

# Clear-Com Concert™



**Advanced Security and Voice Quality**  
For Effective Communication and Collaboration

## About Clear-Com®

Clear-Com, an HME company, is a trusted global provider of professional real-time communications solutions and services since 1968. We innovate market proven technologies that link people together through wired and wireless systems.

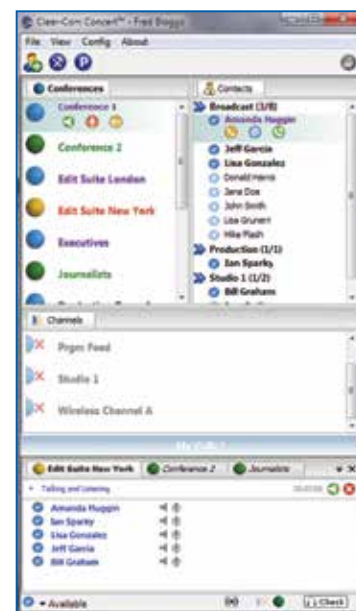
Clear-Com was first to market portable wired and wireless intercom systems for live performances. Since then, our history of technological advancements and innovations has delivered significant improvements to the way people collaborate in professional settings where real-time communication matters. For the markets we serve – broadcast, live performance, live events, sports, military, aerospace and government, our communication products have consistently met the demands for high quality audio, reliability, scalability and low latency, as well as addressed communication requirements of varying size and complexity. Our reputation in the industry is not only based on our product achievements, but also on our consistent level of customer engagement as well as continuous dedication in delivering the right solution for specialized applications and the expertise to make it work. Around the globe and across markets, Clear-Com innovations and solutions have received numerous awards and recognitions for our ingenuity and impact to customers.



## For Effective Collaboration and Communication

Clear-Com Concert provides a secure and scalable solution for providing high quality voice communication between single or multi-site facilities over an IP infrastructure. The system is designed to be highly configurable and rapidly deployable, enabling an intuitive point-and-click interface for mission-critical applications anywhere in the world.

Concert is an ideal solution for linking multiple communications systems together to facilitate point-to-point and multi-point conferencing between participants connected via LAN or Internet. Supported on both PC and MAC operator clients, Concert can function as a stand-alone system or as an audio communications bridge between numerous geographically distributed locations allowing real-time, organized and secure collaboration between local and remote users. The easy-to-use system supports multiple widely distributed remote Interface Gateway servers and provides the ability to bring in external audio sources seamlessly, such as other Clear-Com or third-party analog equipment. Concert's expandability and seamless integration makes the user a conductor of their own communications across multiple sites or venues.



### CONCERT FEATURES

- Provides private and secure point-to-point or multi-point conference communication
- Integrate 4-wire audio sources/destinations from anywhere in the world
- Instantly connect new users to in-progress voice conferences
- Initiate ad-hoc parallel conferences or "whisper channels"
- Shows status and availability of all contacts, channels and conference participants in real-time
- User can listen to interruptible program feed or any audio feed
- Notifications provided to clients when software updates are available
- Integrated echo-canceling technology enables hands-free communications
- Warning message given when no microphone audio is detected
- Available in full pre-loaded server and software-only options
- Seamless integration with third-party applications such as ENPS
- Compatible with MAC OSX (Leopard or Snow Leopard) and Windows 7

### About I.V.Core Technology

Clear-Com's Instant Voice Core (I.V.Core) is a suite of Internet Protocol (IP) technologies at the heart of Clear-Com Concert.

I.V.Core delivers:

- Low latency through the use of an intelligent decision engine that routes only the audio packets containing needed voice information.
- Superb audio quality through the use of wideband CODECS, enabled thanks to a highly optimized design that eliminates multiple encode/decode cycles.
- Encryption, noise-reduction, and error-recovery through proprietary algorithms optimized for human voice characteristics.

Traditional Voice-Over-IP solutions mix and encode audio at the server, consuming valuable IT network resources, reducing audio quality, and adding latency. In contrast, the I.V.Core routes only packets that contain actual voice data, mixing and encoding them just once at the client, thereby delivering a higher quality voice communications experience than ever before possible.

