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NEXT-GENERATION MEDIATION FOR IMS AND VOLTE SERVICES

A WHITE PAPER

Many of the world's leading communications service providers are in the process of transforming their business: some to become significant players in the digital and content market, and others to become more agile in response to significant competition. All these strategies require that they drive cost out of the business, in terms of network, IT and operational efficiencies. Many are looking to deploy IMS networks to streamline the network architecture for the future, whilst launching new digital services based on IMS, like VoLTE and HD Voice, in response to over the top voice and messaging platforms, such as WhatsApp and Skype.

Mediation is critical to the successful launch of IMS services. Firstly, as mobile operators race to launch VoLTE and get market share, proven integration of mediation with IMS networks is essential so that services can be billed for in trials and ultimately enable fast commercial launch.

Secondly, because mediation for IMS services is technically different to the mediation of GSM, 3G, 4G and 5G voice and data services. The mediation interface to IMS network functions is real-time, not batch or file based, and every real-time stream needs correlation, placing heavy and potentially expensive demands on legacy mediation platforms.

4G GROWTH AND EFFICIENCIES DRIVE VOLTE

The industry estimates that the number of global LTE subscriptions doubled to over 1 billion in the last year. And the fast adoption of 4G/LTE provides a large base for more IMS networks and services, like VoLTE, which run on all-IP LTE networks.

According to the GSMA, over 210 operators have launched VoLTE in 97 countries. VoLTE improves upon core network efficiencies and spectrum re-use. The GSMA predicts that as 4G devices get cheaper, uptake of VoLTE will increase.

IMS NETWORKS IS ESSENTIAL SO THAT SERVICES CAN BE BILLED FOR IN TRIALS AND ULTIMATELY ENABLE FAST COMMERCIAL LAUNCH.

IMS IS NOT ONLY ABOUT VOLTE

VoLTE is a mobile service that sits on top of an IMS network core, which is delivered over 4G/LTE networks. And similarly fixed VoIP services run on top of IMS networks too. For cable operators, PacketCable 2.0 networks run a derivative of IMS over Hybrid Fiber Coaxial (HFC) access networks.

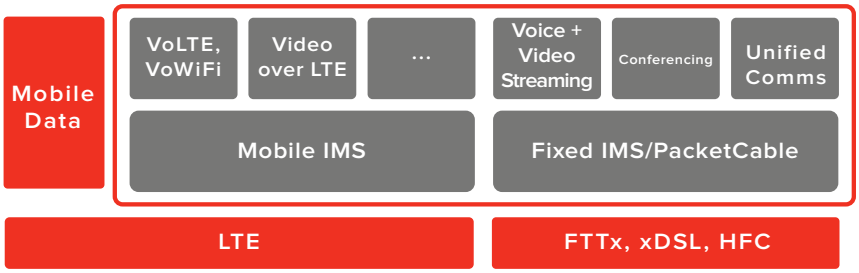
Besides VoLTE, operators around the world are rolling out additional mobile IMS services, including Voice over WiFi (also called WiFi Calling), Video over LTE (Video Calling) and Rich Communications Suite (RCS). And over fixed IMS networks, operators are launching SIP trunking, fixed voice and media streaming services.

MEDIATION FOR IMS IS CRUCIAL

VoLTE adoption will reach near-ubiquitous levels in the next few years. According to Juniper Research, the global number of VoLTE users will reach 5 billion in 2024, up from 2 billion in 2019.

CSG believes operators need to implement Strategic Enterprise Mediation, a single strategic mediation layer across the enterprise, to not only reduce capex and opex, but also enable faster service deployment and time to revenue. Therefore, as Strategic Enterprise Mediation serves all the revenue management business functions of an operator, from retail billing to settlements and wholesale business management, integrating mediation is critical for the successful launch of VoLTE and other IMS services. Not only because every billable subscriber event must come from mediation, but because mediation is also vital to non-billing functions such as customer experience management, network optimization and lawful compliance.

However, legacy mediation systems were not designed to support the challenges of IMS mediation, and consequently many operators are reviewing their mediation architectures.



MEDIATION FOR IMS IS DIFFERENT

Mediation of VoLTE and IMS services differentiates from existing mediation streams in two core areas. Firstly, the mediation interface to IMS network functions is real-time, not batch. All the network functions for IMS, like the MMTel Application Server for VoLTE, send real-time streams of Diameter events to mediation (called Offline Charging in the 3GPP standards) instead of files. The data on the Diameter interface is only held in volatile storage, so mediation must be continuously available to receive charging events, otherwise they will be lost forever.

