Cisco Universal Media Service

Product Overview

The Cisco® Universal Media Service (UMS) is a critical component of the Cisco IP Interoperability and Collaboration System (IPICS) that enforces talkgroup memberships defined and controlled by Cisco IPICS Server. Cisco UMS mixes audio from multicast and Session Initiation Protocol (SIP) streams and broadcasts it back to other multicast and SIP streams, offering an extensible, upgradable platform for media services.

Cisco UMS bridges multicast and unicast users, performs proxy mixing for resource-constrained endpoints, and provides G.711 and G.729 transcoding services so that local Cisco IPICS Dispatch Consoles (IDCs), remote IDCs, and IP phones can participate in the same virtual talkgroup. Cisco UMS supports the creation of virtual talkgroups composed of diverse endpoints.

Figure 1. Cisco UMS on 2-RU Cisco Physical Security Multiservices Platform

Figure 2. Cisco Unified Computing System™ for Virtualized UMS

Features and Benefits

Cisco UMS performs functions similar to those performed by the router media service (RMS) and is controlled by the Cisco IPICS Server. Table 1 shows the new features in Cisco UMS.

Product Specifications

Table 1. Cisco UMS Features and Descriptions

Feature	Description
Audio mixing	Mixes audio from multicast and SIP streams and broadcasts the mixed audio to other multicast and SIP streams.
Talker ID	Supports Talker ID between multicast and SIP endpoints, including Project 25 (P25) and other signaling supported through serially controlled donor radios.
Dispatch from IP SIP endpoints	Provides radio control from SIP endpoints, removing the need for expensive proprietary handsets.
Improved multicast voice quality	Contains an improved voice quality algorithm that allows for better multicast mixing.
Supports Apple iPhones and Cisco IP phones as dispatching endpoints*	Allows remote users to join audio and video communications as part of a virtual talkgroup. This allows users from proprietary radio networks or systems to connect to Wi-Fi or public carrier networks using smartphones with the IPICS mobile client.
Virtualized proxy mixing	Mixes proxy users so that audio processing can occur either on a network appliance or in a virtualized environment, which enables the existing network infrastructure to be reused.
Audio transcoding	Provides G.711 and G.729 audio transcoding between local dispatchers, remote dispatchers, smartphone users, and IP phones. Transcoding is assigned in a round-robin type fashion to ensure distributed resources.
High availability	Provides audio high availability through the use of a high availability server. If the primary server goes down, the secondary server automatically takes over.

*Check the IPICS compatibility matrix for a list of compatible smartphones:
http://www.cisco.com/en/US/products/ps7026/tsd_products_support_series_home.html

