Video Conferencing Guide

Eight steps to understanding the possibilities of video

LEVEL 2 B-BBEE CONTRIBUTOR

OMEGA
The Collaboration Experts
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1. Introduction

Video Conferencing:

The next best thing to being there.

Did you know that 55 percent of communication is determined by nonverbal cues, namely body language? How many of these important nonverbal details get lost everyday in e-mail exchanges or teleconferences? Face-to-face communication is more personal, builds a higher level of trust, reduces confusion and makes people more accountable for their actions.

Of course, in today’s business environment, communicating in person is not always possible. The next best thing is video. Video conferencing is a powerful multimedia tool that allows for natural, face-to-face communication even when people are miles or continents apart.

What could this mean for your business?

Many organisations consider video conferencing a key cost reduction tool. In fact, the typical customer can reduce travel by 30 percent or more, resulting in significant cost savings. Cost, however, is only one element of a video strategy that can also include increased productivity, environmental responsibility and an improved work/life balance.

Video conferencing affects the way that business is conducted across an entire organisation. With video, you can interview job candidates remotely, enhance telework programmes, get real-time feedback from suppliers straight to the manufacturing floor, record training sessions and CEO messages, and much more. Today, organisations use video for more than just meetings from conference room to conference room. Video can be a very personal experience when people at all levels of an organisation can choose the solution appropriate for them and participate in video calls on their schedule.

We have developed this guide to help you put together the right elements of a video communication solution, ensure user adoption and measure your post-implementation success.
2. Changing the way people communicate

Video conferencing can deliver immediate benefits to your organisation. Not only will you save money and improve productivity, but video can also create a competitive advantage by:

**Helping you make decisions faster**
The time we spend travelling, waiting for materials to arrive or trying unsuccessfully to explain complex issues over e-mail, is time that could be better used to bring new products to market or solve customer service issues. Video enables all parties to share ideas, show detailed images and take action more quickly.

**Providing immediate access to experts**
Sometimes there is just no substitute for an expert. Video enables you to leverage the expertise of a few people across an entire organization without asking them to travel to different locations. Training, translating, consulting and troubleshooting can happen in real time. And, with video streaming and archiving solutions, an expert’s knowledge can be saved and accessed by anyone at any time.

**Bringing the organisation together**
Multiple offices do not have to mean isolated teams. After a global expansion, merger or outsourcing initiative, departments often find themselves stuck in silos, disconnected from project goals and alienated from a communal company culture. Video creates a virtual meeting room for collaboration by keeping employees on the same page.

**Improving work/life balance**
Travelling all day for a two hour out-of-town meeting means sacrificing family and personal time. Not to mention the added stress of delayed flights and lost luggage. By using video to attend that meeting or even working from home instead of sitting in rush hour traffic, employees can maintain a balance between work and personal life, save costs and protect the environment.

**Video is the new green**
A one-day worldwide break from commercial air travel would spare the atmosphere of approximately 41,000 metric tons of carbon dioxide emissions. By eliminating unnecessary business travel, video conferencing solutions help organisations become more environmentally responsible while improving their competitive advantage.
3. Your Return on Investment

Imagine the possibilities

The good news is that if you are considering a video purchase for your organisation, you have a wider range of options than you did even just a few years ago.

The video conferencing industry is changing rapidly. With the proliferation of IP networks, simplified user interfaces and the introduction of new form factors such as personal video for the desk or PC, video is more accessible than ever before. At the same time, the introduction of telepresence solutions and high-definition video have raised the bar for quality and design. This expanding video universe also means you will need to carefully weigh-up a broad array of features and functionality to assemble the video programme that is best for your organisation.

The first step?

Imagine how your organisation might use video. Almost any workflow process that you currently implement with telephone, e-mail or travel can be improved with video. Once video is in place, you may be surprised at the additional opportunities you discover to improve communication. Have a look at the examples on the following page to see how different types of departments have successfully used video.
Executives
- Hold regular management meetings.
- Conduct board meetings face-to-face.
- Reach key decision makers whenever you need them.
- Stream CEO briefings live or record them for later viewing.
- Speak at seminars or trade shows without travelling.
- Improve work/life balance.

