VoiceGenie 7.2

MRCP Proxy

User's Guide

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Chapter

1 Introduction

The MRCP Proxy (also known as the SRM Proxy) is a component for distributing and re-directing MRCP requests from many different clients to many different servers. This allows more efficient use and sharing of the ASR/TTS resources between VoiceGenie media platforms, and also allows resources managed by the MRCP Proxy to be used by other MRCP-based clients. This is depicted in Figure 1 below.

This document describes how the MRCP Proxy can be used in a deployment, also, it provides details about the general operation of the MRCP Proxy. For more general information about configuration parameters, metric/logging entries and alarm information please refer to the *MRCP Proxy System Reference Guide*.

1.1 Architecture Overview

The MRCP Proxy is used in a three-tiered client/proxy/server architecture. Communication between each of the client, proxy, and server is via MRCP (Media Resource Control Protocol) which is an open standard protocol. This protocol is used rather than a proprietary messaging protocol. The SRM architecture is based on independent scaling of client, proxy, and server components based on load. Thus, the number of SRM clients is independent of the number of SRM proxies and the number of SRM servers. The capacity and number of each of the clients, proxies, and servers must naturally ensure sufficient resources for the intended application, but no fixed cardinality exists in the relationships between these three components.

The following diagram offers an architectural view of where the MRCP Proxy can be deployed in situations where ASR/TTS resources are required:

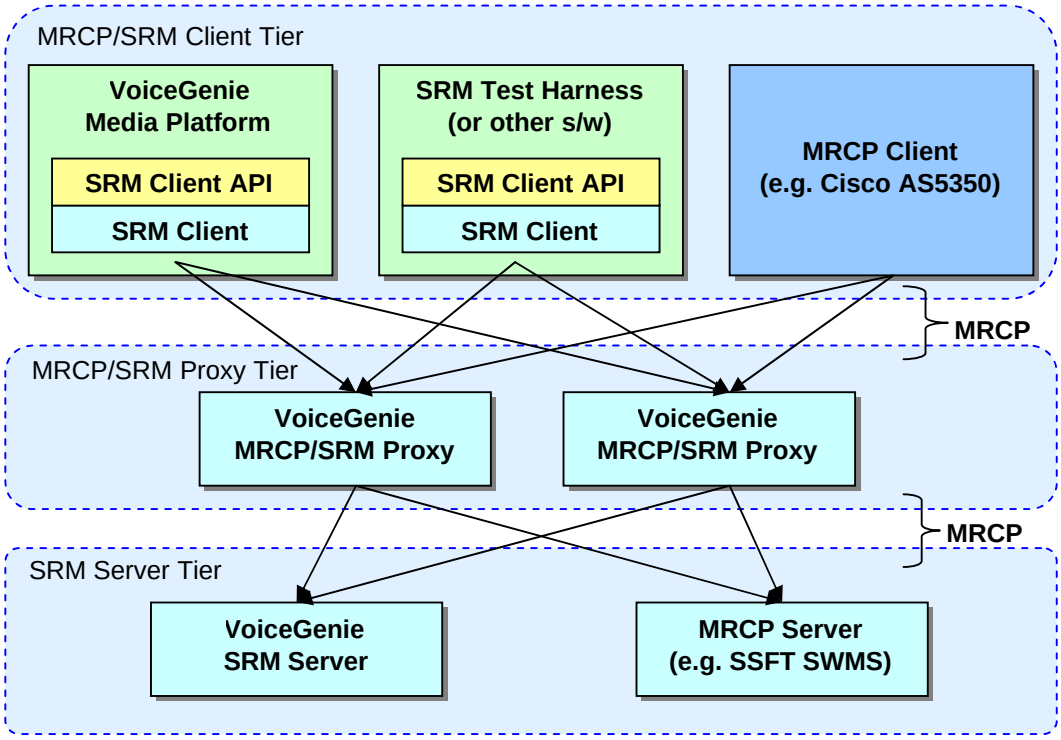


Figure 1: MRCP Proxy Architecture Diagram

Although multiple MRCP proxies are not required, the proxy tier will generally consist of two or more proxies (for redundancy). The above architecture shows clients that are aware of multiple proxies, and which make use of multiple proxies; however, it is entirely possible that some devices will be capable of using only a single proxy.

