Edition No. 07 **September 2003**

DVB - SCENE

Tune in to Digital Convergence

07

10

the anniversary issue

DVB from television to vision.

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TENTH ANNIVERSARY

Helmut Stein, ISDM (International Strategies for Digital Media) & Chairman, DVB Promotions & Communications Module

Welcome all friends and partners of the DVB Project to this remarkable date. Ten years after the MoU signing procedure in Bonn, the project has made impressive progress and is today globally the most important force in creating the digital broadcasting world.

DVB today means: 275 member companies from broadcasters, hardware and software manufacturers, network operators and regulators in 35 countries all over the world; 170 meetings per year in 42 working groups; about 2000 participants in those meetings and workshops and 70 standards and policy statements accomplished.

The main standards developed in DVB cover satellite, cable and terrestrial digital broadcasting and the recently standardised open middleware MHP. These standards - or at least some of them - are in use or accepted in every country of the world, which shows the economic importance and the members' commitment in an impressive way.

Being a DVB member offers a multitude of advantages. You are at the forefront of the latest technologies and help to shape and create new business paradigms that will have an impact on future generations. You join an elite group of individuals from the world's leading companies across different businesses to exchange views and experience. You access all minutes and input documents from all modules and Ad Hoc Groups and have the right to participate in the work of the whole DVB project. And lastly, you can take part in the promotion and communications work of DVB at the major trade shows and seminars and participate in the press activities of that platform to promote your own products.

Since the launch of DVB 2.0 in 2001, the tasks of the project have been widely enlarged. Now it is about the convergence of the three C's: Consumer electronics, Communications and Computers. The challenge is to create standards to enable totally new businesses that have only become possible in the digital world. Our first step, MHP 1.1, allows full internet access in the broadcasting standards is a good example of what we can expect.

"...the incredible spirit of our members in working together, taking up challenges and cooperating in the pre-competitive phase of new ideas..."

In this special edition of DVB-SCENE magazine dedicated to the 10 year anniversary you will find more information about the past and the future of DVB.

However, what you won't find here is the incredible spirit of our members in working together, taking up challenges and cooperating in the pre-competitive phase of new ideas. This has been the success factor of this great project and if you don't believe it... join the world of DVB!

NEW MEMBERS

Coding Technologies
Expway
Hyundai Digital Technology Co Ltd
ICT Embedded B.V.
Imagine Broadband Ltd.
Matsushita Electric (UK) Ltd.
Walt Disney Company Ltd.

Published by the DVB Project Office,
c/o European Broadcasting Union,
17a Ancienne Route,
CH-1218 Grand Saconnex, Switzerland.
www.dvb.org & www.mhp.org

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Design by GyroGroup, Geneva, Switzerland.

Printed by Pims Print Limited, Yeovil, UK.

The views expressed in this newsletter are those of the individual DVB members or guests and are not necessarily the views of the DVB Project Office or Steering Board.

DVB-Scene wishes to thank Samsung Electronics Co., Ltd. for this issue's cover photo of an advanced TV Phone.

The DVB Project would like to thank all its members for their participation in the success of the DVB over the last ten years. In particular a very warm thank you to the following member companies sponsoring the DVB 10 Year Anniversary Event: ADB SA, Digital Theatre Systems Inc, IRT and its public broadcasting associates, Microsoft Corporation, Philips and Scientific-Atlanta.

Windows Media 9 Series. Powering the next wave of digital media.

Microsoft® Windows Media® 9 Series redefines the consumer experience, expands digital media commerce opportunities, and enhances communications and training for enterprises.

All Microsoft Windows Media 9 Series components have been tuned to work together seamlessly. The player, encoder, codecs, server, and software development kit (SDK) form the most comprehensive platform available for the creation, distribution, and playback of digital media.

Discover the unprecedented power and flexibility of the most advanced digital media platform ever. See and hear for yourself, visit **www.microsoft.com/windowsmedia/9series/**

Ultimate Playback Experience

Windows Media 9 Series dramatically improves the playback experience by delivering virtually instant-on/always-on streaming, automatically optimized for any connection speed. And the new Windows Media Player is faster, more flexible and easier to use than ever before, featuring the industry's first Smart Jukebox.

