Interoperability
By standardizing the LDAP schema used to represent the underlying data, systems from different brands can be deployed together to create an application environment that avoids vendor lock-in. Collaborators do not need to purchase identical systems in order to communicate. For example, an address or white pages search engine developed by one vendor could serve directory information to IP telephones supplied by a second vendor with signaling managed by a call server provided by yet another vendor.

Desktop support
H.350 provides each end user with the configuration information needed to start communicating. Providing simplified and even automated endpoint configuration solves a big user support issue and results in improved customer service.

Network management
H.350's user authentication is based on an organization's trusted data sources. With authentication, it is possible to track calls and develop billing applications. H.350 uses the LDAP protocol, and many organizations already have staff who are trained to manage LDAP services. An extension of H.350 also supports X.500 directory services. H.350 organizes information about voice and video equipment and users in a central location. H.350 integrates with enterprise directory services. This means fewer staff can support more users.

Making users' lives easier
H.350 gives the ability to easily find other video-conferencing or VoIP users anywhere in the world and contact them, with the click of a button. Users can publish and update their multimedia addresses so others can easily find them.

Benefits of H.350

- Provides secure, scalable identity management for video and voice over IP using LDAP Lightweight Directory Access Protocol and X.500 directory services.
- Provides a multimedia address book or white pages so that users can be looked up and their addresses found.
- Supports non-standard signalling protocols such as MEGACO or tele-immersion systems.
- Leverages an organization's trusted LDAP entries and avoids replication.
- Supports clickable dialing.
- Provides endpoint configuration parameters that can be downloaded to end users.
- Supports standard H.323 and SIP security features (authentication).
- Supports authorization and billing.
- Allows endpoint developers to easily change an internal directory look-up to an external look-up.
- Allows products from multiple vendors to interact together from a master data store, in order to enable large and dynamic service platforms.
Overview of ITU-T H.350

Videoconferencing via the Internet is now easier and less expensive using the new ITU-T H.350 series of Recommendations "Directory services architecture for multimedia conferencing". H.350 results from an Internet2 Video Middleware working group, and was endorsed by ITU members from 189 countries.

Using LDAP (Lightweight Directory Access Protocol), H.350 provides a uniform way to store and locate user information related to VoIP, video and collaborative multimedia deployments. Account configuration details, authentication and authorization are linked to the enterprise directory.

H.350 supports SIP (Session Initiation Protocol), H.320 and H.323, as well as proprietary or non-standardized collaborative and conferencing protocols.

H.350 family of Recommendations

The H.350-series defines a standardized directory services support association of individuals with endpoints, searchable information in a way that integrates with directory and identity management systems already in place at universities, large enterprises and service provider networks. Extensions to support X.500 directory services are also available.

H.350 supports SIP (Session Initiation Protocol), H.320 and H.323, as well as proprietary or non-standardized collaborative and conferencing protocols.

H.350 – Directory services architecture for multimedia conferencing

Describes a directory services architecture for multimedia conferencing and a standardized LDAP scheme to represent endpoints in the network and associate those endpoints with users. It also discusses design and implementation considerations for the interconnection of video and voice-specific directories, enterprise directories, call servers and endpoints.

H.350.1 – Directory services architecture for H.323

Describes an LDAP scheme to represent H.323 endpoints.

H.350.2 – Directory services architecture for H.320

Describes an LDAP scheme to represent H.320 endpoints.

H.350.3 – Directory services architecture for SIP

Describes an LDAP scheme to represent SIP user agents.

H.350.4 – Directory services architecture for non-standard protocols

Describes LDAP schemes to represent non-standard multimedia communications endpoints, and is meant to provide a very basic framework for representing these elements in a directory.

H.350.5 – Directory services architecture for call forwarding and preferences

Describes LDAP and X.500 schemes to represent call forwarding and call preferences information in an H.323 directory. It is intended to represent addresses to which calls should be forwarded in case an endpoint does not answer a call. It can also represent advanced functionality, such as directing a caller to a web page or e-mail screen when the called endpoint is not available.

H.350 allows multiple applications, call servers and protocols to access the same master directory information source.

What is needed to support H.350?

• Ability to operate an LDAP and/or X.500 directory service. Many large enterprises already use this service and have staff trained to manage it. Where there is an existing directory, the directory service manager must be willing to add a single line of text (an LDAP Uniform Resource Identifier) for each endpoint to an existing directory entry. Experience at several organizations has shown that this request has met with no resistance.

• Minor modifications in the call server (H.323 Gatekeeper or SIP Proxy/Registrar Server). The call server’s access to the external H.350 directory can be enabled with a single access control rule.

Usage examples

The figure above shows a directory entry for a person stored in an enterprise directory. The yellow arrow points to the multimedia information available for this person (commHub). The figure below shows the various dialing addresses that can be used to contact the person at the "My Desktop Video" endpoint.

Non-standard conferencing protocols such as MPEG-2 videoconferencing systems can also be listed in H.320 directories, providing useful contact information and instructions for end users, as illustrated below.

Identity management tools using LDAP

IP telephony

Videoconferencing

Instant messaging

Proprietary conferencing

Legacy analog video

ISDN codecs

< click to dial >

White pages directory

H.350 allows multiple applications, call servers and protocols to access the same master directory information source.

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
<th>Street Address</th>
<th>City</th>
<th>State/Province</th>
<th>Country</th>
<th>Postal Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Law</td>
<td><a href="mailto:law@itu.int">law@itu.int</a></td>
<td>+41 22 732 5000</td>
<td>Varembe 12</td>
<td>Geneva</td>
<td>Geneva</td>
<td>Switzerland</td>
<td>1211</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Identity</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>genericIdentity</td>
<td>ProtocolIdentifier: MPEG-2</td>
</tr>
<tr>
<td>Message</td>
<td>See: <a href="http://www.itu.int/plaw/mpeg2/">http://www.itu.int/plaw/mpeg2/</a> for locations and connection instructions</td>
</tr>
</tbody>
</table>