This document provides a high level overview of the Polycom MGC/MGC+ Unified Conferencing Bridges, including a brief product description of each video MCU platform, and focusing on end-user “ease of use” attributes inherent to the Polycom MGC bridge.

A quick look at on-demand MGC “meeting rooms” is provided to illustrate how easy it can be for end users to initiate their own multimedia conferences, including an end user scenario based on a typical day of a Polycom employee, as well as a description of the “behind the scenes” technology that enables this function (Unified Conferencing Suite.)
TABLE OF CONTENTS

Overview - Video Conference Network Infrastructure (sample diagram on page 4) ..... 3
Introduction – MGC/MGC+ Multipoint Unified Conferencing Bridges ...................... 5
Overview of MGC-25, MGC+50 and MGC+100 .............................................................. 6
Ease of Use with MGC/MGC+ Conferencing Bridges .............................................. 7
Managing the MGC+ Conference Bridges with MGC Manager .............................. 11
Summary – The Value Proposition of Deploying A Polycom Multipoint Conferencing Bridge
.............................................................................................................................................. 12
Polycom MGC/MGC+ Unified Conferencing Bridges
Solution Overview

OVERVIEW - VIDEO CONFERENCE NETWORK INFRASTRUCTURE (SAMPLE DIAGRAM ON PAGE 4)

As companies continue to depend upon communication technologies to allow them to effectively utilize and leverage their employees, the deployment and use of multipoint videoconferencing is quickly becoming mainstream in many organizations.

Until recently, owning and operating a multipoint video bridge (commonly referred to as an MCU) was too expensive and too technically complex for most organizations. Today, deploying a video MCU is not only much less expensive than only a few short years ago, but easier to deploy and manage as well, often taking advantage of an organization’s existing IP network.

Companies both large and small can benefit from video bridges designed specifically to meet their needs, from simple IP-only networks that are low-cost and focus on ease of use, to large, complex “unified” networks (voice, video, data over IP/ISDN/PSTN).

These larger video networks may require not only basic bridging, gateway and gatekeeper functionality, but other functions such as seamless interoperability with legacy equipment, full redundancy, firewall traversal solutions, high levels of security and sophisticated management and scheduling tools, to name a few.

Choosing the right conference network infrastructure products is an important first step towards building a reliable and high quality video conference network, with the video conference bridge providing the core of the conference network.

This overview provides high level information on Polycom’s unified conferencing bridges (MGC/MGC+) - please refer to product specific documentation for more information on other Polycom network infrastructure products.
Sample - Video Conference Network Infrastructure

MGC-25  MGC+50  MGC+100
Polycom Unified Conferencing Bridges

ReadiManager SE200  RSS 2000
Scheduling and Management  Recording and Streaming

IP/ SIP  ISDN/PSTN  IP

US Corporate Headquarters  Audio-Only Participants  Partner Agency

Client Agency or Partner  Road Warrior  Streaming Clients

IP

Road Warrior

Audio-Only Participants

Partner Agency

Streaming Clients
INTRODUCTION – MGC/MGC+ MULTIPOINT UNIFIED CONFERENCING BRIDGES

Polycom has a range of multipoint conferencing bridges which are purpose-built to meet the differing needs of small to large conferencing networks. The MGC/MGC+ platforms are unique in their ability to support voice, video and data – multipoint and gateway – scheduled and on-demand – over ISDN, IP, and VoIP/PSTN – including conference network management and scheduling software – on a single, flexible platform.

The flexibility and scalability of the Polycom MGC platforms enables them to be positioned at the center of the conferencing network, and deliver a complete range of conference services without the need for additional external technology. It also ensures that users receive a consistent conferencing experience no matter how they connect, as the same single platform is delivering service to them.