1.2 MRCP Native and MRCP Direct

From the VoiceGenie Media Platform's point of view (which by itself is a MRCP Client), accessing Speech Resources is always done via MRCP. However, not all Speech Resources are fully MRCP compliant, as a result, two approaches for communication via MRCP exist, *MRCP Native* and *MRCP Direct.*

Figure 2 illustrates the MRCP Direct integration architecture. This is the architecture used when the 3rd party Speech Resource supports MRCP. Most integrations fall under this case. Examples of MRCP Direct integrations include OSR via SWMS, Realspeak via SWMS, Nuance MRCP 1.0 ASR Server, IBM ASR/TTS. In this architecture all communication between the SRM Client and MRCP Servers is via MRCP.

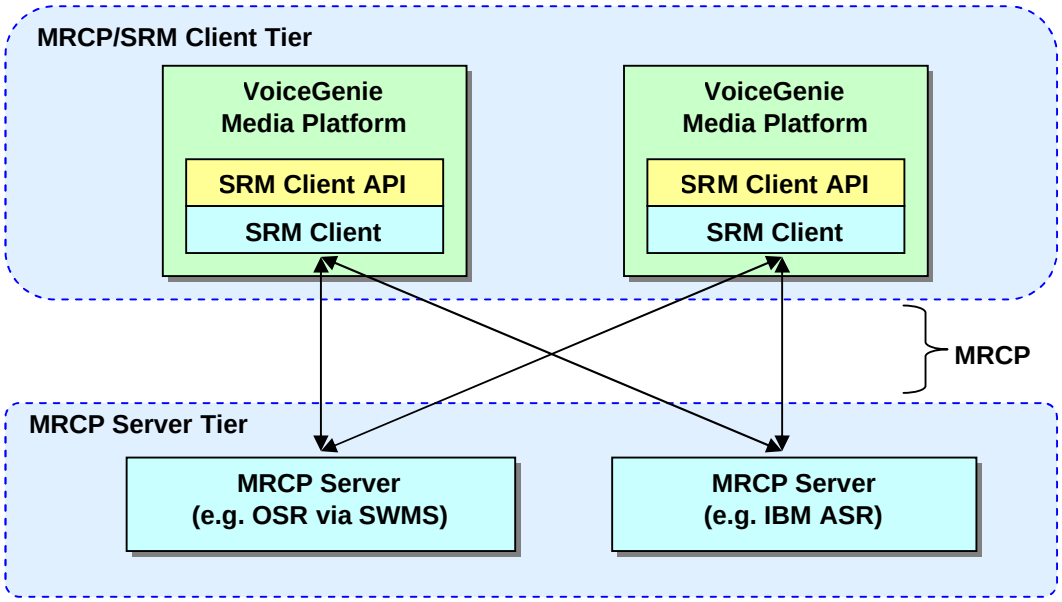


Figure 2: MRCP Direct Integration Architecture

Figure 3 illustrates the MRCP Native integration architecture. In this architecture the SRM Client still communicates via MRCP to the SRM Server, but the SRM Server then interacts with the 3rd party vendor software via a native API. In this scenario the VoiceGenie SRM Server contains software from both VoiceGenie and the 3rd party ASR/TTS vendor.

