WHITE PAPER

Cloud Conferencing: Facilitating Easy Online
Meetings with Clear Audio & Video

*How OmniJoin™ cloud computing technology delivers easy,
high-quality online meetings within real-world cost, bandwidth,
and security constraints*

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Cloud Conferencing: Facilitating Easy Online Meetings with Clear Audio & Video

Time compression, travel limits, and increasing complexity in every walk of professional life have driven web and video conferencing from new application to essential services – just like phone, FAX and email before it. This paper describes how OmniJoin™ cloud computing technology and widely available audio/video peripherals deliver easy, high-quality conferencing sessions within IT-friendly network bandwidth and security policies – the essential ingredients for successful business-to-business online meetings.

About the OmniJoin™ Service

OmniJoin™ web and video conferencing is an online service designed for businesses of all sizes. It is a flexible and complete communication solution, spanning the full spectrum of web conferencing, advanced collaboration, and multi-point VoIP / video conferencing features. It works virtually anywhere web connections are available. But the OmniJoin™ system has been optimized for multi-office, enterprise network and small business sites that service corporate customers – everywhere reliable connections across firewalls and proxies, security, and a manageable bandwidth footprint are important requirements.

OmniJoin™ web and video conferencing is offered under the Brother Online™ umbrella – a suite of web-based services for business. The OmniJoin™ cloud is global, with a fully Unicode-enabled user interface and associated sales and support services.

The OmniJoin™ design paradigm is a fully interactive online meeting, where the host, at a click of the mouse, can allow anyone and everyone in the meeting to actively participate in all live sharing, audio, and video features. A new OmniJoin™ user begins with a default "virtual conference room", with illustrated tool buttons and prompts to breeze him through the typical online meeting process. Online training managers and other power users get more controls over scheduling, conference room properties, layouts, and real-time privileges that are often used in more formal settings.

Multi-point video conferencing is uniquely dependent on high performance and low round-trip latency among all the components in a conference session. OmniJoin™ technology helps address every component involved — including cloud computing, end-to-end parallel processing, and dynamic scalable video (automatic bandwidth adjustment) — to help improve the speed and quality of the online meeting experience.

In addition to leveraging these new technologies, OmniJoin™ online meetings take advantage of consumer economies that have made video ubiquitous. Webcams and HD pan-tilt-zoom conference room cameras are now available virtually worldwide at reasonable prices. The latest USB 3.0 web cams deliver boardroom quality, high definition (HD 1080) video at plug-n-play peripheral device prices.

How it Works

Cloud computing, Parallel Processing, and Dynamic Scalable Video

Previous generations of video conferencing solutions brought multiple, installed-site video endpoints together – often boardrooms or large facilities – via dedicated network access and a hardware multichannel unit (MCU) in the middle of a static, hub-and-spoke layout. This MCU-centric approach is still used in many telepresence installations today. This architecture can deliver high-quality video, but the dedicated hardware cost, static public/private IP routing challenges, limited desktop reach, multiple distant hardware touch points to enable security, and complexity adding collaboration tools have kept many of these systems limited to boardrooms and *internal-VPN-only applications*.

OmniJoin™ conferencing solves these problems by using today's cloud computing technology and widely available HD video peripherals.

The OmniJoin™ system works by dynamically assigning multiple video conference participants, aka "endpoints," to the best, nearby virtual conference server in the cloud, thereby reducing latency time. The cloud provides all the security, connection logic, and collaboration components as needed.

To further accelerate performance, OmniJoin™ technology uses multi-core, parallel processing, including multimedia processor extensions throughout the cloud and all endpoints.

The cloud and end-to-end parallel processing technologies deliver speed and load-bearing capability. But customer operating environments vary a great deal, especially among regional offices and "outside" participants. Success in these scenarios dictates that OmniJoin™ successfully operate over existing networks and changing, real-time bandwidth conditions.