KEY COMPETITIVE DIFFERENTIATORS

- Unsurpassed platform architecture with both hardware and software resource sharing
- Superior flexibility and scalability with open slot chassis (MGC+50 and MGC+100)
- Proven reliability – over 4000 MGCs shipped to date worldwide
- Feature-rich conferencing services, for both audio and video conferences
- Multiple security options, from the user and conference level to network level
- Multiple call types – concurrent on-demand and scheduled conferencing

The MGC+ is the market leader today in delivering voice, video, data and web conference integration across circuit switched and packet switched networks. This enables enterprises and service providers to implement a solution that can meet their conferencing needs today, and expand both in terms of capacity and media as their needs grow.
OVERVIEW OF MGC-25, MGC+50 AND MGC+100

Polycom MGC-25
The MGC-25 is an economical and easy to use multi-network conferencing bridge, which while smaller in capacity than the MGC-50 and MGC-100, provides enormous value by supporting all the same features as the larger platforms. The MGC-25 is intended for either small bridging networks, such as work group environments, or large enterprise with distributed network requirements.

Highlights
- 2U, 19" closed chassis
- Orderable in 10 pre-set configurations
- Supports IP(SIP, H.323) and ISDN/PSTN
- Capacity - Up to 24 IP ports @ 384kbps
- Fast Set Up Wizard
- Continuous Presence and Video Transcoding
- Virtual Meeting Rooms with entry queue "greet and guide"
- IVR/DTMF conference management
- Supports dial in, dial out, on-demand and scheduled conferencing

Polycom MGC+50 (ReadiConvene)
The Polycom MGC+50 multipoint conference bridges are high performance, highly scalable MCU and gateway platforms that are world-renowned for reliability and quality.

The MGC+50 conference bridge solution, complete with integrated gateway, is targeted at general enterprise as well as specialized vertical markets (education, government, healthcare, financial, insurance, manufacturing, engineering, retail, etc.) who are looking for a robust and flexible conference bridge. Easy to install and deploy with the new “install wizard” and pre-configured “meeting rooms”, the MGC-50 is suitable for mid-sized to large networks. As with all Polycom MGC platforms, the MGC+50 supports IP (SIP and H.323) and ISDN/PSTN on a single platform.

Both the MGC+50 chassis and the MGC+100 chassis include an extra slot for the “IAM” module, which provides embedded voice/video conference management and scheduling software, comprised of the ReadiManager SE200 software suite.

Highlights
- Modular, 8 universal slot chassis
- IP (SIP, H.323) ISDN/PSTN, integrated gateway
- Up to 95 IP ports at 384kbps; 192 sites at 384K (e.g. 4 x audio+48, 4 x IP+48) in voice switched mode
- Hot swap modules
- Ease of use features include pre-configured virtual meeting rooms, with optional entry queues
- IVR/DTMF conference management
- Continuous Presence and Video Transcoding
- Supports dial in, dial out, on-demand and scheduled conferencing

Polycom MGC+100 (ReadiConvene)
The Polycom MGC+100 multipoint conference bridge offers the utmost in scalability, reliability and redundancy, and is targeted towards large, growth-oriented enterprise and service provider customers. Both the MGC+50 and MGC+100 share the same features and functionality, with the MGC+100 offering twice the port capacity and redundant power. Both platforms also support High Definition video (up to 2Mbps).
Highlights

- Modular, 16 universal slot chassis
- IP (SIP, H.323) ISDN/PSTN, integrated gateway
- Up to 190 IP ports at 384kbps; 300 sites in voice switched mode @ 384kbps
- Hot swap modules
- Redundant power supplies
- Hardware and software resource redundancy
- Ease of use features include pre-configured virtual meeting rooms, with optional entry queues
- IVR/DTMF conference management
- Continuous Presence and Video Transcoding
- Supports dial in, dial out, on-demand and scheduled conferencing

Ease of Use with MGC/MGC+ Conferencing Bridges

Scheduled and On-Demand Conferencing

The MGC platforms support multiple call scenarios, including both Scheduled and On-Demand (reservationless) conferencing. Both scenarios can be supported simultaneously on all platforms, with options for entry queues, password protection, and virtual “meeting rooms”, which allow users to initiate an on-demand conference at any time, from any endpoint (audio or video).

Many organizations have a need for scheduled conferencing, meaning both people and resources (rooms, endpoints, bridge resources) are confirmed in advance. Polycom has multiple options for scheduling, including MGC Manager (which is included with all MGC platforms), Polycom WebCommander (which allows for end user scheduling through a web-browser or Outlook) and Polycom ReadiManager SE200, an “all-in-one” network appliance that provides an integrated suite of management and scheduling applications on a single platform – gatekeeper, device management, scheduling and conference management.

