



## H.323 Version 4 Highlights

On November 17, 2000, version 4 of the market-leading VoIP protocol H.323 was approved. Enhancements were made to a number of important areas, including reliability, scalability and flexibility. New features will help facilitate more scalable Gateway and MCU solutions to meet the growing market requirements. Key enhancements have been excerpted from [http://www.packetizer.com/iptel/h323/whatsnew\\_v4.html](http://www.packetizer.com/iptel/h323/whatsnew_v4.html) and are noted below:

### Gateway Decomposition

Recognizing the need to build larger, more scalable gateway solutions for carrier solutions, the ITU-T SG16 worked jointly with the IETF to produce the new Recommendation H.248, which describes the protocol between the Media Gateway Controller (MGC) and the Media Gateway (MG). To support this "decomposition" of the Gateway, H.323 contains a new section that describes some of the various architectural designs that may be achieved by decomposing the Gateway into the separate MGC and MG.

### Supplementary Services

#### Annex K/H.323

The new Annex K describes a means of providing HTTP-based control for H.323 devices. With this Annex, service providers have the ability to display web pages to the user with meaningful content that ties into the H.323 systems.

#### Annex L/H.323

Annex L provides a new "stimulus-based" control mechanism for H.323 using H.248. Annex L builds on the strengths of the "package" concept introduced in H.248.

#### H.450.8 - Name Identification Service

H.450.8 builds upon H.323 "caller identification" procedures by providing a standard means of conveying user identification data to the remote endpoint.

#### H.450.9 - Call Completion

This new supplementary service definition provides a standard means of allowing calls to complete when the user is either busy or there is no answer.

#### H.450.10 - Call Offer

This service allows a calling endpoint to offer a call to a busy called endpoint, so that the call will complete once the busy user accepts the call.

#### H.450.11 - Call Intrusion

This service allows a calling endpoint to interrupt an existing call between two endpoints.

### Additive Registrations

One weakness that previous versions of H.323 had was the inability of a large device, such a Gateway or MCU, which possessed hundreds or thousands of alias addresses, to register those addresses with the Gatekeeper. The problem was quite simple: the size limitation of a UDP packet just prevented that from happening. Version 4 gets around this problem with a new concept called "Additive Registrations". In essence, an endpoint may register with a Gatekeeper and provide an initial list of aliases, but then may follow the RRQ with additional RRQs in order to provide the Gatekeeper with a complete list of alias addresses.

### Alternate Gatekeepers

Fields were introduced into H.323v2 to provide for Gatekeeper redundancy, but the usage of those fields was never fully explained. Version 4 introduces a new section that details the procedure that endpoints may follow in order to provide some robustness to the system.

## Usage Information Reporting

To help provide accurate billing information, the Gatekeeper may request the endpoint to provide usage information reporting to the Gatekeeper at various times during the call, including at beginning of the call, during the call, and at the end of the call.

## Endpoint Capacity

With Version 4, the endpoints have the ability to provide precise information about resource availability to the Gatekeeper in a number of messages. The Gatekeeper can use this information to intelligently route traffic to a device it knows can handle the call. This increases the call success rate, and, in turn, increases revenue to the service provider.

## Enhancements to Annex D (Real-Time Fax)

A very useful feature of fax devices is the ability to initiate a voice call and then switch to fax at some point. Annex D was also enhanced to utilize TCP for carrying fax data. Previously, UDP was the only real option for carrying fax data.

## Call Linkage

Version 4 introduces several new fields that allow equipment to "link" call legs together. This provides for more accurate billing for a call.

## Tunneling

Version 4 now provides a mechanism whereby QSIG and ISUP may be tunneled without translation-- essentially, H.323 may act as a transparent tunnel for those non-H.323 signaling protocols.

## H.245 in Parallel with Fast Connect

H.323 now allows H.245 to be started in parallel to Fast Connect by including H.245 messages in the Setup message. By starting H.245 early, two endpoints can more quickly establish an H.245 session in the event that Fast Connect cannot be accepted by the called endpoint.

## Generic Extensibility Framework

One of the issues with H.323 as it matures is simply the number of parameters that exist in the base protocol specification. To prevent continued and unbounded growth of the ASN.1 that defines the H.225.0 protocol, a generic extensibility framework has been added to version 4. An H.323 entity may use the generic extensibility framework in order to indicate its supported features, desired features, and needed features. Entities may exchange this feature information and may then take advantage of mutually supported features.

## H.323 URL

The URL scheme "h323" is introduced in Version 4 of the protocol. The H.323 URL will allow entities to access users and services in a consistent manner, much like other defined URLs allow for other IP-based services. The form of the H.323 URL is "h323:user@host", where "user" is a user or service and "host" might be the Gatekeeper that can translate the URL into a call signaling address.

## DTMF Relay via RTP

H.323 version 4 now allows an endpoint to utilize RFC 2833 to send and receive DTMF digits. It is a logical choice when the call is routed through the Gatekeeper and the Gatekeeper is not interested in that information.

For more details on Version 4 enhancements please  
visit <http://www.itu.int/itudoc/itu-t/com16/contr/128.html> or <http://www.packetizer.com>