

HighSpeed Ideo

Democratization of Video Conferencing

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Video communications solutions can be classified into two broad categories: The first can be categorized as personal video chat. Such personal video chat solutions allow users to make Internet calls with video features. The most representative of this type of video communications is Skype video. In addition there are a growing number of such services offered as stand alone video chat services and also built into other collaboration applications. Over time, Skype and other services have expanded to allow support for multi-party calling.

The other category of video communications is enterprise video conferencing and Telepresence, generally represented by Telepresence rooms and large capital IT infrastructure for dedicated video conferencing equipment. Such systems are generally positioned for mid to large enterprises with not insignificant capital outlay and IT staff.

Both these types of video communications offer tremendous value based on their characteristics but there is an unfilled chasm between them.

There is a broad category of business users underserved with video conferencing solutions that offer the security, reliability and quality that they need. These business users can be small businesses as well as small and remote offices of larger businesses. Additionally, the business users extend to the 'edge of the enterprise' – every desktop user within an enterprise that can benefit from video communications.

Such applications also need an ease of access and deployment available at an affordable price. Enterprise grade security and reliability is essential and these combined features make such solutions distinct from the two available categories listed earlier.

Video communications qualifying for this middle tier is possible today and can be available to every desktop in the enterprise – i.e., beyond the executive suite and Telepresence conference rooms – as well as within the reach of small businesses.

The underlying premise of such a transformation is the relatively recent emergence of software-as-a-service (SaaS) based platforms and cloud based computing. High Speed Video has pioneered the use of such technologies for video conferencing and Telepresence, thereby creating a solution in the middle of video chat and hardware based Telepresence room and video conferencing systems.

At High Speed Video (HSV) we call this: *The Democratization of Video Conferencing*.

Current Situation

Technologies enabling communication between people have steadily evolved over time in terms of the amount of information we can exchange and the timeliness of that communication. Why do we care about seeing the person with whom we are speaking? That reason is that we want face-to-face contact is to pick up the non-verbal elements of communication and the intimacy of

interacting with each other. Video communications done well can deliver almost all of the value of face-to-face contact and then some.

It has taken decades for video communications technologies to reach the level of performance where video communications seems to be finally becoming a viable alternative to face-to-face meetings. At the same time, this performance has been achieved at a cost point that is essentially intended for larger enterprises and is still out of reach for the majority of businesses.

Lower cost services do not offer the reliability, security and quality of enterprise grade solutions. At the same time, video communications can replace more than the cost of an in-person visit. It makes resources available that cannot be moved, either people or equipment. In some situations, it reduces the economic restrictions for communications that would not be justifiable. It allows the gathering of people who would never be able to reach a single location at the same time.

It can be argued that these are benefits that are more critical to the success of small and medium sized businesses than large enterprises. Yet, these same small and medium sized businesses are not served on the continuum of the two categories of video communications we described earlier.

There are other applications for video communications that that can flourish in other ways through video conferencing than without it.

These would include —

- Professional collaboration within enterprises could spread out across buildings, campuses, regions, countries and the globe.
- Professional collaboration between enterprises could extend between business partners across all geographies.
- Businesses could interact with clients for servicing of existing products, training for the use of current products, and review of their future needs.
- Medical specialists can provide remote diagnosis to patients and places that they would not be able to travel for either time or cost reasons. The term “doctors without borders” can take on a new meaning.
- Medical professionals could teach and medical analysis, techniques, or patient care remotely, broadening the reach of good medical practices.
- Professional service companies could have a direct interaction with clients to replace or augment in-person client servicing.
- Educational services could be provided to supplement classroom lecture environments. This would include teacher interaction for tutorials, seminars, or student review.
- Retail companies can provide high value sales support for products and services that would otherwise be delivered in-person.