+ Cloud Computing
+ Multicore Parallel Processing End-to-End
+ Automatic Bandwidth Adjustment

= Fast, Clear Audio & Video

To address this challenge, the OmniJoin™ system uses dynamic scalable video, a type of MPEG-4 variable bit-rate encoding that provides HD quality where bandwidth is adequate, yet scales as needed – on a per connection basis – to provide the best possible video under any condition. It uses this technology to automatically balance video and live sharing quality with processor power and bandwidth availability.

Applying all three technologies – **cloud, parallel processing, and dynamic scalable video** – results in fast, high-quality multi-point video conferencing experience over virtually any Internet connection, without saturating conference participants' networks.

Easy to Use

The OmniJoin™ solution closes the traditional gap between easy, but low-powered web conferencing online services and high-quality, complex MCU-centric video conferencing systems. The performance technologies described in the 'How it Works' section above provide clear audio and multi-point HD video, while standard web links and push-button simplicity are instantly familiar to anyone who can surf the Web. Today, power and simplicity are available in a single, cloud-based online service – OmniJoin™ conferencing.

Welcome to Low, or No, Learning Curve

Standard Web Links.

The OmniJoin™ cloud is accessible via a Web browser from virtually any business desktop or conference room.

Default Conference Room.

Every OmniJoin™ "host" gets a default conference room that is maintained on his behalf. This room is always available, and its conference room link (URL) can be placed in email signature blocks, electronic business cards, electronic calendar invitations and so on. This "room" is available to meet with virtually anyone, anytime, anywhere they have Internet access.

Animated Start Screen.

Upon entering their online meeting room, OmniJoin™ hosts are presented with an animated start screen with prompts to step through the typical online meeting process, including inviting participants, turning on every-one's audio and video, and starting a document or live sharing session. New hosts can simply follow these prompts without exploring tool ribbons or other more advanced features.

Illustrated Tool Ribbons.

For easy, day-to-day online meetings, OmniJoin™ software presents illustrated tool ribbons organized around the most often used features.

Mouse-Overs for Every Feature.

New hosts can also "mouse-over" any tool button for a more detailed description of what happens when that feature is used. This is an excellent way for new uses who have never tried any web conferencing service be-fore to get familiar with basic controls.

At-a-Glance, Real-Time Status.

Much like a cell phone display, the OmniJoin™ solution provides easy, at-a-glance real-time status via its "5-bar" System Rating (processor and memory availability) and Connection Rating (latency and bandwidth) displays. Anyone in the meeting can easily check his or her system and connection status. If their connection is lost for any reason, the OmniJoin™ service automatically initiates a reconnection sequence.

Live Contact List.

For those who use online meetings frequently – whether as part of a sales group, distributed project team, or training organization – OmniJoin™ conferencing offers a free, installable software tray applet that puts an 'Enter My Meeting Room' button right in the system tray. This optional add-in also includes Live Contact List (presence management / online status), pop-up messaging (secure IM), and detailed conference room controls.

Point and Click Audio/Video Controls

A/V Device Wizards.

As more people start using online meetings, particularly those that have never used consumer VoIP and video services, plugging in and configuring web cams and headsets can be a big step. OmniJoin™ configuration wizards make this step considerably easier by providing step-by-step audio and video device setup guidance. The wizards help users select and test their peripheral devices, and can make all relevant OmniJoin™ configuration settings. These settings can be saved to make clicking into the next meeting immediately productive.
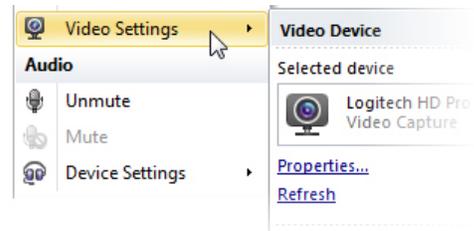
Live Device Detection, Point-and-Click Selection

In subsequent meetings, the OmniJoin™ system automatically detects all audio and video devices, and provides warnings for devices that are still in use by other applications. In addition, visual tools are provided for selecting any available device by name. For those with multiple A/V devices, they can select a different device in real-time. There is no need to exit or restart the application, as is the case with many competitive products.

