Solution overview brochure

Deploy a media resource function

HPE OpenCall Media Platform Multimedia Resource Function

Hewlett Packard Enterprise

Technical evolutions—such as moving from proprietary hardware to standard servers now followed by virtualization and NFV—change service providers' ability to provide innovative revenue-generating services while significantly reducing cost of operations. Learn how Hewlett Packard Enterprise can help, using HPE OpenCall Media Platform Multimedia Resource Function fulfills all requirements of an IMS-compliant MRF and also fits well into a New Style of IT deployment environment.

Trends

Market
- Rapid rollout of innovative services
- OTT competition

Technology
- Transformation to VoLTE
- Virtualization and NFV
- Disrupting technologies—WebRTC
- Real-time multimedia

Operations
- OPEX reduction pressure
- Agile service management
- Service and user analytics

Industry transformation

The ongoing rollout of IP Multimedia Subsystem (IMS) Long-Term Evolution (LTE)/Voice over LTE (VoLTE) networks introduces a range of new opportunities and challenges for service providers. For decades, the main revenue-generating services have been voice calls, SMS, and MMS. These services have been, to a large extent, the same—evolved through PSTN, 2G, and 3G.

The introduction of LTE, an all IP network, is destined to fundamentally change this. It enables service providers to provide high-definition audio and video services paired with other advanced user-interaction capabilities. This possibility is also open to over-the-top (OTT) providers. If real-time multimedia communication services are left to OTTs, customer loyalty is likely to move from the service provider to the OTT that provides the best user experience. One response to this is a rapid introduction of VoLTE and user services like Rich Communication Services (RCS)—using HD audio and video. **Moving to VoLTE is a revolution—not an evolution.**

On the network equipment side, the replacement of purpose-built hardware with software running on industry-standard servers is ongoing. This move enables virtualization to provide cost-efficient deployments options. Following virtualization, introduction of Network Function Virtualization (NFV) gives new possibilities to rapidly deploy and manage services in an efficient, standardized manner. While NFV will significantly reduce time to market, capital expenditures, and operating expenses, it also brings challenges in managing chains of telecom functions in an IT environment. **Moving from custom-built hardware to software and NFV is a revolution—not an evolution.**

Internet technologies are rapidly evolving and continuously changing conditions for how services are built and provided to users. One of these technologies—WebRTC—is likely to become disruptive. It brings real-time, standardized, high-quality voice and video communication capabilities natively to browsers, smartphones, and all sorts of connected devices. **Using WebRTC may turn out to be a revolution—not an evolution.**

These revolutions bring new opportunities for revenue-generating services and operational cost savings. But, with revolutionary changes, come new challenges. Stating the right requirements when selecting a network component—like the Multimedia Resource Function (MRF)—is very important.

MRF

Multimedia Resource Function is the network element that provides media functions in an IMS network.

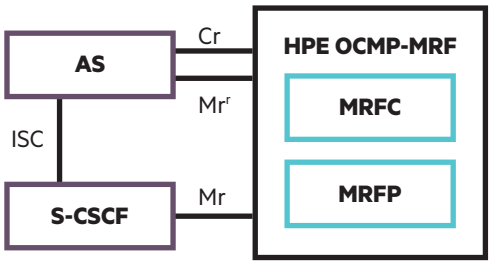

Figure 1: HPE OCMP MRF in 3GPP IMS as per TS 23.218

Service provider MRF requirements

MRF includes audio and video announcements, user interaction services, conferencing (mixing), recording, and transcoding. These core functions are largely defined by 3GPP IMS MRF specifications. Expected functionality includes efficient media processing, high availability, scalability, and manageability. Other aspects that a service provider should consider are:

Standards compliance
To ensure interoperability, an MRF must adhere to standards related to 3GPP, GSMA, IETF, W3C, and others. These standards cover core MRF use cases and new Internet-driven technologies like WebRTC.

Media adaptation
Continued market and standards evolution of new media—audio and video—capabilities require an MRF to be flexible in supporting new high-definition codecs and transcoding capabilities.

