White paper

NFV, IMS/VoLTE and WebRTC: transforming to next-generation communication services

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1 Executive summary

This white paper outlines how communications service providers (CSPs) can adopt a more strategic approach for transforming their legacy communications services to meet consumers’ need for real-time communication services that are competitively priced, enriched with advanced multimedia capabilities and, most importantly, accessible anytime, anywhere and from any connected device. In developing this white paper, Analysys Mason took a technology view of how Web Real-Time Communications (WebRTC) and IMS on a scalable network functions virtualisation (NFV) platform can foster numerous best practices for transformation. As such, it provides a next-generation communication services transformation roadmap for CSPs, to enable CSPs to provide more competitive and relevant communications services against over-the-top (OTT) service providers.

Figure 1.1 illustrates a next-generation communications transformation roadmap to enable CSPs to avoid the pains of siloed platforms by using a common, scalable NFV reference platform with a “platform-migration” NFV deployment strategy. This will enable CSPs to transform themselves into digital service providers (DSPs), the only form of service provider that will remain relevant in the rapidly emerging digital economy. This is aligned with the justification for Telefónica’s decision to absorb its Telefónica Digital business unit into the core group, “Telefónica is transforming itself into a ‘Digital Telco’, a company that will be even better placed to meet the needs of its customers and capture new revenue growth”.

WebRTC provides significant opportunities for CSPs to create new revenue streams and improve customer stickiness

WebRTC is still at an early stage in the market but has already become an integral part of many commercial web services. The main proponents of WebRTC have been Google, Mozilla and Opera, and numerous independent developers are integrating WebRTC into their communication and multimedia services and applications. With WebRTC, CSPs can also deliver additional features on top of their traditional voice and messaging services.
messaging services, including integrated voice/video calling, real-time collaboration tools such as screen share and file transfer, integration with applications (web and mobile) such as online maps, social media and enterprise apps, which provides new monetisation opportunities for these advanced communications features.

To date, CSPs have had limited engagement with WebRTC, and there have only been a few commercial deployments – such as Telenor’s Appear.in and Telstra’s WebRTC-enabled telemedicine applications, and development platform initiatives such as AT&T’s Enhanced WebRTC API, NTT Communications’ SkyWay and Telefónica’s Toxbox. However, CSPs are well positioned to provide advanced communications services that combine WebRTC’s flexibility and features with telecoms-standard quality of service (QoS) and advanced capabilities such as seamless handover between devices and networks in order to capture revenue from four key market verticals: commerce and contact centres, enterprise communication and collaboration, health care and education. Section 2.1 provides further details of these four key WebRTC opportunities for CSPs.

**VoLTE can help CSPs maximise the capacity and spectrum efficiencies of their LTE networks, as well as reduce churn and mobile voice ARPU erosion**

Voice over LTE (VoLTE) is gaining traction. As of 1Q 2015, there were 16 commercially available VoLTE services, predominantly in North America and developed areas of the Asia–Pacific region. The clearest commercial benefit of VoLTE is that it allows reuse of spectrum, as well as cost savings associated with NFV. Beyond these cost efficiencies, VoLTE can potentially help CSPs reduce churn and mobile voice ARPU erosion, where the VoLTE IMS core can deliver convergent (fixed and mobile network session handover) voice and enhanced rich communications services (RCS-e) (see Section 2.2).

**A platform-migration NFV deployment strategy can enable a best-practice, holistic, ‘process-led’ CSP next-generation communication services transformation**

A platform-migration NFV deployment strategy is an IT-like approach. The CSP defines a scalable virtualisation platform reference architecture and migrates network functions and services onto the platform over time. Migration is triggered by a combination of infrastructure and service investments but avoids the past practice of creating deployment silos – that is, it provides a holistic approach to transformation. Furthermore, NFV drives automation in operations and can facilitate process efficiencies through the use of process-led transformation. This is explained further in Section 3.

