www.pipelinepub.com
Volume 19, Issue 6

The 3 Cs of Transformation: A Blueprint for Telcos

By: **Marc Price**

Telecom has struggled to achieve digital transformation. Even though some progress has been made, operators face the unfortunate reality of stagnant revenue, stifled innovation, and an inability to capitalize on network investments intended to spur new 5G services. It is a pivotal moment, as telcos will soon determine if their aspirations align with utility models or with new business creation. As outlined in A Value Machine for Modern Times, growth companies must align business systems with value generation, rather than perpetuating legacy constructs designed for obsolete services.

With so much invested in legacy technology and business processes, how to efficiently achieve transformation has been elusive. This article focuses not just on the need, but also how it can be done.

Telco origins

The network was born as hardware and business support systems (BSS) as software. Network protocols differed from those used by IT teams, and hardware design also differed widely due to divergent requirements. Always-on, resilient, low-latency networks contrasted with batch-based, bill-cycle oriented processing systems and call center functions isolated from the service itself.

The introduction of prepaid services in telecom proved a turning point. Unlike other business support systems, prepaid business logic impacted the service by determining if a customer had enough money remaining to begin a call or continue a call mid-session. These functions required network-grade reliability, speed, and performance. They were engineered in isolation from other legacy BSS, initially as “prepaid servers” and then eventually with the birth of the Online Charging System (OCS).

With the rise of data (and video) as the dominant telco service, the OCS remained a network function, isolated from other BSS—even when managed by the IT team.

A shift toward digital has telcos embracing the use of real-time charging for more than prepaid services. Factors including a more urgent need for digital services during the pandemic and the emergence of over-the-top services such as Netflix have spurred the need to coordinate seamless real-time charging and engagement at the moment of service.

However, separate calculations of real-time and end-of-cycle charges have prevented operators from representing a true cost to customers at the moment of service, as discounts, taxes, and aggregated charges are not calculated until later. Meanwhile, despite being inherently real-time, customer care is managed by back-office systems without timely access to in-service data, often leading to outdated or limited information for the customer.

As a result, the telecommunications industry finds itself with digital needs constrained by a legacy architecture. The industry is seeking to move beyond traditional divisions such as prepaid versus postpaid, or voice versus data services. 5G investments to spur new services have yet to bear fruit. A modern telco architecture is required, with new characteristics to support new business models. Fortunately, this need is recognized by key industry groups that are newly coordinating to create a blueprint and achieve its realization.

A digital dawn

With digital business process advancements in other industries and shifting demands from telco customers, there is more of a need for real-time monetization than ever before. Most telcos have yet to realize real business changes, but the seeds for transformation are being sown. Where once networks were hardware, now everything is software. While previously network and IT systems had their own protocols, now application integration is aligning on common protocols and standards. And whilethese telco silos once had very differing hardware requirements and lifecycle management tools, now each is aligning on common practices, regardless of infrastructure choices. Major industry groups responsible for network standards, telco business architecture, and open-source developer comunities are coordinating to provide an emerging blueprint for telco.

Each provides an essential pillar in the three Cs fueling this transformation, as telcos move to be *convergent, composable, and cloud native*.

Convergent

Convergence is at the heart of the changes required for a modern telco. For too long, telco architecture has embraced—or tacitly ignored—inefficient silos.

As industry analysts have recognized, for service providers to better engage with the digital economy and become digital themselves, it is essential that architectural silos are broken down and information flow between systems is seamless.

As one of the earliest pillars for change, 3GPP—which sets the telecom networking standards—introduced the concept of Converged Charging, for the 5G era and beyond, to replace separate constructs for online charging and offline charging.

The impact of Converged Charging in the new 5G architecture is fundamental: all information used to determine a price is provided in a common manner. The use of modern protocols supporting publish and subscribe best practices as in other industries encourages identification of innumerable sources of reliable data and instrumentation to derive value for services rendered.

The same components are used to calculate value regardless of the customer type (prepaid or postpaid, business or consumer), resulting in smoother interoperability for the entire infrastructure. Telefónica Germany, for example, has consolidated charging for all segments onto one real-time system, simplifying the workflows and moving to a leaner, cloud-native, and API-based architecture over its legacy systems.

