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Industry News and Information for the video and multimedia communicator, as well as users of satellite-based business television and interactive distance learning networks.

Featuring:

**Innovations in Digital Video:
Mayo Clinic's Media Support Services Provides
"Best-in-Class" Information, Education & Support**

**Thoughts & Perspectives on Interactive Distance Learning
From Arel Communications and Software, Inc.**

**IBC 2004
Finalization of Advanced Video Compression & Delivery Standards
Clear Way For New Next-Generation Products & Services**

2004 Fall Training & Online Learning Conference: USDLA to Take Center Stage

**IBC 2004
Finalization of Advanced
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Services**

**Edward Behan -
Enliten Chief Technical Officer**

Every spring, professionals from the broadcast industry – and all of the other industries spawned by the broadcast world – gather in Las Vegas for the National Association of Broadcasters Conference (NAB). Each year, the show shares the latest chapter in the ever-evolving story of how video touches our lives. In recent years, the story has included the coming of age for High Definition Television, Non-Linear Editing

**Innovations in Digital Video:
Mayo Clinic's Media Support Services
Provides "Best-in-Class" Information,
Education & Support**

The role of an in-house video and media group is to "inform, educate and support" its organization by leveraging media-rich content for effective communications. We've found that groups that achieve "best-in-class" status typically view themselves as internal service providers. These groups understand their customers' objectives and design services to maximize quality and effectiveness, thereby enhancing their value throughout the organization. We also find these groups to be pro-active in their approach towards innovation – in the manner in which they evaluate new technology; conduct internal selling and marketing; and executive deployment of systems and services.

Enliten recognizes Mayo Clinic's Division of Media Support Services (MSS) as one such group that not only exemplifies these characteristics, but also has

**Thoughts &
Perspectives on
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From Arel
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Software, Inc.**



Moshe Ben-Yishai

Biography. Moshe Ben-Yishai joined Arel as Executive Vice President of Marketing & Sales in 1996. In

Systems, and powerful software-based creation tools. New innovations will continue to drive the industry and take center stage at NAB for years to come.

For those too eager to wait a full year for the next installment of the story, each September offers the International Broadcasting Convention (IBC) in Amsterdam. Viewed by many in the United States as "the NAB of Europe", IBC provides its 40,000 attendees a mid-year view of the leading vendors, technologies, and innovations supporting the global broadcast industry.

This year, much of IBC's excitement was focused on the finalization of advanced video compression and delivery standards clearing the way for next-generation products that will help define video communications for the coming decade.

The last time video compression and delivery standards grabbed the spotlight like this was in 1995. That year, the DVB-S (Digital Video Broadcast – Satellite) transport standard was finalized providing the framework for modulators, set top boxes, and satellite receiver technology that we still use today. DVB-S recognized MPEG-2 as its standard for video compression. This allowed the manufacturers of MPEG-2 encoders and decoders to steadily improve their products, nearly reaching the theoretical limitations of the MPEG-2 standard allowing quality transmissions at or near 2.5 MBPS as opposed to the 6.0 to 8.0 MBPS required in the mid-late 1990s. MPEG-2 has also become the encoding method for DVDs (Digital Versatile Discs).

The broadcast industry has spent the past few years developing the framework for the next-generation of video compression and transport, one that will expand the reach of video communications and further drive the convergence

set the benchmark for how an internal media group should serve its customers.

Mayo Clinic – Media Support Services

Mayo Clinic is a charitable, not-for-profit organization based in Rochester, MN. Its mission is to provide the best care to every patient every day through integrated clinical practice, education and research. Mayo Clinic is "best-in-class" in providing care to its patients. Likewise, Mayo Clinic's Division of Media Support Services (MSS) follows these same principles, providing "best-in-class" media services for the past 100 years to its physicians, scientists and allied health professionals, as well as patients.

MSS staff members are expected to have a clear and up-to-date understanding of the best, most appropriate technologies and solutions to meet the challenges in their respective areas of expertise. They are expected to understand the limits, the limitations, and what's not really ready for prime time. They do! In addition, they follow the premise of letting the applications - its customers' needs - drive the technology solutions that are incorporated into its system. Staff members are handpicked, with careful scrutiny, to assure that each individual meets Mayo's culture.

Marvin Mitchell, Chair - Division of Media Support Services, leads the staff of over 200 media specialists, including photographers and graphic designers, video producers and editors, web-masters, and a staff of engineers and technicians who support the customers served by the organization's wide range of technical facilities and capabilities.

Understanding Digital Video & Digital Video Transport

You have probably noticed we are in a digital age. Technologies are improving rapidly, making digital video more readily available. Video is displayed just about everywhere - used and viewed by virtually everyone. Televisions and display screens are located in grocery stores and department stores; restaurants and fast food establishments; theme parks; airports; outdoor billboards. Content includes advertisements and promotions; news, sports, weather and financial market information; internal communications, billboarding and messaging.

