Visual Collaboration

Driving Business Efficiency
Into the Next Millenium

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About this Report:

This report is intended to provide an overview of the visual collaboration marketplace – its technologies, applications, benefits, and drivers. The material draws on four years of market research, a wealth of material collected from vendors at trade shows and in private briefings, and anecdotal evidence collected from end users at trade shows, industry events, and monthly seminars taught over the past 18 months.

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1. Executive Summary

Traditional videoconferencing was about audio-video communications to facilitate meetings without the burden of travel. Visual collaboration is much more; it is the combination of audio and video and data in both real-time and store-and-forward applications. Visual collaboration enables people who are separated by distance and time to work together across LAN and WAN connections to create value for their organizations. Visual collaboration is about marketing, selling, communicating, and training. It’s not just about meetings anymore.

In many ways 1998 can be described as the year the Internet went mainstream. The Internet began the year as the world’s largest depository of information. By year end it had become the fastest growing source of consumer entertainment and news, the most talked about technology for e-commerce, and an increasingly important network for audio- and video-based communications for both consumer and corporate needs.

The evolution is now in full swing - from the age of voice communications to the age of visual communications. Vendors are fueling the transition by introducing exciting new conferencing solutions which address real time and non-real time communications needs and which operate across a heterogeneous networking architecture. And while equipment interfaces are becoming increasingly user-friendly, the opportunities to create larger and more complex heterogeneous networks are increasing. Vendors are now responding with a creative set of managed services enabling end users to outsource non-core communications activities, thereby benefiting from a service provider’s economies of scale, specialized expertise, and dedicated focus. Outsourcing enables users to spare themselves the headaches of operating complex multimedia networks and to save costs while receiving top quality 24x7 support.

1999 is likely to be remembered as the year in which the computer and communications industry acknowledged the fact that the future will be based on Internet Protocol (IP). IP is the technology of the Internet; it is also the technology of the corporate LAN. Because packet switching is more efficient, IP is able to move large amounts of information at much lower costs than traditional switched circuit networks. Massive investments are being made today in IP infrastructure for both LAN and WAN architectures. These investments are being made by equipment vendors and the established carriers as well as by a slew of new IP telecommunications competitors who can move aggressively, unencumbered by legacy networks, products, and attitudes. These dynamic forces in the communications market are bringing massive amounts of bandwidth on-line. Low-cost and plentiful bandwidth is the fuel for the era of visual communications.

Savvy users are finding that these new visual communication tools and solutions can do far more than save money on travel expenses. They can shorten communications paths, speed decision making, improve teamwork, cut product development cycles, improve relationships with customers and key suppliers, and help corporations, healthcare facilities, and educational institutions of all kinds extend their reach.
2. The Visual Collaboration Proposition

Visual collaboration is a process which allows two or more users to interact with audio, video, and/or data streams in both real-time and non-real time communications modes across packet and circuit switched networks.

Visual collaboration is the merging of conferencing, streaming, and data collaboration into a seamless infrastructure.

Visual collaboration enables users to cross the span of distance and the span of time, thereby saving on travel costs, reducing wear and tear on human capital, improving corporate communications, speeding decision making, and enriching communications between colleagues, partners, suppliers, and customers.

Videoconferencing is about meetings. Visual collaboration is about meetings, corporate communications, sales, training, and enhanced customer services.

Visual collaboration is the newest weapon all businesses can use against a common enemy – time.

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Visual Collaboration and Customer Satisfaction

Credit Suisse Leasing is the largest leasing company in Switzerland. Looking for a point-of-sale program that would help improve the leasing process at car dealerships throughout Switzerland, Credit Suisse has embarked on a program to share data, improve personal communications, and shorten the time to close a financing deal. The program began in Switzerland by installing PCs in car dealerships so that customers could enter data about the automobile they were interested in as well as personal data about their financial status. Based upon this data, a computer program calculates the amount of the lease payments and determines if the customer qualifies for a lease. Leasing contracts are then printed out right at the dealership kiosk.