Sales and Marketing
- Build stronger relationships with clients by seeing them face-to-face.
- Provide customers at branch offices with expertise from the home office.
- Link remote sales people to the headquarters.
- Conduct market research with customers face-to-face.
- Get marketing messages out to the field.
- Serve more clients in a day by reducing meeting travel.

Human Resources
- Interview candidates from afar.
- Conduct ongoing training.
- Retain your company culture after a merger.
- Enhance and sustain telework programmes.

R&D and Product Development
- Share product documents or drawings immediately.
- Reduce confusion across cultures and locations.
- Keep a virtual watercooler going between locations for instant collaboration.
- Get real-time feedback from suppliers and customers.
- Access remote experts in real time.
- Get products to market more quickly.
How Different Industries Use Video To Meet Their Needs

**Manufacturing**
- Make decisions on product development and design.
- Hold quality control inspections across different locations.
- Provide experts for remote machinery repair.
- Coordinate shipments with suppliers.
- Create a single company culture with overseas branches.
- Prepare for business continuity plans.
- Conduct focus groups with customers.
- Offer ongoing staff training.

**Finance**
- Collaborate in real time, set daily strategies, share news and market conditions and make decisions without confusion.
- Extend expert financial services to customers in remote branches.
- Interview potential job candidates from afar.
- Offer training and consulting opportunities.

**Public Sector**
- Coordinate action with national, state and local agencies.
- Conduct briefings with high level security.
- Provide cost efficient training opportunities.
- Promote telecommuting/telework initiatives.

**Public Safety**
- Coordinate disaster recovery efforts.
- Establish mobile field command posts.

**Healthcare**
- Provide remote diagnostics from rural to urban centres.
- Link medical professionals for mentoring and consultations.
- Offer translation services for patients and medical staff.
- Participate in continuing medical education programmes.

**Education**
- Collaborate with other educational institutions.
- Extend classes to students in rural or remote areas.
- Include presentations from experts and virtual field trips in your curriculum.
- Offer continuing education and training for instructors and staff.
- Hold administrative meetings among multiple campuses.
ROI - the three most important letters in the alphabet

Once you have identified the ways your organisation could use video, sit down and calculate the time and resources you currently spend on the activities you would like to replace with video.

- How many people are travelling to meetings? What does that travel cost?
- How could staff be using their time more effectively by reducing that travel?
- How long does it take your organisation to bring a product to market? Complete a consulting engagement? Hire a new employee? Or repair a problem?

Each time you replace a practice with video communication, you gain the opportunity to measure your return on investment (ROI). It is always worth investing five minutes to conduct an online self-assessment of your potential savings. OMEGA can help you calculate the cost of travel to your organisation based on the number of people travelling, typical distances travelled and average salaries. This will demonstrate the potential cost and time savings of video to your organisation. For a personalised assessment of your potential ROI for travel as well as specific business functions within an organisation, you can contact OMEGA for a free consultation.
4. Elements of a Video Conferencing Solution

Essential video components

Camera. Microphone. Monitor. Speaker. Codec. These are the five essential components that constitute a video conferencing system. The camera and microphone capture the image and sound in one location. The codec converts the video and audio into a digital signal and compresses it before sending it out over the network. At the other end, the codec decompresses the signal and feeds the picture to a monitor and the sound to a loudspeaker. A video call can incorporate two units or many, with considerable options for functionality. Depending on your application requirements and budget, you will have numerous options of the video solution you choose.

There is a system for every workspace, from boardrooms to desktops and from field locations to manufacturing floors. If you choose a vendor with a common platform, all of the systems you implement will work together easily.

A total solution

An end-to-end video conferencing solution incorporates a full suite of video systems, infrastructure for multiple environments and centralised management tools. You can expand it even further by integrating with external devices and productivity tools. Your end-to-end solution may include some or all of the following products:

Telepresence
Telepresence creates the most realistic in-person meeting experience and provides an ideal platform for communication and interaction. Meeting participants feel as though they are having a conversation with colleagues right across the table, even though they may be miles or continents apart. The telepresence category can include immersive, room-based telepresence environments and personal telepresence systems for executive desktops.
**Group Video Conferencing Systems** (sometimes called Room)
These high-quality systems are designed to be used in meeting rooms, boardrooms, auditoriums and other shared environments. (High definition video conferencing.)