Bottom line, the display of video is commonplace, in the workplace as well as in the home. Therefore, it is important for employees to understand how to produce it, how to display it – the right way. They need to know who's using it, when and where – what video can do for the enterprise.

1998 he was instrumental in establishing Arel Communications and Software, Inc. In this capacity, he has been responsible for spearheading the marketing and distribution in the U.S. and Canada. Prior to joining Arel, Moshe worked for 10 years at Orbit Advanced Technologies in Israel and in the U.S., and served as the VP of sales and marketing and as president for the last four years. Orbit is a public company that develops, manufactures and markets tracking systems for satellite and aircraft. Moshe earned a BSME degree in robotics control from Farleigh Dickinson University and an MBA from New York University.

What is your perspective of where the industry is today? Synchronous versus asynchronous training?

There is a strong movement towards asynchronous training created in part by the greater flexibility and availability it has to offer the user; it crosses all timeline and network infrastructure boundaries. In order to conduct live, interactive training broadcasts a few years ago, one would need a very fat pipe such as satellite, which requires a higher initial investment in a network. Therefore, computer-based training (CBT) was the hot solution even though it lacked interactivity and is very costly to produce and keep updated.

Today, we can offer a fully blended solution that allows a company to run any training program on any network infrastructure, from the very low bandwidth IP

of the broadcast and computer networking industries. That framework has now been set with the finalization of the DVB-S2, the successor to DVB-S. Unlike its predecessor, DVB-S2 did not select a single standard to be used for video compression. Instead, its development fosters competition by creating an environment where broadcasters can decide between MPEG-2, or any IP-based standard of their choosing.

This did not end the battle between the evolving MPEG-4 standard (now commonly called AVC for advanced video compression) and Microsoft's Windows Media 9 (now standardized by the Society of Motion Picture & Television Engineers as VC1, for Virtual Codec 1) for dominance of the next-generation video compression market. Instead it has energized both AVC and VC1 to work with the industry to bring the best products to market as they compete under the DVB-S2 umbrella. The battleground will certainly expand into the other DVB standards for cable (DVB-C), terrestrial (DVB-T), and the Multimedia Home Platform (DVB-MHP).

Collectively, the finalization of the DVB-S2, AVC, and VC1 standards is anticipated to have an impact on the broadcast industry exceeding that of the original DVB-S transport standard and the MPEG-2 video compression standard when they were introduced in 1995.

Organizations offering products and information about the DVB-S2, AVC, and VC1 standards attracted large crowds and offered insight to the future direction of the broadcast industry. Booths for the Digital Video Broadcasting organization, MPEG-4 Industry Forum, AVC Alliance, and Microsoft garnered much attention. The same is true for manufacturers offering new standards-based technology to the traditional broadcast industry (such as Tandberg, Harmonic, and Scopus)

Always looking to improve the "best-in-class" MSS organization, Warren Harmon, Section Head, Video, Audiovisual and Photography, searches for opportunities to inform and educate staff members about the latest trends and technology advancements of digital video. With buy-in from Mitchell, and the support of Paul Bleimeyer, Manager – Technical Services Unit, Harmon conducted educational seminars for MSS staff members and representatives from the organization's IT department.

In the spring of 2004, Harmon arranged for Enliten to present two one-day seminars on *Understanding Digital Video & Digital Video Transport* to the MSS department. The key objective was to get members of the MSS staff up-to-date about topics and issues that they deal with on a daily basis – for them to be aware of what technologies and capabilities are available in the marketplace, how they are being used by other organizations throughout the industry and understand how they are used at Mayo Clinic. The seminars featured a general overview of digital video, including such topics as: digitization; compressions; DVB; MPEG standards and Windows Media 9; Digital rights management; the transport of digital video over the Internet; satellite and local area networks (LANs); and the convergence of TVs and PCs.



Warren Harmon, Ed Behan, Bill Wimsett, Randy Palubiak

Nearly 60 members of MSS attended the seminars. According to Harmon, "This was the ideal way for us to get everyone on the same page about MSS and what it can do to improve business at, and throughout, Mayo Clinic."

According to Harmon, "It is important that members of our own division have a clear understanding of the wide range of services we provide to Mayo Clinic staff and its patients. We have a large media services production and design staff, with a wide range of talents and expertise. It is difficult for our internal customers to know everything about what we do at Mayo, much less the people in our own organization."

network to broadband and/or satellite IP network, as a hybrid solution with full interactivity for live 2-way video, audio and data at low latency (less than 0.5 sec). Of course, any of the live sessions can be recorded and can be offered as asynchronous training anytime anywhere, but we don't believe that this can or will replace synchronous training, which offers collaborative tools and peer-sharing which is so important for many applications. I believe that a mixed offering is the most effective solution and is what we are going to see more and more of since the solution is there for converged IP networks.