The next step, the company realized, would involve giving customers live, real-time access to leasing experts at Credit Suisse Leasing. Visual collaboration was the key to implementing this next step. The company installed PictureTel compact systems at each car dealership to enable customers to talk directly to a leasing specialist and to have all their questions answered. According to Juerg Heeb, project leader of the point-of-sale program for Credit Suisse Leasing, “the compact videoconferencing systems speed up the lease application process and improve overall customer satisfaction with these potential car buyers.”

Benefits cited by Credit Suisse Leasing:

- Real-time collaboration collects product and financial data in timely fashion
- Leasing specialists can “talk” customers through the leasing process at application time, reducing errors and delay
- Customers can “meet” their leasing specialist directly from the car dealership, without making a separate trip
- Time to close a leasing contract is reduced
- Time to acquire a new automobile is shortened, leading to higher customer satisfaction
3. The Evolution of Visual Collaboration

The Videoconferencing Foundation

The roots of visual collaboration applications can be found in the videoconferencing industry. Visual collaboration takes the benefits of conferencing and extends them in several dimensions simultaneously.

Traditional videoconferencing systems used special electronics and digital communications lines to provide users with two-way, real-time audio and video telephony. Videoconferencing (and videoconferencing with integrated data collaboration tools) now enables new operational efficiencies for corporations, universities, and government organizations of all sizes: reducing travel costs; raising productivity of workers and executives by enabling faster decision making; reducing time-to-market; making access to remote experts less burdensome and less costly; and bringing teachers into remote classrooms, enriching the lives of thousands who would otherwise not have access to special educational programs.

The Visual Collaboration Evolution

The world of videoconferencing and multimedia communications is evolving. More people are connected to the LAN at work; e-mail and voice mail have become familiar tools for communicating across the span of time; conference calling has become a common vehicle for bringing multiple participants into a single meeting. Forward thinking planners are looking towards systems that can integrate across all their communication needs – that can combine audio and video and data, that cross all their network connections seamlessly, that handle both real-time and non-real-time messages. These same visionaries are also looking for easy-to-use, standards-based solutions that will enable them to communicate with customers and suppliers, not just colleagues on the internal network.

In short, the paradigm is shifting from videoconferencing to visual collaboration.

This is reflected by the evolution of products in the videoconferencing market. The convergence of group systems and desktop (PC-based) videoconferencing systems has introduced large scale PC technologies and IP networks into the world of visual collaboration. IP networks are at the center of the data communications world and the foundation of the Internet; they are now moving to the center of the videoconferencing universe, fueling the transition to visual collaboration. IP networks support a wide variety of applications ranging from e-mail and web surfing to data collaboration and streaming audio and video. With IP video, users will benefit from a natural combination of real-time and non-real time video services (including voice and data as well) across a broad range of endpoints, networks, and applications.

It is not too much of a stretch to say that IP already goes to tens of millions of corporate desktops, because most corporate LANs are IP-based. IP holds the promise of becoming the first truly converged network, capable of carrying voice, video, and data. Videoconferencing vendors have already responded to...
the IP opportunity by developing “dual-mode” products, that is, systems that support both H.320/ISDN conferencing and H.323/IP conferencing. Customers need not fear that their equipment will be left behind as network architectures shift.

The Market Evolution of Conferencing Systems

While in truth packet switched networks don’t handle multimedia traffic as smoothly as circuit switched networks, there are numerous companies and standards organizations working diligently to make IP networks multimedia friendly. The worldwide investments in IP technology are huge, with one of the goals to make IP suitable for both voice and video and another to give network management professionals the tools they need to preserve the integrity of the data network.

The Internet Connection

Visual collaboration today is not only embracing an IP infrastructure, it is also evolving towards Internet-centric applications and services. The Internet already goes everywhere and touches over 100,000,000 users worldwide. Now the Internet itself is being upgraded with higher performance backbones and with local access on-ramps that offer higher speeds, lower costs, and instant access. These technology and social shifts point to one inevitable conclusion – a new class of visual collaboration products will emerge, combining video applications and video-enabled endpoints with video-optimized intranets, Internet service providers, and professional service organizations who can address the entire range of customer needs.