# CONNECTIONS WITH THIRD-PARTY 4-WIRE AUDIO DEVICES

## GLOBAL CONNECTION OF AUDIO DEVICES AND USERS

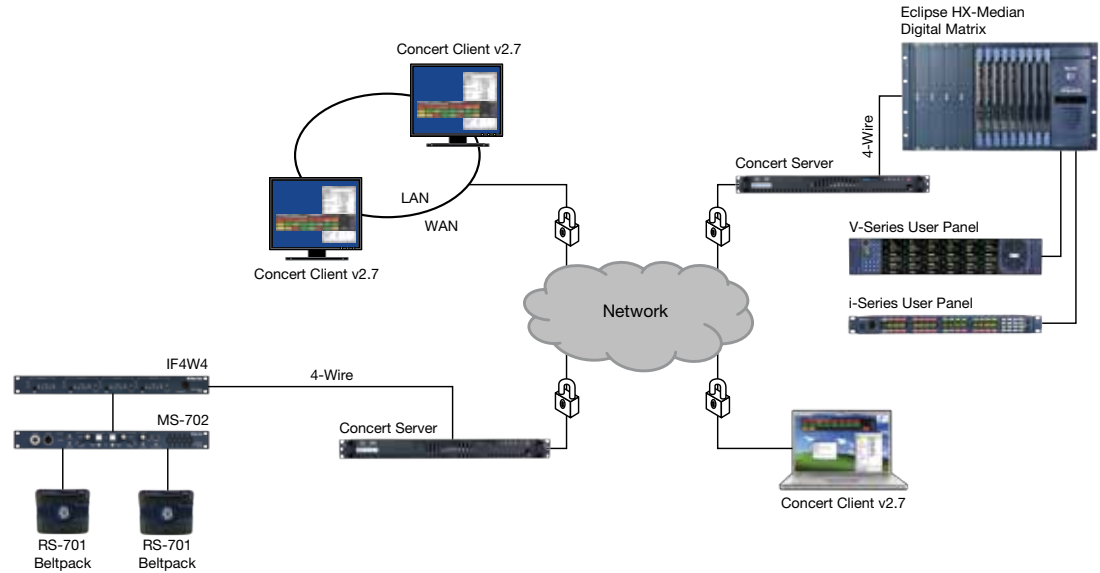
In television, complex live events, or any size production, key crew members typically talk on closed-circuit two-wire and/or four-wire intercom systems, restricting external communications devices from joining the intercom loop.

The types of four-wire audio devices found in many facilities where high-coordination productions take place are existing intercom systems, public announcement (PA) systems, or external audio programs. Concert is able to integrate these four-wire audio programs into the Concert server and the Concert client.

Concert unifies the intercom equipment over an IP network by supporting a high number of concurrent four-wire channel connections into the server and in the client via commercially-available audio interface boxes.

Concert easily interfaces with these external audio devices:

- Partyline systems
- Public Announcement systems
- Paging systems
- External audio feed to/from Concert
- 4-wire interface to Clear-Com or third-party systems
- Seamless integration to third-party applications supporting ActiveX



# REMOTE ACCESS TO EXISTING INTERCOM SYSTEMS

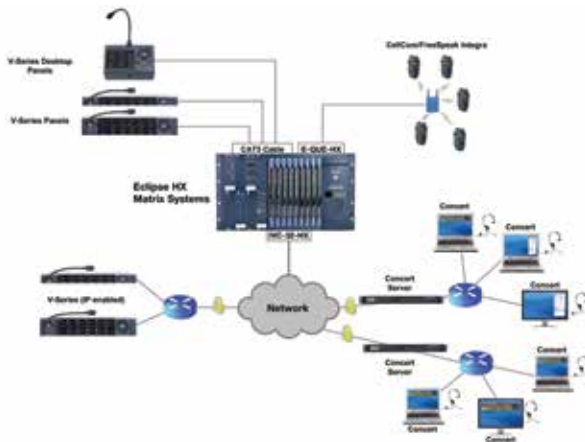
## EXTENDING INTERCOM CAPABILITIES TO NEW, REMOTE LOCATIONS

At many high-coordination production facilities such as broadcast stations, live performance venues (theatres, concert halls, and performance auditoriums) and sports venues where Clear-Com's professional intercom systems are already in place, Concert can offer intercom capabilities to users in remote locations where traditional hardware intercom systems may not be available.

