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Next-Generation, Microservices-based Unified Communication for Contextual Enterprise Communication

Abstract

Enterprises today are seeking to harness a wide range of advanced communication technologies in order to foster flexible, intuitive pan-organization communication, and boost employee productivity and collaboration. Unified communication (UC) has emerged as a leading enabler in this regard, integrating different real-time and asynchronous communication devices and applications that can be used successively or in tandem.

As employees increasingly opt for social and visual means of collaboration that can be accessed through their preferred devices and interfaces anytime, anywhere, UC tools, too, are evolving rapidly. This has significant implications for telecom operators in terms of offering effective and relevant UC solutions to their enterprise clients. With organizations across industries embracing the Software-as-a-Service (SaaS) and other cloud computing models for increased flexibility, scalability, and cost efficiency, telcos need to revamp their UC offerings accordingly.

Unified Communications – Getting it Right

In addition to ensuring the ease of installation and on-demand flexibility for UC offerings, telcos must keep in mind the user experience (UX). In an era of growing 'consumerization' where the digitally empowered consumer expects best-in-class, intuitive UX from websites and apps, enterprise communication tools also must deliver compelling, smooth usability. Specifically, the modern UC framework should foster seamless switching between different platforms, and let users communicate and collaborate in real time, across devices, using rich text, visuals, and speech.

Another important aspect is the security and disaster recovery dimension. As trends such as remote working and Bring Your Own Device (BYOD) gain traction, organizations want communications service providers (CSPs) to diligently monitor UC solutions for potential breaches.

So, how can telecom carriers reimagine their software architectures and processes to deliver truly differentiated, compelling unified communication services in the digital era? Let us examine the key emerging trends in the context of unified communications.

UC as a Driver for Business 4.0™

Business 4.0™ is the driver of a new digital future that marks how the confluence of technologies including artificial intelligence (AI), agile, cloud, and automation is transforming enterprises across industries. UC services that underpin new digital initiatives are delivered over reliable network infrastructure, built to cope with the higher demands of AI and cloud-based services. Here are a few scenarios where UC can help CSPs to successfully transform into Business 4.0™ enterprises:

- Next-gen contact centres aiming to enhance customer experience by providing context based communication using AI based chatbots or voicebots

- Implementing agility in different development and support processes

- Real-time communication using borderless (anywhere, anytime, any device, any access) collaboration services for contact centers and enterprises can significantly enhance the operational efficiencies of a business

- UC applications can be integrated with other applications to enable contact centres to prioritise, route, escalate, and track interactions, and use that to automate and move work through each step of a business process

Intelligence: Convergence of AI Services with UC

Artificial intelligence (AI) is increasingly making its presence felt across industries and functions. Unified communications is no exception. AI and other machine learning technologies have now matured to the extent that organizations can harness them for improving employees' ability to share and manage information. Moreover, AI can prioritize and store data, and deliver a personalized experience for subsequent communications.

One use case of AI application in the UC context is already delivering results: the borderless contact center, which enables SMEs to resolve customer queries from anywhere, any device, and any network. Introducing a cognitive layer and bot elements will further optimize this use case for machine learning led auto-resolution of basic queries. Several large organizations have started using AI to automate predictable, simple workflows that are linked to interactive voice response (IVR) and speech recognition. Similar to the various virtual assistants emerging on the consumer front, AI-based tools will increasingly prove useful in handling repetitive tasks, facilitating enterprise engagements, and delivering customized, user-centric information.

Agile: Shift to Microservices-based Software Rollout, Device-agnostic Approach, BYOD, and NVF-SDN Supported Architecture

With business agility being a key enterprise goal, communication systems must be designed in a manner that allows UC tools to be available round the clock, scale swiftly, and foster business continuity. This is where microservices can play a pivotal role in provisioning various communication functionalities in a standardized, flexible manner. Essentially, a microservices-based software architecture breaks down big, complex IT systems into a set of easily manageable,

autonomous components that individually address a specific business need. As a result, companies can design and build small, self-contained software modules that deliver on their respected mandates independently. By orchestrating small, independent processes for development of highly reusable applications, microservices can enable rapid introduction and scale-up of the same.