What impact is the domestic economy having on IDL? What about internationally?

IT spending is starting to re-emerge after three quiet years and companies are starting to look harder at their internal networks. Any company that wants to be an industry leader must invest in technology and learn how to integrate different applications into its existing network infrastructure. IDL will be hot again as the economy continues to rebound. One of the core strengths of Arel's IDL solution is its ability to capitalize on existing infrastructure and save investment on new infrastructure that is required for some IDL solutions.

Internationally, we definitely see a stronger demand due to the fact that there is a significant need in certain countries for education and training, which IDL can provide in an efficient and fast way. Traditionally, U.S. companies were the first to

and the IP sector (Envivio, Vbrick, and Cisco). For instance: Tandberg established itself as the first company to offer real-time encoding platforms for both AVC and VC1, while Scopus introduced its first professional DVB-S2 integrated receiver decoder (IRD).

About DVB-S2

Since 1995, the Digital Video Broadcasting (DVB) organization has governed the worldwide transport of digital video over satellite, cable, and terrestrial mediums with the DVB-S (Satellite), DVB-C (Cable), and DVB-T (terrestrial) standards. The DVB-S standard for transport over satellite established MPEG-2 as its "video compression standard". So, we'll talk about it first.

QPSK was chosen as the sole modulation scheme DVB "transport". This provided the technical foundation for the millions of satellite receivers deployed today.

Earlier this year, the DVB-S2 specification was finalized. This specification is backwards compatible with today's DVB/MPEG-2 technology while also supporting generic data formats such as Internet Protocol (IP) and Asynchronous Transfer Mode (ATM). This allows for advanced video codec technologies, such as AVC (MPEG-4 part 10) and VC1 (the standardized version of the Windows Media 9 codec), to offer broadcasters significantly improved bandwidth utilization. Further bandwidth reductions are realized by improving the efficiency of DVB-S2 coding schemes and allowing for higher order modulation techniques - including 8PSK, 16QAM, 16 APSK, and 32 APSK.

The DVB Organization claims that DVB-S2 is "so powerful that nobody will ever have to develop a DVB-S3 specification." This is

Extend the Reach – Innovations In Digital Video

Based on the success of the initial seminars, Harmon decided to extend the digital video course outside of MSS, to the physicians, nurses and other service groups such as the IT Education department. The objective was to provide a widespread understanding of the department's capabilities and show how other individuals could get the most out of MSS.

MSS is at the forefront of digital signage applications displaying relevant patient and business information via its "e-Poster" display screens throughout the facilities. Web casting and streaming services distribute significant amounts of content for both internal and external viewing.

After extensive research and evaluation, the MSS team is on the verge of introducing its enhanced in-house cable television service (Mayo Clinic Television Network - MCTN). Mayo's system is equivalent to the level of service provided by a typical Metropolitan Service Offering (MSO) for a community of a couple thousand subscribers. In the case of Mayo Clinic, their primary audience is hospital patients. Among other things, service will include local cable and television programming access and Video-On-Demand (VOD). VOD offerings will include movies and entertainment, as well as health and medical information and educational content produced by MSS.

This time, with encouragement from Enliten, the seminars were built around the impressive pool of MSS in-house expertise – the subject matter experts.

Once again, Harmon and Bleimeyer teamed up to address the internal Mayo coordination and marketing challenges. The most significant success was the buy-in and support from the Mayo IT Education department, as Louis Leonard, IT Education Training Coordinator, immediately stepped up to be a co-sponsor. The marketing department embraced the concept and provided the guidance and support to promote the seminars throughout the organization.

"The tremendous support from IT Education made our seminar a reality," Harmon said. "Additionally, Enliten's ability to work directly with my staff over the course of several weeks to design and build the seminar was critical. We provided our individual talent and expertise and Enliten supplied the seminar structure and important general industry overviews. In short, the seminar was more credible with the assistance of Enliten Management Group."

The seminar, *Innovations in Digital Video*, was presented on consecutive days in mid-August to more

adopt IDL solutions and after their success we now see increased movement in the international community to start adopting the solution. That adoption is driven by the ability to utilize existing infrastructure and the pricing of the solutions have dropped, lowering the bar for entry.

What is the most significant development regarding Interactive Distance Learning (IDL) for the enterprise in the past year to eighteen months?

Clearly the most significant development is the improvement of network infrastructure technology and bandwidth availability. Arel recognized these developments and we have introduced a unique solution for converged IP network that allows training to be conducted on any existing network. We also see emerging solutions such as web collaboration and web conferencing, which traditionally were hardware solutions over ISDN lines. Today, Arel offers an enterprise Integrated Conferencing Platform (ICP) solution for all enterprise communication needs such as training, webinars, Web meetings and collaboration that can run on any infrastructure for enterprise-wide deployment, accessible to everyone.