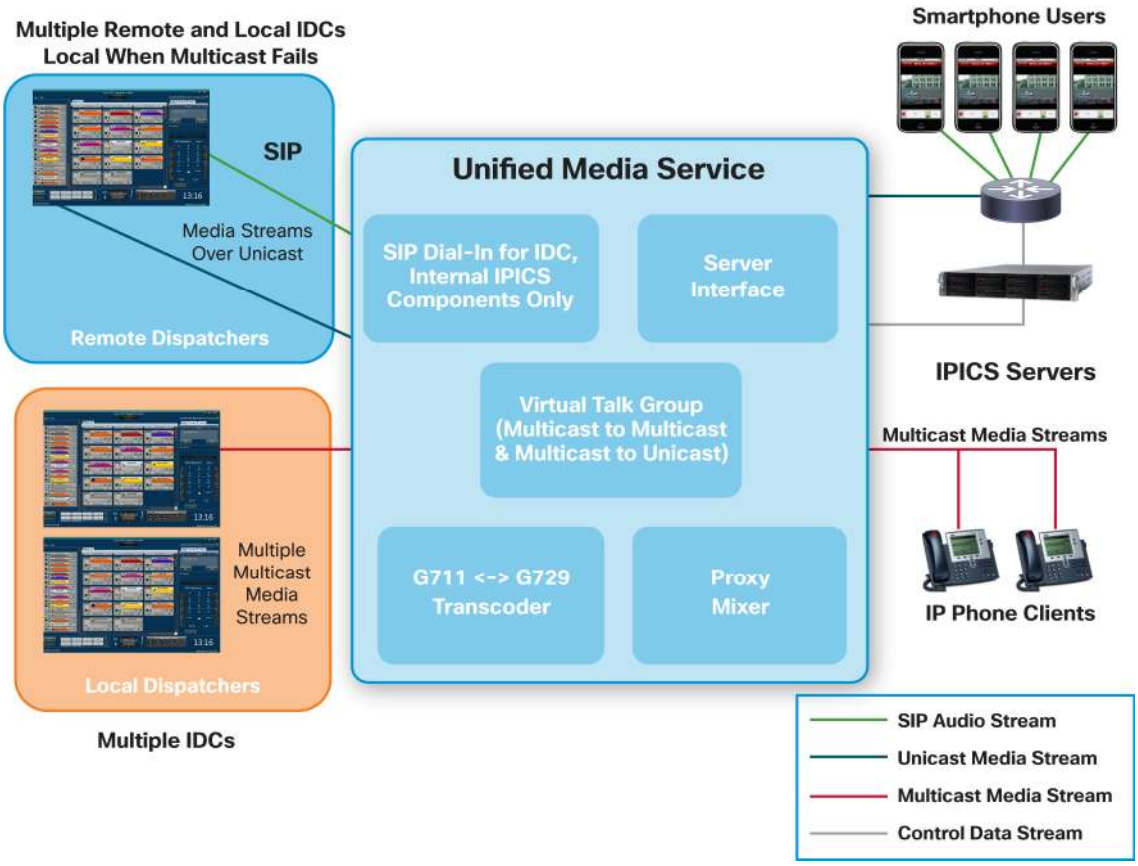
Architecture

As a Linux-based solution, Cisco UMS can run on a wide range of platforms, including the 2-RU Cisco Physical Security Multiservices Platform server with two hard drives, and the Cisco UCS® B-Series, C-Series, and E-Series servers.

Cisco UMS comprises the following functional building blocks (Figure 3).

- IPICS Server interface
- Virtual talkgroup support
- G.711 to G.729 transcoding
- Proxy mixing
- SIP support

Figure 3. Cisco Unified Media Service Functional Diagram



UMS and RMS

Cisco UMS extends the RMS functionality in current IPICS deployments. The RMS is router-based software that provides channel mixing (bridging of multicast channels) and support for remote IDC users. Cisco UMS has advanced signaling, which informs users of who's talking (talker ID) or, in native P25 mode, the dispatcher's talker ID will be sent to all subscribers.

In the RMS, configuration can be done manually in Cisco IOS® Software (dial peers, multicast-unicast-multicast [MUM] trunks, etc.) or can be run in Cisco Unified Communications Manager Express. With Cisco UMS, although manual configuration can be done from the command line interface (CLI), the change state is not maintained when the IPICS Server alters any configuration. Table 2 compares Cisco RMS and UMS.

Table 2. Cisco RMS and UMS Comparison

Feature	RMS	UMS
IPICS Channel	Yes	Yes
IPICS VTG	Yes	Yes
IPICS radio	Yes	Yes
SIP	Yes	Yes
Multicast	Yes	Yes
G.711	Yes	Yes
G.729	Yes	Yes
Talker ID multicast talkgroup	Yes	Yes
Talker ID SIP	No	Yes
Talker ID virtual talkgroup	No	Yes
Talker ID P25	No	Yes (P25 or IPICS user ID)
Direct dial	Yes	No
MUM trunks	Yes	No
Simultaneous sessions	120	100
High availability	Yes; Layer 3	Yes; appliance
IP compliance (IANA)	IPv4	IPv4

Table 3 provides ordering information.

Table 3. Ordering Information

Part Number	Description
CIS-UMS-K9	UMS Appliance: Order as an option for the 2-RU Cisco Physical Security Multiservices Platform or as an option for the Virtualized IPICS Software (CIS-IPICS-VM) for physical delivery. For eDelivery, use L-CIS-IPICS-VM=.
CIS-UMS-HA	UMS HA Appliance: Order one for each UMS that requires high availability.
CIS-IPICS-VM	Virtualized IPICS Software: Order this for a virtualized version of the UMS, and structure all previous software as options to this part number.
L-CIS-IPICS-VM=	Order this for a virtualized version of the UMS and structure all the previous software options to this part number. This will generate an e-Delivery license.

Summary

Cisco UMS is an integral part of the Cisco IPICS system and is the key enabler for enforcing P25 audio communications. Cisco IPICS provides secure, reliable, and scalable communications to organizations using the IP network as the core infrastructure.

Additional Information

Please contact your local or regional Cisco account representative for Cisco IPICS ordering information.

Services and Support

Cisco and our certified partners can help you accelerate success and improve the return on your investment in a Cisco IPICS solution. The Cisco lifecycle approach to services defines the requisite activities at each phase of the solution lifecycle:

- Reduce deployment costs by identifying the features that will best meet your business requirements.
- Accelerate migration by assessing the readiness of your network to support the system and by developing a sound design.
- Support smooth implementation through effective planning and expert installation, configuration, and integration.
- Increase operational efficiency and extend the value of your investment with award-winning technical support.

For more information about Cisco services, visit http://www.cisco.com/go/services.

For More Information

For more information about Cisco IPICS, visit http://www.cisco.com/go/ipics or contact your local account representative.

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