Monetizing 5G, Edge and Cloud Intelligently

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Much has already been written about the new capabilities of 5G, like low latency, massive IoT and high bandwidth, and how they will enable a new breed of applications, including Industry 4.0, autonomous driving, public safety automation and others. This horizon of opportunity will only be reached if telcos are able to bring computing power to the edge, executing artificial intelligence (AI) models where the data – often unstructured – is generated.

However, reaping the business benefit from the symbiotic combination of 5G and edge will require more than just technology. According to the Telemanagement Forum (TMF), there is a fundamental linkage between the adoption of a platform-like business and 5G success. TMF states that by combining platforms and 5G, telcos have an opportunity to move beyond providing just connectivity. They could become ecosystem curators and enablers of many different verticals.

In order to position a telco as a platform business, the company needs to digitally transform both their operating and business models as well as their business support systems. In addition, the new edge computing use cases must be monetizable. Let's take a closer look.

Applying the platform concept to 5G and edge

A platform is a business model that creates value by facilitating exchanges between two or more interdependent groups, usually consumers and producers. To make these exchanges happen at scale, platforms harness and create large, scalable networks of users and resources that can be accessed on demand. Platforms create communities and markets with network effects that allow users to interact and transact.

An effective and efficient platform business model must be characterized by three main attributes. It must be **orchestrated**, ideally following zero-touch processes to structure the business ecosystems collaboratively and seamlessly. It should be **contextual**, so that customer and partner experiences are calibrated and relevant to their specific actions and needs, in real time. It needs to be **cognitive** (AI-driven), characterized by data-enabled, self-supported learning for automatic insights and decision-making capabilities.
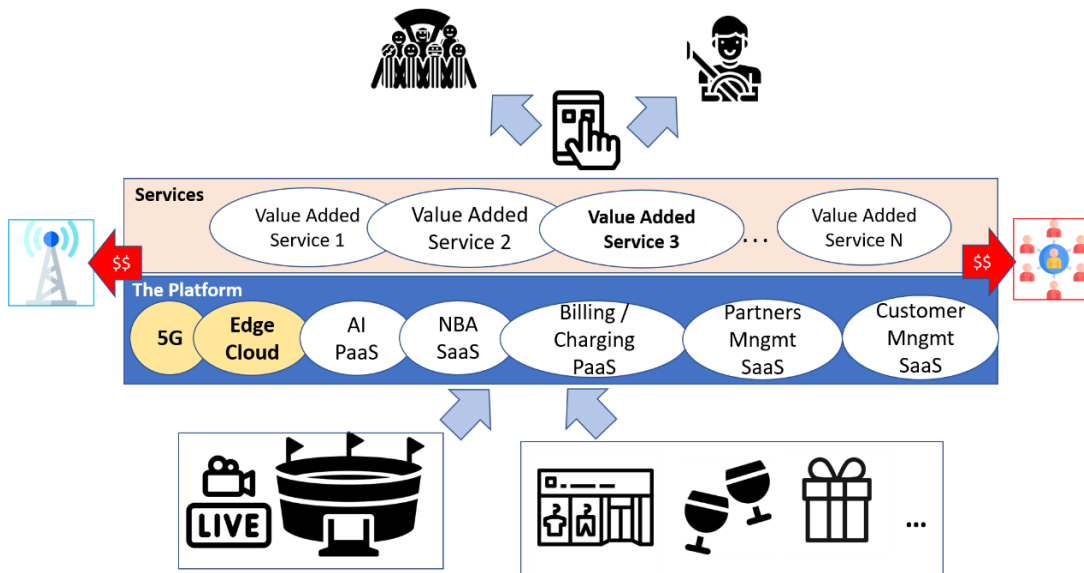

Figure 1: Smart Platform Examples

All the above implies that telcos should adopt a completely new type of business model in which the telco acts like a digital service enabler (DSE), openly exposing its in-house 5G and edge computing capabilities for the benefit of its ecosystem of partners. This would be accomplished through an open platform structuring the different actors' interactions and the associated transactions, as depicted in the following examples.

Smart Arena

In this example, the telco provides private 5G networking and edge computing (on-premise PaaS, CaaS, SaaS) to the owner of a stadium, which offers a marketplace connecting different businesses with fans. Fans will then be able to consume merchandising, order fast food, chat with other fans, and so on, triggered by real time campaigns, driven by AI analyzing the video streaming of the match and the fans' faces, to detect triggering match events and situations.