Concert, being a cost-effective and flexible Intercom-over-IP solution, allows permitted users with internet access to

easily communicate with other crew members on the Clear-Com partyline and/or matrix intercom circuit who are using hard-wired panels and wireless beltpacks.

This connection between Concert and Clear-Com's Eclipse HX matrix system is enabled by the IVC-32-HX high-density IP card, which provides 32 IP connections.



IVC-32-HX Card



Concert users who are connected to the Eclipse HX matrix system use the "Intercom" mode, a customizable user interface that emulates a traditional intercom station, to control their intercom operations. Users drag-and-drop contacts into the intercom panel for easy, one-button access, assigning auto answer, listen and push-to-talk functions per key. Both Concert and Eclipse HX panel display labels appear on the same panel for ease of accessibility to the users within the network. The Concert system and clients can operate separately if an Eclipse interface is disconnected.

### IVC-32-HX FEATURES

- High density IP card with 32 connections
- Each IP port uses a G.722 CODEC for low latency high performance audio
- Single Ethernet, full-duplex, auto-detect, 10x/100x connection to the frame
- IVC-32-HX card fits into the Eclipse HX-Delta, Eclipse HX-Median or Eclipse HX-Omega matrices
- Up to four IVC-32-HX cards per Eclipse HX system frame, allowing up to 128 potential Concert users on the intercom network. With Concert, no additional intercom hardware investment or infrastructure cost is required.

## ENABLING COST-EFFECTIVE COMMUNICATION AND COLLABORATIONS ACROSS THE ENTERPRISE

The sophistication of voice conferencing and communications solutions have helped transform the way organizations do business. These solutions offer professionals remote connections across time zones, cost-effective utilization of standard IP infrastructures and cost savings from travel reductions.

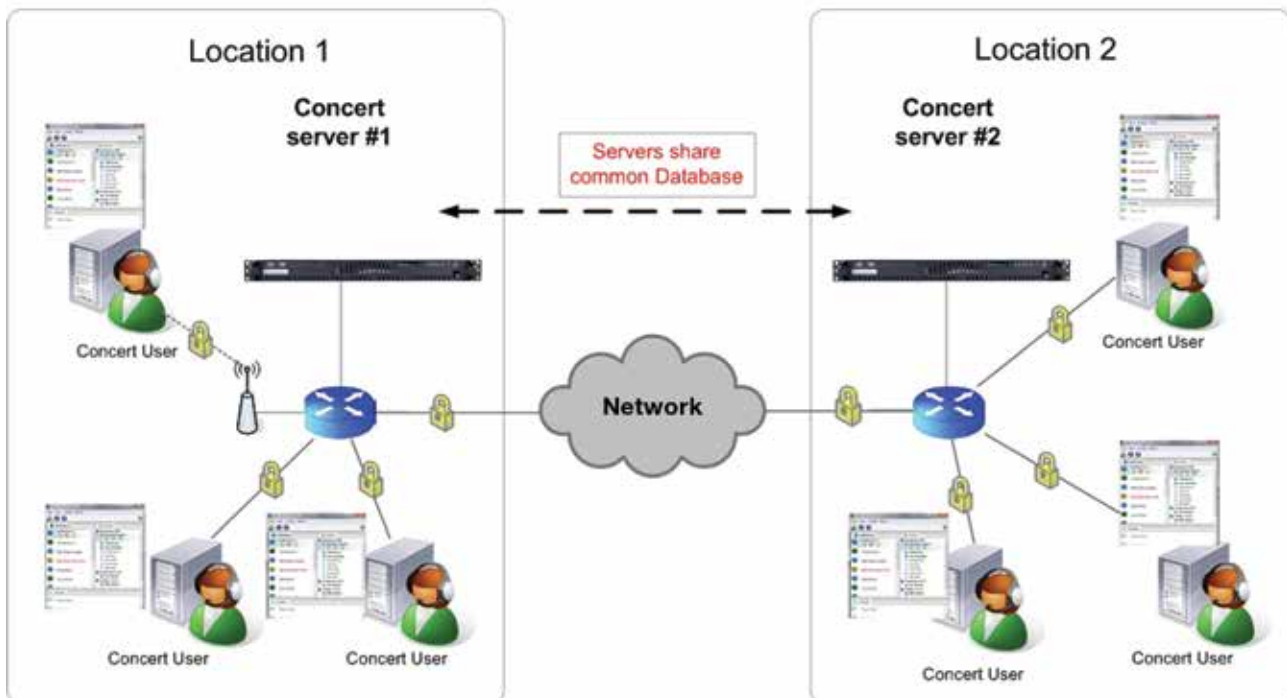
Clear-Com Concert as a standalone solution is a powerful communications tool for professional work groups, distant learning programs and virtual event organizations to provide connections between or among collaborating participants. This connection could expand across employees, customers, business partners, or industry networks from any location in real-time – be it in the main office, branch offices, or remotely from home offices or hotels – providing the same level of engagement to conduct business across geographies and time zones.