Virtualization and NFV
A modern MRF should be able to run virtualized and be deployed as a Virtual Network Function (VNF). In practice, this excludes proprietary hardware and implies running on an x86 server architecture. Not strictly required, but using a standard operating system further simplifies NFV integration.

Resource management and multitenancy
When moving from application silos to a common media server, MRF must be able to share its resources between different applications. This implies requirements for multiservice capabilities, and in some cases, multitenancy.

Reporting and statistics
When using a shared media resource, statistics and reporting become increasingly important. Detailed, per call, service, and tenant statistics should be possible. These call statistics can be used for capacity planning and user service behavior analysis, and as a basis for billing.

Legacy support
Though not strictly an MRF requirement, a media server that has flexible ways to integrate legacy solutions and protocols may significantly decrease the cost of migrating existing applications to IP IMS.

Software deployment and security
Deploying network elements as software on a standard operating system—sometimes with Internet connectivity—implies new demands related to service deployment, operations, and security.

VoiceXML certification
An MRF should be certified for W3C VoiceXML 2.0/2.1

HPE OCMP MRF supports

Audio/voice codecs
- G.711, G.722, G.723.1, G.729ab, AMR-NB/WB, EVRC, ADPCM, GSM 06.10, G.726, Opus, EVS

Video codecs
- MPEG4, H.263, H.264, VP8

File containers
- 3gp, 3g2, Wav, WebM, MP3, raw

Interfaces
- SIP on UDP/TCP or SCTP
- RTP/RTCP, SRTP/SRTCP
- STUN, TUN as per RFC 5245 (ICE-Lite)
- MRCP v1/v2 (for ASR/TTS)
- IPv4/v6

Standards
HPE OCMP MRF supports a wide range of standards from 3GPP, GSMA, IETF, and W3C. Examples include:
- VoLTE, GSMA IR.92, and IR.94
- 3GPP TS 23.002
- 3GPP TS 23.008
- 3GPP TS 23.218
- W3C VoiceXML 2.0/2.1
- IETF RFC 3261

The answer—HPE OCMP MRF

HPE OpenCall Media Platform (OCMP) MRF fulfills the roll of a media service, meeting and exceeding all requirements of a modern MRF. It's inherent software runs on an open operating system (Linux®), and can be deployed on industry standard servers, virtualized, and in an NFV architecture.

Product overview architecture

HPE OCMP MRF has a modular design that enables efficient flexible scaling from a few servers (or virtual machines) to a large, high-availability cluster supporting tens of thousands of ports.

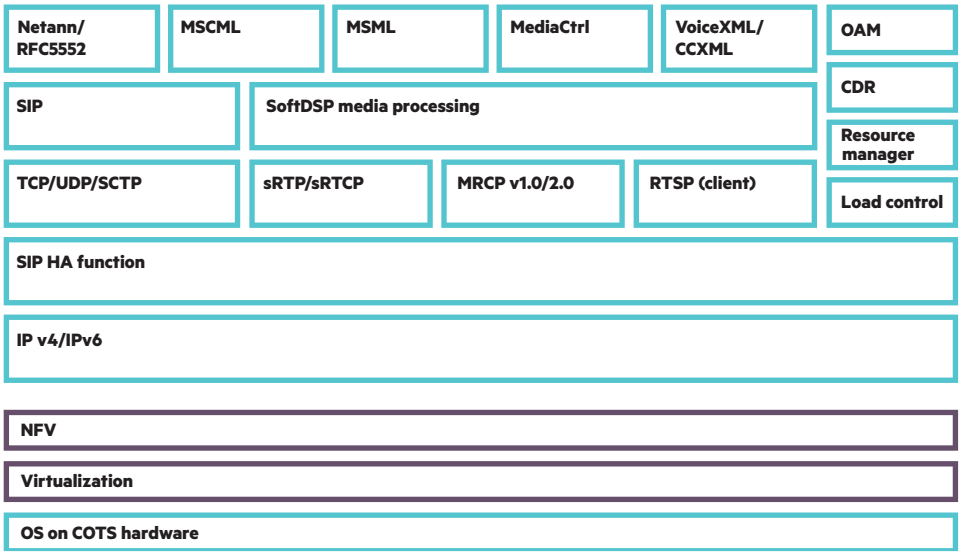

Figure 2: HPE OCMP MRF software components

Media processing

All HPE OCMP MRF media processing is done using efficient software-based signal processing. The code is highly optimized, yet well suited to run virtualized. Sophisticated mechanisms for CPU allocation, caching, interrupt prevention, and load control are inherent parts of the design. Media operations include play, record, mix (conference), and transcode of video and audio. For video processing, HPE OCMP MRF uses advanced algorithms to automatically adapt between different video streams. Features include video codec conversion, resolution adaptions, and frame- and bit-rate adaption.