**Desk or Personal Video Conferencing Systems**
These systems are designed for personal or single-person use and include Video VoIP phones, executive systems and PC-based systems optimised for use in the office workstation, home office or even the coffee shop.

**Industry Applications**
Telehealth, Distance Education, Defence and other industries have special video systems designed to meet their specific application. You may find that your applications match up to a specialised solution.

**Centralised Management and Scheduling Tools**
Management systems enable you to control an increasingly complex communications environment without decreasing the level of service or significantly increasing associated support costs. With a management system, you can perform remote diagnostics, system upgrades, control associated resources, link to third-party communication tools, generate usage reports and calculate your return on investment.

**Multipoint Control Unit (MCU)**
With MCUs, you can join multiple video and voice participants into a single conference. You can find MCUs that offer High Definition continuous presence to ensure the quality of your high definition units across the whole network, and ones that are highly scalable media service engines that grow with your business demands.

**Video Infrastructure**
As video adoption in your organisation grows to include multiple sites and advanced functionality, you will require network infrastructure to support your solution.

Video infrastructure ensures:
- That users on different networks can connect through the same video solution.
- That bandwidth can be regulated.
- That calls across different networks and user domains can connect securely with NAT-firewall traversal.

An intelligent infrastructure component such as a video communication server (VCS) can make your network more reliable by ensuring that all calls are routed properly, convert IP addresses into directories for one-click dialing, and allow your video units to inter-operate with phones and other devices.

**Recording and Content Server**
By adding a content server, you can record and stream video meetings such as company-wide announcements or training that can be shown to a wider audience at a time most convenient for viewers.

**Peripherals and Accessories**
There is a wide range of peripheral equipment that can enhance your visual communication environment. High definition and wide angle cameras, as well as upgraded speakers and microphones, enhance the visual and audio experience. With document cameras, you can transmit drawings and other documents via video. You can connect your video systems to DVDs, VCRs, whiteboards and document and multimedia applications via your PC.
5. Vendor and System Selection

One size does not fit all

There is no one video system that is right for all organisations. It is important to select a vendor and the video components that are the best fit for your goals and needs.

Selecting a vendor
The ideal vendor acts as a partner in your business. When drawing up a short list of vendors, you should evaluate the following characteristics:

- A sound financial profile and a good business model.
- A strong company history, ethical business practices and professional reputation.
- Proven and responsive customer service.
- Cost-effective maintenance, support and training programmes.
- Progressive research and development.
- Satisfied customers.
- Knowledgeable staff who can provide best practices for video usage in your industry.
- An end-to-end solution, with infrastructure, management and a variety of endpoints (possibly telepresence, video VoIP phones and PC video).
- Integration with other unified communications tools.

Almost any workflow process that you currently implement with telephone, e-mail or travel can be improved with video. Once video is in place, you may be surprised at the additional opportunities you discover to improve communication.

Matching solutions to your goals
How you answer the following questions will help you decide which elements of an end-to-end video conferencing solution are best suited to your goals.
• How do you envision your company using video conferencing?
• What kind of information do you exchange - product details, spreadsheets, multimedia, high security information?
• Would it be helpful to see and speak to colleagues either at their desk or at their home office?
• Would you be communicating visually with suppliers, customers, partners or anyone outside of your organisation?
• How many sites do you want to be able to connect in one meeting?
• How many people would participate in each type of meeting, in each location?
• How many video meetings might be occurring simultaneously?
• On what type of network will you be placing your video system (dedicated network, IP, MPLS)?
• What bandwidth will be optimal for your communications?
• Do you want to set different bandwidth options for different types of employees?
• Do you want a fully integrated system or a set-top solution where you can use an existing monitor?
• Will you need to record meetings and/or stream video calls, such as CEO briefings or trainings, for those who were not in attendance?
• Will employees want to stay visually connected while they are travelling?
• Will people make calls on an ad-hoc basis or will they always want to schedule calls in advance?
• How will you want to integrate video with your other unified communications tools (instant messaging, scheduling applications, IP phones, 3G mobile phones and existing video systems)?
• Will people use their video unit as their primary phone?
• Will you want to connect to a PBX?
• How will you conduct diagnostics and maintenance?
• Will your IT organisation manage your video network from a central location or multiple locations?

