Dialogic

Dialogic® PowerMedia™ XMS

Message Session Relay Protocol Feature Guide

October 2014   2.0

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Table of Contents

Revision History

Revision	Release Date	Notes
2.0	October 2014	Updates to support PowerMedia XMS Release 2.3.
1.0	July 2014	Initial version of this document.
Last modified: October 2014		

Refer to www.dialogic.com for product updates and for information about support policies, warranty information, and service offerings.

1. Overview

Dialogic® PowerMedia™ Extended Media Server (also referred to herein as "PowerMedia XMS" or "XMS") supports session-oriented instant messaging protocol called Message Session Relay Protocol (MSRP). These sessions are used to provide peer-to-peer file or text transfer, photo sharing, or chat services, and can be negotiated with an offer or answer model using the Session Description Protocol (SDP). The exchange is carried over a Session Initiation Protocol (SIP) signaling protocol. This feature allows PowerMedia XMS to offer a messaging session as one of the possible media-types in a session dialog.

MSRP Capabilities

MSRP uses a connection-based transport called Transmission Control Protocol (TCP) to transport messages or files. This feature enables PowerMedia XMS to create MSRP connections and sessions that deliver arbitrary (binary) MIME content payloads. Some content can include plain text, images, video clips, and binary file transfers over peer-to-peer TCP connections.

MSRP can also assist applications that wish to use PowerMedia XMS for Short Message Services (SMS) and Voice Mail Delivery Services in Next Generation Networks that utilize IP Multimedia System (IMS) Core Network infrastructure.

MSRP protocol works by separating messages or files into chunks and sequencing the end to end transfer. MSRP has mechanisms to handle chunk by chunk acknowledgements and retransmissions to assure that data is transferred successfully.

PowerMedia XMS supports establishment of MSRP peer-to-peer instant messaging sessions with the RESTful API. MSRP session file transfer is supported by MSML and the RESTful API.

For more information, refer to the *Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide* and *Dialogic® PowerMedia™ XMS RESTful API User's Guide*.

2. Using Message Session Relay Protocol (MSRP)

Message Flow

Figure 1 shows the basic message flow between PowerMedia XMS and a remote MSRP endpoint. The message flow results in the creation of a TCP connection and a MSRP session. A SIP dialog is initially established with the remote MSRP endpoint to negotiate session characteristics and create a TCP connection between the two entities (steps 1-3). In this example, the message or file is rather long and must be divided or chunked.

Note: The chunks are sent in sequential order without having to wait for a response from the remote end.

Once the message has been successfully sent and acknowledged (step 7), the session is terminated and the connection may be dropped if no other sessions are active (steps 8-9).