An NFV platform should be at the core of CSPs’ communications transformation strategy, as it supports process-led transformation best practices and enables an agile, cost-effective, future-proof service delivery platform. Finally, CSPs must invest in changing to a DevOps (developer-operations) culture in order to fully capitalise on the new advanced communications opportunities, which may be achieved by training, hiring and/or outsourcing these skills or parts of the development and/or operations, and may not require a complete organisational revamp.
2 To stay relevant and competitive, CSPs need to provide rich, real-time communication services

Consumers and enterprises are increasingly demanding real-time communication services that are innovative, compelling, enriched with advanced multimedia capabilities and, most importantly, accessible anytime, anywhere and from any connected device (AAA). Such services need to support a wide range of devices (smartphones, tablets, laptops and computers) and converged, multimedia-rich applications including integrated video, voice, conferencing, real-time file and screen sharing, instant messaging (IM), presence, in-call features, click-to-call and other innovative communication and collaboration features that deliver an enhanced customer experience.

Traditional communications service provider (CSP) services are rapidly becoming irrelevant to digital customers, in the face of the richer, ‘free’/low-cost experience delivered by over-the-top (OTT) and other alternative service providers such as Google, Facebook, LINE, Skype, Viber, WeChat and WhatsApp. The complexity and inflexibility of CSPs’ legacy service delivery environments and processes have led to costly operations and lagging legacy communication services. As such, CSPs are attempting to access revenues driven by richer OTT and other third-party communication applications, and accept commoditisation of their traditional voice and messaging services. As a result, CSPs’ voice and messaging revenues worldwide are forecast to decline continually between 2015 and 2019 as follows: mobile voice revenue at a –2% CAGR, mobile messaging at a –6.5% CAGR and fixed voice at a –4.4% CAGR.2

WebRTC and voice over LTE (VoLTE) represent significant opportunities for CSPs to counter this revenue erosion by staying relevant and competitive as the advanced communications market evolves, as illustrated by Figure 2.1 and Figure 2.2. Figure 2.1 provides a forecast of the growth of VoLTE subscribers worldwide to 2018, which indicates a rapid migration to IMS-enabled services. Figure 2.2 illustrates the high prevalence of WebRTC-enabled devices worldwide by 2020; this was an inhibitor to early CSP LTE adopters to deploy VoLTE and monetise their LTE infrastructure.

To capitalise on the opportunities to offer next-generation communication services based on WebRTC and VoLTE, CSPs will need to transform their systems, operations and culture to become digital service providers (DSPs), as described in Section 3. DSPs will be the only service providers that remain relevant in the new digital economy, thanks to their ability to meet the changing requirements of digital consumers by establishing NFV-enabled highly automated, customer-centric and agile operations that will underpin both traditional services and the new digital economy services. WebRTC and IMS-based advanced communications services will play an important role in CSPs’ transformation to DSPs by enabling them to augment their position in B2B2B and B2B2C value chains in various digital economy verticals, i.e. ecommerce, online marketing, m-health, online education and enterprise unified communications, through integrated, real-time communications-enabled digital services that are created and delivered in collaboration with enterprise customers, third-party service partners and application developers, as detailed in Section 2.1.

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To stay relevant and competitive, CSPs need to provide rich, real-time communication services. Figure 1 shows the growth of VoLTE subscribers worldwide from 2012 to 2018, highlighting the need for advanced services. Figure 2 illustrates the evolution of WebRTC-enabled devices worldwide by device type from 2013 to 2020, showcasing the potential for CSPs to tap into this market.

2.1 WebRTC represents a significant opportunity for CSPs to create new revenue streams and improve customer stickiness

WebRTC opens up new opportunities for CSPs to respond effectively to the increasing threats of OTT and web services through advanced personal communication services that can improve customer stickiness and increase ARPU by driving up service consumption. WebRTC eliminates the single device/network dependence of CSP communications services thanks to it being a browser-based solution that is already supported by over 1 billion end-user devices at the end of 2014 (see Figure 2.2). It helps CSPs to provide a more unified experience across the whole range of connected devices (for example smartphones, tablets, laptops, PCs and smart TVs), and networks (mobile, fixed or Wi-Fi), which is already being offered by OTT providers today. Anytime, anywhere and any device access to WebRTC services provides greater flexibility and convenience to subscribers, and ensures service continuity in the cases where there is poor/no network coverage or the primary device is offline.