“Matching solutions to your goals”
Try before you buy

The vendors you are considering should allow you to test their equipment for a period of time. Do not be afraid to put it through its paces. Use it in a real-life scenario, and do not just limit the test to the IT department; bring in potential end-users to get their impressions. Test the solution in terms of:

**Call Reliability and Quality**

- How clear is the image at the bandwidth you will be using? Image quality is defined by a codec that supports superior motion handling and can handle a monitor refresh rate of 30 frames per second.
- If you are looking for high definition quality, are all elements of the end-to-end solution you are deploying (such as MCUs) high definition? If not, that can negatively affect the quality.
- How well can you hear? Is audio in sync with images? The microphone, echo canceller, speakers and your bandwidth all define the audio experience.
- How often are calls dropped? There should be a high mean time between failures.

**State-of-the-Art Technology**

- Is there innovative engineering design that provides the latest in video clarity and functionality?
- Is it manufactured under the ISO 9002 certification?
- Is it manufactured with energy efficiency and environmental sustainability in mind?
- Is the design of the form factor innovative and appealing?

**Ease of Use**

- Are the menu prompts, phone books and user interface clear and intuitive enough for anyone in your organisation to follow?
- Is it easy to install, maintain and service?
- Does it offer a flexible managed service programme that allows you to choose your network?
Integration
- Is there one-click integration with other communication tools?
- Is it standards-based for interoperability with third-party video units?
- Can it be seamlessly integrated with other workplace tools?
- Do all video systems, from telepresence and desktop solutions to infrastructure, work together seamlessly?

Value
- Are systems optimised for both high and low bandwidths to help you balance cost with functionality?
- Can you upgrade software to add on features as technology develops and your adoption grows?
- Do the features and functionality meet your needs at a competitive price?

Standards & compatibility
Be sure to choose a standards-based solution that is interoperable with video equipment from any manufacturer. If you are adding new infrastructure, management software or additional systems to expand an existing network, you will only be able to communicate seamlessly if the solution you choose is standards-based. But be aware. Some video conferencing systems can be compliant with International Telecommunications Union standards and still be proprietary at the same time. These systems may not support all features and speeds, or the same quality image in both modes of transmission. It is important to understand how a system will perform when it is connected to equipment manufactured by another video conferencing company.
6. Selecting your Network

Make the right call

You may choose to run your video conferencing traffic over dedicated IP networks or ISDN networks. If you already have an IP network in place for voice, your natural next step may be to deploy video over IP. Many companies run video systems in a mixed environment. In 2006 more than a quarter of all video conferences ran on an IP network, according to Frost and Sullivan, with that number now reaching over 50 percent.

When selecting your network, you should ask yourself:

1. Whom do you plan to call?
   For example, are the sites you plan to call all internal? Do you plan to call other sites not owned by your company?

2. How widely available is the desired network?
   Not all networks are available worldwide. For example, ISDN is widely available in many countries, but is still in the early stages of deployment in some countries and rural areas. The same applies to IP networks. Not all countries or areas are connected to the Internet with the same speed and reliability. Be sure to check which networks are available in the geographic areas where your company operates.

3. What are the costs associated with the network?
   Costs will vary based on your choice of network. If considering an ISDN network, remember that you will have local and long distance charges involved. When looking at an IP network, consider the implementation costs and your existing network architecture. Take into account your costs over the long term for each type of network.

4. How reliable is the network?
   It is important to note that public internet is not as reliable as private IP networks.
5. How much bandwidth will you require?
Will you be using embedded multi-point functionality, high definition video or other features that require higher bandwidth?
You may wish to restrict the bandwidth for certain users or applications, but allow higher bandwidth for your most critical video meetings. You will want to choose a solution that allows you to adjust the bandwidth or one that automatically balances the bandwidth based on the application.