What are your impressions of how learning environments are evolving? Has the social learning model changed over the past couple of years?

The social learning model of collaboration between the instructor and a group of

because the coding scheme chosen for DVB-S2 comes within a few dB's of Shannon's Limit (the theoretical "best" coding possible). The bottom line is that the coding for DVB-S2 is about as good as you are ever going to get.

The coding scheme selected for the DVB-S2 standard is low-density parity check code (LDPC). This coding – developed at MIT in the 1960s – was a surprise to many in the industry, because they expected the "turbo codes" presently offered by much of the VSAT industry to be chosen. The decision to use LDPC was based on performance testing of seven coding schemes by the DVB-S2 technical committee who found its efficiency to outperform its competition.

The improvements in bandwidth utilization offered by DVB-S2 over DVB-S are in excess of 30%. This improved utilization of bandwidth will allow for more cost effective transmissions of both HD and SD video. This will result in expanding the reach of digital video programming and improving the business case for companies offering two-way internet services over satellite.

Another benefit of DVB-S2 is that ACV and VC1 compressed video will not have to be processed by an IP Encapsulator and placed into MPEG-2 packets in order to be transmitted. This will allow the video to be transported in its native IP state that reduces the overhead required thereby resulting in more efficient transport.

The first products using the DVB-S2 standard were exhibited at IBC, including the Scopus IRD-2900, the first professional receiver based on DVB-S2.

We can be optimistic that NAB 2005 will see a new generation of products based on this standard.

than 100 IT professionals, physicians and nurses. It introduced the role digital media plays on a daily basis at Mayo Clinic in the support of the clinical, education and research arms of the institution. The seminar was presented in three sessions, each of which focused on a distinct mission:

1. **Understanding the Creation of Digital Media at Mayo Clinic**
2. **Patient and Customer Communications with Digital Video Technologies**
3. **Staff Communications with Digital Video Technologies**

The MSS subject matter experts provided the presentations and demonstrations, including the one described below:

Video and DVD Production and Editing

Tim Seelinger, Sr. Video Systems Editor, reviewed digital video formats and discussed the digital video production and post-production process. In addition, Seelinger's session featured a live demonstration of digital editing utilizing Final Cut Pro.



Tim Seelinger, Sr. Video Systems Editor
Discussing Video & DVD Production and Editing

PowerPoint to the Next Level

Peter Steiner, Presentation Designer, captured the audience, addressing how to take PowerPoint presentations to the next level - incorporating rich media files like video, audio and animation. Steiner covered how Mayo employees could successfully work with movie, audio and Flash animation files.

Digital Photography Basics & DVD/CD Duplication and Packaging

Brian Hindal, Lead Photographic Specialist, covered the basics of digital photography and provided an overview of the CD and DVD production process

students hasn't changed for hundreds of years; we're just using technology to be able to use it in much more efficient ways, with a more consistent message and reduced costs. The ability to make it available to everyone, anytime, anywhere, is the key, and all Arel's current and future development is done towards achieving that goal.

What impact has the Internet had on the enterprise market regarding training – learning in the educational space?

The near ubiquity of the Internet has had an enormous effect on the enterprise market, particularly small to medium-sized businesses. Easier access to the Internet as well as lower costs to implement and enter the training market opens the door for all corporations or educational institutions to have access to training, whether synchronous or asynchronous. Arel is one of the few providers that offer a platform that can run on any network.

Your thoughts about satellite-based business television networks versus delivery via the Internet? (Do you provide both terrestrial and satellite solutions?)

Arel provides rich-media solutions for both the terrestrial and satellite market. We started out with a satellite-based solution, which still delivers the highest quality video, and have gravitated towards satellite-based IP multicasting and Internet web-based solutions. Satellite is great for larger,

About AVC

AVC stands for Advanced Video Coding. This acronym has become the convention when speaking about MPEG-4 part 10, which is also known as H.264. AVC is an enhanced version of MPEG-4 part 2 that is the basis for many of the early MPEG-4 products to arrive on the market. Broadcasters have long anticipated finalization of the AVC standard for the development of products that will offer significant bandwidth savings over MPEG-2 standard.

Upon its initial release in 1995, MPEG-2 offered broadcasters the ability to dramatically improve their bandwidth utilization as opposed to analog video. Improvements in MPEG-2's ability to achieve video compression continued at a rate of about 10% per year until 2002. At this point, the MPEG-2 algorithms were approaching their theoretical limits and a new standard was needed to achieve further compression.

AVC today offers additional bandwidth savings of over 30%. This means that MPEG-2 programming being transmitted at 4.5 MBPS can now be transmitted in MPEG-4 at 3.0 MBPS with no decrease in quality. AVC is expected to improve its compression capabilities at rates of about 10% per year for several years to come.