Play All, Unmute All.

To quickly get to the meeting topic at hand, OmniJoin Hosts can start everyone's audio or video at the click of a single button. As new users get more familiar with OmniJoin™ functionality, they can take advantage of user-by-user controls and conference room properties that automatically start video at prescribed settings.

Superior Multi-point HD Video

OmniJoin™ technology produces high-quality video. The performance and dynamic scalable video technologies described in the "How it Works" section, above, deliver multi-point HD at up to 1080i, with full frame rates for customers with adequate bandwidth – the quality used in telepresence studios – and automatically adjusts for individual users connecting through wireless ports or other less than ideal network conditions.

Desktops & Rooms.

The OmniJoin™ cloud easily expands video conferencing from traditional installed-site application to accessible service from any desktop or room, including both company employees and "off network" participants virtually anywhere.

Multiple Layouts.

OmniJoin™ conferencing supports dual-and multi-monitor set-ups and a wide variety of layout options. The latter includes default 'video on left, sharing on right' view, video-conferencing only layouts, tiled, composite, picture-in-picture, and floating videos – including multiple floating HD videos. This variety supports both entry-level users and online trainers with a mix of teaching styles, as well as experienced online meeting Hosts that desire more control over the video conferencing and live data sharing experience.

Real-Time Optimization.

OmniJoin™ dynamic scalable video works in concert with internal system and connection rating metrics. These real-time inputs are used to dynamically balance video quality and its bandwidth consumption, processor power, and memory availability. This automated process delivers a more "fluid" conferencing experience while taking care not to over-saturate network connections and leaving ample processing power for live sharing features and other applications.

Seamless Experience.

The OmniJoin™ user interface, performance, and real-time optimization technologies work together to seamlessly integrate audio, video, and advanced collaboration capabilities. The result? A synchronized, life-like experience for every conference participant. Since OmniJoin™ technology manages all software components

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with end-to-end parallel processing throughout, it achieves an extraordinary conferencing experience. With such a quality experience, it is easy for attendees to forget they are in an online meeting, not sitting across a desk.

Virtually No Limits on Video Quality.

Image quality is a function of the video capture hardware (i.e., the camera) and bandwidth availability for each participant. Given adequate bandwidth, one can use the OmniJoin™ system for telepresence quality and multi-point, HD video conferencing applications (mbps). An OmniJoin™ Host can conference with any number of participants: 5, 10, 20 or more, subject to their online service Plan, system administrator limits, if any, and practical screen space and bandwidth considerations.

VoIP & Telephone Audio

Multi-point, Full-Duplex VoIP

Most speakerphones and online meeting products use simplex audio (only one speaker can talk at a time). OmniJoin™ meetings deliver multi-point, full-duplex VoIP. All participants that are not muted can speak at any time. Much like in an in-person meeting, you ca n hear others, interrupt the speak-er and talk at the same time.

High-Quality, Wideband Audio

OmniJoin™ controls default to wideband audio encoding, which renders audio quality better than land-line telephone conferencing. The improved audio quality further adds to the in-person-like meeting experience.

Dynamic Acoustic Echo Cancellation

Acoustic echo cancellation(AEC) is a well-known audio technology that allows the use of microphones apart from headsets. This is typical of conference room scenarios and becoming more popular with desktop web-cams that ship with built-in microphones. The science behind many existing AEC products assumed low laten-cy or fixed latency between all end-points. This explains why Internet VoIP conferencing often sounds so poor – the assumptions do not hold. It also explains why so many vendors drop to simplex audio when there are more than two participants. OmniJoin™ Dynamic AEC, on the other hand, was designed with this challenge in mind. It supports full-duplex, multi-point connections with highly variable and independent latency times over each connection.