Figure 1: Basic MSRP Message Flow
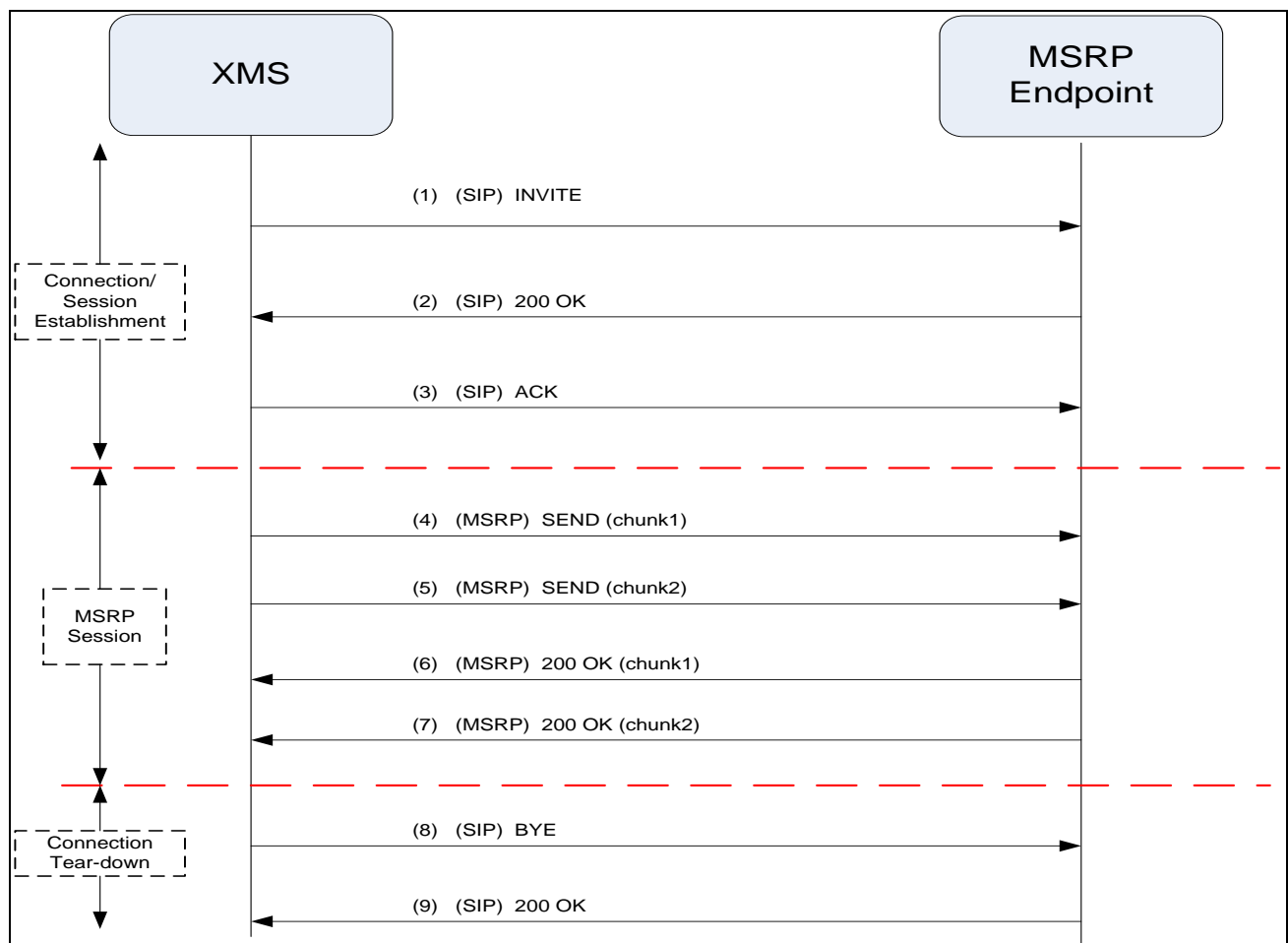
Example 1. Script File Transfer

```
<msml version="1.1">
 <dialogstart name="12345" target="conn:f18ae5d8-77c9892-13c4-50022-1ab2-2ba2849-1ab2"
 type="application/moml+xml">
  <transfer id="transfer">
    <fileobj append="false" contenttype="audio/amr" delete="true" dest="xmsrp://?
offerer=sip:msml@146.152.124.7;answerer=sip:msml@146.152.124.25;
file=/testing/mxm/recordings/RECORD VMD4 1.amr" objid="transfer"
src="file:///testing/mxml/recordings/RECORD_VMD4_1.amr"/>
      <transferobjdone>
        <send event="transfer.objectdone" namelist="transfer.objid transfer.duration"
        target="source"/>
      </transferobjdone>
      <transferstart/>
      <transferexit>
        <send event="TransferEnd" namelist="transfer.duration transfer.end" target="source"/>
      </transferexit>
    </transfer>
  </dialogstart>
</msml>
```

Session Support

MSRP supports multiple sessions to be established over a single TCP connection. Although MSRP allows one TCP connection per session, this method is not preferred when connecting to the same MSRP endpoint.

MSRP provides a non-blocking algorithm that reduces inactivity when using a multi-session per connection model. Additionally, MSRP supports multiple connections to the same endpoint, with each TCP connection hosting multiple sessions. This is beneficial for solutions that project high volumes of MSRP sessions. MSRP also supports single TCP connections hosting multiple sessions to different endpoints.

Figure 2 illustrates single and multi-connection models with multiple MSRP sessions per TCP connection.