With on-demand conferencing, users initiate their own conferences without reserving MCU resources. Users can either dial the MGC directly (“meet me on the bridge”), or call individual end points directly (“conference on demand”) to initiate the conference.
On-Demand MGC “Meeting Rooms”

MGC meeting rooms are pre-configured by the administrator, and assigned to individuals or groups. Meeting rooms do not use up resources on the bridge – they are dormant until activated. Users access the meeting room either by the assigned ISDN/PSTN number, or IP address (usually an H323 alias to enable easier dialing). Meeting rooms can be configured to include entry queues with IVR prompts for greetings, password/PIN entry, etc if required.

When the first participant dials into the conference, the conference is automatically activated. Other participants may join the conference by dialing in. If dial-out participants are also defined for the conference, the system automatically dials out to these participants the moment the conference is activated.

An IVR-enabled Meeting Room can be configured to start only when the chairperson connects to the Meeting Room. In such a case, participants connecting to the Meeting Room prior to the chairperson connection are placed on hold and hear background music (when available). If the chairperson does not connect in a predefined time period the conference is automatically terminated. The conference is automatically terminated when the last participant quits the conference, when the chairperson exits the conference or manually by the operator - or conference chair.
On-Demand Unified Conferencing – User Scenario

Let’s take a look at what “on-demand unified conferencing” means to a typical Polycom employee in their day-to-day work, taking advantage of Polycom technology. Employee “Mary” has been assigned a personal meeting room, which for ease of use purposes is the same number as the extension on her desk phone – 4445.

9:00 am. Mary is sitting at her desk, working on a presentation. Bill, her boss, calls her on her desk phone, which is extension 4445. This is simply a point-to-point audio call.

11:00 am. Bill has some personnel issues to discuss with Mary, and wants to see her face-to-face to ensure a good discussion with full communication. Bill has sent Mary an email, asking her to join him in a video meeting using Mary’s meeting room number.

Bill simply dials Mary’s on-demand meeting room - 4445 - from his video endpoint, and Mary joins in by dialing the same number. Bill and Mary have now “met” on the bridge in Mary’s meeting room.

11:30 am. When the discussion is wrapping up, Bill asks how the presentation is coming along. Mary is still waiting on some data from colleague Ken, so Bill suggests they conference him in to their video call. Mary, using Microsoft Office Communicator, can see that Ken is “on line”, and sends him an IM telling him to join her video meeting room. Ken simply dials 4445, and he too is in the meeting. The point-to-point call has now seamlessly escalated to a multipoint call.

11:40 am. The team wants to view the presentation, which Mary has active on her desktop. Mary simply clicks on her Polycom People+Content IP icon – enters the IP number of her VSX – and immediately all colleagues on the call are viewing the presentation on their VSX endpoints, taking advantage of H.239 data sharing support on the MGC.
4:00 pm Mary needs to leave for the airport. However, she had scheduled an end of day video call with Bill, Ken and some other colleagues to give the final nod to the presentation. No problem – Mary simply joins the call from her cell phone, this time dialing the ISDN number that is associated with her meeting room, e.g. 678-740-4445.

That’s the flexibility of on-demand unified conferencing on the MGC – anytime, anywhere conferencing from any endpoint!

Understanding “Unified Conference Suite” (UCS) on the MGC

The previous scenarios show how easy it is for the end user to concentrate on getting their job done, while taking advantage of unified conferencing and collaboration application without having to understand the underlying technology. Simply by dialing a few numbers, or with a simple point and click, Mary and colleagues move from audio to video – to multipoint – to data sharing – without a thought to the technical details. The MGC handles it all transparently in the background.

Following is a brief overview on some of the MGC technology that helps makes all this happen. Unified Conferencing Suite (UCS) is a software application that runs on the MGC/MGC+ platforms, and provides the building blocks of an easy-to-use conference infrastructure.