In addition to the impact on broadcasters, AVC is designed to operate at very low bit rates (as low as 5 kbps) which will benefit those in the enterprise. It will have a major impact on the quality of video that can be transmitted terrestrially, including corporate local area networks and to cellular phones.

At IBC, the booth for the Advanced Video Coding Alliance (an industry group comprised of manufacturers and service providers) offered a dazzling mix of AVC technology

including duplication, packaging and distribution.

Mayo Clinic Cable TV (MCTN)

Rick Andresen, Video Producer/Director, addressed the infrastructure of the Mayo Clinic Television Network (MCTN), which has evolved into a technically advanced system that is competitive with the typical cable MSO (Metropolitan Service Offering). MCTN is adopting new digital applications, including Video-On-Demand, High Definition Television (HDTV) and interactive services.

Video On Demand and Interactive Services & Videoconferencing Trends

Bill Wimsett, Unit Head, Foundation Video Technical Services, presented sessions covering On-Demand video services that will be introduced to Mayo patients in 2004, including: interactive patient education and entertainment programming. In addition, Wimsett provided an in-depth historical overview of the multi-tiered videoconference infrastructure at Mayo, which has been in operation since 1986. Over the years, the system has transitioned from satellite distribution to terrestrial based infrastructure and video over IP.

Webcasting and Streaming Media

Mark McGlinch, Digital Media Producer, provided a general overview of the streaming video and webcasting services now available at Mayo Clinic. He covered video encoding, compression and capturing methods, including a review of current trends in media players and the digital video management system used by Mayo (DayPort).

The *Innovations in Digital Video* seminars were a resounding success! The attendees expressed overwhelming appreciation for the effort and time invested to inform and educate them on the MSS services and capabilities. Their written evaluations gave the seminar high marks, with the type of feedback/comments you aspire to achieve. For instance:

- Bold sharing of information. Thanks for your efforts in building a quality show.
- All of the presentations were very interesting and I hope I get the opportunity to use these innovative technologies in the future. Thanks.

dispersed companies but Internet or web-based solutions are perfect for every size enterprise. Our universal solution offers all the same features whether the application is satellite or Internet and enables organizations to reach users in the office, at home or on the road.

What is your company doing to address the distance learning needs for the enterprise market: companies, government organizations and associations?

The public and private sectors have similar needs in terms of providing learning solutions to their constituents. However, the larger institutions in the governmental sectors and private sectors are more focused on broadcast solutions – from one to many. They also tend to utilize the dedicated broadband technologies such as satellite. The smaller companies, or those that have only recently invested in telecommunications infrastructure, are trying to leverage their IP investments for broader communications needs. These groups tend to lean more towards interactive communications and many-to-many applications. All of our solutions are designed to be universally applicable in nature and meet the needs of both groups. Arel's platform is a comprehensive 'blended' solution that is addressable to all spectrums of applications and frequency and type of usage.

Who do you see leading the use of IDL today? What vertical industries? What user communities in the corporate, government, sectors?

ranging from High Definition Encoders to Set Top Boxes. AVC products for Webcasting and other lower data rate applications also garnered significant interest from broadcasters, enterprise groups, and telecommunication companies.

About VC1

VC1 is an acronym for Video Codec 1 and is the name of the "standardized" version of Microsoft's Windows Media 9 codec technology. The Society of Motion Picture and Television Engineers (SMPTE) has established the VC1 standard for video codecs, which serves as an alternative to AVC.

By having Windows Media 9 incorporated into an international standard, it is more likely that broadcasters will use this technology. Broadcasters traditionally avoid proprietary systems, choosing open standards that promote innovation and interoperability. As a recognized standard, VC1 is included in the DVB-S2 transport standard.

The performance of VC1 compressed video is very similar to that of AVC. Questions related to the support of interlaced video and other technical questions are rapidly being resolved. The selection of VC1 or AVC for broadcasters and other users may well hinge on future advances of the standards to incorporate Digital Rights Management and copyright protection into their solutions.

Numerous vendors at IBC were representing VC1 products and technology. Tandberg, who demonstrated real-time encoding of both VC1 and AVC at both Standard and High Definitions, presented one of the most impressive demonstrations at the show. Using third party receivers and set top boxes, these signals were shown side by side sparking much interest and debate by those trying to decide which next-

- Probably one of the best one-day seminars I have attended in Mayo or outside.
- Good, interesting changes in digital video
- Very well done; relevant; interesting
- Very interesting and helpful information. Exciting
- Nice format easy to understand for lay people.
- The seminar showed our experts at work and cooperation to provide many services to our clients.
- I hope this seminar is made available on video or on webcast. There are lots of people I would like to share this info with.
- Very knowledgeable presenters – Excellent!!
- Thank you for an informative day.

