

An INS White Paper

# WEB-BASED VIDEO CONFERENCING

Navigating Options for Business Class Video Conferencing

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## Navigating Options for Business Class Video Conferencing

The logo for INS (Insurance Network Services) features the letters 'INS' in a bold, black, sans-serif font. Above the letters is a stylized green arrow pointing to the right, composed of several horizontal lines of varying lengths, creating a sense of motion or speed.

### The challenge of delivering video that meets the needs of business.

Video is one of the most challenging types of data to deliver on a digital network. Smooth playback of up to 60 frames a second requires a consistent, high bandwidth connection. Video is typically compressed with hardware and software, both within individual frames and between frames. These processes require compatible codecs on both ends of transmission. Audio must be delivered clearly and in sync with the video. Quality playback is also dependent on the computing hardware in the signal path.

In short, many variables lie between the desire to communicate with video and a successful video conference. With do-it-yourself solutions, any of these variables can impede effective communication. With legacy video conference systems, complexity, high investment cost and less than desirable video quality result in people avoiding video conferences and settling for voice only conference calls.

### Legacy Video Conferencing – Expensive. Low Performing.

Early video conference solutions were characterized by low quality performance due to poor bandwidth, ineffective computing resources and primitive software. These systems typically involved one camera at each end of a two-way conversation, forcing entire groups to share a camera at a central location. More complex conferences involved a Multipoint Control Unit (MCU), a hardware-based transcoding tool. The MCU introduced a high degree of latency, stripping these conversations of their interactive, natural quality and frustrating users at all locations.

### Telepresence – Effective, but Rigid and Costly.

High-end solutions, often called telepresence systems, solve the shortcomings of legacy video conferencing with resources and engineering. These systems are built upon dedicated networks, high-speed video switches and professional equipment and management at each location. While telepresence solutions may be appropriate for fixed installations such as large corporate boardrooms, they're expensive to install and use, requiring costly dedicated signal transport, dedicated rooms and additional effort to plan and staff facilitation of meetings. In short, the higher cost, location constraints and hassle involved with these solutions is simply not conducive to everyday business.

### Web-based Video Conferencing Business Applications

- Organizations with multiple locations
- Distance learning
- Legal consultations
- Remote meetings (traveling staff, satellite employees, clients and partners)
- Medical consultations
- Real-time language translation
- Sign-language interpreting
- Speech pathology services

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### Personal Telepresence – Web-based Video Conferencing High Quality. Simple. Flexible. Affordable.

INS has carefully examined video conferencing technology options, from do-it-yourself solutions to the most sophisticated telepresence solutions. The solution offered by INS allows your employees, partners and customers to conference from their desktop, while also accommodating multiple simultaneous video streams. And it is delivered over the Internet, so it's available for you to communicate with anyone who has an Internet connection and a computer with a web cam. Scaled to meet the needs of business, INS Video Web Conferencing is flexible enough to easily accommodate growth and is configurable to meet unique needs. End-point encoding and compression makes this possible - along with a revolutionary new infrastructure from Vidyo, the leading global provider in personal telepresence products.

### Intelligent compression improves performance

The video signal for INS web-based video conference is compressed with the H.264 standard, the same technology used on Blu-ray discs, YouTube and the iTunes store. H.264 delivers large data streams efficiently, but can't account for the uncertain bandwidth conditions that personal telepresence can be subject to. Vidyo pioneered the use of H.264 SVC as a solution to address varying bandwidth conditions.

Scalable Video Coding (SVC) bit stream can provide multiple versions of video. In lower bandwidth situations, it intelligently delivers the best possible quality for that given bandwidth. The signal is monitored and adjusted in real time, sending the best possible quality video to each participant. SVC can adopt a lower spatial resolution (smaller frames), a lower temporal resolution (fewer frames per second), or adopt lower video quality (less resolution for a given frame size). Participants with higher bandwidth automatically receive appropriately higher resolution. Alternative systems (which don't have SVC) have no way to function without totally ideal bandwidth available.

The INS Video Web Conferencing solution, using VidyoRouter and VidyoPortal, serves as a "traffic cop" to route the bit streams to appropriate endpoints. Each endpoint is constantly analyzing and optimizing for available bandwidth, processing power and display resolution. INS' Video Web Conferencing solution is able to do this with low latency and can perform with 20 percent packet loss. By contrast, legacy systems can fail with just two percent packet loss.

#### *INS Video Web Conferencing*

- *Customized to fit your needs*
- *Runs on the Internet*
- *Supports multiple participants, from their desktop, Apple® or Android® phones or tablets*
- *Can function with higher than normal latency*
- *Available on demand (no scheduling required)*
- *Dynamically adjusts to signal interruptions*
- *Scalable solution - expands as you need it*
- *Supports mobile conference attendees*
- *Utilizes off-the-shelf hardware*

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INS can support over 100 concurrent HD sessions, and can be scaled with additional devices. Suggested bandwidth for INS Video Web Conferencing is 1.5 mbps downstream, 768k upstream at each endpoint.

### A room with a view

The INS Video Web Conferencing solution can be used by individuals at their desktops. INS will work with you to create your very own tenant which will include users you assign that can communicate directly with each other or with multiple endpoints using virtual meeting rooms. Guest users can connect to the system also, if invited by an assigned user. Any user can use the PC (Windows or Mac), iPad 2, iPhone 4/4s or some Android® devices to connect. Users can be located anywhere as long as they can obtain an Internet connection. The service is not limited to the INS Network.