Visual Collaboration to Speed Product Development

Astra, a large pharmaceutical company headquartered in Sweden, has R&D operations as well as marketing and sales sites around the world. Keeping lines of communication open between groups and across international borders is a challenge the company is meeting with visual collaboration solutions. According to Joel Swerdlow, videoconferencing manager for Astra in Canada, the company began implementing PictureTel video technology as a way to improve communications, increase productivity, and reduce travel costs.

Today, the Canadian operation as well as many other Astra offices globally use group systems to conduct R&D sessions, job interviews, and group meetings. The system is meeting the original objective of using video to enable personnel from Sweden and other offices to work directly with each other without having to leave their home offices. In addition, the company has developed a number of external programs that link Astra to research sites in hospitals and medical teaching facilities throughout Canada. Visual collaboration is now an essential tool to hold training sessions and to continuing medical education. Videoconferencing is also used to conduct special events, including lectures by medical specialists inside and outside of Astra.

Benefits Cited by Astra Pharmaceutical:

- Improved communications between R&D and marketing and sales
- Improved communications between dispersed R&D teams
- More efficient delivery of medical education programs to more people
- Enhanced business processes within Astra by improving feedback between R&D and manufacturing
- Reduced travel costs and reduced strain on Astra professionals
4. Visual Collaboration Applications Today

The classic visual collaboration application is the delivery of audio and video information in real-time. Business TV (BTV) is one example. BTV, often based on one-way satellite transmission, enables corporations to deliver proprietary information in a timely manner simultaneously to a wide audience scattered around the globe. Videoconferencing, in contrast, allows for two-way, interactive audio video communications, typically using dial-up (switched) or dedicated digital telephone lines. Most videoconferencing systems today enable users to integrate some form of data conferencing as well, using a companion PC, integrated software, or attached electronic whiteboard to bring photos, spreadsheets, drawings, or text documents into the “meeting.”

The most dramatic new application impacting the visual collaboration market today is video streaming. Streaming technology gives users the ability to hear or view a file in real-time without downloading it first. Products today are equally adept at streaming video from a live feed or from archived files on a server. Streaming is fast becoming a highly effective way to sell, market, communicate, or train over the corporate LAN as well as the Internet. While video quality is directly proportional to network bandwidth, users need little more than a web browser or simple stand alone program to receive streams.

Forward Concepts believes visual collaboration products and applications are best summarized by three forms of communications:

- **Conferencing** (telephone-like): two-way, real-time communications. Conferencing may take place on circuit-switched or packet-switched networks. Major benefits include improved communications, reduced decision making times, reduced travel expenses.

- **Casting** (TV-like): real-time broadcasts to all or many on the network. Casting typically takes place over satellite TV networks, private video networks, and IP data networks. Major benefits include faster delivery of key information, reduced training expenses.

- **Caching** (VCR-like): personal, one-on-one video briefings based on store & forward streaming files. Store & forward streaming files are typically delivered over IP networks, but some applications also make use of circuit-switched dial-up remote access to streaming servers. Major benefits include elimination of video tape libraries and their incumbent expenses for duplication and distribution, more convenient desktop access for LAN-attached users, easier updating and management of content materials, superior access control to sensitive information.

Visual collaboration is in its infancy stage, as networking, computer, and multimedia technology are evolving, and as vendors and service providers explore new directions to provide value for customers. But already, visual collaboration solutions are providing new ways to conduct old business as well as opening the doors to entirely new ways of communicating.
### Example Visual Collaboration Applications and Benefits

