Broadcast Engineering Conference

MPEG-4 Industry Forum

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PRESENT

Enabling Broadcast and Media Convergence

April 7, 2003 • 1:00PM - 5:00PM

Las Vegas Convention Center N109

Summary

The world of television and motion pictures changed forever in the 1990s with the introduction of digital technologies. From shrinking movies so that they fit on CDs and enabling cable television to get to 100s of channels, to the biggest success story ever in Consumer Electronics when DVD outgrew VHS and the emergence of Digital Cinema, MPEG has played the enabling role. Through technology for representing multimedia content digitally, and more recently for rich metadata and supporting technology, including rights management, MPEG is also changing the convergence marketplace for the next generation of interactive TV, wireless and media applications.

The MPEG Session will begin with an overview of the MPEG family of standards, from MPEG-1 to MPEG–21. It will then focus on the recently introduced MPEG-4, highlighting the applications it enables, both now and into the future. This session includes a combination of keynotes from industry-leading MPEG personalities and users, as well as lively panel discussions.

Conference Chairs

Richard Mizer, SMPTE, Chair Digital Cinema and Multimedia Authoring Groups
Rob Koenen, M4IF president, VP Intertrust Corporation

Keynote Speakers

Dr Leonardo Chiariglione, Convener of ISO/IEC MPEG

Alan E Bell, Senior Vice President, Warner Bros. Technical Operations

Moderators

Brane Zivkovicz, President, Founder and CEO Soundball, Inc.

Professor Klaus Diepold, Technical University of Munich

J.C. Spierer, Founder, Director, DistanceVision, Inc.

Keynote

13:00 - 13:30 Vision, history and future of media convergence with MPEG

Keynote Speaker: Dr. Leonardo Chiariglione, Convener of ISO/IEC MPEG

MPEG is the body that kicked off the digital audio and video revolution. Fifteen years after its establishment, the world it helped create is pervasively around us. Today the challenges for MPEG are different but no less difficult.

Session 1

13:30 - 14:30 Overview of the MPEG family of standards

This session updates everyone's knowledge of MPEG and shows how all the pieces fit together.

Moderator: Brane Zivkovic, CEO, Soundball

Rob Koenen, President MPEG-4 Industry Forum, VP InterTrust Technologies Corp.

MPEG-1 through MPEG-21: Interoperability as the driving force,

MPEG Business/Technical Overview: Focus on interoperability, includes MPEG's Intellectual Property Management and Protection (IPMP) efforts

Gary Sullivan, Chairman of ITU/ISO Joint Video Team, Microsoft Corporation

From MPEG-1 to MPEG-4 Advanced Video Coding/H.264,

Focus is on the latest MPEG-4 AVC/H.264 standard, Evolution of MPEG Video

David Frerichs, Coding Technologies

From MP3 to High Efficiency AAC

Focus is on the Evolution of MPEG Audio, and the latest MPEG-4 High Efficiency AAC with Spectral Band Replication, which has been shown by the EBU to significantly outperform all other codecs

John Smith, IBM, Chairman of MPEG's Multimedia Description Schemes Group

MPEG-7 Media Content Applications

How MPEG-7 enables management of ever-increasing quantities of digital content on-line, broadcast and stored locally

Session 2

14:30 - 15:30 MPEG-4 Technologies Panel

Moderator: Klaus Diepold, Professor / EE Chair, Munich University of Technology

Didier LeGall, LSI Logic

From Chips to Codecs - MPEG Hardware Implementation -

Silicon solutions for MPEG standards from MPEG-1 to MPEG-4

Julien Signes, CTO Envivio

Authoring Tools for MPEG-4 Broadcast Applications

Focus on the power of tools for broadcast authoring available today. Explains that MPEG-4 goes way beyond efficient coding. Includes live action

Ganesh Rajan, Business Development, iVAST

MPEG-4 in the Set Top Box

Focus on the power and the possibilities of MPEG-4 enabled Set Top Boxes. Includes live demo.