Figure 2: Multi-session per TCP Connection Model
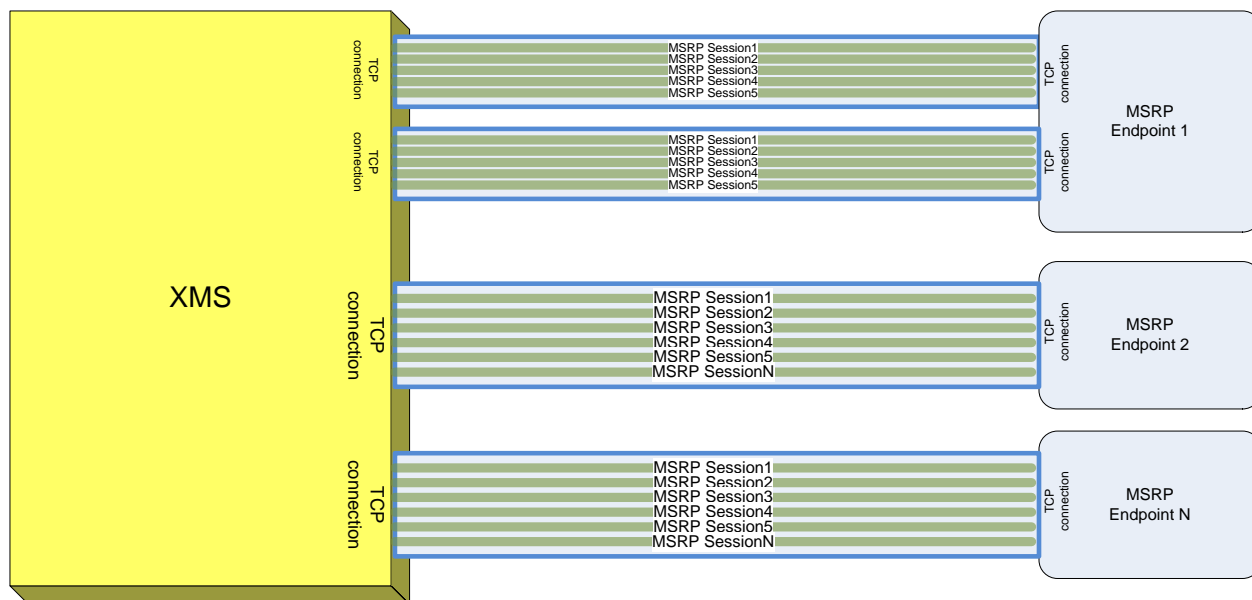
Limitations and Requirements

Some MSRP solutions only require PowerMedia XMS to support a Client implementation, in which case PowerMedia XMS will only send content to peer endpoints. These solutions are fully supported by PowerMedia XMS. Other solutions requiring PowerMedia XMS to interface with intermediate relay entities, as defined in RFC 4976, are not supported by PowerMedia XMS at the time of this document's publication.

MSRP solutions that require interaction with PowerMedia XMS using an interface other than MSML or RESTful are not supported.

Customer Use Cases

There are examples of two specific customer configurations and use cases that MSRP supports: Voice Mail Application and Delivery (VM AD) Solution and Next Generation Emergency 911 (NGN E911) Service.

Voice Mail Application and Delivery Solution

The first use case MSRP supports is a Voice Mail Application and Delivery (VM AD) Solution. PowerMedia XMS can function as an IP Multimedia Subsystem Media Resource Function (MRF) entity that provides media processing services for a VM AD. VM playback and record operations are controlled by a Voice Mail Application Server (VM AS) over a SIP/MSML connection.

For this solution, PowerMedia XMS retrieves prompts and messages for playback from the Voice Mail Storage (VM Storage) entity via HTTP as instructed through MSML control. When a voicemail is recorded, the VM AS can instruct PowerMedia XMS to transfer the recorded VM to the Voice Mail Delivery Server (VM DS) via a MSRP session. This results in PowerMedia XMS constructing and sending a MSRP SIP INVITE to the VM DS.

The MSRP SIP INVITE is then sent to the Internet Protocol Multimedia Subsystem (IMS) for subscriber Location Information inquiries and is eventually forwarded to the intended VM DS. Upon receiving an answer from the VM DS, PowerMedia XMS establishes a TCP connection with the VM DS and transfers the voicemail file via a MSRP session.