Convergence enables telcos to provide real-time engagement through digital channels, for both retail and wholesale customers. No matter the business scenario, customers can get a real-time view of their services, spend, and service-level agreements.

Convergence in the network alone is not sufficient, however. To achieve the goals outlined above, changes must be propagated into the heart of business systems that have been isolated from the charging system. This brings us to the next pillar.

Composable

Through composable building blocks, telcos can remove inefficiencies from business processes and create reusable components. These software solutions—across network and IT in a modern telco—are striving toward "plug and play" solutions that reduce integration challenges, provide a modular architecture, and enable automation for real-time services and lifecycle changes.

The TM Forum launched the Open Digital Architecture (ODA) to specifically address this need.

ODA replaces traditional operations and business support systems (OSS/BSS) with a new approach to building software for the telecoms industry, opening a market for standardized, cloud-native software components, and enabling communication service providers and suppliers to invest in IT for new and differentiated services instead of maintenance and integration.

Modular components mean the elimination of monolithic systems that are slow to respond to shifting needs. Instead, architects can string together components as they are needed, solving interoperability through Open APIs. For these reasons, renewed efforts are now upon the creation and advancement of TM Forum's Open APIs, aligned with new component definitions to empower operators rolling out a new digital business architecture. Companies collaborating with TM Forum on theseinitiatives are creating a blueprint for open digital platforms, with an architecture for business agility, better operability, and improved automation. Composability and modular components enable telcos to confidently select from a broader choice of vendors, knowing that these assets will more easily integrate into a total solution. Most importantly,

recent activities have aligned network and business systems for the first time to achieve the common goals of previously isolated standards communities. Foundational to this cooperation is widespread and common adoption of the most important software innovation in recent memory, and the third pillar.

Cloud native

Cloud native applications are designed with modern architectural principles to enable elasticity and resilience under any conditions, including when deployed in a private or public cloud.

The Cloud Native Computing Foundation (CNCF) provides a community to foster these goals and spearhead open-source development projects delivering value in this ecosystem. CNCF provides objective measures and an automated test suite for cloud native applications, ensuring they are resilient, manageable, and observable, principles that are optimal for digital processes in an ever more open world.

Gartner predicts that cloud-native platforms will serve as the foundation for more than 95 percent of new digital initiatives by 2025—up from less than 40 percent in 2021.

In this new era for telecommunications, software—including networks and business solutions—is made both agile and operationally efficient through fundamental redesign enabling the deployment of new services and automation, particularly for wholesale and enterprise markets.

Service providers are in different stages of their respective cloud transformations. Capitalizing on transformation, however, requires four distinct capabilities. First, service providers must understand how to orchestrate solutions and revenue flows for diverse topologies. Second, APIs must be exposed to achieve interoperability between telco and enterprise partners alike. Third, on-demand "digital" services must be exposed in either marketplace or direct models. And finally, multi-cloud environments must support new monetization models, often involving revenue sharing and settlement among parties.

Transformation for telcos

Industry transformation is essential if the role of telco is to be secure in a digital future. Telcos will either become more like digital enterprises or will be relegated as utilities in inelastic markets. Our research shows that easy-to-understand pricing is still of great importance to consumers, who are open to switching operators for an experience more like the apps they love. Real-time engagement and monetization, with upfront availability and transparency, are critical to the digital-first experience as a whole. The work encompassed by the three Cs provides a blueprint for telcos that embrace change.

Becoming digital is a fundamental step, but it is only the first step in a journey towards new pricing paradigms to serve changing market conditions. Partner revenue sharing and outcome-based pricing are increasingly in demand for B2B and emerging B2B2X models.

Optimizing profits and minimizing costs has always been the goal of any telco that wants to survive. Cloud and 5G are now changing the role of monetization and altering what telcos need

from their business systems. The time is now for companies looking to finally benefit from digital transformation. Convergent, composable, and cloud native design principles provide guideposts for more cost-effective and dynamic system architectures underpinning the modern digital telco.