Harmon and Leonard (ITE Sponsor) were pleased, if not elated, with the results. According to Harmon, "Positive feedback and interaction continues. Already, we have undertaken a number of projects in support of attendees and been approached by many other prospective users of our services." Harmon continued, "We have a great story to tell and conducting the seminars is clearly the ideal way to achieve visibility throughout Mayo Clinic. As a matter of fact, it's encouraging and rewarding to see such positive results for your efforts. Especially for the MSS specialists involved in the seminar."

The good news from this experience is that the "best-in-class" get better. But with the good comes reality - by spreading the word, increasing the visibility of MSS services, they increase their workload.

The better news is that by presenting their story (collective stories), the MSS team of professionals was able to focus on (better understand and appreciate) their respective roles and responsibilities, articulate the features and benefits of their specific areas, and fine-tune their respective skills. Ultimately, this will result in the increased usage of MSS services, justifying the continued implementation and adoption of enhanced capabilities, and over-all the ongoing status of Mayo's MSS department as "best-in-class".

2004 Fall Training & Online Learning Conference

The United States Distance Learning Association (www.USDLA.org), the nation's premier non-profit, professional organization dedicated to advocating,

We see organizations with dispersed workforces leading the use of IDL. Most of them are leaders in their industry and include banking and financial institutions, healthcare, retail and the automotive sector.

What are your thoughts on Learning Management Systems?

LMS is very complicated to implement but essential to manage and measure employee progress. From our experience, large corporations implementing LMS's often struggle with it. They don't seem to be able to take advantage of its use for direct training to reach employees quickly with new training material to have an immediate impact on company goals and objectives.

I think that corporations will learn that it is better to implement a best-of-breed solution starting with real training and collaboration platforms and then integrate it with an LMS system once they implement it. Arel's solution has a built-in LMS to allow a company to start using our enterprise solution without a full-blown independent LMS solution. Since Arel's LMS has basic functionality, organizations often want to utilize a more extensive solution or integrate their existing LMS system. Arel has created an interface for integration with multiple LMS manufacturers so once a corporation makes a decision and implements a full LMS solution, the majority of the integration will be complete.

Your thoughts on tracking, measurement of distance learning?

generation standard is superior for their applications.

Implications for the U.S. Enterprise Video Market

So, what does this mean for the U.S. Enterprise Video Market? Okay....

First, the acceptance of both AVC and VC1 by the DVB-S2 standard means that enterprises can use either standard for advanced video compression (although they are not interoperable). Corporate video engineers deploying Webcasting and streaming services have tested Windows Media 9 tools, which are already available. However, they have been reluctant to enter into full-scale implementation of WM9 because it is not standards based. End users may now proceed knowing they can readily use either AVC or VC1 technology.

Second, satellite receivers for the business television community utilizing DVB-S2 technology will likely enter the marketplace in late 2005. This will provide networks with a 30% better utilization of their satellite bandwidth over current technology, the most dramatic advancement since the move from analog to digital over a decade ago. This will lead to an increase in the number of channels broadcast and a greater embracement of IP services such as desktop streaming and video on demand.

Third, the backwards compatibility of DVB-S2 with the DVB-S systems deployed today will allow networks to gradually migrate their receiver base to DVB-S2 without network downtime.

Lastly, with broadcast quality video now being transported in a native IP state with reduced bandwidth requirements, the acceptance of Video on corporate LANs and WANs by IT professionals is likely to expand.

promoting, and developing distance learning, is taking center stage at one of the most prestigious training and online learning conferences in the U.S.: The Fall 2004 Training and Online Learning Conference (<http://www.onlinelearningconference.com>). During the conference, the USDLA will sponsor the inaugural Interactive Satellite Broadband Demonstration Room (http://www.trainingfall.com/usdla_dlc.cfm) and the Distance Learning Pavilion.

Distance Learning Pavilion

The USDLA Distance Learning Pavilion, a 1,000 square foot demonstration booth strategically placed on the exhibit floor, will highlight some of the latest innovations in distance learning technologies. The Pavilion will demonstrate how satellite broadband technologies can be integrated with online technologies while supporting either the synchronous or asynchronous applications of a blended learning environment. Attendees will witness the latest innovations in satellite-based IP technologies that can be integrated into a LAN/WAN environment and stored/distributed on demand to reinforce instructional objectives and increase learning retention. Additionally the Pavilion will highlight a live distance learning demonstration of the USDLA/DISH Network public interest Direct Broadcast Satellite (DBS) channel transmitting live educational programs to schools throughout the United States. Discuss the future of distance learning with the USDLA leadership team whose expertise spans more than five decades of distance learning experience.