WebRTC is still at an early stage in the market but has already become an integral part of many commercial web services. With WebRTC, CSPs can also deliver additional features on top of their traditional voice and messaging services, including integrated voice/video calling, real-time collaboration tools such as screen share and file transfer, integration with applications (web and mobile) such as online maps, social media and enterprise apps, which provides new monetisation opportunities for these advanced communications features.

To date, CSPs have had limited engagement with WebRTC and there have only been a few commercial deployments – such as Telenor’s Appear.in and Telstra’s WebRTC-enabled telmedicine applications, and development platform initiatives such as AT&T’s Enhanced WebRTC API, NTT Communications’ SkyWay and Telefónica’s Toxbox. However, CSPs are well positioned to provide advanced hosted unified communications services that combine WebRTC’s flexibility and innovative features with telecom-standard quality of service (QoS) and advanced capabilities such as seamless handover between devices and networks in order to capture revenue from four key market verticals: commerce and contact centres, enterprise...
communication and collaboration, health care and education. Figure 2.3 provides more information on the key WebRTC use cases in these four vertical markets that CSPs could focus on for new revenue streams.

**Figure 2.3: Overview of CSP WebRTC opportunities in various vertical markets [Source: Analysys Mason, 2015]**

<table>
<thead>
<tr>
<th>Market segment</th>
<th>Use cases</th>
<th>Market examples</th>
</tr>
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<tbody>
<tr>
<td>Commerce and contact centres</td>
<td>Pre- and post-sale B2C support at contact centres; click-to-call or in-app calling, multi-channel engagement and support for self-service features</td>
<td>Amazon’s MayDay, American Express in-app customer support, Esurance’s video appraisal through mobile application for faster claims processing</td>
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<td>Digital marketing campaigns</td>
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<td></td>
<td>Live product demonstrations</td>
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<td></td>
<td>In-store kiosks for live customer assistance</td>
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<tr>
<td>Enterprise communication and</td>
<td>Enhancement of existing unified communications; IM, voice/video calls, conference calls, email, screen share</td>
<td>Telenor’s Appear.in, ReaLync’s real estate touring with a live agent, Fluke’s mobile “see what I see” application, TakeTheInterview’s live interview recruitment tool</td>
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<tr>
<td>collaboration</td>
<td>Integration with other enterprise applications such as CRM and ERP</td>
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<td></td>
<td>Secure remote working</td>
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<tr>
<td>Health care</td>
<td>Secure platform underpinning e-health/m-health: remote diagnosis/monitoring/consultation for health-care personnel and patients</td>
<td>Telstra MyCare Manager, Craig @home (CenturyLink)</td>
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<td></td>
<td>Remote communication and collaboration between health-care professionals</td>
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<td>Wellbeing and fitness</td>
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<td></td>
<td>Training</td>
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<td>Education</td>
<td>Massive open online courses (MOOC)</td>
<td>24 sessions, ClassOnLive, Translate Your World, Inc (TYW)- Education, Cambly language tutors on-demand, CNA language school</td>
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<td></td>
<td>Academic virtual classroom and e-learning from traditional institutions</td>
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<td></td>
<td>Online tutoring/teaching marketplaces</td>
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<td></td>
<td>Real-time translation services</td>
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<tr>
<td></td>
<td>After-school learning and support for children</td>
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<td></td>
<td>Workforce training</td>
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</table>

### 2.2 VoLTE provides CSPs with an IMS foundation for advanced communications services, reducing churn and voice ARPU erosion

VoLTE is gaining traction. As of 1Q 2015, there were 16 commercially available VoLTE services, predominantly in North America and developed areas of the Asia-Pacific region, and many more are expected to develop in other markets.

