A Guide to Multipoint Conferencing

White Paper

ClearOne.
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A Guide to Multipoint Conferencing

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Introduction

Goals and scope

Once your organization has embraced video conferencing, the need for a multipoint conferencing solution may quickly follow. Multipoint conferencing simply refers to the ability to simultaneously connect three or more conferencing systems together in a single call. But that’s where the simplicity ends. There are a number of choices available to help you connect with other video conferencing systems and the technology can become complicated. The goal of this white paper is to provide a general overview of the options available, the strengths and weaknesses of each, and the economics involved. We will also provide a list of questions to help you determine your specific needs and to help guide your selection process.

Multipoint conferencing terminology

Multipoint conferencing is becoming pervasive because it adds the ability to extend the reach of meetings across multiple locations. According to industry analysts Wainhouse Research, two-thirds of all video conferencing users conduct multipoint calls “frequently” or “always.” A number of alternatives have sprung up to meet this demand. But before discussing the available options, a quick review of multipoint conferencing terminology is in order.

Video conference calls are of two types—H.320 or H.323. H.320 calls are made through a wide area network (WAN) such as ISDN. H.323 calls are made through a local area network (LAN) such as an Ethernet network. IP (Internet Protocol) conferencing is another name for video conferencing over the LAN.

Devices that provide the ability to link multiple video conferencing sites together are generally referred to as MCUs (multipoint control units). This capability is analogous to phone conferencing where multiple people can be connected together in a single call. Another term used interchangeably with MCU is MP, which stands for multipoint.

MCUs have traditionally been dedicated, stand-alone devices that provide the ability to link multiple video conferencing sites together in a single call. However, this capability can also be embedded within the video conferencing system (called a codec) and is referred to as an embedded or built-in MCU. Finally, the third way to achieve multipoint capability is through a multipoint service provider (MSP). A full description of these options follows in the next section.
Other video conferencing devices you may need to consider are gateways and gatekeepers, which bring together multiple meeting attendees who are using disparate video standards. A gateway is a device that provides the ability to mix different formats of video conference calls together, such as H.320 and H.323. A gatekeeper is usually software running on a router, switch, or server that is used to regulate video conference calls on a LAN. Specifically, a gatekeeper regulates who can make a video conference call and the rate at which the call can be made. This is essential in a LAN environment so video doesn’t consume the LAN bandwidth, making it impossible for other LAN data to flow such as e-mail.

Other multipoint conferencing capabilities

In addition to increasing your ability to conference with multiple other conferencing systems, regardless of their manufacturer or type, MCUs and gateways have added a number of enhanced features in the past few years.

With new advanced features such as transcoding, most MCUs allow conferences to be linked at different data rates, different audio or video algorithms, different standards, and different frame rates. They are also increasingly being built to support IP capabilities for greater pervasiveness of H.323, LAN-based video.

Another newer feature includes flexible continuous presence, in which the display layout is divided so people can see everyone on a multipoint call, or everyone in rotation based on who is speaking. This, and other features such as chair control and voice-activated camera switching, have made multipoint calling much easier to follow for multiple participants.

As new functionality continues to be added, multipoint conferencing is becoming an even more effective solution for sales meetings, distance education, corporate training, seminars and conferences, and can extend the reach of your organization for any type of meeting.
Multipoint Conferencing Options

There are generally three options for achieving multipoint conferencing capabilities—a built-in or embedded MCU, a stand-alone MCU also known as a managed system, or a multipoint service provider. Which option is best depends on a number of factors including: functionality needed, resources, meeting size, and expense. A recent study by Wainhouse Research did show however, that 28 percent of all multipoint calls are currently placed through MSPs, another 28 percent through managed systems, and another 21 percent by people using both. Therefore, the vast majority of multipoint calls are placed either through an MSP, by someone who has their own managed system, or by someone using both. A mere 16 percent of calls are currently conducted using an embedded MCU.

Built-in/embedded MCU

Embedded MCUs generally provide entry-level multipoint conferencing capability and are usually a priced option on video conferencing systems. This option can ultimately comprise 20 to 75 percent of a system’s cost so you should carefully consider if this is the right option for you.

The functionality provided by an embedded MCU is similar to that of an office speakerphone that offers three-line conferencing capability so four locations can be on one call. A video conferencing system with an embedded MCU allows all locations to see one another. Basic functionality provides the ability to combine four video sites however, several embedded multipoint units can be cascaded to allow up to 12 conferencing sites to connect together. Using this system does not allow for the same level of quality provided by a managed system.
Proponents of embedded MCUs suggest they are ideal for ad hoc or unscheduled calls and that this approach saves money over purchasing a managed system or using an MSP. Embedded MCUs are also commended for their convenience.

This approach does have a number of drawbacks. An embedded MCU is clearly designed for fewer meeting participants and does not easily scale for larger gatherings. Most embedded MCUs can also only support lower data rates (such as 128Kbps) when used for a multipoint call. In addition, this type of solution requires users to be very familiar and comfortable with the technology. They must be much more hands-on in setting up and configuring the system. This can present a considerable challenge. In fact, a study by Wainhouse Research found that only 9 percent of multipoint calls are set up by users—the majority of calls are handled by technical specialists and multipoint service providers.