Interactive Broadband Satellite Demonstration Room

This series of breakout sessions will focus on the application of broadband satellite applications in a distance learning environment. Through the innovative use of IP-based technologies, satellite broadband can support a wide range of synchronous and asynchronous learning environments and can be integrated with online applications to achieve a blended learning solution. All of these sessions will be transmitted live over satellite originating from several locations throughout the U.S. All attendees will have the opportunity to interact with the remote presenter and ask questions through the use of interactive student devices. Throughout these sessions, you will learn about media selection methodologies, instructional systems design focusing on satellite broadband, instructional/teaching strategies, and metrics used in integrating broadband satellite into a distance learning environment.

USDLA Conference Chair: Dr. Jolly Holden, Chairman Emeritus. *Dr. Holden is also an Enliten Management Group, Inc. Associate and Adjunct*

Tracking the results of employee progress is an essential part of distance learning and should be measured with the same diligence as creating course objectives or content.

What obstacles do you see for IDL solutions? For Arel, as well as your customer community?

Successful implementation of IDL requires commitment on multiple levels and most importantly an internal champion with leadership and decision-making abilities. In our experience, companies without a strong champion often fail in their attempts to execute and manage an IDL network. Network infrastructure readiness is a key requirement and more recently, corporate IT departments have taken the lead on the testing of the proposed solution for security issues and its affect on the network. Without buy-in from the IT department, there is no way that any e-learning solution will be implemented. This process increases the sales cycle on one hand but eliminates a lot of solutions out there that are not 'network or security friendly'.

How are you as Arel and other industry suppliers helping the (Trainers) video and multimedia users overcome these barriers?

We design and deliver a complete content distribution network (CDN) software package which allows companies to push any multimedia content via multicast or unicast in a scheduled, managed conference in a very efficient way that does not negatively

In coming issues of the POE, we will open a dialogue with manufacturers and service providers from the U.S. Enterprise Market and report on their thoughts and developments related to supporting these new standards. We will also keep an eye out towards NAB 2005, which should prove to be a very exciting show for the enterprise community.

Industry Related Publications

Satellite/Training

Via Satellite

www.viasatellite.com

Learning & Training Innovations

www.ltimagazine.com

Satellite Business Solutions

www.sbsmagazine.com

Training

www.trainingmag.com

Video Production/Systems Publications

AV Video Multimedia Producer

www.avvmmp.com

Broadcast Engineering

www.broadcastengineering.com

Government Video

www.governmentvideo.com

Millimeter

www.millimeter.com

Presentations

www.presentations.com

Video Systems

www.videosystems.com

Faculty to the American InterContinental University's Master's of Education (MEd) online degree program in Instructional Technology. The courses he teaches include instructional systems design, learning theory, cognitive science, online learning theory & practice, and computer-mediated learning environments. He has been involved in the satellite industry for the past 14 years, and his pioneering work in creating a satellite-based distance learning network resulted in the creation of the Government Education and Training Network (GETN). Dr. Holden has been listed in the Who's Who of Teleconferencing, and was inducted into the USDLA Hall of Fame (2000) and the Federal Government Distance Learning Association Hall of Fame (2000), as well as being named as one of the top 10 e-learning innovators in the US in 2002

Call for Participants Spring 2005 USDLA Distance Learning Pavilion

If you would like to become involved with the USDLA and participate in the Spring 2005 Training & Online Learning Conference and the USDLA Distance Learning Pavilion, please contact Dr. Jolly Holden at jholden@usdla.org. The Distance Learning Pavilion will feature technologies that support the application of satellite-based distance learning, including but not limited to: live satellite broadcasts, interactive keypad devices and audience response systems, or any other technologies supporting satellite-based distance learning. The Pavilion is a sales & marketing free environment, so scanning of attendee's badges or dissemination of marketing materials is not permitted. Since the USDLA is a non-profit professional organization, there is no fee for participating in the Pavilion, however, participants must pay for their own costs in shipping and setting up. Spectrum Industries Inc., a USDLA Premium Sponsor, will provide the furniture for the demonstrations.

Industry Events

Training - Fall 2004 Conference & Expo

Moscone West Convention Center

San Francisco, California

October 11-13, 2004

www.trainingfall.com

Distance Learning 2004: Training Fall's Conference-within-a-Conference

This October, the Distance Learning Conference, sponsored by the United States Distance Learning Association (USDLA), will focus on the applications of broadband satellite for distance learning. Discover

effect network utilization or other applications which might be more important. Essentially, during the training/conference there is no content push over the network because the content is already there and displayed directly from each user's hard drive. This solution is unique to Arel and we found it very helpful and 'friendly' to the IT team. In addition, because we have designed it to work in conjunction with other network applications and transmissions, we addressed security issues in the software itself. It is designed to obstruct unauthorized penetration of the conference stream and to prevent access to files through methodologies that are inherent in IP communications. All the above is taking care of the technology but from the application and adaptation within the organization it is still a challenge. We try to locate a champion and help him build up a team of supporters with a solid ROI so they can get the funding required for such solution.