Analysys Mason has built a heuristic model to highlight sensitivities in the VoLTE business case with viable solution options for three generic CSP profiles.\(^3\) The clearest commercial benefit of VoLTE is that it allows reuse of spectrum, as well as cost savings associated with NFV. Beyond these cost efficiencies, VoLTE can potentially provide considerable benefits by helping CSPs reduce churn and mobile voice ARPU erosion, but the potential benefits are currently speculative without application integrations such as in the WebRTC use cases in Figure 2.3. Spectrum reuse will drive the VoLTE business case for many mobile CSPs. For others, the benefits of NFV can mitigate the uncertainty about the commercial outlook for voice services, Figure 2.4

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\(^3\) Analysys Mason’s VoLTE business cases: the value of spectrum reuse, an enhanced feature set and virtualisation, by Glen Ragoonanan and Stephen Sale (February 2015).
provides an infographic summary of Analysys Mason’s VoLTE business case in which we offer the following main recommendations to CSPs:

- devise and implement a spectrum plan for voice services, including legacy switch-off
- quantify the benefits of ‘retaining relevance’ in communication services
- consider the improved operational and commercial viability of virtualised IMS solutions with a hosted cloud-based RCS partner solution to enable as much as 51% cost savings over five years.

Beyond these cost efficiencies, many CSPs are also focusing on how VoLTE improves customer experience, for example by offering better call quality with high-definition (HD) voice and faster call set-up time. Several CSPs are looking to invest in rich communications services (RCS) with the IMS platform to offer free enhanced calling services capabilities such as video call, in-call sharing of screen, camera and location, and file transfer (e.g. pictures, music, documents and videos). Figure 2.5 provides an overview of the main VoLTE implementation approaches and applications, and gives examples of their commercial deployments.

**Figure 2.4: Maximum return on investment (five-year internal rate of return (IRR)) for different VoLTE business cases**

[Source: Analysys Mason, 2015]

**Figure 2.5: Description of main VoLTE implementations to date**

[Source: Analysys Mason, 2015]

<table>
<thead>
<tr>
<th>VoLTE implementation</th>
<th>Rationale</th>
<th>Applications</th>
<th>Live services</th>
</tr>
</thead>
</table>
| Standard voice over LTE (VoLTE) deployment | Improve spectral efficiency and achieve any potential efficiency savings gained from consolidating the core network | • HD voice (HD device is needed)  
• Faster call setup time | AT&T HD Voice,  
H3G (Hong Kong) HD Voice facility |
| Enhanced VoLTE with rich communications services (RCS) | In addition to the cost savings in standard deployment, with RCS and MRF/MRFC, CSPs can implement VoLTE to evolve the core communications experience and increase competitiveness | • One/two-way video call  
• Conference/group calls  
• IM/presence  
• In-call sharing of screen, camera and location  
• File, music, video transfer | LG U+ Uwa,  
Verizon Advanced Calling 1.0, Vodafone Call+ |
3 Next-generation communication services
transformation roadmap for CSPs

CSPs are uncertain about investing in voice and messaging, a declining revenue stream, and the competition is getting tougher because major OTT service providers are offering advanced communications services at highly competitive price points. For CSPs, WebRTC and VoLTE represent new opportunities to reverse this trend and respond to increasing competition. However, CSPs cannot fully capitalise on these opportunities with legacy systems and operations that lack service agility and operational efficiency. To stay relevant and competitive in the new digital communications market landscape, CSPs will need to become DSPs by transforming their existing processes, systems and organisation into more agile and lean service development and execution environments that will maximise the benefits of WebRTC and VoLTE. Figure 3.1 identifies the key business and technological shifts needed for a CSP to transform into a DSP, a transformation which is underpinned by an agile, flexible software platform and organisational culture.

Figure 3.1: Key business and technological shifts needed for a CSP to transform into a DSP [Source: Analysys Mason, 2015]

<table>
<thead>
<tr>
<th>Challenges of CSPs today</th>
<th>DSP goals in future</th>
</tr>
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<tbody>
<tr>
<td>Slow, closed, complex and costly service development and delivery, leading to higher price points for basic communication services</td>
<td>Rapid advanced communication services delivery at competitive prices, with open API integration to third-party applications/partners and developers</td>
</tr>
<tr>
<td>High capex/opex to maintain and manage disparate communications networks and services silos</td>
<td>Simple, flat, all-IP infrastructure, with virtualised and consolidated networks and service platforms</td>
</tr>
<tr>
<td>High operational overhead due to inefficient manual operations and processes</td>
<td>Leaner operations with increased process automation; leading to lower opex and staff-to-customer ratio</td>
</tr>
<tr>
<td>Network-focused, hardware-driven, dedicated service platforms and processes</td>
<td>Software-driven, flexible service creation and delivery, enabling faster time to market for personalised services</td>
</tr>
</tbody>
</table>