Second Keynote

15:30 - 16:00 Prime MPEG User Keynote

Alan E. Bell Ph.D., Senior Vice President, Warner Bros. Technical Operations

MPEG-4 in Hollywood

Hollywood Studio executive discusses MPEG, including MPEG-4 for HD-DVD.

Session 3

16:00 - 16:45 Executive Panel Discussion - Real-World MPEG-4

MPEG-4 is in use now, but it's not yet ubiquitous. Groups that are currently using MPEG-4 in various applications explain their experiences and next steps.

Moderator: JC Spierer, Director, DistanceVision, Inc.

Dean Skandalis, Director, Licensing, MPEG-LA, LLC

Licensing progress and issues

What is the current state of MPEG-4 licensing

Sebastian Moeritz, CEO dicas digital image coding GmbH, Board Member MPEG-4 Industry Forum

The MPEG-2 to MPEG-4 transition

Focus on co-existence and migration

Julie Dutrisac, Internet Video Director, National Film Board of Canada

MPEG-4 for Internet Cinema

Why and How the Film Board uses MPEG-4, and likes it.

Robert X. Cringely, Author, Columnist, Personality

MPEG-4 in the broadcast media

Discusses results and responses from his MPEG radio show.

Speaker Biographies

Alan Bell, Senior VP, Technology, Warner Bros. Technical Operations

As Senior Vice President, Warner Bros. Technical Operations Alan is responsible for advanced technology and requirements development across a broad range of areas centered on the distribution and consumption of digital motion picture content and related derivatives.

In 1995, Alan was centrally involved in the unification of the DVD format, and shortly thereafter the developments that resulted in the CSS scrambling methods for DVD.

For the last five years he has focused on the technical development and cross-industry issues associated with digital content rights management in general.

In recognition of his contributions to the introduction of DVD and to optical storage technology in general, Dr. Bell was elected a Fellow of the IEEE in 2001 and a Fellow of the Optical Society of America in 1984.

Alan received his doctoral and bachelor degrees in Physics from the Imperial College of Science and Technology, London University. Alan received his doctoral and bachelor degrees in Physics, both from the Imperial College of Science and Technology, London University.

Leonardo Chiariglione, Telecom Italia, Convener ISO/IEC MPEG

Leonardo Chiariglione was born in Almese (Italy). He graduated in Electronic Engineering from the Polytechnic of Turin and obtained his Ph. D. degree from the University of Tokyo in 1973.

Since 1971 he has been with CSELT, the corporate research centre of the Telecom Italia group. He is currently Vice President, Multimedia, at Telecom Italia Lab, the new name of CSELT.

In 1986 he founded the HDTV Workshop, an international event to promote HDTV technologies beyond specific industry interests.

In 1988 he founded the ISO Moving Pictures Experts Group (MPEG) standards committee.

In 1989 he founded Image Communications, a EURASIP Journal for the development of the theory and practice of image communication.

In 1994 he founded the Digital Audio-Visual Council (DAVIC) to develop internationally agreed specifications specification of open interfaces and protocols for the delivery of digital media.

In 1996 he founded the Foundation for Intelligent Physical Agents (FIPA) to develop internationally agreed specifications of generic agent technologies that are usable across a large number of applications.

In 1998 he founded the Open Platform Initiative for Multimedia Access (OPIMA) to develop internationally agreed specifications that will make it possible for a user to consume and pay for services, without having prior knowledge of which services would be consumed.

In 1999 he was asked to be the Executive Director of the Secure Digital Music Initiative, a group with the participation of more than 200 companies, developing specifications for secure digital music delivery. He resigned from SDMI in March 2001.

Robert X. Cringely, Author, Columnist, Personality

Like most "overnight" sensations, Robert X. Cringely spent more than 20 years working to become the "nerd" he is today. Mr. Cringely, a best-selling author, columnist, and PBS personality, was only the 12th employee at Apple Computer back in 1977.