6. Will the solution work with your network partner?
High-end video meetings, such as those over telepresence, can benefit from dedicated, managed networks. You will want to make sure that any solution you choose will work with the network partner you choose.

7. Are you operating in a unified communications environment?
If you are, it means you need to build networks that will support varying types of communications systems, devices and applications, ensuring they are able to integrate. Inadequate bandwidth capacity, processing bottlenecks or inappropriate network design can compromise mission-critical applications and negatively affect the adoption of video and other communication tools. With unified communications, separate communication tools are integrated into one system so that they can be seamlessly used together. It combines applications and services, such as Video, Telephony, Calendaring, Instant Messaging, Presence and Web Collaboration, with any type of communications device and multiple networks for connectivity anywhere, anytime. Video offers an essential element of conversation that other technologies cannot, the face-to-face experience.

Unified Communications Over IP

With a converged network over IP, the concept of Unified Communications becomes a reality. IP promises lower costs, easier management, remote monitoring and control, higher bandwidth calls enabling higher quality audio and video and integration into the corporate information technology mainstream.

Video users switching from ISDN to IP can reap as much as 40 percent to 50 percent savings as soon as it is deployed. On an IP network, the ongoing costs of running a video conference are minimal - just maintenance and technical support (and those can be minimised further with management and scheduling tools). Once ROI for the initial deployment has been met, any additional conferences are essentially free. And because there is no incremental cost involved in running a video conference over IP, employees and managers are more likely to use the technology. As usage goes up, payback times go down, further boosting ROI.

Voice over IP increases IT’s control over network management and performance. This applies to video conferencing as well, where one of the biggest complaints has long been that video requires significant time and energy investment on the part of IT. With lower setup, configuration, resource requirements and maintenance costs, video over IP makes IT’s job easier. Administrators can remotely manage video conferencing from anywhere, increasing reliability and performance.

Video over IP also reduces the cost and time spent training IT staffers and end users, and frees up IT staffers for other strategic initiatives. IP networks can be easier to benchmark, before and after the installation of video conferencing. That is important for performance, especially as more users start to take advantage of the technology. As a result, the technology will run better, and that, in turn, will lead to even more usage. Better data and usage information also makes measuring ROI much simpler.
7. Room Setup

Make your meetings feel more natural

Once you have chosen your video solution and prepared your infrastructure, it will be time to deploy. That means setting up the best possible experience for your users. You can use video in many environments i.e. boardrooms, manufacturing floors, work stations or home offices. A few simple adjustments (and a few things to keep in mind) will ensure that your meetings have the best possible image and audio quality. If you are in an immersive telepresence room, additional recommendations are available to make your meeting seem as true to real life as possible.

Background

• Remember that the camera shows what is behind you. Provide a calming background with a neutral colour, medium contrast and soft texture. Avoid patterns on the walls.
• Avoid moving backgrounds, such as curtains in a draft, or people walking behind you. This may reduce image quality and distract the attention of those on the receiving end.
• Do not place the camera facing a doorway.
• Choose a table that is light but not reflective. A light natural wood is a good choice.
• Avoid unnecessary furniture or clutter in the room.

Lighting

• Avoid direct light on people, presentation materials or the camera lens. Direct light will create harsh contrasts and shadows.
• If you have poor lighting in the room, you may need to use indirect, artificial light. Indirect light from shaded sources or reflected light from pale walls often produces excellent results.
• "Daylight" type lamps are most effective. Avoid coloured lighting that might tint your image.
• Do not place reflective whiteboards directly behind people or where lighting may reflect and cause glare. If they are not required, remove them altogether.
Helpful hint
Avoid moving backgrounds, such as curtains in a draft, or people walking behind you. This may reduce image quality and distract the attention of those on the receiving end.

Placement
• The screen used for the display of the video conference should be placed at an appropriate distance from the users to allow for the user to accurately view the relevant images. This should be custom designed in accordance to the size and shape of the room as well as the number of delegates and the table design.

Set up
• Set the unit to Automatic Answer, but mute the microphone.
• Position the camera in the top centre of your unit.