<table>
<thead>
<tr>
<th>Application</th>
<th>Benefit</th>
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<tbody>
<tr>
<td>A large manufacturer is using a network of public and private videoconferencing systems to screen applicants for a new executive position.</td>
<td>The company can screen more applicants at less cost. Travel expenses are incurred only for applicants who have made the first or second cut.</td>
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<td>A product marketing specialist gives a sales training presentation via interactive video to the four regional sales centers from his own headquarters office. The session is recorded and made available as a streaming file over the corporate LAN.</td>
<td>The specialist does not need to travel, saving expenses and time away from the office and family. Those who missed the session can view the recorded file at their convenience to catch the briefing as well as the questions and answers posed. Field sales people can be briefed or trained at their own desktops.</td>
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<td>An aerospace firm working on a large government project installs videoconferencing equipment in the team conference rooms at three subcontractor companies. Project review meetings are held frequently via video.</td>
<td>Decision making is streamlined and problems are resolved in far shorter times. Coordination between team members is improved, while reducing the cost, time, and dislocations associated with travel.</td>
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<td>A pathologist in upstate Vermont sends a cell smear to a kidney specialist in a major medical center in Burlington. While the patient is still on the operating table, the specialist determines that the cells are not malignant.</td>
<td>A patient in a remote medical center can benefit from the expertise of a centralized specialist. Better medical care without patient or physician having to travel. Timely decision making in time-critical situations.</td>
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<td>An important presentation on a new investment portfolio is being received via videoconference at a major New York financial institution. The presentation is streamed in real-time over the corporate LAN so that all brokers and traders can view the material from their desktops. The same streaming server is also used to send news and weather information directly to LAN-attached desktops.</td>
<td>Information is available to more people in a shorter period of time, with reduced costs. Traders and brokers can be briefed or watch news broadcasts without leaving their desks. Multiple sources of information are integrated at the workstation desktop.</td>
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<td>The human resources (HR) department of a large manufacturing company converts all training materials on company policies and benefit programs to files on a streaming server, replacing videotapes.</td>
<td>Costs are saved because there are no tape duplication expenses. A single file is easier to keep updated, so that the information being accessed is always up to date. Access to sensitive files can be password controlled. Streaming files can be distributed instantly across a worldwide network when the material is time-critical.</td>
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<td>A new sales plan is presented by the VP of sales simultaneously to the nationwide sales force. The presentation is made over the web while the voice annotation is carried over the public switched telephone network using a multipoint bridging service. The presentation and audio file are recorded for subsequent playback via streaming.</td>
<td>Any sales person with access to a telephone can hear the presentation. Any sales person with access to the Internet can see the slides; no special equipment is needed. The presentation can be enjoyed in its entirety from an office, home, or hotel room. The archived file can be played back by anyone who missed the original presentation.</td>
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5. Visual Collaboration Product Overview

With the rapid pace of new product announcements and with the technology shifts that are taking place in the electronics, computers, and communications markets, it is easy to get lost on the visual collaboration roadmap. Forward Concepts considers the visual collaboration market to consist of four segments.

**Applications** are the software programs users require to make a call, record a video, locate and playback a message or streaming file, participate in a remote meeting, etc. Many applications today are becoming web browser-based.

**Endpoints** are the terminals that users access to perform conferencing and collaboration functions. Endpoints include performance group videoconferencing systems, compact videoconferencing systems, videoconferencing appliances, and PC-based desktop systems. As the industry has evolved, more and more endpoints are being based on the industry standard PC architecture, taking advantage of the huge investment in hardware and software R&D made by a myriad of PC technology companies. The PC architecture offers outstanding price/performance today and is likely to continue at a rapid rate of innovation; at the same time the PC architecture is a tremendous advantage when moving to IP networking.

**Networking Infrastructure** refers to the servers, switches, gatekeepers, gateways and other components which enable networks to handle real-time and non-real-time multimedia traffic. Infrastructure components also handle the different network protocols as well as the network-to-network services needed to connect endpoints on circuit and packet switched networks.