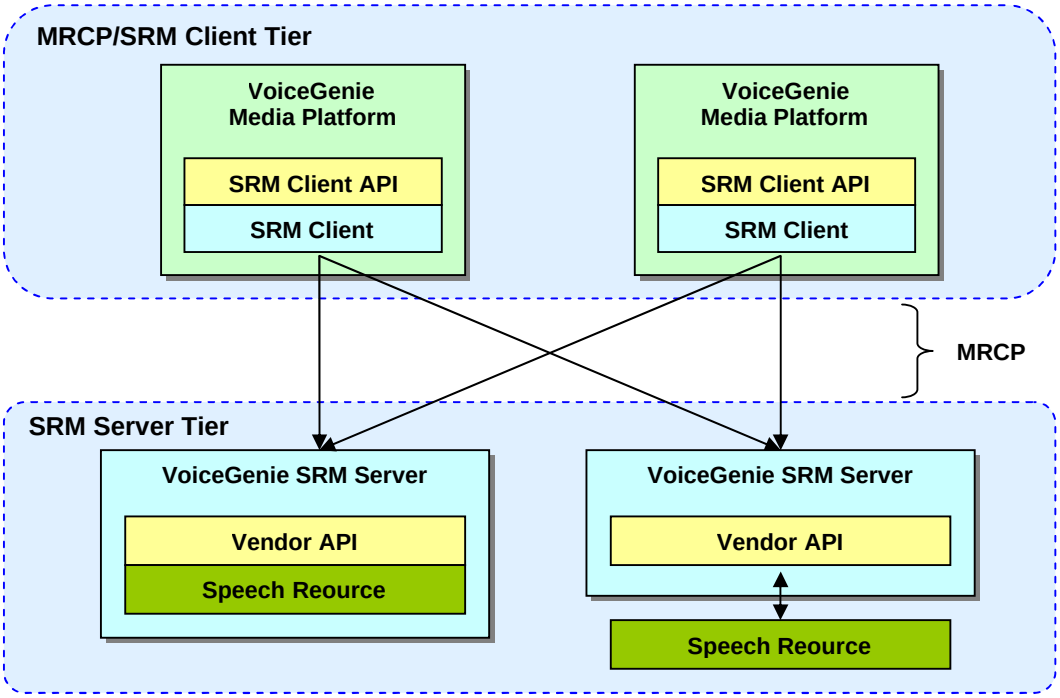


Figure 3: MRCP Native Integration Architecture

Chapter

2 The MRCP Protocol

The MRCP Proxy uses the MRCP protocol, as defined by the IETF (Internet Engineering Task Force), to control ASR and TTS resources. The latest version of the specification may be found at `http://www.rfc-editor.org/rfc/rfc4463.txt`. In this regard, the MRCP Proxy acts as an MRCP client to use configured ASR/TTS Servers.

The MRCP Proxy also accepts MRCP requests as defined by the above standard, subsequently, it chooses an appropriate ASR/TTS resource to route the request to. In this regard, the MRCP Proxy is acting as a MRCP server.

In addition to the standard MRCP messages, VoiceGenie has made a number of extensions to make the MRCP Proxy work well as an ASR/TTS resource distributor:

- The MRCP Proxy assumes that the ASR/TTS servers that it is connected to will respond to the RTSP `DESCRIBE` message. This message is used for checking server health status; when the MRCP Proxy receives a response to the `DESCRIBE` message the MRCP Proxy would consider the ASR/TTS server as “Healthy”.
- When the MRCP Proxy needs to change the ASR server (either because the original ASR server has become unavailable, or a new ASR request has come in which uses a different language supported by a different server), the MRCP Proxy would need to inform the client to change the destination to which it sends the audio data for recognition. The MRCP Proxy sends an RTSP `ANNOUNCE` message to the MRCP Client, and expects the client to change the destination IP address and port number as written in the SDP message.

The SpeechSC working group at the IETF is currently evolving the MRCP protocol – this new protocol is called MRCPv2, and will be supported by a future release of the MRCP Proxy.

Chapter

3 Installation

For details as for how to install a MRCP Proxy, please refer to: *VoiceGenie 7 Installation Guide*.

Chapter

4 Starting and Stopping the MRCP Proxy

The command-line-based Command Line Console (CLC) and the web-based System Management Console (SMC) can be used to perform various operations for the MRCP Proxy. For details about these two components please see:

- *VoiceGenie 7 OA&M – CLC Guide*
- *VoiceGenie 7 OA&M – SMC Guide*

From CLC, user can type the following to stop the MRCP Proxy process:

```
CLC> stop srmproxy - -
```

Note that this stops the local MRCP Proxy on the machine where the CLC is accessed.

