Real-time CX and the Customer-Adaptive Future of Service Charges

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The communications industry has changed drastically over the last decade, from the introduction of mobile apps to the shift toward a digital-first economy and the explosion of data that has followed it. The way communications service providers (CSPs) charge for services, however, has not evolved much over the years. Today's consumers are typically charged based on the amount of data (or minutes or text messages) they consume or pay a flat rate for unlimited plans. In the modern era of the communications industry, this model has become untenable for CSPs and consumers alike.

The challenge with consumption-based models is that they don't take into consideration the intent behind customer usage. No one purchases buckets of data for the sake of having it. Rather, it is what we do with that data and the experience of using it that is most important. A consumer using data to browse the Internet or check their email, for example, has a very different intent and expectations on network performance than a user playing an online group video game or hosting a webinar. Yet these users are all charged the same for their data connectivity and receive the same quality of service—the network's best efforts. Without consideration for how or why consumers use the network and by not factoring these differences into how consumers are charged for services, the value of the network—and ultimately service providers—has diminished greatly over time.

In the grand scheme of things, the industry's inability to deliver clear value beyond connectivity has proven itself to be a challenge that must be urgently addressed. Decreasing brand loyalty from consumers, demands for more personalized customer experiences, and increasing competition from Internet communications providers (ICPs) like Amazon, Apple, and Google means that it is now harder than ever for CSPs to keep customers engaged and keep revenue growing at a healthy rate.

With the industry now quickly approaching 200 global deployments of the 5G network and lingering uncertainty around how CSPs will monetize it, now is as good a time as ever for the industry to rethink its charging approach.

The real-time CX engine of the future

The introduction of 5G presents a unique opportunity for CSPs to begin to reframe their approach to managing the customer experience and monetizing the network. In fact, new and enhanced capabilities within the 5G network—such as new configurable network attributes—will enable CSPs to better focus on the types of experiences they deliver to their customers, while also monetizing these different experiences.

Rather than deliver best-efforts connectivity across all service types, 5G will enable CSPs to offer differentiated experiences across device types, applications, locations, and use cases while simultaneously being able to guarantee the quality of service or experience delivered. This means that CSPs could guarantee low latency for online gaming, for example, while offering best efforts connectivity for web browsing. From a charging perspective, it also means that CSPs can get more creative in how they price and charge for services—embracing more flexible charging models based on the type of service and its required quality of service or experience.

Transitioning to an experience-driven charging model rather than a consumption-based model will create new monetization opportunities for CSPs while also laying the groundwork for charging to become the real-time customer experience engine of operations in the future. This model will also enable CSPs to deliver the personalized experiences that customers demand.

The evolution toward customer-adaptive charging

Delivering a personalized customer experience is quickly becoming table stakes for the industry and is something that CSPs' ICP competitors do extremely well today. For CSPs, creating truly personalized experiences is a challenging feat to accomplish in real time, let alone at scale for tens of millions of customers. In the future, however, real-time personalization can be improved by integrating artificial intelligence (AI) with the 5G converged charging system to enable dynamic, customer-adaptive charging.

The premise behind customer-adaptive charging is that rather than rely on fixed pricing models for services—whether they are consumption-driven, experience-based, or otherwise—CSPs can personalize the tariffs charged for services to the individual user based on their behaviors and preferences. The AI would provide information about customer behavior and intent, for example, understanding the customer's usage patterns. Which services does the user consume frequently? What is the ideal quality of service they expect to receive for those services? What is their account standing—are they likely to churn soon? What is their customer lifetime value? What is the CSP's target profit margin for the service being accessed? AI can provide in-depth insight into these questions in real time and enable CSPs to make immediate decisions on the rate at which a customer is to be charged for the service being accessed.