With Concert, work teams can easily conference on their computers over any LAN, WAN or Internet, wired or wireless. In a Single Server deployment, a single Concert server provides audio routing across all Concert users in the communications environment. Individual Concert users can login from any worldwide location via a standard

internet connection. In a Multi-Server deployment with two Concert servers, each server controls the audio routing within its LAN or WAN if a remote client is logged into that server. Both servers use a common database in order to ensure all Concert members can be seen from any Concert client.

### KEY BENEFITS

- **Increased accessibility:** Direct connection with local and remote users
- **Cost-effective:** Eliminate cost of installation and cabling, and long-distance conference calls
- **Rapidly deployable:** System setup in less than an hour
- **Increased productivity:** Talk on-demand
- **Reduced complication:** No need to pick up a phone or connect to conference bridges
- **Connectivity:** Capability to connect external audio channels



## TECHNICAL SPECIFICATIONS

Concert, scalable to many hundreds of users, is designed with proprietary protocols and error recovery algorithms for critical applications. The system uses AES 128-bit encryption to provide “online banking” grade security for protecting the privacy of transmissions. Supporting a variety of CODECs including wideband and ultra wideband, Clear-Com Concert captures more components of the human voice for speech quality enhancement.

SYSTEM PERFORMANCE	
<b>No. of Users (incl. 4W interfaces)</b>	200+
<b>No. of People Per Conference</b>	Unlimited
<b>Voice Quality</b>	With built-in echo cancellation, built-in redundancy, packet loss reconstruction, recovery algorithms and jitter buffer optimization
<b>Audio Bandwidth</b>	Supports Linear, G722 and Multiple Speex CODECs
<b>Bandwidth Utilization</b>	Select best codec depending on the connection between both ends
<b>Bandwidth For Single Connection</b>	Average of 64kbs per active talker

RECOMMENDED ACCESSORIES	
<b>Headset</b>	USB Headset (generic)
<b>USB Audio Interfaces</b>	Unlimited
<b>PCIe Audio Interfaces</b>	*AudioScience ASI5640®

CONCERT SERVER REQUIREMENTS		
<b>Operating System (OS)</b>		CentOS 6.2 Linux, Red Hat Linux*
<b>Processor</b>		Intel® Pentium® G6950 2.80GHz Processor or better
<b>Memory</b>	<b>RAM</b>	1 GB
	<b>Hard Drive</b>	10 G free hard disc space
<b>Network Card</b>		100 MB Ethernet interface or better
<b>USB</b>		USB 2.0

CONCERT CLIENT REQUIREMENTS		
<b>Operating System (OS)</b>		Windows XP (32-bit), Windows Vista (32-bit), Windows 7 (32-bit), Leopard v10.5, Snow Leopard v10.6
<b>Processor</b>	<b>Windows</b>	Intel® Pentium® 4 Processor (2.8 GHz) or comparable
	<b>Mac</b>	Intel® Core® 2 Processor (2.4 GHz or 2.66 GHz) or comparable
<b>Memory</b>	<b>RAM</b>	2 GB
	<b>Hard Drive</b>	60 MB free hard disc space
<b>Network Card</b>		100 MB Ethernet interface or better
<b>Audio Device</b>		Built-in (on board) audio device USB headset (recommended) USB conference phones



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