Smart Traffic Monitoring

In another example, in partnership with a municipality, the telco provides a mobile app to citizens, which allows access to video streaming from 5G-connected smart cameras located at strategic locations across a city. The aim is to monitor traffic intensity and accidents, applying machine learning-based video recognition techniques. The app provides citizens with an indication of traffic intensity and accident incidences on a city map, so that they can select a

particular camera by clicking on the associated icon on the map. This would allow them to access the selected camera's live video streaming.

In both examples, the telco could provide different portions of the services. It could focus on providing only the 5G connectivity, customer management and billing capabilities to the ecosystem. Other partners would provide the edge computing and AI capabilities, while still others could develop and provide the mobile apps (the monetizable services). The telco could also opt to expand its scope to offer all the above as an integrated vertical solution, charging according to the value perceived by the different participants in the platform.

Adopting a platform and service scope is a strategic decision and will dictate the type of capabilities telcos have to develop, as well as which ones would be brought by the platform ecosystem and the monetization models each of the players could exploit.

Transforming to support the platform business

Realizing the above examples requires building a new platform business, which will at the same time necessitate an array of new BSS capabilities.

Zero-touch partnership

Zero-touch partnership enables self-service onboarding and ecosystem management and partnering at scale with innovative companies and startups. This can create mix-and-match products, services, offers, and bundles in an instant, with all of the integration and operational complexity hidden.

Scalability

Order management scalability and flexibility will be necessary to respectively address edge computing IoT use cases requiring massive volume ordering and B2B2x complex ordering.

Open APIs

Open APIs expose the telcos' capabilities to enable the platform ecosystem and will be standardized to foster interoperability.

Catalog Innovation

Catalog-driven sophistication will be required to support complex multifaceted product and service bundles across different value chains and on-demand B2B or B2B2x offers and collaborative bundles.

Artificial Intelligence (AI)

AI will need to be applied to key BSS functional domains like AI-guided configure, price and quote (CPQ) and AI-driven exception handling automation. In addition, this will all need to take place in real time to cope with the nature of some of the new edge computing-powered use cases, new monetization models, and end-user and ecosystem experiences. Telcos could follow several approaches to implement the new BSS capabilities required to monetize the symbiotic combination of 5G and edge computing. These approaches range from incremental changes on the existing BSS—when that is possible according to the legacy system flexibility—to the complete replacement of the existing BSS by a completely new BSS stack.

The Intelligent-workflows approach

The complete replacement of the entire legacy BSS is one of the riskiest and most demanding type of projects telcos can take on. A more affordable approach could be the addition of a complementary transformational layer on top of the legacy, known as intelligent workflows. In this context, the intelligent workflows lay the foundation for how telco business is transformed to deliver greater value while remediating the legacy BSS fragmentation and rigidity.
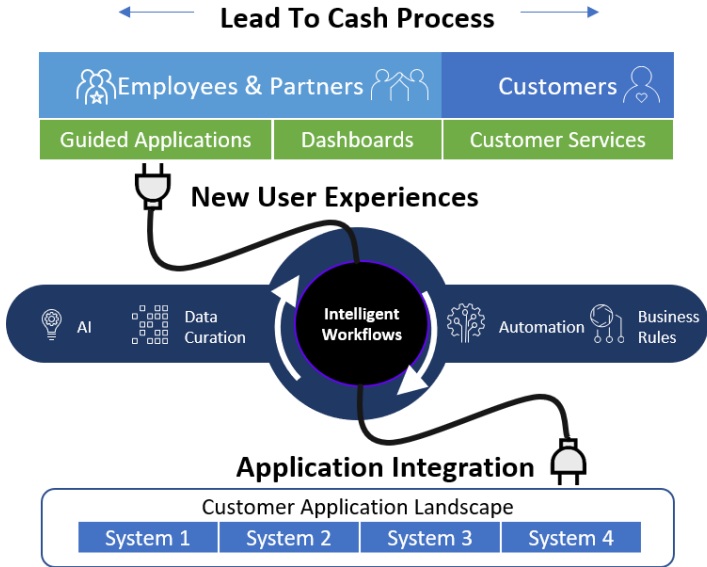

Figure 2: Intelligent Workflows

In this way the modernized telco is powered by the application and orchestration of AI, beyond traditional automation, boosting confidence and speed for smarter decision-making. Thus, for example, enhancing lead-to-cash automation with AI can fundamentally augment the telco's capability to face a new platform business model underneath emerging monetizable edge computing use cases, as is illustrated in the diagram.