After working at Apple, he taught for several years at Stanford University before becoming the high-tech gossip columnist for InfoWorld, a trade paper read each week by more than 600,000 computer professionals.

It was at InfoWorld that Robert Cringely fine-tuned the 3,309 entries in his Rolodex that make him the man with his finger on the very latest on the high tech scene. He has become a household name throughout the industry, where he has long since been known for his wit, insight, and irreverence. All of these qualities were evident in his 1992 national best-seller Accidental Empires: How the Boys of Silicon Valley Make Their Millions, Battle Foreign Competition and Still Can't Get a Date. Accidental Empires became the basis for "Triumph of the Nerds," the highly acclaimed, three-hour miniseries that was a runaway success for PBS in 1996 and has been seen in more than 30 countries.

Robert Cringely finished work on a new PBS documentary titled "Electric Money," which took him to financial capitals as well as remote islands around the world to report on the many impacts of E-Commerce on mankind and its traditional monetary systems. This production aired on PBS, October 3, 2001. Mr. Cringely also hosted and helped produce other shows for PBS including 1998's, "Plane Crazy," a three-hour series about aviation and human frailty; in 1999, "Nerd's 2.0.1: A Brief History of The Internet" and "Y2K: The Winter of Our Disconnect?"

Mr. Cringely writes a weekly column on PBS Interactive (www.pbs.org/cringely/) and is the tech columnist for Worth Magazine. When he isn't writing, Mr. Cringely is a well-known and popular speaker and runs his own high tech consulting business. Robert Cringely's accomplishments are the result of the skillful blending of his journalistic and computer capabilities.

Prof. Dr.-Ing. Klaus Diepold, Munich Technical University

Klaus Diepold received a Dipl.-Ing. degree and a Dr.-Ing. degree both in Electrical Engineering from Munich University of Technology in 1987 and 1992, respectively.

1993-94 he was with the Institute for Broadcasting Technology (IRT) in Munich, being engaged in research projects contributing to the DVB-T specification.

From 1994 until 2002 he was CTO of DynaPel Systems, Inc., a New York based company in the video processing and compression industry.

He is the lead architect of DynaPel's award winning video post-production tools MotionPerfect as well as its successor SteadyHand. He has developed motion estimation techniques and implemented MPEG-4 video codecs.

Since 1996 he is an active member of the MPEG group, mainly focusing on video aspects in the MPEG-4 video and requirements subgroups. He is now actively involved with the MPEG-4 Industry Forum.

Currently, Klaus Diepold is a full professor at Munich Technical University, Department for Electrical Engineering and Information Technology, where he holds the Chair for Computing.

Julie Dutrisac, Chief, Innovations and Development, National Film Board of Canada

Julie Dutrisac has been working at the National Film Board of Canada since 1989. She became head of the Research and Development Division in 1998.

Among other responsibilities, she is in charge of technological partnerships, maintaining standards related to MPEG-4 and MPEG-7 audiovisual encoding, and CineRoute, an on-line video-on-demand pilot project on CA*net4 in Canadian universities and colleges.

Ms. Dutrisac also has the mandate to conduct research on accessibility standards, see that they are implemented, and develop tools to facilitate their integration. Her expertise has also led to her involvement in research projects on vocal and visual recognition, which will make it possible to improve the performance of collection search engines and to provide tools that are better adapted in terms of accessibility.

In addition to being an active member of the Canadian Heritage MPEG-7 working group, Julie Dutrisac plays a key role in the ongoing development of the architecture and design of the NFB's imposing multimedia catalogue. Ms. Dutrisac and her team are currently working on an ambitious commercial project for streaming video-on-demand.

Among Ms. Dutrisac's accomplishments are the co-ordination and production of a number of special effects for award-winning NFB films. She has also worked on the integration of digital technologies in the NFB's Visual Effects section, collaborated with Kodak and Cinéon (Beta site), and done image processing. Her work on MPEG-4 encoding and on image quality provided the basis for the technology used at the NFB Mediatheque in Toronto, which was inaugurated in November 2002.