**Services** is a broad and expanding category which begins with traditional consulting, installation, and maintenance and extends to a wide range of outsourcing activities which allows customers to focus on their own key competencies and outsource the rest. With managed network services customers can take advantage of the expertise specialists have developed in managing complex networks, guaranteeing service levels, operating multipoint bridges, and inter-networking disparate endpoints and networks. Visual collaboration applications adds another dimension to the services market, with new industries specializing in web hosting, streaming servers, as well as content delivery and management. Service firms make it possible for everyone to have the latest visual collaboration technology without the burden of owning or operating the networks or equipment behind the scenes.
## Key Visual Collaboration Technologies and Benefits

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<tr>
<th>Technology Element</th>
<th>Description</th>
<th>Benefits</th>
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<td><strong>Gatekeepers</strong></td>
<td>Gatekeepers are high level software functions (usually server-based) that help preserve the operational quality of a network by performing access control, bandwidth management, and address translation.</td>
<td>Gatekeepers provide the management controls that network managers need to make sure that multimedia traffic will not overburden the network. Working in conjunction with a gateway, gatekeeper address translation capabilities make it possible to translate phone numbers to IP addresses.</td>
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<td><strong>Gateways</strong></td>
<td>Gateways connect equipment on one network to equipment on another. For example, telephones on the public switched telephone network use gateways to connect to IP or Internet telephones. Similarly, LAN based videoconferencing systems use a gateway to connect to ISDN-based systems.</td>
<td>Gateways provide a transparent connection between different networking systems, making it possible for more equipment to communicate. The biggest benefit is to enable LAN based equipment to access a WAN.</td>
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<td><strong>H.320</strong></td>
<td>International Telecommunications Union (ITU) standard for videoconferencing over ISDN</td>
<td>Provides the basis for vendor-to-vendor interoperability worldwide.</td>
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<tr>
<td><strong>H.323</strong></td>
<td>ITU standard for videoconferencing over IP networks, including LANs and the Internet</td>
<td>Provides the basis for vendor-to-vendor interoperability worldwide.</td>
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<td><strong>Managed Services</strong></td>
<td>Managed services are outside services which help corporate customers manage disparate networks and equipment by offloading operation, management, and maintenance to an external organization which specializes in these tasks. Managed services work with equipment that may be physically located on the customer site.</td>
<td>Managed Services give enterprise customers the benefit of industry leading management solutions (software) and trained network and conferencing professionals. Manages Services vendors typically provide customers with a single point of contact for LAN and WAN applications. Customers can concentrate on their core business while benefiting from higher levels of functionality and reliability.</td>
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<td><strong>Multipoint Control Units (MCUs)</strong></td>
<td>MCUs (also referred to as bridges) are servers that enable more than two sites to participate in a single conference with audio, video, and/or data.</td>
<td>Visual collaboration applications connected by multipoint controllers enable participants in multiple locations to attend the same meeting with full two-way, real-time interactivity.</td>
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<td><strong>Remote Presentations</strong></td>
<td>Remote presentations is an application that enables an individual to make a presentation over a communication link, rather than in person. Different remote presentation products handle audio, video, and data in different ways and may use one or two networks simultaneously. Remote presentations can be done in real-time or from archived files.</td>
<td>Remote presentations enable HR training programs, sales calls, marketing sessions, analyst briefings and other applications to be achieved at far lower costs than traditional methods. The technology also enables attendees to receive the information when it is convenient for them, rather than when the presenters schedule permits.</td>
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<td><strong>Streaming</strong></td>
<td>Streaming is a technology to deliver audio and/or video information to a computer-based receiver without requiring the receiver to download the file first. Streaming can be real-time or non-real-time from archived files.</td>
<td>Streaming enables the delivery of audio and video information without the hassles of video and audio tapes. Information moves freely over a corporate LAN or the Internet. Content can be stored centrally or distributed intelligently, managed and updated centrally, and controlled and distributed at very low cost. Users can watch or listen to the stream from any enabled browser when it is convenient.</td>
</tr>
<tr>
<td><strong>Videoconferencing</strong></td>
<td>Videoconferencing is audio and video telephony. This means real-time, two-way communications. Modern videoconferencing systems also enable participants to share image, video, and file data.</td>
<td>Videoconferencing reduces the time, costs, and inconvenience of attending meetings. When used effectively, videoconferencing does more than save on travel costs, it speeds up information flow, reduces decision making time, and builds teamwork.</td>
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<td><strong>Web-based Collaboration</strong></td>
<td>This is an emerging set of applications that uses Web technology and infrastructure to host meetings and presentations. Information can be exchanged by presenting files, by audio, or by text chat windows.</td>
<td>Any person with web access can attend a web-based presentation, making it possible for a presenter to address hundreds or even thousands in an audience spread around the globe.</td>
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Savvy companies today are investing in visual collaboration tools and solutions that support relationships among employees, outside experts, customers, and suppliers. Communications, computing, and collaboration technologies are constantly changing, improving the value proposition for users. The following are some key trends to watch for in navigating the transitions ahead.