- Fast Streaming Experience a dramatic improvement in the streaming experience.
- Intelligent Streaming Best video size and audio quality are automatically selected, based on connection.
- Variable Speed Playback Speed up or slow down playback of audio and video without pitch variance.
- Fast and Easy Player UI enhancements, improved layout, and automatic media management make it the most intuitive player ever.
- The First Smart Jukebox Create and edit dynamic playlists, automatically personalize your digital media collection, and view more than 35 types of media information.

Unmatched Audio/Video Quality

Windows Media Audio and Video 9 Series provides unequaled quality on dial-up and broadband—from digital 5.1 channel surround-sound and 24-bit audio to high-definition (HD), full-screen video. Windows Media establishes a new standard,

Microsoft

Windows Media 9 Series is a huge win for consumers, enterprises, and content creators, a full-featured, end-to-end platform that delivers next generation digital media capabilities far beyond any other technology offered.

delivering crystal-clear sound and stunning video through dramatic improvements in compression.

- Windows Media Audio and Video 9 Series State-of-the-art compression efficiency delivers the highest-fidelity audio and best-quality video at any bit rate.
- Optimizations for Dial-up Rates Breakthrough codecs and video smoothing dramatically improve the quality for content delivered at low data rates.

- The Web's First Digital Surround Sound Codec The Web's first digital surround sound offers true 5.1 channels at bit rates as low as 128 Kbps.
- Lossless Audio Compression Mathematically lossless compression of CD audio delivers the ultimate in audiophile performance.
- Home-Theater-Like Experiences Provides full high-definition wide aspect 16:9 ratio support up to 1080 lines with 1920 pixels per line.

Most Comprehensive Platform

Windows Media 9 Series is simply the best, most comprehensive platform available for developing and deploying digital media solutions. Its innovative, powerful design streamlines the process of delivering the highest scalability, reliability, and ease of administration.

An extensible architecture throughout enables developers to build on existing functionality and integrate technology into complete solutions.

- Industrial-Strength Scalability Easy-to-manage distributed architecture conserves network bandwidth, decreases latency, and reduces server load.
- Flexible Administration Administer the entire digital media platform in virtually any environment, and easily deploy to every desktop in the enterprise.
- Server-Side Playlists Rearrange and swap content during streaming to provide breaking news or dynamically customized content in real time.

- Ad Insertion Improve ad revenue generation and easily integrate with third-party ad servers through a wide variety of advertising types.
- Platform-Wide Plug-in Architecture Create custom solutions and easily extend the entire platform with plug-in models for the player, server, and encoder.
- Enhanced Digital Rights Management Protect live content and deliver protected content directly on CDs, DVDs, and other physical formats.

Witness the leading edge of digital media content at http://windowsmedia.com/

For information about developing applications and hardware devices, visit http://msdn.microsoft.com/av/

Windows Media 9 Series

MADE IN EUROPE

It is hard to think back to a time when there was no DVB. Yet ten years ago a few broadcasters, manufacturers and public officials came together at Frankfurt airport. The report of what was then called the European Launching Group for Digital Television helped to press the political reset button in Brussels, following the decision to abandon the analogue standards that European public policy had been promoting up until then. Within a very short-time, DVB had developed transmission systems for digital cable, satellite and terrestrial delivery. The world then looked to Europe rather than across the Atlantic for digital television transmission systems. This was a remarkable turnaround.

DVB then underwent a transformation as it began to address the standardisation of interactive television, moving into software as work on the Multimedia Home Platform specification got underway. The world's major IT companies joined DVB to debate interoperability and standardisation. And innovation will not stop there as DVB explores the potential of its DVB 2.0 plan including use of internet protocol on broadcast networks, datacasting, TV/mobile convergence.

Starting from its initial ability to capture the diverse user requirements of European broadcast market players, DVB has evolved to capture the diverse requirements of a global membership working in all converging communications sectors. Satisfying European diversity has taught DVB how to service worldwide diversity. This is an example of how the European model based on democratic diversity can make a difference at global level. Globalisation need not mean homogeneity and dominant players imposing de facto standards to match their own requirements.

For new technologies and business models to succeed rapidly in the market, they must be acceptable to social institutions. DVB's willingness to provide independent advice on how to achieve public policy goals has therefore been critical to its success. DVB helped to achieve political consensus on conditional access regulation and is contributing to policy formation on interoperability of interactive television services. Such public/private co-operation underpins both the DVB's 'market-led approach' and the European model.