Looking into a crystal ball, where do you see the industry by the end of the year? Over the next three years?

I see the bandwidth technology, as well as higher quality video and audio continuing to improve over the next few years. This technology improvement will lead the way for increased usage and the ability to integrate applications over existing infrastructure. At Arel, we develop our solutions and technology based on these assumptions and we're ready to help enterprises recognize the full potential of their network

Organizations & Associations

Communications Media Management Association

www.cmma.net

(Enliten is a proud partner of CMMA)

Government Education and Training Network- *Distance Learning through Interactive Television*

getn.govdli.org

Federal Government Distance Learning Association

www.fgdla.org

Society of Satellite Professionals International

www.sspi.org

United States Distance Learning Association

www.usdla.org

Call for Success Stories

If you have a good story to tell and would like to see your company's satellite network featured in a future edition of Page of Enlitenment, please let us know. We are planning next year's issues now. We are looking for networks to profile and topics that are of interest to the end-user of digital video and multimedia applications.

Feedback

We encourage your feedback and input in making **Page of Enlitenment** an effective means of providing you with information on industry related trends, solutions and suppliers. Please forward your suggestions or requests to us at enliten@enliten.net regarding the topics, products, services or companies that you would like us to include.

For more information on the topics presented in this

how satellite broadband can support a wide range of synchronous and asynchronous learning environments and can integrate with other online applications to achieve a blended learning solution.

This conference-within-a-conference offers six sessions and six interactive demonstrations. As part of the Interactive Broadband Satellite Demonstration Room, Dr. M. David Merrill, Professor in Residence, Brigham Young University—Hawaii, will give a satellite presentation on effective e-learning strategies on Monday October 11th.

To learn more about the program and the 2004 Distance Learning Awards including its Distance Learning Hall of Fame and Eagle Awards on Tuesday, October 12, please visit: http://www.trainingfall.com/usdla_dlc.cfm.

In support of the conference, Training Fall will feature the USDLA sponsored Distance Learning Pavilion on the expo floor. Experience first-hand live demonstrations on the many uses of satellite broadband technologies for learning.

Your Training Fall conference registration also includes access to Distance Learning 2004. For more information on the show and how to register, please visit www.trainingfall.com or call us directly at 703-488-2700.

Digital Retailing Expo and Executive Summit

San Francisco

October 11-12, 2004

www.digitalretailingexpo.com/home.asp

Satellite Application Technology Conference and Expo (SATCON)

Jacob Javits Convention Center

New York, NY

October 26-27, 2004

www.satconexpo.com

Streaming Media West

October 26-28

Santa Clara, CA

CMMA National Conference

November 13-17, 2004

La Mansión del Rio

San Antonio, TX

www.cmma.net

infrastructure with the seamless integration of our IDL and webconferencing products.

Are there any other words of wisdom you can or would like to share with our readers?

Don't be afraid of new technology. Embrace it and recognize its potential as far more than just a tool for telephone and email. Today's solutions open up a world of opportunities for organizations to leverage for distance learning as well as numerous other applications outside of training; corporate communications, sales and marketing initiatives, customer relationship management, supply chain management, and research and development. Geographically dispersed teams, remote employees, global business clients, and distribution channels can all benefit from this technology to share a company's vision and message. In addition, skyrocketing communications costs and travel and security concerns provide further incentives to expand the use of these technologies as an integral part of an organization's communications systems.

Consulting and Technical Services for the Corporate Video and Satellite Industries

The Enliten Management Group, Inc. is a consulting and technical services firm with decades of experience across various disciplines, including a strong emphasis in video and multimedia transport.

communication, please visit the Enliten web site (www.enliten.net) or contact an Enliten representative at 770/590-1590.

Digital Video Training Courses & Workshops

Enliten provides training on Digital Video that can make your job easier.

The Digital Video course features two key areas: **Understanding Digital Video & Digital Video Transport**. It is designed to provide a consistent understanding of Digital Video to individuals in the various functional roles throughout an organization. It's in modular form, so that the topics and issues relevant to your organization can be properly addressed.

We offer a "Digital Video Planning Guide" that includes descriptions of the wide selection of topics/modules. The Guide outlines the levels of learning for each module, ranging from basic **"Knowledge" & "Comprehension"** to more technical/advanced levels.

[Click here](#) for details on Digital Video and a description of how the course can work for you. Please contact us for the "Digital Video Planning Guide". 770/590-1590 or at rp1@enliten.net.

Enliten provides satellite-based solutions for companies and organizations of all sizes, including many of the Fortune 500 Companies.

Our services range from earth station audits and technical training to technology roadmaps, network assessments and RFP support.

Contact Enliten at 770.590.1590 for information about our services, including:

**Fundamentals of Digital
Video Training
&
Satellite Communications
Knowledge Seminar
(IP Multicasting & the
Industry Providers).**