Circuit switched ISDN is the network of choice now, but packet switched IP will be the network of the future for visual collaboration. However, the transition will not take place overnight. Smart vendors are already providing network-independent equipment and services to protect their customers through the transition.

The impact of the Internet cannot be underestimated. The Internet has become a fundamental communications vehicle for both consumer and corporate customers. At first serving the function of a large document library, the Internet is now a source of news and entertainment (audio, video, and text based). More importantly, the Web is rapidly becoming a low cost, easy-to-use platform for remote presentations, meetings, and even two-way conferencing. The browser is the user interface of choice to a wide range of applications. The next stage will see even more functions and services become web-based. The Internet will lead to a whole new computing environment where applications will reside on the public network. Visual collaboration will be one of those applications. Within three years, Internet service providers will be provisioning a whole new set of enhanced services – they will become application service providers. End users will not have to develop or own the applications, they will simply have the services provisioned on a “pay as you go” basis. The end result will be nothing less than a revolutionary change in the way networks are created, maintained, and managed.

Technology is enabling converged multimedia networks capable of handling audio, video, and text. These networks support real-time functions such as videoconferencing and IP broadcasting, as well as store & forward applications like e-mail, transaction processing, cache-based streaming, and file transfers. The story is not just about meetings anymore; the strategic benefits are being driven by the convergence of a wide range of visual collaborative applications.

The visual computing industry is riding the wave of the PC revolution and the tremendous price and performance gains described by Moore’s Law. There is no sign of slowing down. Today’s 333 MHz Pentium-III desktop PC has many times the processing power available on machines just two years old. 500 MHz chips are already sampling, and 1,000 MHz is on the horizon. PC-based visual collaboration platforms will enable users to take advantage of the enormous hardware, software, and process investments made by the PC industry. PC-based platforms will also benefit from the wealth of applications, utilities, and service industries that surround this important technology.

The new generation of conferencing and collaboration equipment has improved on reliability, interoperability, and ease-of-use. These new systems are easy to install, operate, and manage, and enable large and small corporations to deploy conferencing gear in remote offices, departmental conference rooms, and even private offices without burdening the support staff or breaking the budget.
These conferencing appliances are expanding the market in two important ways: large companies that have committed to videoconferencing technologies for remote meetings now find that they can extend the penetration of conferencing equipment deep into their corporation; small companies that have been unable to justify conferencing, or have been unable to afford traditional room systems now find that the appliances are well within their budgets.

As technology makes videoconferencing and visual collaboration endpoints easier and easier to use, more endpoints will be deployed. More endpoints deployed across multiple networks and protocols in turn makes the job of network configuration and management more complex. Many vendors are making available remote network management tools which allow network managers to run far-flung empires of conferencing equipment from the convenience of their own operation. In the future, sophisticated tools will monitor all aspects of the network performance as well as the terminal subsystems (audio, video, etc.) and provide early warning of impending problems, diagnostic capabilities, fast problem resolution, and even remote call set-up and monitoring.

Vendors of visual collaboration equipment continue to push towards equipment-to-equipment and vendor-to-vendor interoperability. These efforts, which are supported by the ITU, ETSI, and the IMTC, are now being extended to network-to-network transparency. Customers will be able to “make the call” and, whether using ISDN or IP networks, connect with partners, customers, vendors, and colleagues around the globe.