Digital switchover is a very ambitious long term public policy objective. DVB will make important contributions both through continuing waves of technical innovation and independent advice on the public policy issues we will encounter en route.

Happy 10th Birthday and best wishes for the future.

European Union Commissioner
Erkki Liikanen

NTL Broadcast is proud to have collaborated with the DVB on digital TV issues throughout its existence. With multimedia delivery to fixed, mobile and portable devices becoming a reality, there is still great potential for the development of DVB applications. We look forward to working with our partners and with the DVB organisation to achieve great things in the next ten years.

Simon Mason, Head of New Product Development, NTL Broadcast

ETSI places great importance in partnerships and is proud to be one of the trusted partners in the joint technical work that has been undertaken by the EBU, CENELEC, ETSI and the DVB Project: co-operation in transforming specifications into standards has never been stronger.

DVB specifications rank strongly in the most demanded ETSI standards, with three DVB standards featuring in the top ten downloads in 2003.

Congratulations to the DVB community on your past successes, and best wishes for the future!

Karl Heinz Rosenbrock, Director-General, European Telecommunications Standards Institute

Since its inception in 1993 the DVB Project has been instrumental for the successful standardisation of digital broadcasting. As a founding member of DVB we are proud to carry on our ASTRA Satellite System already over 1.000 television and radio services that transmit in the successful DVB-S standard.

On behalf of all SES ASTRA staff I would like to express my appreciation for the excellent work done and congratulate DVB on its 10th anniversary. We are looking forward to contributing to an exciting future of DVB.

Ferdinand Kayser, President and CEO SES ASTRA

THEN & NOW

Theo Peek, Chairman DVB Steering Board

Political climate at the start of the DVB Project

As many of you remember, there were two debates at the time: the decision on a new analogue transmission system for direct-to-home satellite broadcasting, and the decision on a world standard for studio high definition television and the related transmission standards. The result of the two debates as far as relevance for Europe was concerned was that for high power DTH satellite transmission the standard prescribed in a EU directive was MAC, and that for HDTV the CCIR agreed on 16:9 for the aspect ratio.

"...a quick transition from analogue to digital..."

In March of 1991 six members of the PALplus Board gathered for an informal weekend meeting at the Schloß Hotel Schönburg in Southern Germany. Some of the conclusions after heated debates were: HDTV would not be introduced in the mass consumer market for at least another 5 to 8 years; and work on the standardisation of digital video broadcasting in Europe should start immediately. Similar conclusions were drawn at practically the same time by a group of broadcasters, manufacturers, and government representatives in the UK. The two groups merged and started the ELG-DVB, the European Launching Group for Digital Video Broadcasting.

Ensuring promise of all stakeholders

After two years of preparations in the ELG-DVB, and by the time the political minds in Europe were set to abandon the D2-MAC and HDMAC scenario, the European Project for Digital Video Broadcasting (the DVB Project) celebrated its formal start in September of 1993.

83 members all based in Europe (broadcasters, network operators, industry and regulators) signed the DVB MoU and specification efforts for the DVB digital satellite transmission system started. In addition, it was decided that a number of organisations should have a seat on the Steering Board without voting rights. These organisations were: the Commission of the European Communities, the EBU, ECCA, EACEM, ETSI and CENELEC. Today the DVB Project counts some 275 members from all over the world.

What were the expectations?

DVB was originally created to provide a set of open and common technical mechanisms by which digital television broadcasts could be delivered to consumers based on a range of television based businesses.

As some of the DVB member companies were well on their way to start pay-TV operations based on digital satellite transmission systems in Europe, the DVB Steering Board (DVB SB) expected a quick transition from analogue to digital transmissions for satellite broadcasting, followed by a slower transition in cable networks. Due to the absence of business plans for the transition in terrestrial networks, the SB expected a much slower move to digital terrestrial television. The time frame for the terrestrial transmission was expected to cover a 10 to 15 year period.

Changing views over the years

Specifications for digital satellite, cable, and terrestrial transmission were all finalised during the first couple of years of the Project. After the adoption of these specifications as European Standards by ETSI, the initial goals of the project had been realised.

At that time, however, it became clear that the transition from analogue to digital television was not as straightforward as many members had perceived at the outset of the standardisation work. Conditional access created further work that was linked to the business models of a number of member companies and the concept of interactivity forced the DVB Project to go way beyond its original scope and enter an area of specification that directly effected not only the business models of member companies but even their actual businesses.

