



INTELLIGENT ROUTING FOR NEXT GENERATION IMS SERVICES

A WHITE PAPER



TOGETHER, YOU WIN.

INTRODUCTION

Globally communications service providers are in the process of transforming their business, some to be more agile in hyper-competitive markets and others to become significant players in the digital and content market. Regardless, all these strategies require a focus on driving cost out of the business, both in terms of network, IT and operational efficiencies.

To support these strategies many are looking to deploy IP Multimedia Subsystem (IMS) networks to streamline the network architecture for the future, whilst deploying new digital services based on IMS, like VoLTE and HD Voice, to complement over the top voice and messaging platforms, such as WhatsApp and Skype.

Intelligent Routing is vital in two areas for the successful commercialization of next generation services, including IMS.

Firstly, because Intelligent Routing shields charging and policy systems from the complexities of network evolutions, new services can be brought to market more quickly. For example, this means operators can quickly launch prepaid services for IMS, without upgrading the prepaid interface towards the network.

And secondly, because mobile operators are striving to establish roaming and wholesale agreements for services like VoLTE, Intelligent Routing is essential to expose real-time network and charging capabilities so that services can be securely and accurately billed for with partners.

ACTIONS SPEAK LOUDER THAN WORDS

In the communications industry there is a lot of hype from vendors around emerging technologies. And often that hype precedes actual investments in or implementations of a new technology. However in the case of IMS networks, every few months the number of mobile operators that have commercially launched IMS services approximately double. And Voice over LTE (VoLTE) is the most commonly launched IMS service.

According to the GSA at least 82 mobile operators have commercially launched VoLTE, and over 146 operators have announced VoLTE trials or intents to launch commercial services¹. And this list grows on a daily basis, as VoLTE is the industry evolution path for all future voice services.

¹ GSA, 2016. VoLTE, ViLTE, EVS global status. <http://gsacom.com/paper/gsa-snapshot-volte-vilte-evs-global-status/>



INTELLIGENT ROUTING IS CRUCIAL TO REVENUE

IMS services such as VoLTE are forecast to represent a significant proportion of future operator revenue streams. Juniper Research forecast that operator billed VoLTE revenues will approach \$100 billion by 2020, and represent 12 percent of the global operator billed service revenue including voice and data services².

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. Since Strategic Enterprise Mediation serves all the revenue management business functions of an operator, from retail billing to settlements and wholesale business management, an integrated approach for mediation for Intelligent Routing is critical for the successful launch of VoLTE and other IMS services. Not only because every billable retail event must come from mediation, but because Intelligent Routing is also vital for wholesale and roaming charging and customer experience management.

Historically, Diameter Signaling Controllers (DSCs) have been used to shield the network from business systems such as prepaid charging, the OCS and

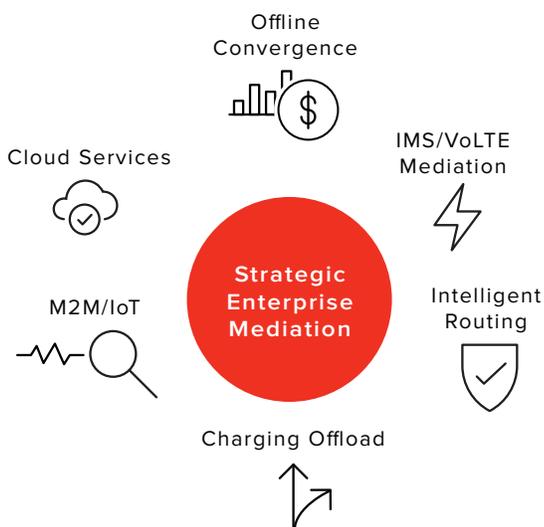
PCRF. And they are deployed to support routing, load balancing, overload protection and other functions. Additionally, Diameter Edge Agents (DEAs) are used to expose network services to other operators. They typically support a range of functions, such as topology hiding screening, transit management and Diameter policies.

However, many of the DCS and DEA systems available today are single-purpose functions, closely aligned to the network. As more functions are needed more systems are added, with an overhead of integration, operational load, and skills required to support each system.

With new IMS services like VoLTE, and the charging complexities of securely and flexibly exposing services to partners, DSC and DEA systems are being asked to support more and more complex business requirements, due to factors like fraud and competition, and shortened times to market in responding to high degrees of unpredictability.

As a mediation function, Intelligent Routing is able to offer full “IT intelligence” in terms of flexibility and responsiveness. It brings together the multiple functions required to support business operations within one integrated solution to optimize operations and costs.

To illustrate, many DSC and DEA systems support simple table-based look ups (e.g. on IP address ranges) and basic AVP manipulation (like adding vendor specific AVPs) for routing Diameter events. However, an Intelligent Routing platform can do this and much more. It can easily use cache the entire subscriber base to determine which system to perform a real-time interrogation on, transform an incoming Diameter credit request to SOAP towards a legacy prepaid charging system, and send a notification to a subscriber via SMS.