Julie Dutrisac earned her degree at Montreal's École Polytechnique, an institution with graduates on every continent, which is of the three largest engineering schools in Canada.

David Frerichs, VP and GM US Operations, Coding Technologies

David Frerichs is VP & GM of US Operations, Coding Technologies, the industry's leading provider of audio compression technologies for the mobile, digital broadcasting and Internet markets worldwide.

Previously, he was co-founder & Chief Technical Officer, iM Networks. He has held senior positions at both SGI and 3Dlabs, and has substantial expertise in overseas technical marketing, particularly in Japan.

Through his work at SGI, Frerichs was instrumental in the architectural design and standardization of the Virtual Reality Modeling Language (VRML), and was also instrumental in the design and development of the Cosmo Player - the leading 3D Web viewer - his marketing savvy helped to bring this product to more than 25 million desktops.

Frerichs is well versed in streaming content, virtual environment systems, 3D user interfaces, international strategic and outbound marketing, integrating web content, the ability to attract OEM business and the development of products in an ever-changing industry.

With his vast first hand experience and deep understanding of the internet marketplace paired with his well respected reputation, Frerichs has been a featured speaker and panelist at Siggraph, Seybold, Webnoize, Virtual Reality World, World Movers, among others. Frerichs holds a B.S. Degree in Computer Engineering from the University of Illinois, Urbana.

Rob Koenen, President, M4IF, VP InterTrust Technologies Corp.

Rob Koenen joined InterTrust in 2000 and serves as the company's Vice President of Technology Initiatives. He is responsible for maintaining relationships with standardization bodies as well as strategic technological partnerships.

Rob chaired MPEG's Requirements Group from 1996-2002 and has played a key role in the development of the MPEG-4 standard since its inception in 1993, in defining the MPEG-7 standard since the start in 1995, and in leading the work on MPEG-21.

He is co-editor of the MPEG-4 Systems Standard. Rob is the initiator of the MPEG-4 Industry Forum (www.m4if.org), a growing organization that represents more than 100 companies with an interest in seeing MPEG-4 universally adopted. Rob has served as the President of M4IF since it was established.

Rob is Associate Editor of IEEE Transactions of Circuits and Systems for Video Technology, and a Senior Member of IEEE. Rob holds two patents on automated video quality assessment. He is the recipient of the 1997 KPN Research 'Diana' award for outstanding research. Rob received his MSEE ('ingenieur') degree in 1989 from Delft University of Technology in The Netherlands where he studied electrical engineering, specializing in information theory.

Didier LeGall, Vice President of Home Media Products, LSI Logic Broadband Entertainment Division

Didier LeGall is Vice President of Home Media Products for LSI Logic's Broadband Entertainment Division. He is in charge of the marketing, engineering and operations activities for digital video products, including VCD, DVD, video peripheral, PVR/DVR, and video production and broadcasting.

Mr. LeGall is distinguished in the industry as having been involved with the MPEG standardization effort of the ISO since its beginning and serving as chairman of the MPEG-Video group until 1995, taking both MPEG-1 and MPEG-2 to the level of international standard.

Prior to LSI Logic's acquisition of C-Cube Microsystems in June of 2001, Mr. LeGall held the position of the Chief Technical Officer and Vice President of Research and Development for nine years. He joined C-Cube as Director of Research where he engaged in the development of algorithms, architectures and VLSI chips for digital video compression. Before C-Cube, Mr. LeGall was with Bell Communications Research, first as a member of the technical staff, then as district manager of the Visual Communications group. He also served as an adjunct professor at Columbia University in New York from 1985 to 1989.

Mr. LeGall holds a PhD degree in Electrical Engineering from the University of California at Los Angeles. He is the author of many technical contributions and is the holder of many patents. His interests are in digital video compression, storage and transmission systems, signal processing, and algorithms and architecture for digital video compression systems.