Also, to start the MRCP Proxy users can type the following command into the CLC:

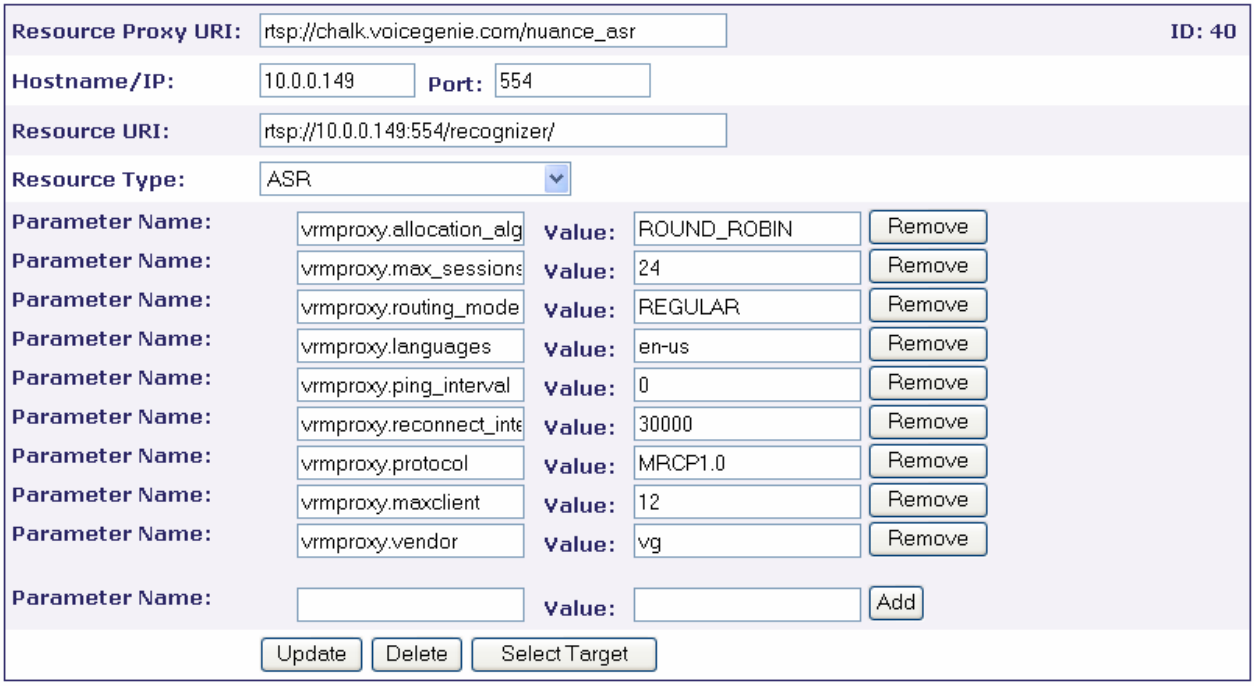
```
CLC> start srmproxy - -
```

Chapter

5 Provisioning

The MRCP Proxy can be configured to host multiple MRCP servers. When a Speech Resource is deployed, its MRCP Proxy provisioning data is generated by OA&M Framework. The provisioning data is stored in the file `srmproxy.prov` which cannot be modified directly; please use the SMC or CLC to modify this file.

The MRCP Proxy Speech Resource provisioning data can be accessed through the `Configuration` page in the SMC under the `Speech Resource Mgr` section. The following picture is a snapshot from a typical MRCP Proxy Speech Resource Provisioning record.



The function of the control buttons is similar to the function of the respective ones in Media Platform Speech Resource provisioning:

- Click `Select Target` to select the servers for updating the provisioning data
- Click `Delete` to remove an existing Speech Resource Proxy Entry
- Click `Update` to update an existing Speech Resource Proxy Entry
- Click `Create,` with filled fields to create a new Speech Resource Proxy Entry

For the list of all possible resource provisioning entry parameter names and explanations about their usages, please refer to the *VoiceGenie 7 MRCP Proxy System Reference Guide,* the "MRCP Proxy Resource Provisioning entry parameters" section.

Revision History

Version	Date	Change Summary	Author/Editor
0.1	March 23rd, 2005	Initial release	Alex Lee Lin Chen Andrew Ho
1.0	April 13th, 2005	Revised version for VoiceGenie 7 Release	Andrew Ho
1.1	March 1st, 2006	Updates for VoiceGenie 7.1	Rakesh Tailor
1.2	September 5th, 2006	Updates for VoiceGenie 7.1	Monti Ghai
1.3	October 3rd 2007	Updates for VoiceGenie 7.2	Lin Chen