Generally speaking, a built-in MCU cannot be shared. If the conferencing system is in use for a point-to-point call, the MP capability cannot be used by another person. These systems cannot support more than one multipoint call. If your organization needs to have multiple groups conduct multipoint calls concurrently, a single embedded MP cannot support this. Other features you will likely sacrifice if you opt for an embedded MCU include transcoding between IP and ISDN calls, scheduling capabilities, chair control, and continuous presence layouts. As a result of these many limitations, embedded MCUs are not used as much as the other multipoint solutions discussed in the following sections.

Managed system

A managed system (dedicated MCU) is most effective if you have a larger organization, if you need call security, if you need to make more than four-way calls, or if you need two or more multipoint calls taking place simultaneously.

If an embedded MCU is like your office phone in terms of capabilities, the managed system is like a powerful PBX. A managed system is truly a multifunction device combining the features of gateways and gatekeepers and is capable of supporting hundreds of connections. The system’s capabilities are determined by the number and type of calls being handled. For example, a system that supports 96 ISDN sites can provide up to 32 maximum simultaneous conferences and up to 16 conferences if continuous presence used. Like embedded MCUs, managed systems can be cascaded together to provide additional capacity.

Managed systems offer many capabilities that embedded MCUs lack including transcoding of data rates, algorithms, and standards; scheduling and management capabilities; flexible continuous presence layouts; chair control; customizable billing capabilities; and conference data reports. Proponents of managed systems prefer the added control, flexibility, and better scheduling capabilities. These systems can also initiate calls based on pre-scheduled information, can support audio conferencing apart from video, and in general provide greater call security.
While this added functionality may be attractive, these systems are not inexpensive. They can still cost approximately $30,000 to $100,000. You must also consider the cost of maintaining your own technical staff and other dedicated personnel for service, scheduling, monitoring usage, and generating usage and billing reports. Managed systems are typically found in large organizations that commonly have the need for—and the resources to support—large numbers of multipoint calls.

If you have a sophisticated network and the technical staff to support it, a managed system may be an attractive choice. If you have multiple sites on IP and multiple sites on ISDN, you may want to consider a managed system, such as the Radvision viaIP, which includes both gateway and MCU functionality.

Multipoint service provider

A multipoint service provider (MSP) refers to a company that provides multipoint capabilities as an outsourced service. The MSP option is generally attractive for any size organization. Frequently MSPs are used either to supplement a managed system or as a single, complete multipoint conferencing resource for an organization. If you need the advanced functionality and flexibility of a managed system but are unable or unwilling to support it yourself, an MSP may be the right choice. Or, if you simply want the ease of use associated with MSPs for your users, an MSP is a good choice.

In addition to being able to offer the same level of functionality as a managed system, an MSP can also provide online scheduling, meeting greeters, information sharing, location handling and online technical support. The use of an MSP can provide a professional touch to your calls. They can even take over chair control to moderate your conference. There is also more inherent quality assurance with an MSP. They handle line testing, trouble-shooting, and they can even place the call for you.

Leading MSPs offer other professional services such as end user training, speaker programs, and other tools to make planning and scheduling your conference as smooth as possible. Multiple layouts for continuous presence are generally available so you can adapt the display to meet your specific needs. MSPs also keep databases of the thousands of public rooms throughout the world, and if you need to use one for an interview, special conference or site, they have tested lines and guarantee uptime and connections. They also frequently offer audio-only bridging, web conferencing, and streaming video services. Because of these many added features, many organizations use an MSP to supplement other embedded and/or managed systems.

MSPs have earned a loyal following among conferencing users who want a full range of services and a high degree of availability. This approach is also a good solution when your own network lacks the bandwidth or quality of service to support the number of locations you’d like to connect with.
Determining Your Conferencing Needs

In order to select the right multipoint conferencing option, you should first identify your conferencing needs. The questions listed below are designed to guide you in this process.

- How technically adept are your conferencing users?
- Do you have a large enough technical staff to manage your own MCU?
- Are the majority of your meetings ad hoc, or planned and scheduled?
- How many conferencing end-points exist within your organization?
- How many other locations does your organization have?
- How many other conferencing systems do you usually connect with?
- Do you need to have more than one conference call at a time?
- Are your meetings generally formal or informal?
- Are your meetings generally informational or interactive?

With an understanding of your own conferencing patterns you can better evaluate the available options. Your decision should focus on what is ultimately most cost-effective and best meets the needs of your conferencing users. Not only do you need an understanding of your users’ communications objectives, you must consider their technical capabilities and comfort level. The underlying technology that makes it all work should be transparent to the users; they just want to be able to communicate clearly and efficiently.

In interpreting vendor literature, try to keep the economics of your situation in mind. Industry conversation still tends to focus on technical issues rather the economic trade-offs involved.
About ClearOne

The ClearOne legacy for conferencing perfection is built on more than a decade of relentless research, unfailing service and support, and keen attention to customer needs. Perfecting the technology behind the scenes is what we do, so you can focus on the business at hand. With any of ClearOne’s conferencing solutions you can be sure that above all else, the science will be extraordinary and the service will be outstanding.

ClearOne is a multi-national company based in Salt Lake City, Utah with offices and account managers located in key areas of the U.S. and Europe. ClearOne is traded on the NASDAQ under the symbol CLRO.