For Desktop Video Conferencing Units
• Video should be located close to your PC, along with your other everyday tools. This way you can easily share presentations without having to move. You may even be able to use your system as a PC screen.
• Use a headset for privacy in an open office environment.

For Meeting Rooms
• Place the microphone at the front of the table to ensure that all speech will be detected. The best position is at least 6.5 feet (approx. 2 metres) in front of the system, on a flat surface with at least one foot (0.3 metres) of table in front.
• Keep the document camera close to the chairperson or the designated controller. Remember to arrange all the peripherals so that one participant can reach each of them to point, change the display, record or perform other functions during the conference.
• To help ensure the most natural meeting environment, position the camera on the top centre of the receiving monitor. The camera should point directly at the meeting participants to guarantee eye contact with those at the far end.
• A room with carpeted floors will help absorb sound and prevent echo problems.
**Loudspeaker Volume**

- The audio system will use the loudspeakers built into the monitor or the Digital Natural Audio Module. You can set the default volume level by adjusting the volume on the monitor with the monitor remote.

**Brightness Control**

- To adjust brightness, colours or other settings of the monitor, use the monitor’s own remote control. Adjust the monitor to suit the conditions of the conference room. The monitors used by OMEGA have on-screen menus that are user friendly. For more information on configuring the monitor, refer to the user manual.

**Ease of Use**

- To help meeting participants dial, add presentations and use other functionality during a call, station a poster, table tent or other quick-reference guide in the room.
- Do not place reflective whiteboards directly behind people or where lighting may reflect and cause glare. If they are not required, remove them altogether.

**Helpful hint**

Call the person, not the device. If a user is away from the desk he or she can have inbound calls to a video unit automatically forwarded to a cell phone.
8. Managed Services

A range of managed services exist for customers to get the most out of their investment in video conferencing. More and more customers are looking for a turnkey solution from the vendor that allows the video conferencing solution to be managed by all or a hybrid of the following services. Often a vendor must also engage with a client’s existing IT and telecoms service strategies, in order to best achieve a comprehensive support network.

Network Readiness Assessment
In order to ensure that the deployment of video conferencing will work seamlessly on either a traditional ISDN telecoms network or an IP network, much work needs to be done to ensure that the overall solution provides the reliability and quality that is required. A network readiness assessment must be undertaken to ensure this. Costs for this range substantially depending on the scope of the project and complexity of the network.

Solution Deployment and Project Management
An important part of any successful project is the professional deployment of the solution taking into account all other interested and affected parties. In most instances the deployment impacts many other existing technologies and internal company departments. A professional approach to the project delivery is of utmost importance and hence an investment in these services will be realised long after the vendor has left the site.

Get the maximum from your investment
Support Services

Service Level Agreements
After sales support is crucial to the customer experience and having a firm service level agreement in place helps both the vendor and the customer in defining the service expectations after the system deployment has occurred. These service level agreements typically offer a variety of response times and other value added services, such as loan equipment, parts replacement and end user training sessions. It is strongly advised that a service level agreement be entered into for the best interests of all parties concerned.

On Site Support Technician
Another service offering that is usually added as an addendum to an SLA is the services of an On Site Technician, this on-site resource is utilised to help with a variety of issues with regards to the video conferencing system. These may include some or all of the following items: room checks, call set-up, call monitoring, diagnostics, reporting and standby support. This service has proven to be extremely beneficial in instances where our client requires a high level of support and their existing internal resources are not able to provide this.

Video Network Operations Centre
A new and ever growing area of services development is in the area of hosted video conferencing services, which include the following: call and network monitoring, concierge services, video and audio bridging services and remote diagnostics and support. These services are growing in popularity, and as IP networks expand and mature, they allow for an ever increasing array of value added services to be deployed across both public and private networks.
A Final Word

The benefits of a video conferencing solution go beyond the ability to simply save travel costs. It is a strategic communication tool that allows dispersed teams to collaborate more effectively, more often. We hope that this guide will prove beneficial in helping you understand the opportunities and challenges that are involved with deploying a video conferencing solution. Should you require any further information or assistance, we would be happy to discuss these with you in person.