Broadband access is about to explode. New technologies from the phone companies and from the cable TV industry promise to bring multi-megabit data services to homes as well as to small and medium offices, all for a fraction of today’s costs. These new “high-speed, always-on” IP pipelines will change fundamentally the way the world thinks about data services, Internet access, and multimedia communications. The performance and ease-of-use of new broadband access communications will cause an explosion of interest in many new applications ranging from videoconferencing, streaming content creation, news services, distance learning, entertainment, web-collaboration, and e-commerce.

Data conferencing is becoming part of the corporate mainstream. Companies are finding collaborative data sharing and remote presentations via electronic whiteboards or PC-based software to be very valuable additions to video and audio conferencing. One of the most exciting trend today is the emergence of solutions and services for web-based remote presentations. These presentations allow any user with Internet access to attend a meeting visually while the audio portion is carried over an IP network or the public switched telephone system.
Remote presentations will enable users to carry their message to more listeners faster, and at far lower costs than previous technologies and will have an important role in corporate training, financial briefings, distance learning, web marketing, and technical support applications.

**Streaming Visual Collaboration and Training**

Electronic Trading Group, L.L.C (ETC), a prestigious national broker dealer, has made it its mission to ensure that its professional traders have the state-of-the-art trading technology, management tools, and continuous training they need to be successful trading stocks on Wall Street and other international markets. ETG has built its reputation by training novice brokers in the fundamental skills necessary to build a professional business. “The Art of Trading” is a comprehensive, proprietary 18-hour training program developed by the firm over the years. With training considered such a mission critical resource, it is not surprising that the firm has adopted streaming technology from PictureTel to improve delivery of its program.

After initial success of the program, ETG is now offering traders greater access to the training and plans to enhance the system’s capabilities. The company is installing a wide area network that will enable it to hold both live and stored streaming training sessions over the web. The company is also considering providing traders with access to the company’s streaming servers from their homes, and even to extend the service to customers.

According to Jeff Mester, ETG’s chief operating officer, “Traders love the program because it is easy to use and they have the opportunity to view the training over and over again, as needed or desired. The time saved by our traders has been immeasurable, and we feel we’re delivering a higher quality training than was possible in the past.”

Benefits cited by ETG:

- Large number of users can access material simultaneously
- Access to material is secure and controlled, unlike videotapes which can be lost, misplaced, or stolen.
- Trainers can view video when convenient
- Trainers can view video from any workstation on the network and across multiple locations
- Training materials are easily updated and enhanced without videotape production hassles.
7. Summary

Visual collaboration tools are helping corporations make the transition to an Internet-driven world with instant world-wide connectivity. Spurred by changes in communications technology, low cost bandwidth, and continuous improvements in hardware price/performance, visual collaboration solutions provide large and small enterprises with the tools they need to be more productive, to make decisions faster, to train and educate better, and to save on the time and burden of travel.

New visual collaboration tools ride on the networks that are readily available and that are easy to use. Whether the application is meetings, sales and marketing presentations, training, or distance learning, visual collaboration is a new way to do familiar tasks, not new things to do. Professionals in all walks of corporate life can achieve productivity gains without changing work habits or paradigms.

The videoconferencing industry has undergone a dramatic change. In the past two years, prices have fallen dramatically, while ease-of-use and video quality have improved. The results have been two-fold: increased depth of penetration as video-savvy corporations deploy equipment in remote offices and small conference rooms; and increased breadth of penetration as many smaller companies discover they can afford videoconferencing and that their investment will have a quick payback.

At the same time, the videoconferencing industry has been buffeted by the PC and Internet revolution. The world is rapidly becoming IP-centric. Businesses, governments, educational institutions, and consumers have all adopted IP technology at breath-taking speeds. Multimedia-savvy IP networks are inevitable. Broadband access is inevitable. With the IP revolution, videoconferencing is evolving into one of many visual collaboration tools enabling a wide range of internal and external communications.

Combined with the power of the PC platform, the convergence of multimedia applications onto high performance networks promises to make visual collaboration the essential tool for the corporation of the next decade.