Economic Basis

In an attempt to quantify the value of video communications as compared to an in-person visit, let's assume the following:

- The value of the participants' time—2, 4, or 10 people who are paid about \$500 per hour (assume \$1,000,000 annual salary)
- The length of time in the meeting
- The time spent traveling to and from a meeting
- The cost of transportation and everything else related to travel i.e. hotel, food.

Additionally, we'll consider hardware and other costs to define the full cost of both types of communications to an organization.

Personal Video Chat

Personal video chat allows one-on-one video communications or multi-party communications that reaches beyond free audio calls. Most such services offer a freemium model with a paid upgrade for larger groups or additional features.

Ease-of-use is a favorable element of such services. The video chat software is generally free, but the user must provide hardware - a computer, a web cam, and possibly a headset. Alternatively, a user can use a mobile handset like the iPhone using Facetime or an Android-based phone.

Most video chat services are reasonably good but fall well short of a reliable and robust enterprise grade solution. The cost of a failed video conference call is based on the time cost of the total number of participants attending the "free" call. It is hard to complain if your picture is pixilated, the sound is poor or the audio/video synchronization is off for a free service.

Professional Room-based Video Conferencing

There are very elegant products available for executives and senior management ranks who have access to Telepresence suites connected to other similar suites. These suites can cost up to \$300,000 to \$500,000 each and are connected with private communication lines that can rent for \$8,000 to \$12,000 a month. The defining concept of creating an imaginary conference room is that both parties are virtually in the same room ("everything but the handshake") to make the participants more comfortable. The value of matching furniture and wallpaper is low compared to the clarity of video and audio with complete synchronization. IT departments are also required to ensure very high levels of network security around such communications.

Higher performance characteristics of professional video conferencing compared to video chat include high-definition video rendering, high fidelity sound, exact lip-synchronization, reliable delivery service, ISO quality security, network recording and desktop/media sharing.

Room-based video conferencing systems have most of the features of the Telepresence systems but even the company-wide infrastructure to support all the rooms plus the equipment within each room is quite expensive, in the millions of dollars.

The historic objections to such video conferencing are several:

Cost— There is a not insignificant amount of equipment and very expensive bandwidth required per location. The cost per hour of this type communications restricts its usage to only “high value” conversation and “high value” individuals. It is prestigious for a senior manager to have access to the systems. He can only talk to other equally senior managers and not the people downstream within his/her reporting line because they do not have access to the rooms and equipment.

Technical support--- An in house IT staff is required to maintain and operate such equipment.

Room Scheduling--- Expensive video room resources must be scheduled according to management seniority and importance of topics. Then after the room is committed, all the schedules of the participants need to be lined up to match the availability of the room, and not the other way around.

Walled garden— Such Telepresence room systems are not able to easily connect to other Telepresence room systems easily and so one can't connect to everyone to whom one may want to speak with without adequate planning and advance preparation. Even then, it may not always be possible to connect the equipment of one manufacturer to that of another.

Solution

Given that video communications is intended to increase productivity and decrease down time (such as travel time), it stands to reason that by extending the reach of video communications to more persons in the organization, we are gaining a twofold advantage:

1. On one hand we're increasing the productivity of each individual, thereby making each person more valuable to the company.
2. Second, we're reducing the cost of conducting business thereby improving the bottom line of the business.

Just as having a telephone on every desk brought about a change in how business is conducted - and today it is inconceivable to have workers without a phone at their desks or in their pocket - video communications in professional environments can be brought to every person, much as a telephone and with similar transformation in business communications.

This is the *democratization of video conferencing*.

This value is based on everyone in the company is able to:

- Reach every other colleague without regard to location
- Reach every client without regard to location
- Communicate with the supply chain
- Interact with partners in commercial projects
- Expand available applications to lower other costs- for personnel interviews, and internal meetings in place of travel
- Scale implementation without “breaking the bank” or create complexity of implementation that would be impossible to manage
- Share desktop access for file collaboration
- Deliver video broadcasting via the Internet
- Allow independent management of the conference by the participants
- Provide managed expert call support availability when requested.
- Importantly: integrate existing and legacy systems within this enterprise wide and inter-enterprise video communications fabric.