Consider, for example, two customers playing a mobile game online. Both customers have purchased a gaming data package, which gives them ultra-fast, low latency connectivity when they play any mobile game. The standard price for the package is $5 per GB. Using customer-adaptive charging, however, the CSP can personalize the rates that each customer is charged for the package based on what is known about each of them. Perhaps the first customer is an avid gamer who frequently plays games on their mobile device and has used the gaming data package several times over the last few months. They've also recently downgraded other services on their account and have been checking out competitor pricing. To keep the customer happy, engaged, and loyal, the customer-adaptive charging system determines that the customer will be charged for the gaming data package at a discounted rate of $3 per GB.

In contrast, the second customer plays games on their mobile device occasionally and has used the gaming data package only a few times. The CSP wants to encourage them to continue gaming and even hopes that by offering a better rate for the gaming data package, they can encourage the customer to increase their gaming usage. The customer-adaptive charging system determines that the second customer should be charged for the gaming data package at a discounted rate of $4.35 per GB.

By embracing a more dynamic charging method, CSPs can improve upon the experiences their customers have using services, making them feel more valued, and creating new monetization opportunities. Additionally, as these customers use other types of services, the rate at which they will be charged will be calculated similarly based on their usage history and customer profile. The value of a customer-adaptive charging system is that the CSP can modify the algorithm that underpins the AI to ensure that they are delivering the ideal experience to their customers while also improving monetization.

Innovation through collaboration

The concept of a customer-adaptive charging system was recently explored by Oracle and other industry collaborators as a part of the 5G Chargers catalyst during this year's TM Forum Digital Transformation World. The catalyst explored how CSPs can move away from fixed pricing models and how a modular, catalog-driven architecture, a converged charging system (CCS), and AI can be implemented to personalize the customer experience in real time and at scale.

Using the principles of TM Forum's Open Digital Architecture (ODA) framework, the customer-adaptive charging system implemented in the catalyst was driven by product offering prices

defined in the product catalog. The CCS was then subscribed to notifications from the product catalog, product inventory, and service inventory so that it could extract the relevant information when needed. The product offering prices also served as a reference for the intelligent, AI-driven rating function. As new usage sessions were initiated, the charging function (CHF) sent a tariff request to the rating function, where the embedded AI selected a rate tariff for the session based on contextual information relevant to the customer such as their location, usage behaviors, account standing, and whether they had recently viewed competitor offerings. This selected tariff served to provide the unit determination and price per unit that would be used for the customer's session for as long as the tariff remained valid. Finally, the selected tariff would then be sent from the rating function to the CHF, where charges would be calculated and applied using the account balance management function.

The catalyst was [awarded](#) *Best Use of the Open Digital Framework*, and also provided a realistic blueprint for CSPs to improve experience personalization in an efficient manner. Efficient personalization will prove to be a critical component of success for the industry, particularly because the industry has yet to identify many viable 5G consumer use cases and it has not assessed the profit margins of 5G services. Being able to differentiate on pricing without cutting into profits will enable CSPs to be more competitive against ICP offerings in addition to improving customer engagement and loyalty.

The future of charging

A recent Oracle [survey](#) found that 86 percent of CSPs plan to upgrade their charging systems within the next 18 months. While much of this investment is being sparked by new charging standards defined by the 3GPP for 5G, CSPs are also hoping to address challenges like customer experience and time to market with a new charging system.

By investing in the right CCS today, however, CSPs can begin to lay the groundwork for the customer-adaptive charging of the future. Prioritizing key competencies such as convergence across 2G-5G, cloud native architectures, and alignment with key industry standards, including TM Forum Open Digital Architecture and Open APIs, are the bare minimums that CSPs should be seeking in a next-generation-ready CCS. In addition to these capabilities, they should consider the [scalability](#) of their charging system and how easily they would be able to scale to support real time tariff personalization for a large customer base and even IoT-like devices.

Equally as important is how resilient the CCS is and how it would fare in a worse-case scenario outage of a data center. Would there be any charging downtime? If so, how quick is the recovery and what is the impact on the customer experience and monetization opportunities? Perhaps most importantly, CSPs should ask themselves how adaptable their charging system is. At a time where we have more questions about 5G than answers, it's critical to consider whether their next CCS will be what helps CSPs deliver an exceptional customer experience or the thing that holds them back.