3.1 NFV enables best-practice ‘process-led’ CSP transformation strategies

Successful CSP transformation projects require a process-led strategy that will map, assess and evaluate the CSP’s current business and operational processes in order to identify the pain points and inefficiencies which need to be addressed during the transformation. These processes must be re-engineered and streamlined in line with the CSP’s new strategic business needs, as well as tactical, technical and operational requirements such as operational excellence, support for new business models and value chains, and customer empowerment. After analysing the process inefficiencies, the technical system requirements can be defined to address these pain points in the transformation project.

Figure 3.2 provides an overview of the phased approach for CSPs to transform their legacy communications services to deliver next-generation communication services and achieve the DSP goals listed in Figure 3.1.
NFV provides CSPs with technology that facilitates a process-led transformation approach, which can improve customer and operational process efficiencies through automation and orchestration in the following ways:

- reducing service development and delivery time through enabling agile software development with faster configuration, integration, testing and rollback using virtual network functions (VNF) and service orchestration for deployment and release management of the service
- reducing service-capacity management and instant disaster recovery with software-based, policy-driven, closed-loop analytics-informed automation of scaling up/down VNFs based on customer demand, and, in the event of physical or VNF software failures, moving VNF workloads using self-healing NFV orchestration
- empowering real-time customer service personalisation through self-service portals which NFV service orchestration can (de-)activate, configure and/or enhance in milliseconds
- increasing service innovation with cloud-based communication services exposure for rapid on-boarding, integration and testing with third-party partner and developer applications, supporting new WebRTC revenue opportunities in new verticals, as described in Figure 2.2.

### 3.2 A scalable NFV platform can enable concurrent IMS and WebRTC deployments

Figure 3.3 summarises the three main NFV deployment strategies being considered, as identified by Analysys Mason primary research with CSPs, in which the platform-migration strategy has the largest number of long-term transformational benefits.
CSPs are gravitating towards the service-led approach to quickly seize the benefits of the new service launch. However, the platform-migration strategy will avoid the pitfall of recreating siloed WebRTC and IMS service delivery environments and thus reduce infrastructure and operations cost duplication.

Figure 3.4 illustrates that CSPs can implement WebRTC independent of IMS services, but will avoid the pains of silos through implementing a common, scalable NFV reference platform by using a platform-migration NFV deployment strategy.

The platform-migration strategy also aligns with CSP transformation best practice of taking a holistic approach, rather than a myopic view. Using the platform-migration deployment strategy to enable next-generation communications transformation can achieve the following benefits for CSPs:

- independent or concurrent deployments of WebRTC and IMS services, where WebRTC has strong new revenue generation opportunities as indicated in Figure 2.3, while IMS will reduce subscriber churn and traditional revenue erosion
introducing faster service independent of legacy infrastructure

- reducing the cost of deploying and managing multiple siloed platforms as well as enabling the co-existence of new and legacy services (voice and messaging), as legacy services will be migrated and enhance RCS or WebRTC using this strategy
- enabling agile cloud-based software service lifecycle management (creation, development, testing, delivery, maintaining, upgrading and managing)
- lowering capex and opex by as much as 51% using vIMS deployment and a cloud-based RCS solution by having a common NFV reference platform for developing, testing and deploying all next-generation communication services
- ultimately integrating the IMS and WebRTC services and anchoring all the session on a single IMS scalable NFV core which can enable easier, low-latency service handover
- supporting internal service and external service (with third parties) and application deployment models such as enterprise private cloud, hosted managed services for the WebRTC use cases (Figure 2.3), residential software as a service (SaaS).

As a result, a NFV platform should be at the core of CSPs’ communications transformation strategy as it supports process-led transformation best practices and enables an agile, cost-effective, future-proof next-generation communication service delivery platform.

