3GPP standard compliance

First development of Cr interface for MRF equipment

The 3GPP standard

The 3rd Generation Partnership Project (3GPP) standards body developed IMS to facilitate converged IP-based services, while providing a migration from mobile GSM to 4G/LTE networks.

The objective was to enable mobile operators to deliver next generation services to any device and across any access network—essentially services to everyone, everywhere. The standard also promotes cost-effective infrastructure by ensuring components are compatible and interoperable, regardless of the manufacturer.

Media Resource Function

Within the 3GPP standards, a role has been clearly defined for the Media Resource Function (MRF) to provide real-time IP media processing functions such as media play, record, collect digits and mix audio/video against IP media streams.

The MRF is an important and powerful IMS network element, however it requires command and control by other elements in the IMS architecture, such as application servers (AS) or call state control functions (CSCFs). Session Initiation Protocol (SIP) is the predominant standard for controlling MRF equipment in an IMS architecture.

When a value-added service, enhanced service, or more complex call processing is required, the CSCF will hand-off call control to an AS, which would use the Mr' (SIP) interface along with the Cr interface (Media Control Channel Framework – CFW*) to control the MRF in order to create the desired service. Such services include: ringback tones, multimedia streaming, multimedia conferencing. In addition to basic SIP, media control requests are defined by the Cr interface between AS and MRF.

R Systems development of Cr interface implementation

Part of a project for the development of a call control system and integration with online charging system, the client requested the implementation of Media Control Channel Framework using SIP, SDP and new channel protocol - CFW. The development of this framework was planned to future-proof the system in view of future IMS version releases.

R Systems developed the Cr interface which is unprecedented on the market. The interface can be used for establishing TCP/SCTP channels between MRFC and IMS AS for SIP and HTTP communication between MRFC and CCS/OCS. The MRFC would fetch documents from IMS RS/CCS via given interface (e.g. scripts, announcement files, and other resources), which is also used for media control related commands.

CapEx and operational savings

IMS is designed such that multiple AS elements can all use and share a single (or small number) of MRF nodes in a network.

This reuse of MRF resources across dozens of applications drives the CapEx and operational savings in an IMS architecture.

- Companies owning an MRF equipment
- MRF vendors for compliance with the 3GPP standard
- System integrators integrating such systems for client operators

*RFC 6230 (Media Control Channel Framework), RFC 7058 (Media Control Channel Framework (CFW) Call)