The corresponding criteria required to meet these requirements are to:

- Reduce a company’s capital investment for video communications infrastructure i.e. routers, bridges, gateways by moving it to a third party service provider.
- Minimize the capital investment for specialized room hardware, which quickly becomes obsolete due to changes in technology.
- Create the means to continuously update the video system software to increase speed and add features.
- Use the minimal bandwidth of 400k Kbps and still have 30 frames per second on the public internet.
- Utilize standards based compression codec for video, audio and encryption to allow everyone to reach everyone else with any video solution.
- Deliver software-driven clients on personal computer-based and portable operating systems—Windows, Mac OSX, Linux, iOS, and Android.
- Maintain corporate security standards and integrity.

The following use case offered as an example illustrates how a SaaS based video conferencing solution using software based endpoints, public networks and open standards delivers the most optimal solution for ubiquitous enterprise grade

video conferencing. While we have generalized the use case, it is based on actual deployments of HSV customers in the arena of professional sports leagues.

Use Case Example

Major sports organizations such as Major League Baseball (MLB), National Football League (NFL) or National Basketball Association (NBA) would all have comparable requirements. The Commissioners have video conferencing meetings with the team owners as a group. This meeting is among fully staffed video conference rooms at each headquarters.

However, some senior officials are traveling or working from home so they connect to the call from a desktop or laptop computer for full participation. At other times subgroups of senior managers from each team's finance team connect to each other individually or as a group. This is the same for personnel managers, facility managers or advertising managers. These calls are made from their offices on their computers.

Separately, the senior managers can reach all of their subordinates to review planning and budgets that the departments are submitting to the Club Presidents. They are sharing documents within the video conference call to insure that everyone can follow the document changes as they are made and discussed.

Subgroups of a Marketing team sit at their desks and arrange a video conference call with several external Advertising firms and often with sponsor companies. These can happen at a spur of the moment or with short notice, similar to people picking up the phone to call someone.

Some of the same people are contacting each other to review new-hire candidates' resumes on desktop sharing to decide on whom to have direct interviews. This could be done by bringing in a candidate to a local area office for a video conference based interview rather than to fly the candidate to the headquarters. Meetings can be scheduled based on time availability only and not on time **and location** availability. So the need to organize location based meetings is eliminated—distance does not matter.

These diverse and dynamic requirements need a highly flexible, reliable and secure system that can be set up and taken down in almost real time. At the same time it needs to be “on-demand” for only those that need it, and not a fixed cost infrastructure catering to the peak demand that may arise. Finally, it needs to have the ability to support new types of end points and feature upgrades across all types of end points and users.

No traditional existing hardware based system can meet all these requirements but can connect to our system. HSV on the other hand, has such a system deployed and operational with tremendous success over a number of years.

Conclusions

High Speed Video, a professional video conferencing solution is offered as Software-as-a-Service, and delivers against all of these required elements. This can now be provided either as a stand alone service by us or as a value added service by other communications delivery companies. The key attributes of HSV's SaaS approach are scalability, cost effectiveness and ubiquity while offering enterprise grade quality and security -- all solutions must be judged against these criteria for true democratization of video conferencing.

About High Speed Video

HSV is the first and only software based, fully managed service delivering enterprise grade video communications that is within the reach of large enterprises and small businesses alike. By democratizing enterprise video communications – video conferencing and telepresence - through a patented IP network based Software as a Service (SaaS) platform, HSV is extending the reach of affordable video communications to every desktop and mobile handset within an enterprise.

HSV is deployed worldwide across major global brand name enterprise customers. Our customers include NFL, MLB, and others. HSV has been nominated for a Sports Emmy for use in the NFL's highly successful Team Cam network. Headquartered in Ramsey, New Jersey, HSV is privately held. For more information visit: www.hsvideo.net or email: info@hsvideo.net.