3.3 Organisational changes are needed for a complete transformation

DevOps (developer-operations) is a software development method that stresses communication, collaboration, integration, automation and the measurement of co-operation between application/service developers and operation teams. It is underpinned by agile software development methodology and ITIL service delivery management best practices, where there is a strong interdependence between development, quality assurance and operations. DevOps targets rapidly produce high-quality, customer-centric services and improve operational efficiencies within organisations.

To capture the benefits of WebRTC and IMS services and successfully compete with OTT service providers’ advanced communication services, CSPs will need to move to a DevOps organisational culture. This will require:

- organisation-wide involvement beyond network departments such as IT, sales/marketing and customer care
- cross-functional quality assurance teams
- change to an agile software development culture for developers and operations teams, as they will be responsible for end-to-end service lifecycle management; the change to an agile software development culture can result from training, hiring and/or outsourcing
- inclusion of external developers in service development lifecycle.

The software development culture mind-set change will be the most difficult for CSPs but it is critical to compete with OTTs and capitalise on the potential opportunities of WebRTC, as shown in Figure 2.3. CSPs will need DevOps (software) skills and a DevOps culture for app/service development and exposure. Open-standard APIs will enable third-party partners and developers to facilitate service creation and increase chargeable communications traffic onto the CSPs’ next-generation communication services platform.

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4 Analysys Mason’s VoLTE business cases: the value of spectrum reuse, an enhanced feature set and virtualisation, by Glen Ragoonanan and Stephen Sale (February 2015).
4 HP’s next-generation communications solutions

CSPs’ transformation to DSPs is a long journey with many challenges along the way. It is important for CSPs to have the right transformation partners that will help them meet their business goals by providing essential tools and capabilities. As such, HP uniquely positions its products and transformation services to support CSPs in realising this transformation towards a DSP of the future. HP provides a comprehensive portfolio of Value Added Services (VAS)/Service Delivery Platforms (SDP) products and related professional services for deploying and migrating to IMS and WebRTC infrastructure and services for CSPs in its CMS (Communications and Media Solutions) division, as illustrated in Figure 4.1 below.

With the HP OpenNFV program, HP is combining its proven cloud platform, long-term technology partnerships and domain expertise in the telecoms industry to help CSPs achieve their business objectives with NFV. HP OpenNFV not only provides a complete NFV infrastructure and VNFs, but it also incorporates industry intellectual property services through a partner program for independent software vendors (ISVs), and relationships with network equipment providers (NEPs) and other applications developers. Its leading positioning in NFV products, partners and services with the OpenNFV program has led its hardware, software and prime integration services to be selected to build Telefónica’s UNICA NFV infrastructure, on which IMS will be deployed.

Figure 4.1: HP’s solution map for next-generation communications transformation [Source: HP, 2015]

HP CMS provides the following next-generation communications solutions for CSPs, which are NFV-ready and available to deploy as VNFs:

- **HP Multimedia Service Environment (MSE) WebRTC Gateway Controller**: HP MSE WebRTC GW controller enables integration between traditional CSP communication services and WebRTC endpoints to deliver new, enhanced digital WebRTC services and use cases such as click-to-call, multi-device communication services, screen sharing, video sharing, call recording, audio and video conferencing, voice mail access and unified communications.
• **HP OpenCall Media Platform (OCMP):** HP OCMP is a media server which provides 3GPP IMS MRF functionalities with new media capabilities, i.e. high-definition (HD) codecs and transcoding, to enable advanced multimedia features for VoLTE and WebRTC-based services and support legacy services. Beyond its traditional MRF functionalities, HP OCMP also provides CSPs with media management capabilities such as application content management, resource management, multi-tenancy management and reporting.

• **HP OpenCall Convergent Communication Platform (OCCP):** HP OCCP is an open, scalable Java-based telecoms application server (TAS) that enables CSPs to deploy, consolidate and orchestrate real-time applications. It provides out-of-the-box support for a variety of networks and protocols including IMS/NGN SIP and Diameter for VoLTE and data services with an extensible set of connectors, enabling CSPs to launch new converged communications services quickly and cost-effectively.