Richard Mizer, SMPTE

Richard A. Mizer received the Bachelor of Arts degree in Bioengineering and Economics (double-major) from the University of California at San Diego, and is currently an MSEE student at Stanford University, focusing on video networking.

Richard founded Digital Ventures Diversified, Inc., in 1998 to develop and market DVD Authoring Systems for the Professional, Industrial and Commercial markets.

The DVDComposer product has been used by many of the high-end postproduction facilities to author such titles as Titanic, Mission Impossible, Apocalypse Now, and Lost in Space.

He joined Pacific Bell in 1983, right before divestiture, as an apprentice engineer, and was promoted to Transmission Engineer, responsible for designing high-capacity digital fiber optic networks.

Since 1987 he has been Product Engineer, responsible for development and introduction of new tariffed services, including Advanced Digital Network (ADN), Switched Multimegabit Data Service (SMDS), and Advanced Broadcast Video Service (ABVS).

In 1992 he engineered the first live transmission of HDTV over the public telephone network from the East-West Shrine Classic Football Game at Stanford University, and later served as Executive in charge of Production for "Cinema of the Future" in which for the first time on May 6, 1992, a major motion picture was sent in real-time over the phone network from the Sony Pictures Entertainment studios in Culver City, California, to a screening room at the Anaheim Convention Center and displayed in theater-quality HDTV.

More recently, he was a co-producer of SoccerFest for which the World Cup Soccer Finals were transmitted from the Pasadena Rose Bowl in High Definition Television to theaters in California and Europe. Also serving as host broadcaster for the United Nations 50th Celebration, he is Executive Producer of an HDTV documentary of the events held in San Francisco which will provide a permanent archive for the UN.

He continues to develop that concept along with motion picture and television production internetworking capability through research and development, through standards work including ANSI and SMPTE, and demonstrations, presentations and paper submissions for numerous industry forums including NAB, NCTA, NATO, NCF, IEEE, InterOp, SMPTE, ITS, etc.

Perhaps his most important contribution was as Project Manager for the Technology Test of Advanced Broadcast Video Service working with Industrial Light & Magic to send dinosaurs over phone lines to director Steven Spielberg on location in Krakow, Poland to complete Jurassic Park even as he started principal photography for Shindler's List.

He is currently chair of SMPTE DC28.3 Working Group on Digital Cinema Compression, and SMPTE I23.21 Working Group on Multimedia Authoring and Content (MPEG-4).

Sebastian Moeritz, CEO, dicas GmbH

Sebastian Moeritz joined dicas, the MPEG-based video coding specialist and leading developer of ISO MPEG-4 real-time video coding solutions, as its CEO in the beginning of 2001. dicas provides a range of MPEG-4 end user products, under the mpegable brand, supporting the most common profiles of MPEG-4 video. dicas also delivers MPEG-4 SDKs, DirectShow filters, broadcast and streaming components as professional solutions along with services such as the development, customization and optimization of MPEG-based video coding solutions. dicas is the first company to have introduced an MPEG-4 SDK with object-based features in the market.

Moeritz is an entrepreneur with an extensive business experience in a number of international markets. After previously specializing in property and investment he has been involved in a number of information technology related ventures since 1996. He is a Board Member and the Treasurer of the MPEG-4 Industry Forum.

Dean Skandalis, Director, Licensing for MPEG LA

Dean Skandalis is Director, Licensing for MPEG LA, which licenses one-stop patent portfolio licenses consisting of patents that are essential for the use of standards-based technologies.

Prior to joining MPEG LA, Mr. Skandalis was with Martek Biosciences Corporation in Columbia, MD. Mr. Skandalis earned his Bachelor of Science degree from the University of Maryland at College Park.

See http://www.mpegla.com, http://www.dvbla.com and http://www.1394la.com for details.

John Smith, Manager, Pervasive Media Management Group IBM

John R. Smith is Manager of the Pervasive Media Management Group at IBM T. J. Watson Research Center, where he leads a research team exploring techniques for multimedia content management.