Real-time, for edge

Now, let's imagine a future characterized by a B2B2x digital environment, supporting propositions for thousands of users and partners, with shared control over them through

different facets of a mobile online administration app. In a digital environment like this, the fans at the smart stadium illustrated above are constantly online, performing activities like checking stadium connectivity usage dashboards, requesting new services or sharing balances among the fan club members' digital wallets in real time. Then, telcos need to do some things differently to infuse real-time.

These include a new transactional execution paradigm, shifting from traditional memory caching and application server architectures optimized for slightly demanding latency requirements and predicable load profiles, to specialized architectures delivered as IaaS/PaaS, sometimes on the edge, for computing transaction streams characterized by extreme throughput, very low latency and increasing algebraic complexity. Another would be a real-time events visibility capability. The future BSS solution must provide real-time access to in-memory, computing-based events management platforms. Edge metering and charging will also be required. This is an enabling technology that allows collecting data, events and ultimately usage closer to the point of data generation and consumption, for the mediation or rating of that usage. This is required for billing and revenue management purposes.

Monetization models

In monetization terms, telcos can aspire to monetize the connectivity capabilities shared with their partners. They can apply network or cloud-centric pricing factors like quality of service (QoS), bandwidth (uplink and downlink), slice type and instance (SST/NSSAI) or micro-cloud IaaS, PaaS and CaaS services, provided on the edge.
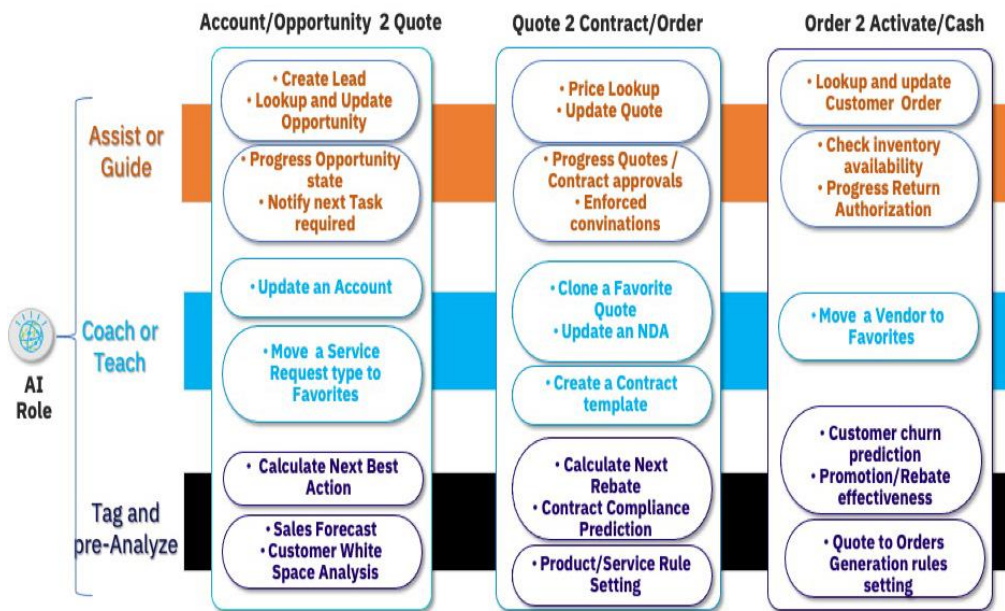

Figure 3: Application and orchestration of AI

However, telcos can also aspire to monetize the full value of each use case by charging the end users (and partners), according to value-driven concepts. Thus, in our smart traffic monitoring

example, end users can select a particular camera to access the associated video streaming, so that each specific user could be charged, in real-time, considering the time spent watching the video streaming, the resolution selected (FHD, HD, SD) and the location of the camera.

In the same example, the telco could instead charge the municipality, based on the number and location of the camera, in providing a "video traffic dashboard" service to them. Users could still access the video streaming in "freemium" mode, subsidized by real-time micro-targeted advertisements that appear in the mobile app and are charged to an advertisement agency.

A journey in front of you

Therefore, thanks to an open 5G and edge business platform in place, properly powered with new BSS capabilities, the number of monetization possibilities could be almost infinite. On such a platform, telcos could transform 5G and edge computing use cases into monetizable value-added services.

The sooner telcos start building their 5G and edge business platform, the sooner they will capture new sources of revenue by steering the required ecosystem pervasively and intelligently.