When the transfer has successfully completed, PowerMedia XMS will terminate the MSRP session and delete the local file. Upon receiving the voicemail file, the VM DS forwards it to the designated subscriber as specified in the "To" header of the SIP INVITE. The VM DS can also send the recorded voice mail to a VM Storage server for future playback or editing by subscribers. In the solution example shown in Figure 3, Internet Message Access Protocol (IMAP) is used for this purpose.

Figure 3 illustrates a sample solution configuration with a Media Resource Broker (MRB) providing load balancing and high availability to the pool of PowerMedia XMS MRFs.

**Figure 3: Voice Mail Application and Delivery Solution Configuration**
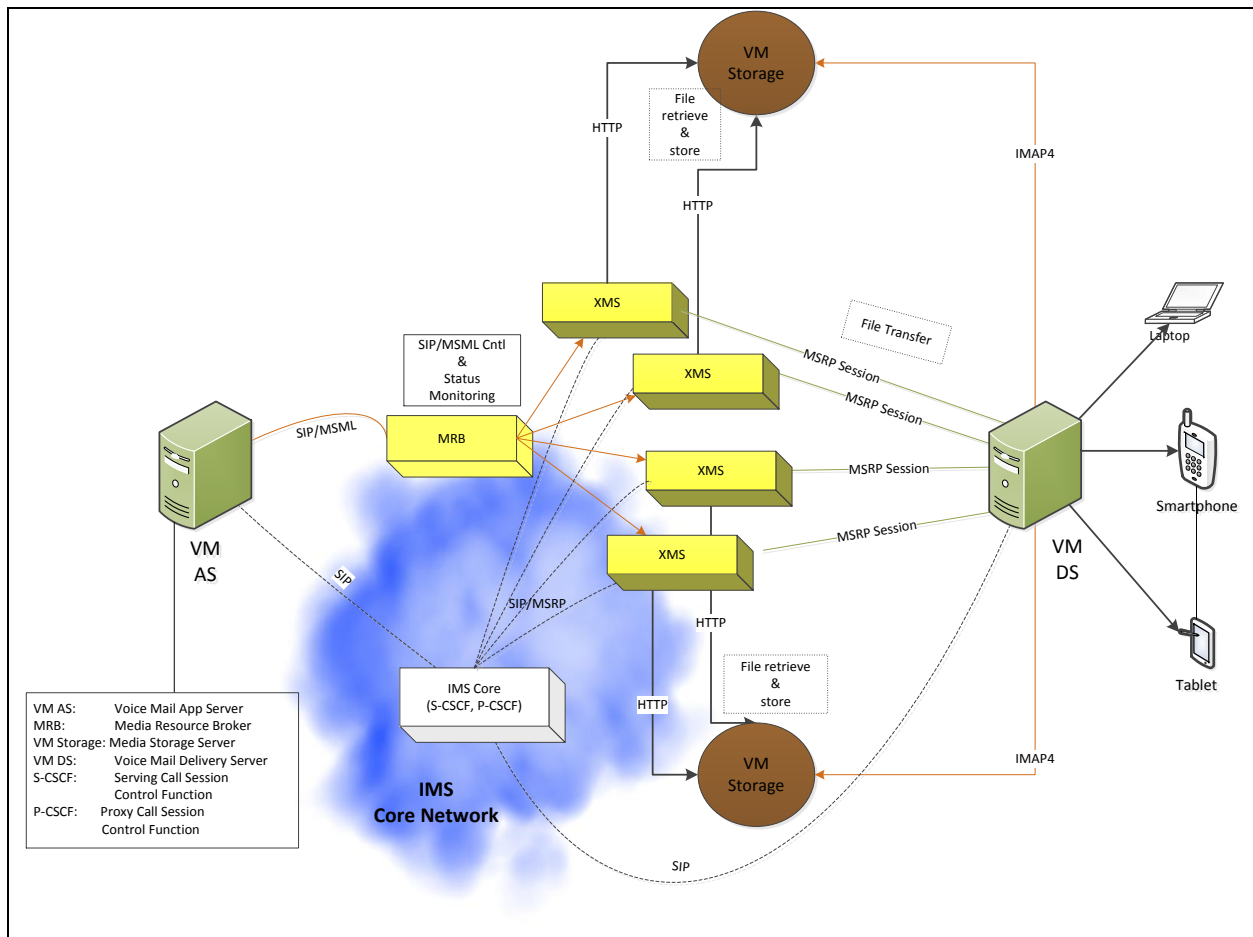
Note: Solutions can be supported by XMS that terminate MSRP sessions to endpoints directly where the endpoints support MSRP and SIP protocols.