The other benefit of adopting microservices, which are usually based on Agile and DevOps methodologies, is that they do not necessitate recoding of current applications for feature upgrades. Thereby, organizations can pursue fast, frictionless, and cost-effective IT revamp and maintenance, unlike in the case of the traditional, inflexible, monolithic software architecture.

Cloud: Transition from Cloud-ready to Cloud-native

The conventional model of designing telecom networks for seamless communication requires a reboot, as the concept of software-defined everything and cloud ubiquity find growing acceptance among companies. In particular, network design must now incorporate a cloud-native, rather than cloud-ready, aspect. Doing so is essential for two reasons. One, rolling out cloud-native virtualized network functions (VNFs)–underpinned by an array of microservices–can allow CSPs to achieve theoretically limitless and cost-effective scale. Consequently, telecom operators can start up services more quickly, and ensure better fault isolation in case one part of a service breaks down.

The second reason for embracing the cloud-native approach is that microservices are deployed in virtualized 'containers' for maximum portability and flexibility. As compared to virtual machines, containers deliver more efficiency, by rebooting faster and minimizing service downtime. Moreover, containers scale, integrate, and back-up more swiftly and easily, thus allowing CSPs to achieve high service availability and resilience–without requiring one-to-one infrastructure redundancy.

Overall, pursuing a cloud-native strategy will enable CSPs to provision the next-generation digital services and experiences their customers expect. And, with the growing commercialization of the Internet of Things (IoT) and rollout of

video-based communication and entertainment services and applications, cloud-based architecting of the network functions is critical.

Cloud-first is fast becoming the de facto approach for enterprises, and this mindset reflects in the area of unified communications too. A number of organizations are also leveraging the cloud for email and file-storage services, and web and video conferencing. This is a secular, irreversible trend as businesses eye lower capital expenditure on IT, lower total cost of ownership (TCO) and shorter time-to-market.

With the concept of unified communications as a service (UCaaS) getting popular CSPs, must deliver an integrated, consolidated interface for, wherein companies can custom-adapt various application functions and user interfaces.

Automation: Faster Transmission of Information

In an enterprise, besides improving resolution time and efficiency, UC applications can help in automating real-time communication between various stakeholders to resolve any issues pertaining to operations, technology, and business. UC applications can be made to seamlessly integrate with contact centres, ticket management applications, and other such systems to establish collaborative issue resolution in real time. It promotes inter-team and intra-team communication for faster transmission of information through automatically generated context-based triggers, enabling the whole ecosystem to function effectively, without human intervention.

Impact of 5G on UC Applications

The impending rollout of 5G promises to usher in ultra - reliable, low-latency mobile network communication at unprecedented speeds. For telcos to fully capitalize on this significant business opportunity, they will need to harness cloud-native network function virtualization (NFV) and mobile edge computing (MEC) effectively.

CSPs can indeed make their prospective 5G networks self-healing and scalable to meet demand spikes, without compromising on operational efficiency, by leveraging the transition from custom-built to commercial off-the-shelf

(COTS). In parallel, telecom operators will however have to make sure their MEC deployments are robust enough to facilitate a high rate of data processing and low latency.

Getting Future Ready

As disruptive technologies such as cloud, AI, and mobility enable rapid upgrades in unified communication and collaboration, the next phase of evolution on this front will be to deliver contextual communication. Contextual UC tools, based on the upcoming 'always on' apps will integrate real-time user interactions with applications, capturing all relevant information with regard to users' voice, text, or video inputs. Empowered with these insights, organizations aiming to stay updated and relevant could then refine or altogether overhaul their services to ensure more compelling, collaborative user experiences.

Clearly, personalizing the user experience, while fostering a collaborative work environment, will be the primary objective of enterprise UC frameworks. Telecom operators can play a constructive, enabling role in this regard by redesigning their networks, infrastructure and software architectures to deliver what enterprises want.

The 21st century workplace is more collaborative than before, with employees expecting intuitive collaboration and communication tools at their fingertips. Continuous sharing of information through email, chat, workspaces and shared documents, requires rich UC with on-demand access to conferencing, files, and other databases.

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