*Figure 4.2: Overview of HP’s IMS/VoLTE convergence and NFV migration solution [Source: HP, 2015]*

HP’s next-generation CSP communications solutions can deliver the following benefits to CSPs:

• **Introduce new digital services quickly and cost-efficiently:** by enabling consolidation of all legacy and next-generation voice and multimedia services to IMS and VoLTE voice/video and WebRTC on a single virtualised platform, eliminating network/service silos and reducing the cost of delivering services with NFV.

• **Deliver anytime, anywhere and any device access to services:** HP’s solutions support convergence of mobile (2G/3G/4G/IMS) and fixed (IP/TDM) networks and enable delivery of services through multiple platforms, web-browsers or mobile apps, with WebRTC integration.

• **Enrich services with new partner ecosystems:** HP provides an open, standards-based architecture and support for infrastructure and service exposure with RESTful APIs that can help CSPs foster service innovation both internally and externally with third-party partners and developer communities.

• **Mitigate the risks of NFV and VAS/SDP transformation:** HP can facilitate CSPs’ transformation to DSPs from the planning stage through to execution, by using its NFV products, partners and professional services including consulting, systems integration and managed services.
5 Conclusion

WebRTC and IMS provide a range of innovative features and have the potential to be a transformative technology that changes CSPs’ legacy communication services into next-generation, competitive, relevant communications services that are able to compete with OTT services. Moreover, WebRTC can boost CSPs’ revenue potential by bringing enhanced communications features and IMS service extensions to multiple applications in four key market verticals: commerce and contact centres, enterprise communication and collaboration, health care and education.

![Figure 5.1: Key opportunities for CSPs in WebRTC [Source: Analysys Mason, 2015]](image)

As discussed in this paper, NFV provides a transformative technology platform that can accelerate concurrent WebRTC and IMS service lifecycle management and foster numerous transformation best practices. The following are key benefits CSPs could achieve from deploying IMS and WebRTC on a scalable NFV platform:

- deploying independent or concurrent WebRTC and IMS
- introducing faster service and agile enhanced communications services lifecycle management from logical separation and co-existence of development, testing and delivery service environment on a single flexible, automated, scalable, virtualised (NFV) infrastructure
- reducing complex and costly deployment and management of multiple siloed platforms
- lowering capex and opex by as much as 51% using vIMS deployment and a cloud-based RCS solution
- supporting internal service and external service (with third parties) and application deployment models such as enterprise private cloud, hosted managed services, residential SaaS.

Finally, to fully capitalise on the new advanced communications opportunities, CSPs must invest in changing to a DevOps software-oriented culture. This can be achieved by in-house training and hiring and/or outsourcing these skills or parts of the development and/or operations, and may not require a complete organisational revamp.
About the authors

Glen Ragoonanan (Principal Analyst) is the lead analyst for Analysys Mason’s Infrastructure Solutions, Service Delivery Platforms and Software-Controlled Networking research programmes. He joined Analysys Mason in 2008 and has worked as a consultant on projects on next-generation IT and telecoms networks, systems and technologies for incumbents, new entrants, private companies, regulators and public-sector clients. His primary areas of specialisation include operations and business support systems (OSS/BSS) solution architecture and integration for business process re-engineering, business process optimisation, business continuity planning, procurement and outsourcing operations and strategies. Before joining Analysys Mason, Glen worked for Fujitsu, designing, delivering and managing integrated solutions. Glen is a Chartered Engineer and project-management professional with an MSc from Coventry University.

Gorkem Yigit (Research Analyst) is part of the Telecoms Software research team, contributing to the Service Delivery Platforms, Software-Controlled Networking, Infrastructure Solutions and Service Assurance research programmes. He started his career in the telecoms industry with a graduate role at a leading telecoms operator, before joining Analysys Mason in late 2013. He has also written an academic paper about market acceptance of cloud enterprise resource planning (ERP) software and he earned a cum laude MSc degree in Economics and Management of Innovation and Technology from Bocconi University (Milan, Italy).
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- design winning strategies that deliver measurable results
- make informed decisions based on market intelligence and analytical rigour
- develop innovative propositions to gain competitive advantage.

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Our dedicated Custom Research team undertakes specialised and bespoke projects for clients.

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