPs to change their primary game from data to Digital Services for new revenue streams. Digital Services are expected to be the new growth engine. According to a leading analyst, revenues from digital services are forecasted to grow from the current ~5% to over 40% in the near-term.

The key goal for CSPs over the next few years will be to reduce dependency on voice and on plain data connectivity for revenues. Instead, they need to build a powerful suite of high-quality digital services aimed at consumers and the enterprise customers.



The safe future: Digital Services

It is evident that Voice and Video over IP will continue to grow and become a major component of Digital Services. With the launch of 5G and the impact of the pandemic, advanced collaboration services using IP voice/video/data is on the rise. Also, a number of additional service categories are trending, showing that CSPs will place their bets around services such as unified collaboration, cloud applications, edge-based services, IoT, industry applications, e-learning and so on. The good

news is that there are compelling reasons why consumers and enterprises will want to use a CSP for these services. Some of them being stability, quality, and continuity of services that a CSP guarantees. In addition, the network-exposed as-a-service will create a slew of network-aware applications and application-aware network services.

Eventually, as consumers and businesses become more reliant on using a service, their demand for higher levels of security and service experience also goes up, and this is an area that a CSP is better positioned to address.



The SAUCE for staying relevant

There is no silver bullet for the transformation from being a CSP to a DSP (digital service provider). Over several engagements with CSPs, we have developed a calibrated approach to enable this transformation. It is known that a CSP doesn't need to depend on a partner to provision fixed circuits, mobile connectivity or broadband services. However, if a customer wanted, an edge-based application service on top of the CSP's network, for example, this would pose a formidable challenge. The CSP would not be able to predict all the services that customers may want in the future. This means they need to start acquiring partners who would provision the services.

As customers gain access to services across a growing number of channels, assisted by on-demand network slicing, the DSP will need to focus on becoming **spontaneous**. In other words, analytics-driven, on-demand real-time decision-making will determine reaction and response to customer needs. This implies that

the DSP will be forced to embrace next-generation platforms to meet the demands of its customers. For example, this will need real-time order provisioning, charging & billing, and being able to get their transactions enabled in real-time in the channel of their choice. The leap to DSP requires paying close attention to the element of spontaneity through real-time data and process management.

The time to market becomes a critical factor for success. The DSP must therefore be **adaptive** and use high levels of automation for service creation and management. To ensure success, the CSP must have a complete and accurate idea of the customer's preferences and the services being used in order to automate the tasks involved in delivering the services. Today, many steps of this process are manual, prone to error, and time consuming. Automation and analytical insights make the CSP adaptive, resulting in better customer satisfaction and retention.

The other challenge that DSPs face is being **ubiquitous**. Their services must be accessible to every customer from anywhere, at any time, and over any device. With the current pandemic situation, work-from-home or work-from-anywhere adds an additional constraint to the challenge. By implication, a DSP must aim for an omni-channel experience based on customer preference. Having a multi-device and multi-locational converged service plan with necessary policies and quality-of-service is mandatory. In addition, there has to be seamless continuity of services amongst multiple devices that the customer owns. For example, a customer may be watching a movie over broadband on a tablet but the CSP is unable to move the session seamlessly to a TV screen when the customer switches devices. This happens easily in the case of the digital native providers.

The DSP must aim to be **collaborative**. By implication, this means putting in place platforms that seamlessly integrate partners and communities, creating the ability to launch

any digital service at any time. With the launch of a robust 5G network, DSPs along with their partners, can launch many digital services utilizing the network APIs, edge cloud and other 5G features. The extent of partnerships and business models could be very diverse – an individual programmer to a B2B IIoT solution provider. Doing this opens the doors to new opportunities for the CSP such as collaborating with global providers or crowdsourcing niche applications that customers may want in the future.

An **elastic** infrastructure is mandatory to provide on-demand scalability and cost efficiency for the variety and long tail of services offered. Efficient capacity planning and optimization will be central to keeping costs down. This clearly points to the need for virtualized, edge-based and cloud infrastructure in the compute, storage and network technologies, in addition to a software defined network and an efficient service orchestrator.