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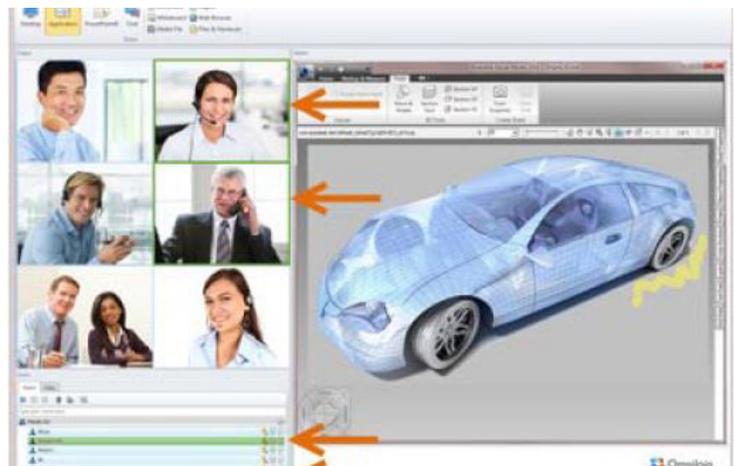
OmniJoin™ acoustic echo cancellation allows participants to use virtually any audio input, even webcam microphones. OmniJoin customers can also elect to override default settings and use hardware-based AEC found in many existing conference room installations.

**Traditional Telephone Conferencing Options (Teleconferencing/Telephone Bridging)**

For customers that prefer traditional telephone audio, the OmniJoin™ system offers teleconferencing options. This may be useful for customers that conference with different participants every day, such as in sales applications. All teleconferencing options are available during the OmniJoin™ free trial period.

When teleconferencing is activated, the telephone number is shown in all conference room property sheets, default meeting invitations, and real-time Host call controls. In that case, all attendees will now use consistent-quality, familiar telephone controls, rather than VoIP.

OmniJoin™ teleconferencing options include toll, toll-free, dial-in and, for security-conscious customers, dial-out calls with logging. [Note: teleconference plans and availability may vary by country; please visit the OmniJoin™ Compare Plans web page or Contact Sales for details.]

Advanced Collaboration Tools

The same real-time communications framework that supports multi-point VoIP and video also supports OmniJoin live data sharing. All three data types — live sharing, VoIP and video — are sent over encrypted TCP/IP connections. OmniJoin™ technology automatically adjusts image quality, processor and bandwidth availability for each participant, synchronizing all data before display. In this manner, users can enjoy a seamless web, VoIP and video conferencing experience.
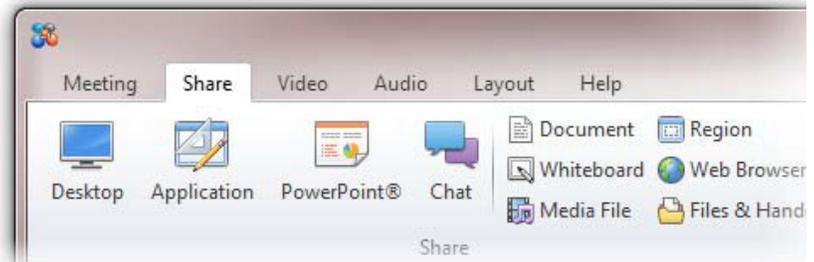
Share Anything Accessible

An OmniJoin™ host or presenter can share virtually anything accessible to him, including documents, presentations, computer desktops, applications and more. In addition, they can take advantage of live white boards, annotation over documents and live applications, remote control, file handouts, and even play media files while conferencing for a truly collaborative, online meeting environment.

What's more, OmniJoin™ participants do not need to install any codecs or viewers. All they need to do is click on a web link to join an online meeting. The OmniJoin™ system takes care of all audio, video, and live sharing data capture --including capture, encoding, and compressing all audio, video, live screens, media display, and system audio – participants can just sit back and watch.

Document, PowerPoint Presentation & PDF Sharing.

When sharing documents, the rich text content is sent over the Internet only once. The resulting display includes the original text in clear vector format; only the raster images are compressed, if needed. The result is a high-quality, clean and crisp display, even when zooming in and out. In addition, every page has a thumbnail so the presenter can easily navigate throughout the presentation, going directly to any page or slide as needed.

