



Streaming Video in the Enterprise

Danna Bethlehem

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Intro

Equipped with forward-looking management views and up-to-date networking infrastructure, many enterprises are in a position to harness the power of video streaming to upgrade the way they communicate. Serving both internal and external communication needs, video streaming can be a powerful and cost-effective communication tool that can be adopted at relatively low levels of investment. Benefits of video streaming extend to marketing, employee and channel training, sales training and intra-company collaboration. Video streaming lets companies get a consistent and controlled message to a large target audience in a short space of time.

Many enterprises are ready for streaming -:

- ❑ They have the bandwidth capacity and networking infrastructure to support streaming.
- ❑ They have an installed base of users: most employees work with PCs and have no problem accessing video at their desktops.

Video streaming applications can be divided between directed at an internal audience and those directed at an external audience. Internal applications include:

- ❑ Intra-departmental collaboration
- ❑ Employee Training
- ❑ Sales Training
- ❑ Business TV

External applications include:

- ❑ Product launches
- ❑ Earnings Announcements

Technology and Setup

Streaming in the enterprise rests on the convergence of two technologies: video production (content creation) and video delivery over the IP network – streaming.

Step 1: Content Creation

Content can be streamed live or on-demand from a video server. Streaming live content involves no video production. A live video stream is fed into a compression platform, which compresses the stream. A streaming server wraps the compressed signal in IP and transmits it over the network to playback stations.

On-demand content means that the video is processed and stored on a video server ahead of time. Content that is stored on a video server can be edited and go through a more thorough post production stage than live content. The level of editing and post production depends on the level of sophistication of the video setup. Minimum processing involves compression and storage only. Fully blown post production can involve editing and special effects.

Whether streaming live or on-demand, the format that is streamed will be compressed video such as MPEG, WMT or RealVideo.

Step 2: Streaming

Once the video – live or on-demand – is ready for streaming it is fed into a streaming server. The streaming server wraps the signals in IP and transmits it over the network to the playback stations. IP streaming can be done in Unicast or Multicast mode. In multicast streaming a single stream of video is transmitted to a group IP address, saving the need to duplicate the stream for every recipient. Multicast streaming uses bandwidth far more efficiently than Unicast, which entails duplicating the stream of video for every recipient. Although Multicast is more efficient than Unicast, not all networks support multicast streaming. To stream in Multicast, networks have to be multicast enabled. This means that network devices such as switches and routers need to support IP multicast.

Step 3: Playback

Playback method depends on the type of organization and level of computerized infrastructure. In organizations where most employees work with PCs, it is logical to stream video directly to employees' desktops. Sometimes it makes more sense to play back the video stream on a TV monitor.

The technical considerations for setting up an internal streaming application differ from those required for external applications. It is probably easier to set up an internal streaming application as there are fewer complications regarding security, bandwidth and target audience accessibility.

Benefits of Video Streaming in the Enterprise

Video streaming is a tool that can extend benefits to applications that are already in place in most enterprises. As for other IT expenditure, it is hard to place a monetary value on return on investment. But there are other tangible advantages that video streaming contributes to effective organizational management.

More effective communications

When deployed for corporate communications and inter-departmental collaboration, video streaming can improve interaction between participants since it allows for eye contact, interpretation of body language and hand gestures. This in turn promotes better working relations and can facilitate greater commitment between colleagues. For ongoing working meetings video streaming is a good tool for developing relationships between colleagues. Streaming can help companies get their messages out to larger audiences, or a greater number of a narrowly defined group, more quickly and cost effectively.

Centralized Information Archive

When applied to training, education, product launches or investor announcements, video streaming facilitates the creation of a central archive of information that can be accessed at a later date.

Reduction in Travel Costs

Video streaming can reduce the amount of employee travel considerably.

Real-time Access to Information

Video streaming makes information available in real-time. This is critical for information rich market segments such as financial institutions.

Networking Infrastructure

In the enterprise, networking infrastructure is less of an inhibitor to the adoption of video streaming than is perceived. Most organizations already have high-speed LANs that can support streaming. If handled correctly, multicast streaming need not cause network congestion. One infrastructure issue that can pose an obstacle is the lack of multicast support, the preferred streaming mode for most applications. This inhibitor is being overcome as enterprises upgrade their networks.

Accessibility to streamed content is another issue that has to be addressed. Streaming makes sense in organizations where most employees work with PCs on which they can access content. Still another issue that can be an inhibitor is resistance on the part of IT managers who fear that it will drain networking resources.

Enterprise Streaming Applications

Corporate Communications

Multi-national corporations, universities and non-governmental organizations are using IP video streaming for corporate announcements as well as inter-departmental communications. Video streaming allows organizations to significantly reduce employee travel costs while still reaping the benefits of having participants nearly physically present. Thus participants can still benefit from face-to-face and eye contact, improving the effectiveness of meetings.

Training / Employee Education

Training and employee education is an area where enterprises can benefit greatly from video streaming. By using video streaming technology to implementing training, companies that already have established training programs are able to distribute training materials and courses throughout the organization, regardless of location. eTraining accommodates multi-location organizations by enabling employees worldwide to have access to a centralized repository of training materials which can be viewed locally.

Partner / Channel Training

Video streaming can benefit companies which need to train a large geographically dispersed sales or technical force on a regular basis. For example, automobile manufacturers that need to train mechanics and sales personnel about new models; medical equipment manufacturers that need to train technicians; pharmaceutical companies that need to train sales personnel about new products. In such cases, video streaming allows for the preparation of core training programs, which can be repetitively accessed for refresher sessions at any time at client desktops. In these cases, video streaming makes complex information readily available to those who need it at all times. Streaming on-demand training material beats the use of CD-ROMs or VHS since all information is centrally updated on the video server, and saves having to replace CDs or videos.