Application and control interfaces

HPE OCMP MRF supports all IMS MRF-mandated control protocols (Mr):
- Netann (RFC 4240)
- RFC 5552 (SIP Interface to VoiceXML Media Services)
- MediaCtrl (RFC 6230, 6231, 6605)

HPE OCMP also supports most legacy IP media server control protocols:
- MSCML (RFC 5022)
- MSML (RFC 5707)

For advanced and flexible user interaction functionality, HPE OCMP MRF has a certified VoiceXML 2.0/2.1 browser.

OAM
HPE OCMP MRF supports SNMP, managed through a web-based graphic user interface or command line interface. There are also extensive logs and call detailed record (CDR) capabilities.

Deployment and virtualization
HPE OCMP MRF can be deployed on:

- HPE ProLiant x86 rack mount or blade servers
- Virtual machines using standard virtualization technologies

The MRF definition extended

To ease platform operations, network integration, and application migration, HPE OCMP MRF extends the MRF definition by adding supportive software functions and subsystems.

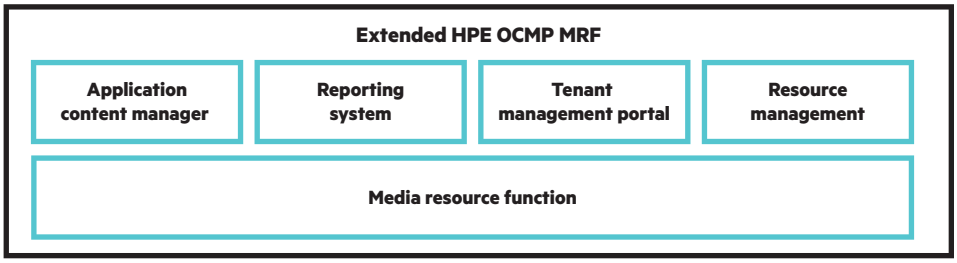

Figure 3: The extended MRF

Content management
An MRF traditionally manages audio and video prompts by using shared file system access or by uploading files. Now, with a consolidated media server supporting multiple applications in multiple versions—and maybe multiple languages, application content can become hard to manage. To solve this, HPE OCMP MRF provides the Application Content Manager (ACM) subsystem. The ACM enables efficient, multitenant management and version control of all MRF content, including prompts, scripts, and grammars for automated speech recognition.

Resource management
Resource management of HPE OCMP MRF includes assigning resources to different applications or groups of applications. Resources can be reserved and/or shared. Shortage notifications (alarms) can be sent based on configurable (almost full/full) thresholds. Monitoring resource utilization is key to making efficient use of common resources.

Extensive reporting
By using the reporting system (RS), CDRs generated by HPE OCMP MRF can be stored and managed. Each CDR contains basic call information and details about the progress of each call, such as timing, prompts played, and more. With all CDRs available in a database, RS can generate a variety of reports, for example, platform use, service use, and call flow details of specific calls.

Multitenancy
The resource management function and reporting system have multitenant capabilities, enabling resources and reporting to be split in a way that services or groups of services can be managed separately. To provide secure access to these capabilities, the tenant management portal is used.

Migration and legacy support

In addition to supporting core VoLTE IMS MRF protocol specifications, HPE OCMP MRF also provides extensive support for legacy networks and applications. These capabilities greatly simplify transitions of existing applications to IMS. Examples include:

- IMS/VoLTE Adapter function simplifies migration from TDM service node deployments to an IMS architecture with a minimum of application change
- Support for SIP-I (ITU Q.1912.5)
- Support of IN/SRF protocols INAP and CAMEL—including running SRF with SIP connectivity
- Support of ISUP signaling over SIGTRAN

NFV deployment

Through its virtualization support, HPE OCMP MRF fulfills the requirements needed to be deployed as an VNF in an NFV environment.

