How Enterprise Digital Twin Can Help Reimagine Customer Journeys Management For Communications Service Providers (CSPs)

Abstract

The communications sector is rapidly evolving, and the emergence of technologies such as Internet of Things (IoT) and 5G is introducing new complexities into traditional customer journeys. These technologies are expected to add upto 17 billion new devices and connections to the market by 2025[1] and exponentially increase the customer experience expectations from service providers. However, the current telecom infrastructure is highly fragmented and up to 40% of all customer journeys[2] deviate from the perfect experience map. To resolve this gap and ensure seamless customer journeys, CSPs need to gain end-to-end enterprise visibility without disturbing existing operations or incurring heavy upfront transformation spends. Enterprise Digital Twin recreates a purposive model of the enterprise environment which can be used for various customer journey simulation exercises

towards business & IT bottleneck identification and driving continuous enterprise optimization powered by an AI engine.

Combined with a 360-degree enterprise context across business, IT & network infrastructure, journey simulations are correlated to real-world touchpoints, detecting deviations and suggesting corrective measures.

Introduction

The communications sector has witnessed a sea change over the last decade. Emerging technologies such as 5G and the IoT and multi-sided ecosystem play in the Business 4.0 era are continuously redefining connectivity, introducing new customer touchpoints and resulting in exponentially increasing expectations of seamless connectivity led intuitive journeys on the part of customers – consumer and enterprise alike

Typical customer journeys such as Lead to Order, Order to Activate, Trouble to Repair, and Usage to Cash are triggered when a need is identified at the customer's end and is completed when the need is resolved effectively. As customer journeys become ever more interconnected with customers buying, using and availing support for connectivity solutions on the move and practically for all verticals of life such as banking, retail, healthcare, travel etc. , CSPs need to mass customize customer journeys by analyzing data across touchpoints, proactively monitor customer journeys against possible deviations against designed experience and provide contextual assistance to minimize impacts to deviations. In addition to this, CSPs need to continuously deduce root causes of journey deviations to existing enterprise stack (business, IT & network) and continuously optimize enterprise performance to deliver seamless customer experiences.

However, CSPs aren't equipped to address these requirements in a rapidly evolving product/service landscape, where expectations are heavily influenced by digitalization in retail. Consumers are motivated by expectations derived from online shopping or lifestyle B2B applications when interacting with their telecom providers. In contrast, CSPs with the additional complexity of limited intelligent connectivity are lagging behind – while the ideal customer experience is carefully designed and established, real-world telecom journeys aren't always in sync. About 25%-40% of all customer journeys deviate from the ideal experience map, leading to lost business opportunity and low net promoter scores. Furthermore, customers struggle to access self-service modules and to personalize services, constantly having to reach out to support executives to complete their journeys

The reasons behind this discrepancy – between a well-articulated vision and a fragmented implication – is largely due to current operating models of CSPs. Telecom enterprises comprise multiple operational silos, business units, technology horizontals, and stakeholder groups who all contribute to customer journey outcomes without being aware of the end-to-

end dynamics. CSPs urgently need a solution which offers greater visibility across these silos, namely Business, IT & network operations, leveraging the existing stacks of enterprise data to improve certainty of customer journeys

Factors Impeding Visibility and Challenges Arising from Deviation

A typical telecom customer for CSPs undergoes five key stages: lead, order, activation, billing, and service assurance. At every stage, various human and automated resource groups across business, IT & network operations need to intervene in as per orchestration design to ensure seamless customer journeys. In other words, a customer journey map is simply a cumulative product of the channels, business processes, applications, and IT/network infrastructure which provide continuous support to drive successful customer journey outcomes. However, in the current telecom landscape, there is limited visibility and correlation of the performance of the above discussed components towards the success of customer journeys.

This is largely due to organizational operating blocks which are highly fragmented, working in silos without end to end visibility and awareness of their contributions towards customer journey outcomes. A customer journey deviation arising due to performance bottlenecks of one operational block, if not identified and resolved, inevitably impacts the next block thereby compounding the result of unresolved bottlenecks.

The second reason for customer journey deviations is the reactive approach to customer journey monitoring also termed as "course correction" model, instead of developing a preemptive approach. It is only after the deviation has occurred and customer experience has been dented that current operations becomes aware of the issue and attempts remediation. The latent factors causing the deviation are not addressed while immediate fixes are provided to resolve customer problems. This also has compounding effect on organizational chaos resulting from process bottlenecks and resource and infrastructure inefficiencies.

For e.g. Customer Order journey for broadband connections generally entail a technician appointment for site installation and configuration of network to complete the service activation. TCS CMI Industry Advisory Group study has found more than 25% technician appointments resulting in failure in CSPs across various geographies resulting in repeated truck roll wastage, higher mean time to connect (MTTC) and bottleneck

across operations. Additionally, root causes for such truck roll wastage are not addressed while appointments are rescheduled multiple times resulting in higher operational expenses and negative customer experience.

Thirdly, with the volatile market CSPs are operating in, budget pressures do not allow scaling up human led operations expenses towards monitoring and resolving customer journeys problems to the extent of segment of one.