INS can also deliver a conference room solution expanding the value of personal telepresence to your meeting room. Dedicated equipment, a plug and play VidyoRoom appliance with a meeting room audio device and a quality pan/tilt/zoom camera. These solutions can provide a combination of video displays:

- Person actively speaking
- Continuous presence of attendees
- Document sharing

Remote meeting attendees can control the camera to provide the ability for the far end to control what they see.

To make installation as simple as possible INS' Video Web Conferencing solution utilizes readily available hardware from vendors like Logitech, Sony and Plantronics. These simple components are all that are required for room endpoints:

- USB audio component w/echo cancellation (headphone or speakerphone)
- HD webcam
  - Meeting Room: Pan/Tilt/Zoom 1080P
  - Desktop: Standard Webcam

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### Selecting the right partner

A technology partner who will design solutions to best fit your business model – not try to convince you their off-the-shelf solution will work just fine – is essential to implementing a solution that works for your employees and customers. Ask potential partners questions that will help you determine if their solution delivery and client service philosophy align with the way you run your business. You'll reap cost and time savings benefits and solidify your professional credibility with a well-designed and supported web-based video conferencing solution.

### About Iowa Network Services

INS provides voice and data communications, Internet and network management solutions that minimize risk, maximize business value of technology and enhance your ability to effectively connect to and serve your customers, employees and partners. Our self-healing state-wide fiber optic network is carrier-class – engineered and continuously upgraded to minimize service interruptions and provide industry-leading reliability and performance.

As an Iowa-owned company, ALL support is Iowa based and the Network is managed 24/7/365. This means fewer calls and hassles for you. Our highly skilled technicians are dedicated to customer service. Team INS installs and turns up solutions and resolves connectivity and equipment issues more quickly and reliably than other providers.

The Iowa Network Services (INS) family of companies forms the only end-to-end telecommunications and information technology resource that is Iowa-owned and supported by Iowans. Together, INS, Alliance Technologies Incorporated and Alliance Connect provide customers with more than 25 years of operating experience. INS acquired a majority equity interest in Alliance Technologies in 2008 and jointly launched Alliance Connect, a Competitive Local Exchange Carrier, in 2011.

### Checklist for Successful Web-based Video Conferencing

- End-to-end solution
- High quality audio and video that can work in low bandwidth situations
- Takes advantage of existing Internet investment (no dedicated circuit required)
- Flexible and expandable to accommodate guests
- Accommodates multiple participants from desktops and meeting rooms at the same time
- Hosted on the INS IP Network for maximum uptime and quick access
- Iowa-based 24/7 technical support

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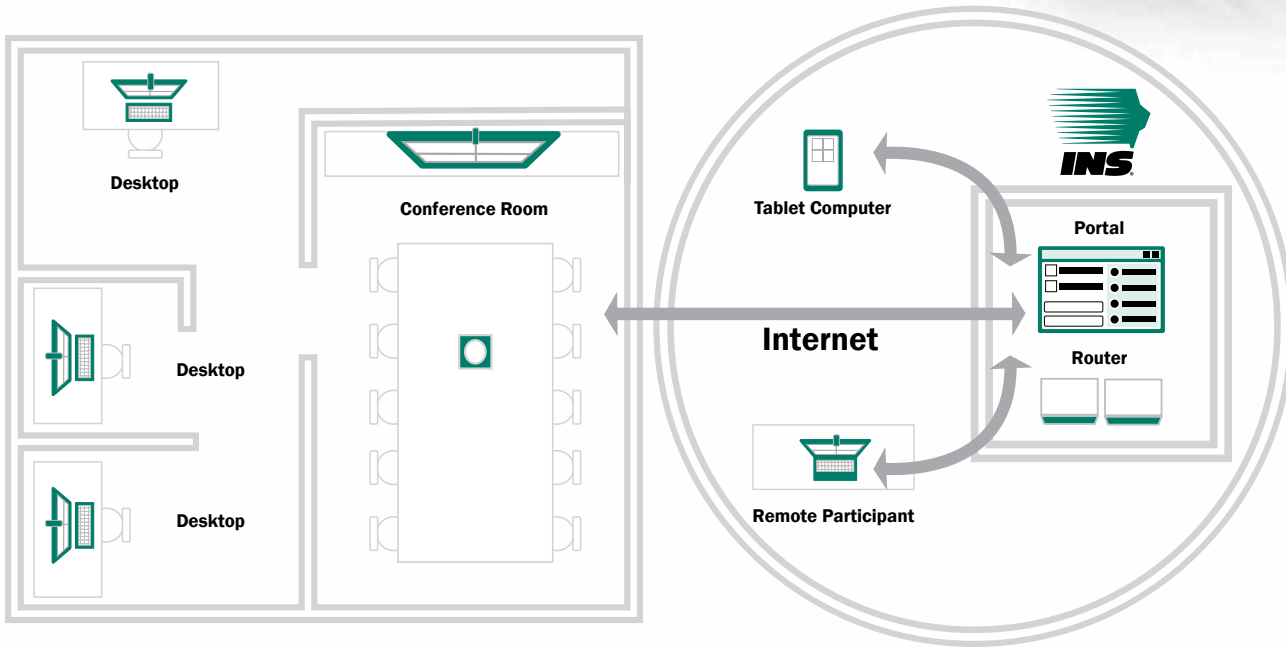


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## Navigating Options for Business Class Video Conferencing



For a consultation,  
call 800-CALL-INS



*Instead of hosting a solution at your headquarters, INS provides a hosted solution that is easily accessible from an Internet connection.*

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