Furthermore, DVB exists in a world where the converging technologies and markets of broadcasting, telecommunications and IT will blur if not eradicate the traditional boundaries

"...the character of the DVB Project has changed dramatically ..."

between these once separate fields. Although it is not feasible for DVB to attempt to cover all the technologies in the whole of this converged area, DVB was created to be of real value to its stakeholders and consequently will have to move further outside its original heartland technology of 'traditional' broadcasting.

It is for these reasons that the character of the DVB Project has changed dramatically over the years, and the future will tell how relevant the specifications created by the Project will turn out to be.

One major conclusion, however, is clear - through the intense cooperation of all participants in the broadcast value chain the DVB Project has become the leader in the world as a specifying body for standards that are based on market requirements.

The DVB Project, time and again, has been able to generate cooperative efforts in order to overcome any conflicting views on business models that member companies may initially hold.

THE UK:
A TIME OF PROGRESS

I was pleased to be asked to contribute to this anniversary edition of DVB-SCENE. The DVB has ten years of achievement to celebrate and the contribution made by all sectors of the broadcasting industry in the UK is a source of justifiable pride.

The mantra for the DVB's success has been its market led approach. This has undoubtedly shown its worth in sorting out commercial wheat from the chaff of technological dreaming, but I believe this ability to focus on practicable propositions is only part of the story.

The DVB's tradition of collaboration has been more important still. DVB specifications which go forward to standardisation have been conceived and matured in a supportive environment which contributes directly to their quality, applicability, flexibility and robustness. One occasion when the UK took particular benefit from this was after the demise of ITV Digital. The ability to switch from 64 QAM to 16 QAM modulation in the re-licensed multiplexes increased the robustness of the signal and made a significant contribution to the success of the new Freeview package, which is now supporting sales of DTT receivers at a level of about 100,000 per month.

By the end of the year – just over five years since the launch of our first digital TV services - we expect that over half of the households in the UK will have access to digital TV via satellite, cable or their roof-top aerial. We are well on the way to a complete switchover from analogue PAL transmissions to much more efficient DVB digital transmissions.

A key attribute of our approach, particularly in working towards switchover for the 'horizontal' terrestrial TV services, is that of collaboration amongst UK market players and between them and Government, which itself has a great deal of internal collaboration across different departments.

I congratulate DVB on its achievements over the past decade and wish it well for the next 10 years. Its work remains of critical importance to UK broadcasting. It will have our continued support and participation.

Stephen Timms,
UK Minister of State for Energy, E-Commerce and Postal Services

As a pioneer in removable encryption technology for digital television broadcasts, SCM Microsystems is proud to be a long-time member of the DVB Project, which is also a ground breaking organisation. Over the last ten years, the DVB Project has successfully balanced the needs of vendors and the marketplace by establishing a cooperative business forum to promote the development of open digital television standards. As a result, the digital TV industry has not only grown, but more importantly expanded its commercial, geographic and technological boundaries to benefit more consumers. We look forward to continuing to be partners in the valuable work that the DVB Project makes possible.

Robert Schneider, Founder and CEO, SCM Microsystems

Digital video broadcasting, and the DVB, have come a long way. From the early, tentative experiments in how to move sound and pictures from A to B the system has evolved past simple broadcasting into a comprehensive suite of services which also include data and multimedia. Pixelmetrix applauds the equitable and rational process applied over these past ten years which has lead to the DVB system becoming the undisputed world leader of digital television.

With this success will come more new technologies, services and corporate alliances as new ideas are introduced and come to fruition. We at Pixelmetrix are proud to be associated with the organisation and pledge our support in creating the systems of the future. We wish DVB and its members all the success in the next ten years.

Danny Wilson, CEO Pixelmetrix Corporation Pte Ltd

CONVERGENCE
THE SECOND DECADE

Graham Mills – Chairman, DVB Commercial Module

One of the most surprising revelations in the world of DVB is how each phase of DVB's work, as it is completed, opens up a new set of challenges and commercial opportunities. Equally surprising is the enthusiasm of a core set of DVB 'activists' – individuals and their organisations - to take part in each new phase, together with new members who bring fresh market knowledge and specialist skills in the evolving technology. What is also very pleasing is how the 'DVB way of doing things' has remained at the core of our success: market-led commercial requirements followed by the selection of 'best of breed' technical specifications, all overseen by a consensus-based Steering Board.