These can be summed up as:

A. Problems to the customer -

- Sub-par buying experience, especially across different devices or platforms
- Limited visibility into order status, causing sizeable call/query volumes
- Delays in product delivery and service activation
- Limited usage self-monitoring capabilities, resulting in bill shocks and inaccurate charging
- Absence of timely alerts for bill payments engendering customer frustration
- Limited self-help/ guided repair to resolve usage problems
- Limited contextual proactive interventions for problem solving/ product & service upgrade

B. Problems to the enterprise -

- Limited real-time visibility of customer journeys and deviations
- Minimal to zero proactive handlings of service fallouts resulting in severe complaints
- Low first-time-right during resolution as a holistic picture of the issue is missing
- Limited contextual offers on products and services as departments function individually
- Limited simulation abilities for planning, designing and continuously optimizing operations, infrastructure and resources involved

It should be noted that customer journey monitoring and fallout management in today's complex telecom landscape is largely rule based and hence resolution deep-dives are labor intensive. Also, in the absence of automated root cause analysis (RCA) and continuous optimization, delays in resolution group identification and repetitive resolution procedures contribute to low FTR(First time right) and higher MTTR (Mean time to resolve).

This, coupled with ever-growing operating costs (at 2% per annum)[3] means that telcos are constantly having to maintain their bottom line, instead of focusing on topline value-add.

Boost Cross-Functional Visibility to Streamline Customer Journeys

CSPs must look beyond the deterministic, rule-based monitoring approach which has characterized traditional customer journey monitoring operations to compete in the Business 4.0 era. They need to look inwards, leveraging the data and resources already housed within the enterprise, to proactively find opportunities for optimization and preempt deviation risks.

It is important to note that telcos are already investing heavily in the monitoring of IT, infrastructure, and business processes – the challenge here is that each of these exists in its own silo, without seamless data exchange with the larger enterprise landscape. While integrating all of these functions may appear to be a daunting task, calling for massive upfront investments and significant business disruption, there is, however, a smarter alternative.

Organizational systems – with all its chaos and silos, can be faithfully represented in a digital format titled Enterprise Digital Twin. In this virtual environment, the ideal customer journey is mapped and trialed before being implemented in the market. Through exhaustive Enterprise Simulation, deviation risks can be identified and eliminated without disturbing any dependent process. Additionally, the Digital Twin of the enterprise would also calculate the best possible journey performance metrics by utilizing machine learning, so that organizational systems are aligned to customer journey expectations.

Why a Real-Time Deviation Analysis Powered by Enterprise Digital Twin is a Game-Changer

Enterprise Digital Twin can help CSPs looking to gain cross-functional visibility and insights across their organization to understand, design and optimize customer journeys. It envisions a simulated enterprise environment comprising three distinct blocks – infrastructure (IT, networks, physical assets), IT application stack, and business processes. Business & technical events are aggregated and ingested into the journey correlation engine for real-time correlation of customer journeys and creating a cross-functional single view across organizational blocks. Correlated customer journeys are further forward simulated and monitored using an Artificial Intelligence based hybrid decision engine. Deviations are predicted, tracked, reported and next best actions are triggered towards

corrective resolutions to minimize impact to the customer experience. Additionally, Enterprise Simulation enables simulating macro trends such as competitor actions, influence of emerging technologies and micro factors such as inventory availability, resource performance etc. and understanding whether these have an impact on current enterprise operations. Further, what-if and if-what analysis is supported powered by a self-learning controller which enables continuous optimization of the enterprise to address macro as well as micro trends impacting customer journey outcomes.

The AI based hybrid decision engine is critical to the Enterprise Digital Twin solution, as it is responsible for the following tasks:

- Journey clustering
- Journey simulation
- Journey deviation prediction
- Dynamic deviation analysis & problem auto-discovery
- Next best action recommendation

The simulated environment, or the digital twin of the enterprise, is connected to the real enterprise through amorphous interfaces across the infrastructure, IT applications and business operations blocks enabling recreating enterprise context and related customer journeys real-time as well as producing a simulation of ideal customer journeys. These ideal customer journeys (also defined as digital twin of customer journeys) are continuously measured against actual customer journeys being played out in the real world. Deviations are continuous measured, extrapolated to understand future impact and mitigated at an early stage to ensure seamless customer journeys.

Pioneering Applications and Future Pathways

We believe that CSPs can leverage Digital Twin technology to completely reimagine the monitoring of customer journeys and the deviation handling methodology. Enterprise Digital Twin is differentiated by its capability to preemptively detect deviations on purchase/usage/support pathways without disturbing existing processes or resources. TCS has successfully piloted Enterprise Digital Twin for multiple CSPs across Europe, North America and Africa. The pilot implementations which generally run up to 6 to 8 weeks have clocked above 80-85% accuracies in customer journey deviations for the order to activation process.

As the telecom sector transforms itself at a lightning speed to compete in the Business 4.0 era; emerging technologies and multi-sided ecosystems are expected to drive a 300-times increase in connection speed, introduce 17 billion new devices and connections, and increase data consumption by a 1000X index[4]. The number of customers and the complexities in journey mapping are set to rise exponentially, making it further difficult for CSPs to meet customer experience expectations of tomorrow. In this dynamic (and highly competitive) market, the negative impact of every customer journey deviation is expected to have direct impact on top-line. Currently, journey deviations – and the corresponding impact: opportunity loss, increased opex and lower net promoter score cost CSPs $50 billion globally per annum; by 2023 this is projected to reach a staggering $500 billion, highlighting the need for innovative answers.

Solutions such as Enterprise Digital Twin are integral to improving pan-enterprise visibility, fallout predictability, and customer journey alignment. Furthermore, enabled by the latest advancements in Artificial Intelligence & Enterprise Simulation and modelling, it would help in mass customizing journeys, delivering superior experiences and avoiding opportunity losses thereby improving company profitability in this very competitive landscape.

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