There are a number of separate functions within the Unified Conference Suite that can either be used individually or combined together for a truly powerful conferencing experience. These functions are:

- **Interactive Voice Response (IVR) services for voice and video connections, on IP and ISDN.** This enables the Polycom MGC platform to support many new service developments including:
  - Entry queue / Single number access to all conferences from all networks and media
  - PIN code protection on conferences from all networks and media
  - User controlled conference functions via DTMF e.g.
    - Mute / Unmute, Question & Answer sessions, Voting
    - Chairperson controlled conference functions via DTMF e.g.
      - Mute / Unmute all other participants, control Q+A session, Control voting session, Initiate secondary dial out to additional users

- **Single Number per Conference** – the ability to allocate a single number for all users of a meeting to dial, rather than having to allocate individual numbers for each site

- **Automatic Rate Detection** – the ability to automatically detect and transcode a video connection no matter what the speed of connection.

- **Dynamic Conference Size** – the ability to have an open-ended conference size, rather than having to specify the exact number of users beforehand.

- **Undefined Participants** – the ability to create a conference with generic users rather than having to waste time specifying the details of every site that will connect

- **Automatic Conference Termination** – the ability to automatically terminate a conference and release resources if no one connects into a meeting or after everyone disconnects.

- **Automatic Conference Extension** – the ability to automatically extend a conference beyond its scheduled duration if resources are available to do so.
- Meeting Room – the ability to have a dormant reservation running on the conference bridge. Dialling into a specific number on the system activates the reservation. This enables users to create instant ad-hoc conferences without the need for a central administrator or access to user-based scheduling systems.

MANAGING THE MGC+ CONFERENCE BRIDGES WITH MGC MANAGER

Operations support and system administration of the Polycom MGC/MGC+ platforms are accomplished using the MGC Manager application that has already proven its capability with operations departments worldwide.

MGC Manager enables an operator or administrator to view and manage all system chassis resources in a single view as well as monitor, provide operations support and administer a global network of audio and video MCUs and gateways.

Using MGC Manager an operator is able to diagnose hardware fault conditions down to the DSP level on a resource module. DSPs found to be in a fault state can be reset to bring them back on-line or taken off-line allowing the MCU to continue operations using the remaining resources on the module.

The ability of one operator to support multiple bridges and gateways, plus the ability to have multiple operators support the same MCU or gateway are the capabilities that are required to support networks deployed across multiple time zones and where operations back-up is essential.

The ability to use ONE SYSTEM MANAGEMENT interface to support audio and video MCU and gateway systems and conferences is unique and delivers significant benefits when looking at providing support and maintenance across a complete conferencing network.
SUMMARY – THE VALUE PROPOSITION OF DEPLOYING A POLYCOM MULTIPOINT CONFERENCING BRIDGE

It is possible to deploy a video network without an MGC/MGC+ conferencing bridge. However this starts to impose serious limitations on the way in which voice and video conference calls are handled.

The MGC platforms are the only multipoint conferencing and gateway system on the market that offers full transcoding of all call elements. This includes audio algorithms, video resolution, call speeds and frame rates. In addition the transcoding is done with true translation between the different call elements rather than reducing them back to the lowest common denominator.

The lack of MGC within a conference network also starts to impose serious restrictions on the way multipoint conferences are defined and booked. No longer is it possible to have dormant meeting rooms that are activated simply by calling them. Users now have to schedule a conference in advance either themselves or through an administrator. In addition the conference will have to be defined in detail with respect to number of users, specific start time and end time and call profiles. All the ease-of-use facilities that the unified conference suite provides such as automatic conference extension and termination, undefined participant numbers and automatic speed detection are no longer available. The lack of these facilities on a conference bridge would be classed by any user who has previously experienced them as a step backwards in conference technology.

The ability to offer a single dial in number to all conferences, and simply attend the correct meeting by entering a correct PIN code via DTMF tones, irrespective of media or network makes conference access simplicity itself.

No other solution on the market today combines such a powerful set of conference features with simple, easy to use access and control.

For Polycom’s complete line up of conference network infrastructure products, please contact your Polycom representative, or refer to the NSD (Network Systems Division) section on www.polycom.com.