² Juniper Research, 2015. Future Voice Strategies: mVoIP, Carrier OTT, WebRTC, HD Voice & Video Calling 2015-2020. [http://www.juniperresearch.com/press/press-releases/ott-mobile-voice-revenues-to-top-\\$10bn-by-2020](http://www.juniperresearch.com/press/press-releases/ott-mobile-voice-revenues-to-top-$10bn-by-2020)

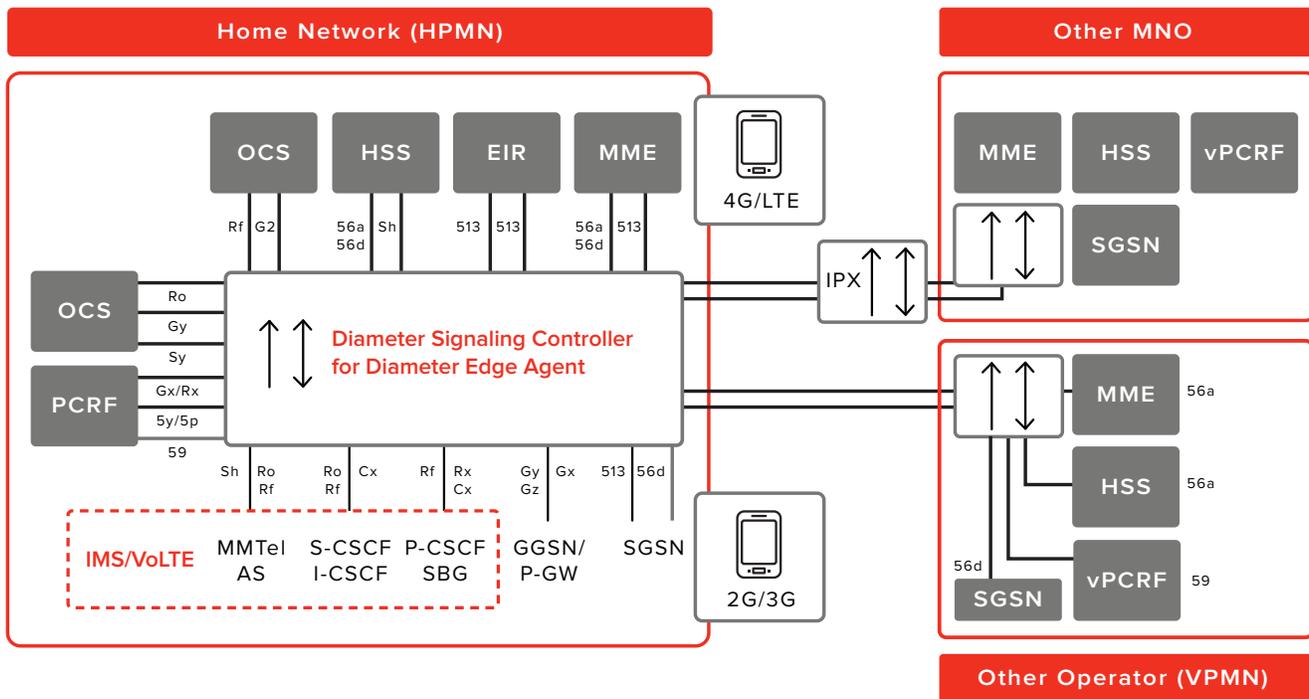


INTELLIGENT ROUTING IS DIFFERENT

Unlike many of today’s simple DSCs and DEAs, Intelligent Routing delivers greater flexibility to differentiate offerings in the market. Besides the standard DSC functionality for Diameter Agent (routing, load balancing, overload protection, etc), and besides the standard DEA functionality (topology hiding, screening, transit management, Diameter policy, etc), Intelligent Routing provides unparalleled flexibility for the latest use cases needing more intelligence:

- Dynamic Roaming Allocations – increasing the granularity of credit management on the OCS when subscribers are detected as roaming, so that subscribers are protected from bill shock and fraud is minimized
- Gy Charging Offload – reducing the volume of Gy charging requests passed to OCS for data sessions (growing in volume with smartphones and faster 4G/LTE networks) to minimize impact of growth on OCS

- First Use Re-direct – directing new subscribers, particularly for tablets and other devices, to a registration portal for activated SIMs that haven’t been used yet
- Zero Balance Offload – suppressing the Gy charging requests passed to OCS for chat services/apps (like Facebook and WhatsApp) during the period a subscriber is without balance or between top-ups to lower the load on the OCS and make significant cost savings
- Late Billing – or “Tivo for the OCS” continues providing services to subscribers, without losing revenue, when OCS outages are detected on Gy interface
- Gy to Gz – Automatic authorization of postpaid usage and creation of CDRs for offline processing. Applied to postpaid customers that don’t need real-time rating or balance controls.





CONCLUSION

IMS services are being quickly deployed as communication service providers are transforming their businesses, to reduce costs and drive revenues, particularly with partners. Intelligent Routing is a critical component to successful long term IMS implementations, but not all systems are ready for these challenges. Products like CSG Intermediate offer IT flexibility at the network edge. And with a huge library of input and output protocols for integration, unparalleled performance on cost effective platforms and a unique Multi-site Orchestration console, CSG is helping operators around the world to quickly launch VoLTE and IMS services, and to drive wholesale and international business with partners.

ABOUT CSG

CSG simplifies the complexity of business transformation in the digital age for the most respected communications, media and entertainment service providers worldwide. With over 35 years of experience, CSG delivers revenue management, customer experience and digital monetization solutions for every stage of the customer lifecycle. The company is the trusted partner driving digital transformation for leading global brands, including Arrow, AT&T, Bharti Airtel, Charter Communications, Comcast, DISH, Eastlink, iFlix, MTN, TalkTalk, Telefonica, Telstra and Verizon.

At CSG, we have one vision: flexible, seamless, limitless communications, information and content services for everyone. For more information, visit our website at csgi.com and follow us on [LinkedIn](#), [Twitter](#) and [Facebook](#).