Desktop, Application, Region & Browser Sharing.

These features allow an OmniJoin™ presenter to share all or part of a screen. OmniJoin™ annotation tools work while sharing an application, so that the presenter can focus attention on very specific items being shown. For even more detailed work, OmniJoin™ technology offers region sharing, where the presenter can "lasso" a specific region of a screen, and share only that portion of his display.

Whiteboarding & Text Chat.

Whiteboarding with team-wide annotation and text chat are standard real-time collaboration tools. Top: PowerPoint presentation sharing with OmniJoin™ hosts can control who in the online meeting has privileges annotation and a floating video bar. Middle: to use these features. OmniJoin™ text chat supports chatting with Application sharing with annotation and a combination of "best fit" and 'floating' video.
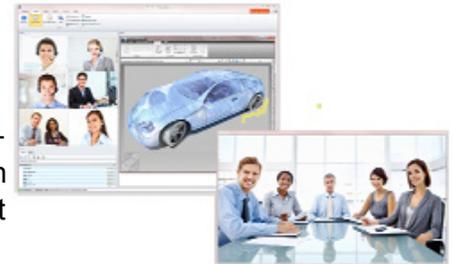
Annotation.

The OmniJoin™ solution supports annotation over documents and live applications. At the host's discretion, any participant can be granted annotation privileges. Document annotations can be saved for later review or further action.

Handouts and File Transfer.

To foster the in-person-like meeting experience, OmniJoin™ conferencing supports person-to-person File Transfer and Group Handouts. Handouts can be used to distribute any electronic document to everyone in the online meeting, just as if you were meeting in a physical conference room.

Top: PowerPoint presentation sharing with annotation and a floating video bar. Middle: Application sharing with annotation and a combination 'best fit' and 'floating' video. Bottom: Media file sharing with 'best fit' video. The movie is playing in its native HD format (fighter pilot) while participants talk about it in real time.

Complete Rich Media Capabilities

Record & Playback.

OmniJoin™ hosts can record their online meeting, including all live sharing, VoIP and video. The result is a complete rich media recording of everything that transpired in the meeting. The recording output is saved in an industry standard format (MP4). Customers are not locked into any proprietary outputs or additional manual steps, and customers can edit or further process their recordings with commonly available editing suites.

Live Media Sharing.

OmniJoin™ parallel processing architecture allows presenters to share media files. A media file, such as a training film or product demonstration movie, can be played in a multi-point VoIP and video conference. Everyone can watch the movie and each other's reaction at the same time. Any pause and play commands are synchronous, so everyone gets the same experience at the same time, just like meeting in person and watching a conference room TV. To the extent bandwidth allows, OmniJoin™ technology can even display multi-point video while playing an HD movie file at full resolution.

IT Friendly

The real-time performance, easy-to-use welcome screens, and deep collaboration features described in the sections above address the OmniJoin™ user community. This section goes into more detail on OmniJoin™ cloud-based architecture and its security, bandwidth, user and feature controls – all features designed to support group or company-wide deployments in IT-managed environments.

Distributed Processing Architecture

Cloud Computing.

Using cloud computing and widely available A/V peripherals is a relatively new approach to video conferencing. It has several advantages over traditional, room-based systems, including dramatically simplifying installation and maintenance, helping reduce camera costs and completely eliminating MCUs. Other advantages include mixing and matching desktops, conference rooms, webcams and HD in the same conference, along with a full suite of built-in web conferencing and live sharing tools. OmniJoin™ conferencing is a true cloud computing implementation, and takes advantage of its distributed architecture to select the best nearby server to reduce round-trip latency times.

End-to-End Parallel Processing.