He is currently Chair of the MPEG Multimedia Description Schemes (MDS) group and serves as co-Project Editor for MPEG-7 Multimedia Description Schemes.

Dr. Smith received his M. Phil and PhD. degrees in Electrical Engineering from Columbia University in 1994 and 1997, respectively. His research interests include multimedia databases, multimedia content analysis, compression, indexing, and retrieval. He is an Adjunct Professor at Columbia University and a member of IEEE.

JC Spierer, DistanceVision, Inc.

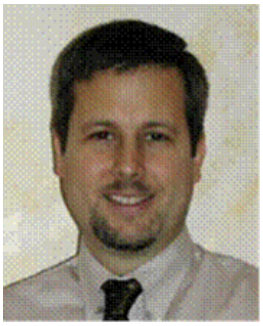
JC Spierer is director of DistanceVision, Inc., an interactive media company, and is co-host/producer of "Enough About U," a live TV variety show.

Now focused on media development and distribution, DistanceVision started in 1998 working with Harvard, MIT, National Gaucher Foundation and other companies on distance learning. He is a frequent conference speaker for digital media topics.

JC worked in multimedia and collaboration at MITRE Corporation, serving in program, product and project manager roles. At MITRE, he served as director of the MPEG Media Cluster Group, which focused on areas ranging from next-generation immersion, wireless and media convergence. As collaboration product manager, he led projects in enterprise design/architecture, development and implementation of VTC Team Rooms and IP desktop collaboration.

JC was formerly a founder and principal program leader at Othervision working on both technical integration efforts, as well as business/technology strategies, for clients such as Yahoo!, Inc. and AT&T.

Othervision was sold to Urban Box Office and is now a leading animation website. Previously, he served as project analyst at Cambridge Technology Partners, a leading technology integrator. Educated at Washington University (St. Louis) and Harvard University, JC has published in the areas of media and collaboration technologies, international technology, technology policy and communications media markets/applications.

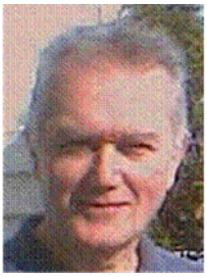


Gary Sullivan, chairman of the Joint Video Team (JVT), Microsoft Corporation

Gary J. Sullivan, Ph.D., is the chairman of the Joint Video Team (JVT) for the development of the next-generation MPEG-4 AVC/H.264 Advanced Video Coding standard, which is in the final approval stage as a joint project between the ISO/IEC Moving Picture Experts Group (MPEG) and the ITU-T Video Coding Experts Group (VCEG).

He is also the rapporteur of advanced video coding (Q.6/SG16) in the ITU-T and is a former chairman of MPEG's video committee.

He is currently a program manager for video standards and technologies at Microsoft Corporation. Prior to joining Microsoft in 1999, he was the Manager of Communications Core Research at PictureTel Corporation, a Howard Hughes Fellow and Member of the Technical Staff of Hughes Aircraft Corporation, and a radar system software engineer for Texas Instruments.



Brane Zivkovic, Founder and CEO, Soundball

Brane co-founded Soundball, a world leader in MPEG-4 Structured Audio (MP4-SA) software and hardware development, with Kevin Larke in 2000.

He is an award-winning film composer (*Film Composer of the Year,* Yugoslavia, 1984) and music technologist who is using Internet and cutting-edge technologies (including online recording studios) in his lectures since 1989, while teaching for New York University in New York and Florence (Italy).

Brane was Director of Film Scoring Program at the Aspen Music Festival and School for ten years. He was a featured guest speaker at the international events for American Committee for the Weizmann Institute of Science, University of Florence, and University of Nebraska.

Brane has scored many feature and television films and his music is distributed world-wide by Sonoton (Germany).

Brane is the Co-Chair of the MPEG-4 Industry Forum Task Force and member of the Marketing Working Group.