Figure 4 illustrates an example of a basic message flow through an IMS network providing a Voice Mail Application and Delivery Service.

Figure 4: Voice Mail Application and Delivery Service Message Flow
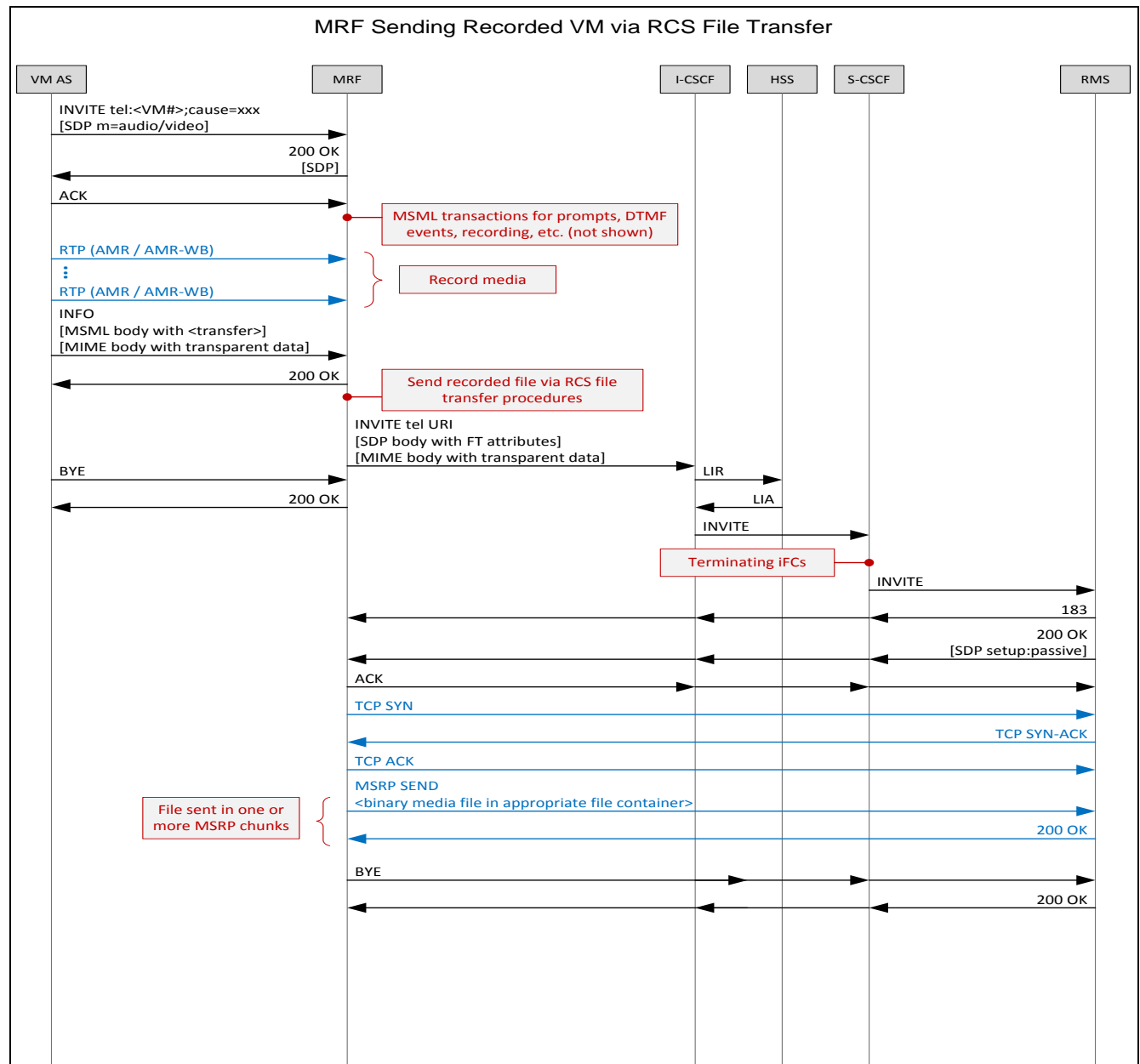
Next Generation Emergency 911 Service

The second use case MSRP supports is Next Generation Emergency 911 (NGN E911) Service. Figure 5 illustrates the solution architecture for SMS text messaging to 9-1-1 emergency service. NGN E911 Service will mainly be used with the SMS capabilities of native wireless operators that utilize existing generation and next generation (NG911) Public Safety Answering Point (PSAP).