Secondly, every real-time stream needs correlation. Unlike batch mediation streams where correlation is only typically used for long duration calls or data session, every VoLTE or IMS service must be correlated. With around three events required to create a CDR, correlation must be efficient and scalable.

Most operators consider Offline Charging to be in the mediation domain, and are looking towards Strategic Enterprise Mediation partners for help, particularly, where legacy mediation systems struggle to cost effectively support correlation at such high volumes.

EFFICIENCIES THROUGH STANDARDIZATION

In some cases, operators have deployed Network Equipment Provider (NEPs) supplied collector functions that take the real-time stream of events and generate CDR files towards the existing mediation system. However, this is an unnecessary duplication of systems especially if there are multiple suppliers of network equipment, as the collectors are ultimately limited function mediation systems. If operators use Strategic Enterprise Mediation to directly process the Diameter streams, they can launch new IMS services more quickly as all the mediation business rules are implemented in a single platform.

By only using next generation mediation for Offline Charging, operators are able to standardize on a single, cost effective platform meaning they are able to scale quickly and cost effectively.

With Strategic Enterprise Mediation it is not necessary to secure resources from different vendors, nor schedule integration testing between them. This is critical as many operators want to be first to commercially launch VoLTE and the charging rules for VoLTE are still being defined.

Using Strategic Enterprise Mediation instead of NEP-supplied collectors also avoids the overheads of maintaining additional mediation functions (training, operations, support and upgrades). Even if the NEPs bundle the collectors into the network without a license fee, there is a significant ongoing cost to running them alongside existing mediation systems.

IMS MEDIATION CAPABILITIES

A next generation mediation solution must support a number of capabilities that are vital for IMS services, including the following:

1. Fast network integration—solutions must support proven, industry-standard architectures for Offline Charging and VoLTE/IMS mediation. They need to have real-time Diameter input adapters for VoLTE and IMS network functions (like MMTel servers, CSFCs), and must support multiple network vendors

2. Cost effective scalability—every VoLTE or IMS service must be correlated so mediation must support high performance correlation which does not require any expensive third party products or databases

3. Advanced correlation—solutions need sophisticated correlation features necessary for IMS correlation, like record sequencing, sorting and nested correlation. These are required for 4G-to-3G handovers and correlation of fixed IMS voice call legs

4. Carrier grade availability—mediation must deliver continuous availability, and should be able to leverage virtualization to ensure the mediation function is always-on

5. Network function virtualization—mediation must align with the network function virtualization (NFV) architectures being deployed for IMS and VoLTE, and support deployment under NFV Infrastructure

6. Responsiveness to business—solutions must allow users to quickly change mediation rules and respond to the business as they refine how best to charge customers for VoLTE, how to settle with interconnect partners and how to enhance customer experience

7. Streamlined operations—with mediation function virtualization for IMS there is a trend towards deployments across multiple sites, so solutions must support monitoring and control across many instances, to help operators simplify operations and administration of complex mediation environments

CONCLUSION

IMS services are being quickly deployed as communication service providers are transforming their businesses, to reduce costs and drive revenues. Mediation is a critical component to successful long term IMS implementations, but not all mediation systems are ready for these challenges. Products like CSG Intermediate offer a proven, industry-standard architecture for Offline Charging and IMS mediation. And with capabilities like Diameter Portals for multi-vendor IMS network functions, high performance correlation and a unique Multi-site Orchestration console, CSG is helping operators around the world to quickly launch VoLTE and IMS services, and to scale cost effectively with multi-vendor networks.

ABOUT CSG

For more than 35 years, CSG has simplified the complexity of business, delivering innovative customer engagement solutions that help companies acquire, monetize, engage and retain customers. Operating across more than 120 countries worldwide, CSG manages billions of critical customer interactions annually, and its award-winning suite of software and services allow companies across dozens of industries to tackle their biggest business challenges and thrive in an ever-changing marketplace. CSG is the trusted partner for driving digital innovation for hundreds of leading global brands, including AT&T, Charter Communications, Comcast, DISH, Eastlink, Formula One, Maximus, MTN and Telstra.

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