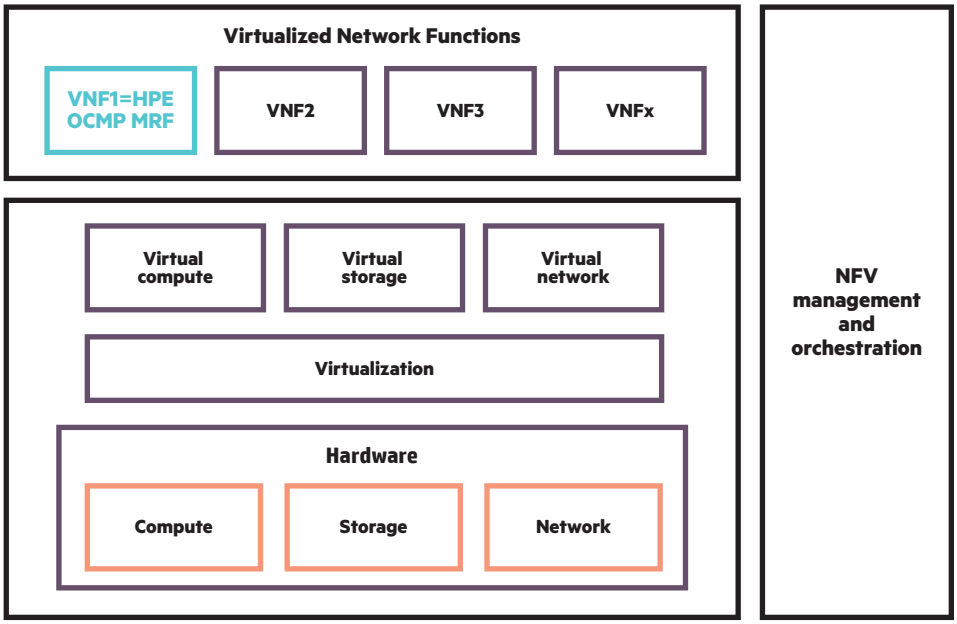

Figure 4: HPE OCMP MRF as a VNF in the ETSI NFV reference model

The HPE OCMP MRF NFV implementation has demonstrated advanced NFV operational use cases such as management through an NFV Manager, and manual and automatic elasticity scenarios (scale out/in), without service interruption.

Security

HPE OCMP MRF runs on a standard 64 bit Linux distribution (RedHat®). The OS configuration is done using a hardened profile that, for example, blocks unused ports and ensures proper user and password management. CIS-CAT assessment tools ensure appropriate security.

HPE CATA security review is used to ensure security requirements for compliance to leading industry standards including PCI DSS, ISO27001, and NIST 800-53.

The HPE OCMP MRF advantage

HPE OCMP MRF is part of a family of products from HPE Communications and Media Solutions (CMS). The complete CMS portfolio comprises a rich set of products, solutions, and services that covers a broad range of service provider needs.

In particular, HPE OCMP MRF can be complemented with the HPE Multimedia Services Environment (MSE) offering. HPE MSE provides a framework for integration with contact centers, backend systems, charging systems, and other systems needed for multimedia applications and value-added services consolidation.

HPE MSE also includes possibilities for API management and full WebRTC enablement through its WebRTC Gateway Controller, which, when combined with HPE OCMP MRF, provides an end-to-end solution for WebRTC enablement.

Your requirements fulfilled

Disruptive technologies are changing the landscape. This brings a number of new opportunities to provide new revenue-generating services and brings new possibilities to deploy and operate the network infrastructure equipment.

In most cases, a basic MRF is not enough. While HPE OCMP MRF fulfills all requirements that can be expected from an IMS/VoLTE-compliant MRF, it also provides a range of extended MRF functionalities that will ensure successful and rapid deployment and operations. HPE OCMP MRF is ready for virtualization and NFV, IMS and VoLTE, and WebRTC.

Learn more at
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