OmniJoin™ conferencing uses multi-core, parallel processing end-to-end, including all its virtual conference servers and all the cores on the user's desktop. In most corporate environments, the technology refresh cycle for desktops is faster than the refresh cycle for installed-site conferencing equipment. It brings more process-

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ing power to a multi-point application and it helps future-proof customer video conferencing investments. As processing power grows and the customer's technology refresh cycle repeats (e.g., Intel Core 2™ Duo, quad-core, 8-core, Windows® 7 64 bit, etc.), video capabilities are automatically expanded. This is unlike self-contained hardware products which are often left behind by technological advances.

MMX/SSE Multimedia Processor Extensions

OmniJoin™ technology does not stop with cloud computing and parallel processing. It takes advantage of Intel® MMX/SSE multimedia processor extensions too, off-loading central cores from media-related computation and further accelerating live sharing and the overall conferencing experience. It is the combination of cloud computing (best nearby server), multi-core parallel processing including multimedia processor extensions, and dynamic scalable video (automatic bandwidth adjustment) that ultimately delivers a fast multi-point video over shared internet connections.
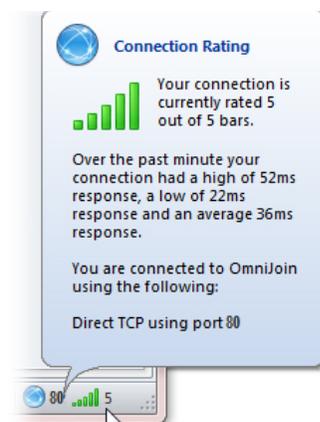
Security

While many OmniJoin™ technologies such as cloud computing, parallel processing and multi-point video advance the science of online meetings, other areas benefit from emphasizing industry standards. The latter include PC-based audio/video peripherals to reduce cost; web services (URLs, html, xml, ports) for broad compatibility; and industry standard security to meet policy and regulatory compliance. What is notable is the extent to which OmniJoin™ conferencing embraces the full spectrum of enterprise security requirements.

All OmniJoin™ software and online services use signed code. OmniJoin™ meeting software offers a multi-layer security model. It authenticates meeting hosts and provides conference host, presenter and participant-level passwords. All transmissions are sent via SSL3/TLS encrypted connections, using signed, third party certificates and public key infrastructure (PKI). This is the most widely deployed secure communications standard worldwide. All OmniJoin™conferencing and collaboration features are sent via encrypted communications, closing many security gaps found in other products (e.g., secure data, but unsecure VoIP).

Automatic Bandwidth Adjustment
MPEG-4 Dynamic Scalable Video (Automatic Bandwidth Adjustment)

As mentioned earlier in this paper, the OmniJoin™ solution uses MPEG-4 Dynamic Scalable Video for video encoding, compression and decoding. This is a type of variable bit-rate encoding adapted for multi-point video conferencing where bandwidth varies on a per connection basis. OmniJoin™ technology uses this codec in conjunction with Real-Time Optimization, balancing video quality, processor power and memory, and bandwidth availability.

Connection Rating
Your connection is currently rated 5 out of 5 bars.

Over the past minute your connection had a high of 52ms response, a low of 22ms response and an average 36ms response.

You are connected to OmniJoin using the following:

Direct TCP using port 80

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These components work together to provide the best video quality possible over a wide variety of existing network routes, while leaving ample processor power and bandwidth available to other applications.

While these technologies were optimized for "shared" connections, they work equally well for customers that provide dedicated internet access for special requirements such as guaranteeing HD quality for boardrooms and executive suites. In these cases maximum performance is virtually unrestrained. See also "QoS Compatibility", below.

Built-In Bandwidth Status and Network Diagnostics

At-a-Glance Status

All OmniJoin™ participants enjoy at-a-glance, 5-bar System and Connection Rating displays. These can be used by anyone for a quick system or network check and provides immediate feedback when the operating environment – e.g., an intermittent wireless connection from a hotel room – does not support the desired online meeting quality settings. While "mousing" over the 5-bar display, additional details are provided.

Experienced OmniJoin™ hosts can also check these ratings for anyone in their online meeting, providing reliable feedback on each user's environment.