This could well be the **SAUCE** (Spontaneous, Collaborative, Adaptive, Ubiquitous, Elastic) for transformation. The model keeps the CSP to DSP transformation customer-focused and therefore relevant.



Building blocks to become a DSP

Traditionally, a CSP's strengths have been measured against the network and IT systems they use for mobile, Wi-Fi, DSL and cable services. The application layer above this enables a variety of Business & Operations Support Systems (B/OSS) that include order management, metering, billing, payments, trouble tickets, and customer support. However, the technology capability is not directly relevant

from the point of view of the customer. Customer needs are not directly related to the CSP's technology assets (world class or otherwise). A customer's needs are focused more on the experience and the services that they consume.

To become a DSP, one has to start from the customer experience and move downwards to the technology infrastructure. The customer experience becomes the reference for all the lifecycle stages of the customer, be it discovery, buying, provisioning, paying, changing, or any other activity. This has to be true across all channels like web, mobile app, store or contact center, all the time. Like many native digital players, the key focus of the DSP is to have differentiated customer experience by providing intelligent, intuitive, and immersive services.

Customers interact with the Service Providers to buy and consume the services they offer. Traditionally, these have been connectivity services such as voice minutes, data bytes, messages and enterprise circuits. In the new world order, a DSP will need to provide services that are enhanced by new digital services such as IoT, industry applications, collaboration, security, hosting, mobile banking, healthcare, education, smart home, smart enterprises etc., along with APIs that enable products and services to be consumed by the customers. Also, they should be launched with speed and at scale, assured of QoS and security.

Many of these services will be offered in collaboration with partners. It is therefore imperative that a partner experience platform be put in place. Alongside, there is also a need for a robust product catalog and a digital marketplace, which is able to extract basic services from the underlying network and applications and create a personalized package or an offer in real-time.

A micro-services-based open-orchestration layer ensures that the products and services are seamlessly provisioned and delivered with the least delay and human intervention. It is important that customer interaction processes

are completely reimagined with the new digital delivery model, and not just recast in a new orchestration engine. Automating and eliminating manual steps will be key to a true digital experience.

Many of these newer services are being delivered by virtual network operators and native digital providers with a focus on customer experience,

partner marketplace, and API ecosystems. These elements will help CSPs deliver outstanding customer and partner experience. With the promise of dependable and superior quality of service, and improved customer interaction (refer below figure), a DSP can encompass and at the same time, partner with VNOs and native digital players.