Earnings Calls

The use of streaming technology for earnings calls got a boost from a SEC regulation handed down toward the end of 2001 which requires public companies to pro-actively distribute information to investors and the media about financial information included in quarterly earnings statements. Many companies have chosen multicast audio streaming as alternative to conference calls or face-to-face meetings.

Business TV

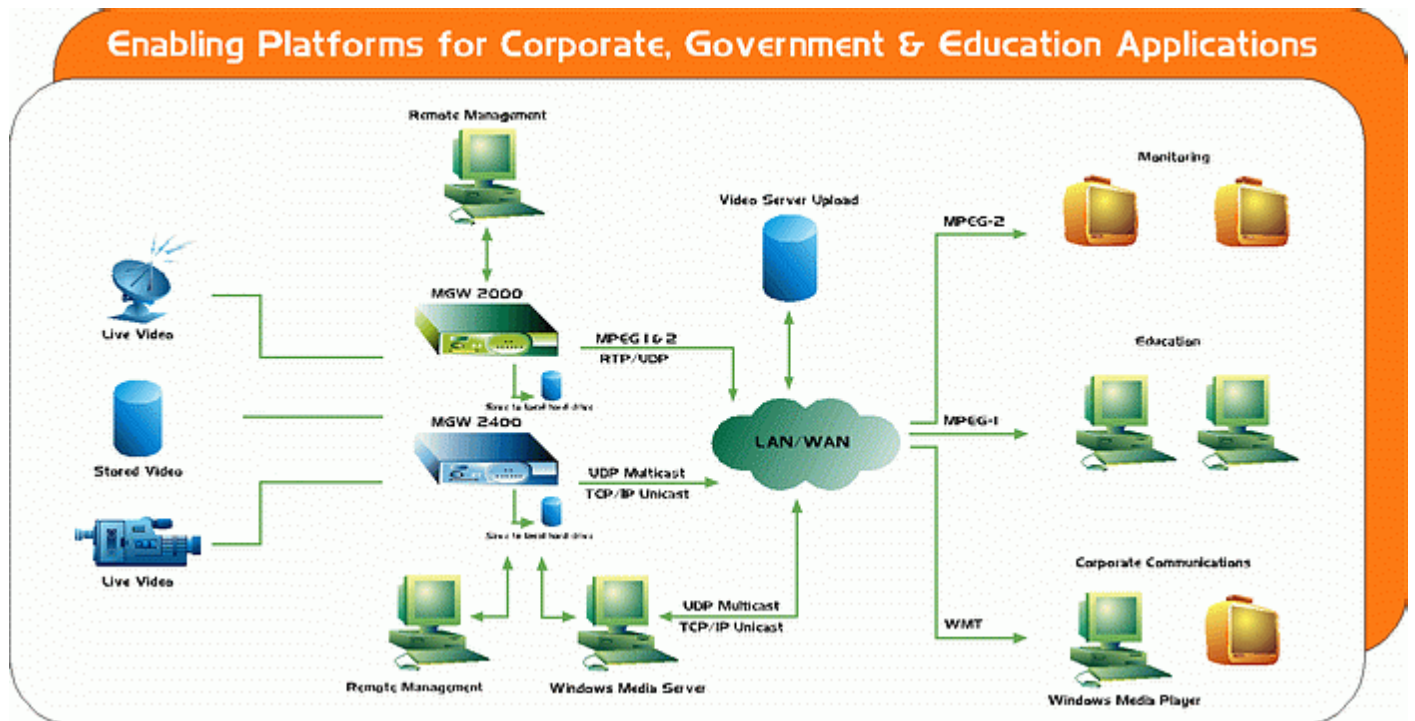
Video streaming of financial information to the desktop provides analysts with live up-to-the minute data from multiple sources at their fingertips. Such applications can stream up to 10 channels of news, financial data and business information to thousands of desktops. The availability of up-to-date information in this market segment is critical to its success.

Product Launches

Streaming is an effective tool for international product launches. It allows companies to communicate a consistent controlled message to a large audience at a single point of time.

System Setup

The following diagram shows the system architecture of video streaming applications in the enterprise, using Optibase's MGW 2000 MPEG-1/2 and MGW 2400 WMT streaming servers.



Solutions Provided by Optibase

- [MGW 2000 MPEG-1 and MPEG-2 Streaming Server](#)
- [MGW 2400 WMT Streaming Server](#)
- [MPEG MovieMaker 200S / MPEG MovieMaker 100S encoding boards](#)
- [MPEG ComMotion Pro Streaming software](#)
- [Progression Developer Tools](#)

Deployments

German Foreign Ministry: Utilizing a native ATM infrastructure and Optibase streaming platforms, the Ministry of Foreign Affairs in Berlin, streams live debates and TV to employees' desktops.

http://www.optibase.com/html/solutions/application_stories/Business_TV/German_Ministry.html

The Michigan House of Representatives uses the MGW 2000 as the basis of a sophisticated video streaming solution which delivers live debates and TV to staffers' desktops.

http://www.optibase.com/html/solutions/application_stories/Business_TV/German_Ministry.html

Volkswagen, using Optibase's encoding and transmission products, broadcasts live BusinessTV to all 3000 dealerships for both training purposes and board level announcements.

http://www.optibase.com/html/solutions/application_stories/Business_TV/Business_Television_by_Volkswagen.html