Figure 5: Next Generation Emergency 911 Service
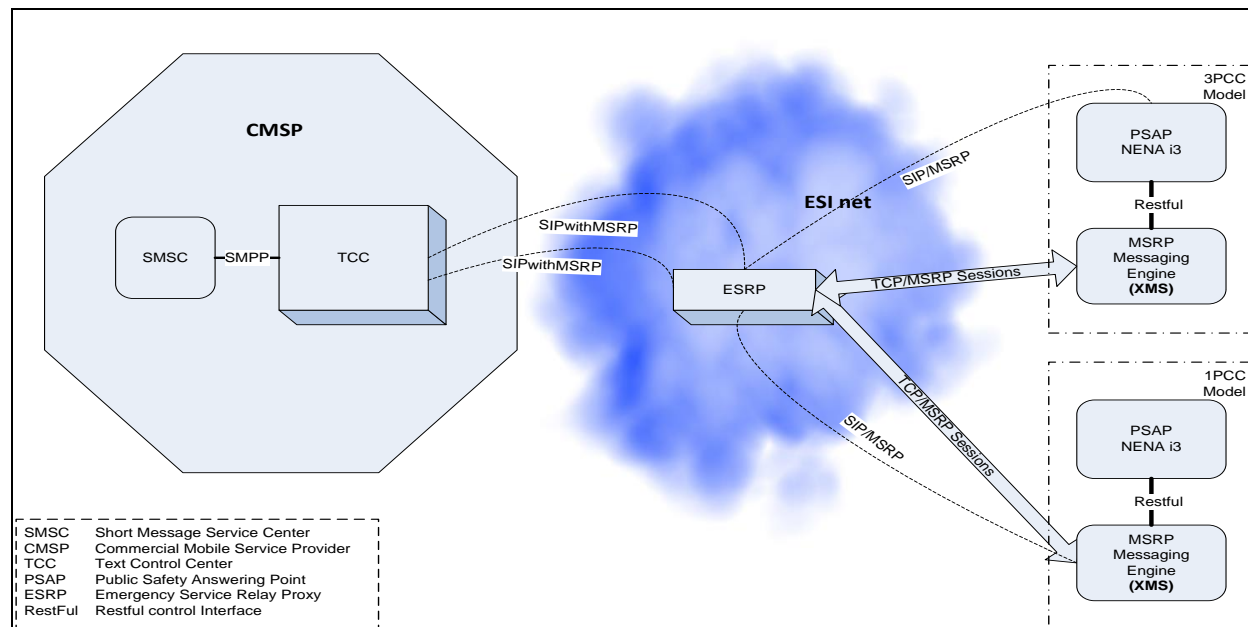
For this solution use case, PowerMedia XMS establishes TCP connections and receives E911 content from an Emergency Service Relay Proxy (ESRP). As shown above in Figure 5, the solution may require support in either 1PCC or 3PCC signaling modes. When the feature is fully implemented, PowerMedia XMS will be capable of supporting either call control model. In 1PCC mode, the SIP signaling is sent directly to PowerMedia XMS. PowerMedia XMS notifies the PSAP that an E911 call has been received and is ready for processing. All of the signaling is handled by PowerMedia XMS with only notification events and message content sent to the PSAP via the RESTful interface. In 3PCC mode, the PSAP is responsible for managing the signaling and instructs PowerMedia XMS to establish a connection and MSRP session for receiving an E911 message. When the message is delivered, notification is sent to the PSAP for processing. The PSAP then instructs PowerMedia XMS to terminate the MSRP session.

These are a few applications use case solutions that leverage MSRP technology in PowerMedia XMS. Please contact our product management representatives to discuss how this feature can apply to your solution.