Built-In Bandwidth Monitor & Network Diagnostics

Bandwidth Monitor

The OmniJoin™ Bandwidth Monitor allows IT staff to visually display the bandwidth consumption between a conference participant and the virtual conference server. It displays the total uplink bandwidth consumption along with Audio, Video, Desktop and Document sharing components.
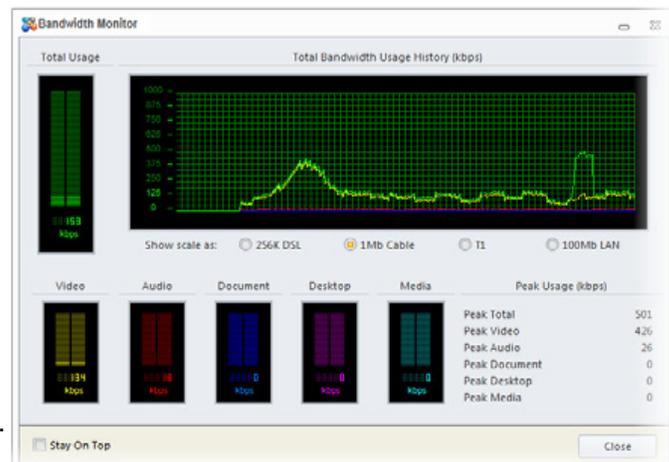
Bandwidth Test

When the Bandwidth Test is applied, OmniJoin™ technology will determine the available bandwidth between the conference participant and the virtual conference server, both uplink and downlink, at that point in time. Generally, higher bandwidth means a better conferencing experience. Some applications such as multi-point HD require substantial mbps bandwidth availability. [See System Requirements section of OmniJoin™ website.]

Latency Test

The Latency Test is very useful for plotting the "delay" on an internet connection between a participant and the conferencing server over time. Lower latency (delay) means better conferencing. Cell phone latency is typically 200 milliseconds (2/10ths of a second). Any latency higher than 200 milliseconds is considered poor. This test is also useful for spotting intermittently high latency times as often occurs on wireless connections or proxy connections during times when the proxy is overloaded.

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Routing Test

The Routing Test is a comprehensive analysis that displays the Internet route between a conference participant and the conference server. It takes a snapshot of response times at various hops to help identify where delays occur.

QoS Compatibility

All OmniJoin™ conferencing and video traffic uses "tagged" packets. Customers with QoS-enabled routing infrastructure can set traffic priorities for OmniJoin™ conferencing. This can be used to improve response time for all users, specific departments, or specific locations, as the customer's QoS controls may allow.

It should be noted that QoS controls govern "on network" traffic only. Traffic over the public Internet and participants' traffic on other corporate networks is outside the scope of these controls.

Reliable Enterprise Communications

Firewall & Proxy Traversal

OmniJoin™ engineering embodies over a decade's effort refining secure, real-time, multi-point communications software in corporate, multi-office environments. The OmniJoin™ system observes IT best practices for web services (URLs, http, xml, ports), security, firewall and proxy traversal. In addition to supporting the most common proxy standards, it incorporates many vendor-specific enhancements to meet real-world customer scenarios (e.g., Squid installation, Microsoft® ISA Server installation, installed proxy server, but no proxy client, etc.).

TCP/IP Connection Optimizer

Among powerful communications services, the Connection Optimizer is a real strength of OmniJoin™ technology. The connection optimization technology has evolved over time, selecting the best connection type or port when two or more are available. The OmniJoin™ system often tries multiple connection methods simultaneously and then selects the method with the lowest round-trip latency time. This real-time selection process results in faster connections and a more responsive conferencing experience.

Easy Setup and Go

Cloud-Managed Service

All OmniJoin™ web, VoIP and video conferencing software components are downloaded dynamically, and all components are updated and managed by the OmniJoin™ cloud.

Depending on many browser and operating environment variables, the OmniJoin™ system typically downloads components only once and thereafter for the occasional software update. In rare cases, such as 'hard lock-down' environments, software components may be downloaded for each online meeting.