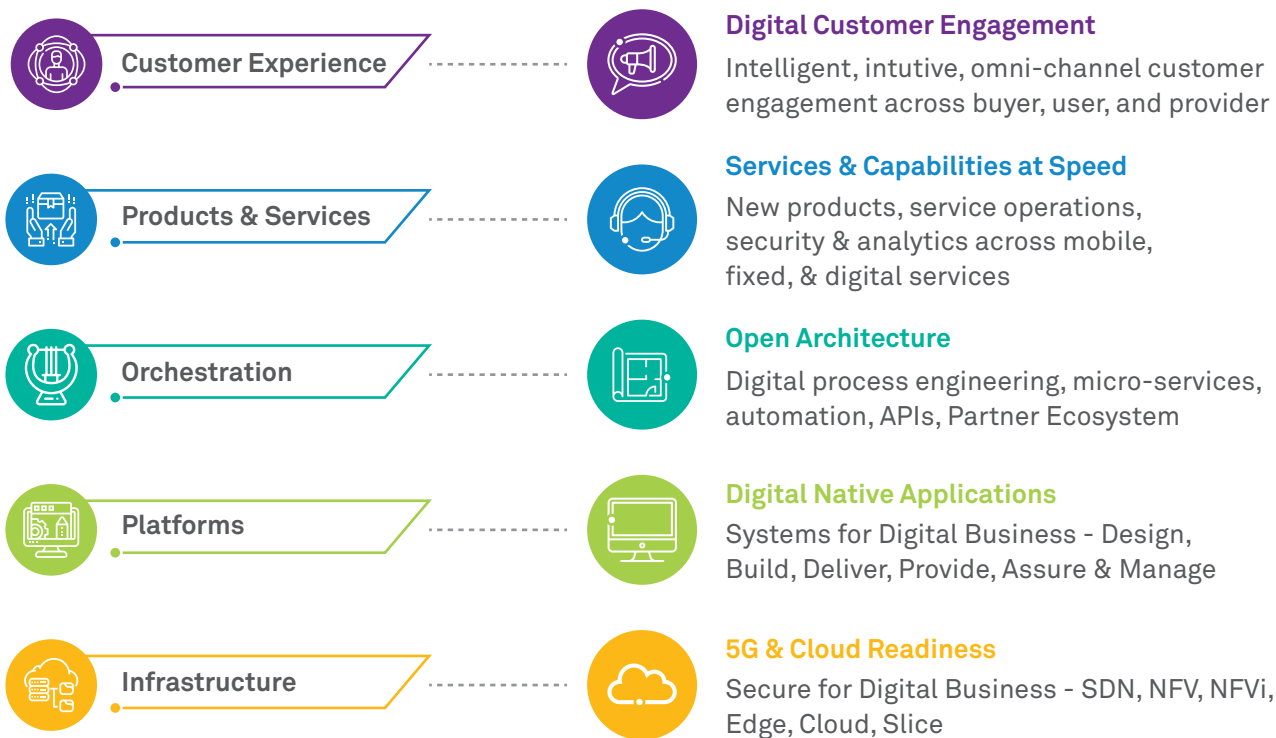


Figure 1: Wipro's DSP functional architecture overview

The central goal should be to secure exceptional customer experience using design thinking, digital competencies, and multi speed delivery.

DSPs need a transformed application stack that satisfies the above framework. This means that the traditional applications are rehased with digital delivery in mind. Essentially, they have real-time decision-making capabilities, deliver highly efficient services, have a flexible charging facility, expose microservices to the orchestration layer, and must be able to launch new services with the least number of changes. Also required are applications that deliver a

seamless customer experience. These could include the DSP's own or partner applications – delivered from public or private cloud -- for every digital service that is offered.

As the nature of the digital services being implemented and consumed will be unpredictable, the infrastructure needs to be highly scalable and programmable. The way to achieve this is by ensuring that the access & core network, and compute & storage infrastructure adopt new technologies of cloud, edge and SDN/NFV to provide a true digital

cloud. The outcome of this strategy will ensure minimal vendor / technology dependency with greater elasticity and cost-effective provisioning of services.

This is a complex task. To create a smooth transition to a DSP, CTOs and CIOs must therefore partner with a competent technology provider – one with proven domain and customer-first design capabilities.

Our own experience with CSPs in implementing their transformation journey to a DSP points to

the fact that there is no single, ready-reckoner or playbook that offers a roadmap into the future. Undoubtedly, there is an urgent need to examine the much-evident broader approach. The real difference is brought in by innovators and technology thought leaders with global domain experience and the ability to swiftly support the most unpredictable change requirement. In other words, much depends on the technology partner to bring in the troops and fight the battle all the way to victory.



About the Author

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Viswanathan Ramaswamy has over 3 decades of industry experience in the telecommunications space, ranging from R&D to project implementation to network operations. Currently, Vishy is a Vice President at Wipro and heads the 5G business globally, across industry verticals. He leads all the initiatives in 5G, including autonomous networks, network analytics, network services, edge computing solutions, network security, and industry applications of 5G. Prior to this, he had been handling technology solutions & global practice for the CSP industry, responsible for building capabilities, engaging in consulting & delivery

assignments with communications industry customers in initiatives such as digital transformation, IT/Network convergence, network modernization, SDN/NFV and so on. In his role, he participates in industry forums and events across the world and regularly meets customers and industry analysts. Before rejoining Wipro, Vishy was Senior Vice President in charge of Technology Strategy & Architecture, and CTO for B2B Business at Vodafone India. Vishy has built many technology practices and has led businesses during his industry journey spanning three decades. He holds a Master's degree in Electronics and a Bachelor's Degree in Electronics and Communication Engineering.



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