Your Choice: Web-Based 'My Account' Page or Installable Tray Applet

For hosts that prefer to login manually, manage their virtual conference rooms, and click into their meetings entirely via the web, the OmniJoin™ web client is useful. This is the 'My Account' page that is displayed immediately after logging in.

As a time-saving alternative, OmniJoin™ users can also get a free, installable software add-on for quickly entering a host's default conference room. This applet also has detailed features for listing, scheduling, and changing any number of virtual conference rooms. Some users and IT managers prefer installable software for these detailed controls.

In addition, this tray applet, called the Live Contact List, also provides online presence status, private pop-up messaging (secure IM), and text chat for accelerating real-time communications among team members. The Conferencing and Live Contact List features can be used together to quickly escalate from pop-up messages and text chat into an online meeting with two or more participants. Please visit Live Contact List for more information.

Unicode Enabled

The OmniJoin™ solution is fully Unicode enabled. The current release supports four languages, with more planned. OmniJoin™ screen guidance will default to the participant's browser or O/S language and date/time format settings, as appropriate. For up-to-date language support, please visit the OmniJoin FAQs , or Contact Sales.

User & Feature Controls

OmniJoin™ system administration is accomplished via a web interface. In addition to managing group licenses, systems administrators can exercise controls and de-select or limit video resolution, live sharing, remote control, and file transfer features by user or group.

Value

Peripheral Agnostic

Virtually any Peripheral, Desktop, or Room. OmniJoin™ conferencing is virtually "peripheral agnostic," allowing the use of inexpensive webcams and off-the-shelf audio/video peripherals including desktop webcams, HD web cams, and SD/HD pan-tilt-zoom conference room cameras. In addition to performance, quality and bandwidth improvements, OmniJoin™ customers enjoy complete independence with regard to video input hardware and displays. [See Compatible Equipment section of OmniJoin™ website.]

Lower Total Cost of Ownership.

In addition to using cost-effective, off-the-shelf video peripherals and the user's existing computer and Internet access, the OmniJoin™ cloud manages everything else. [See System Requirements section of OmniJoin™ website.] There is absolutely no requirement for MCUs, video routers, third-party real-time collaboration suites or other infrastructure components and their associated maintenance contracts. Indeed, that is the point of virtualizing video conferencing infrastructure and moving it to the cloud: less up-front expense, no major capital expenditures (CAPEX), and automated maintenance with fail-over, load-balancing, and scalability to boot. With cloud-based switching, routing and mixing, there are basically no infrastructure hardware or related maintenance requirements.

Summary

The OmniJoin™ system uses its top three performance technologies – cloud computing, parallel processing, and dynamic scalable video (automatic bandwidth adjustment) – to deliver clear, high-quality web, VoIP, and video conferencing sessions. It is easy to use, with animated prompts and device wizards, and provides experienced users with a seamlessly integrated, deep collaboration feature set.

OmniJoin™ technology successfully operates over existing networks, automatically adjusting to real-time changes in bandwidth availability on a per connection basis. It encrypts all communications using industry standard SSL3/TLS connections – the most widely deployed security standard worldwide. The OmniJoin™ system allows administrators to de-select or limit certain features on a group or user-by-user basis. These capabilities allow it to operate within a wide variety of IT-friendly bandwidth, network, and security policies.

OmniJoin™ conferencing is virtually peripheral agnostic, supporting desktop and room-based peripherals, and "virtualizes" multi-point video conferencing infrastructure as part of its cloud-based online service. Its automated load balancing, fail-over, and scalability capabilities go far beyond the fixed limits of premise-based hardware MCUs of the past.

The OmniJoin™ cloud and industry standard peripherals have helped reduce the cost of high-quality, multipoint HD video conferencing to within the reach of virtually any business user, department, or organization.

These are the essential ingredients for successful business-to-business online meetings in multi-office, enterprise networks, and for independent users and small businesses that service corporate clients.