Theo Peek in his article outlined the roots and history of DVB, from its initial 'linear' phase of simple broadcasting and encryption, through a second 'interactive' phase that added two-way networks and interactivity and on to a third 'MHP' phase when the importance of applications running in the receiver and the need for a DVB API moved to centre stage. We are now moving into a fourth 'convergence' phase. In parallel with the roll-out of digital TV services, we have seen the deep and wide-ranging impact of the Internet and everything associated with that, particularly the impact of broadband and IP technology. We have also seen the revolution that mobile communications has brought about, reaching all age-groups and most parts of the world. The fourth phase of DVB is all about the potential for the three worlds – DVB, IP and Mobile – to converge and interact in a way that brings new and even greater benefits than each can offer in isolation.

Now that broadband is becoming available and affordable to an increasing proportion of homes in the developed world; now that new video coding methods show the potential to deliver TV quality video reliably over IP networks using much less bandwidth than MPEG2; now that mobile networks and handsets can deliver much more than voice and text; we can foresee a converged world where many of the constraints of the linear broadcasting world will just melt away. Imagine a DVB 2.0 world where you can watch any TV services from any part of the world at a time that suits you. Add to that the flexibility to use a wide set of devices to view TV and other services – at home, on the move, anywhere you chose. Then think about what you might want to do while watching – text-chat with friends about a soccer match you are watching, respond to a TV advert from your sofa, interact with presenters and other viewers of a TV programme. All of this is technically possible, some of this will be commercially viable quite soon and there are likely to be some ground-breaking new businesses created on the back of these sorts of ideas. Who would have imagined 15 years ago that some of our largest European companies would be created from nothing or completely regenerated to serve consumer demand for digital TV (e.g. BSkyB), mobile phones (e.g. Nokia) and Internet services (T-online, Tiscali etc.). We can confidently predict that DVB 2.0 and the convergence opportunities between these three worlds will drive the creation and the regeneration of companies – to deliver new services and value.

To fulfil this vision, there remain a number of roadblocks to clear and several enablers that have to be created. The need for better protection of Intellectual Property, both audio-visual content and applications software, is a major threat plus a technical and commercial challenge. The need for interoperability of services across different networks and receivers is an increasingly complex challenge in a converged world. The political dimensions are important too, ranging from the issues of the 'digitally excluded' to maintaining cultural heritage and diversity in a global economy of international brands and multinational companies.

"...interact in a way that brings new and even greater benefits..."

These are all immense challenges – no single organisation alone can make it happen. Progress will be accelerated through alliances and coordinated strategies. At the pre-competitive stage of market development, the value that industry bodies such as DVB can bring will be ever more important. The future looks promising for DVB. The challenge of DVB 2.0 is there for us to grasp.

On behalf of Philips Consumer Electronics and the Set-Top Box Business Creation Unit, we most profoundly congratulate the Digital Video Broadcasting Project on its tenth anniversary. Like the DVB, and as a founding member, Philips has seen – and been part of – many changes and developments in the world of digital television. Particularly in the area of the Multimedia Home Platform, which has just become the only DVB standard for interactive digital TV. We have gained much pleasure and knowledge in working closely together with the DVB and other pioneers in helping to define the first MHP specifications and in their implementation in feature-rich interactive TV applications. This has been made possible through the outstanding co-operation of fellow members of the DVB, including broadcasters, other manufacturers, network operators and software developers. Long may it continue.

Lucas Covers, CEO, STB Business Creation Unit, Philips Consumer Electronics.

BBC VALIDATES DIGITAL

The BBC has had a close involvement with the DVB Project since its very beginning in 1993. The UK's digital television industry is today renowned as a leading market globally. Over forty per cent of UK households now rely on the established DVB standard, across terrestrial, cable and satellite platforms.

In the early days, BBC R&D's Andrew Oliphant led a European-wide collaborative project, 'Validate', which set about building equipment to the DVB specification. This project tested equipment performance standards and interoperability. In this respect, 'Validate' became the 'engine room' which ultimately drove forward the DVB-T standard.

The successful take-up of Freeview, the UK's non-subscription digital terrestrial service, since its launch last October, shows in vivid terms the value of agreeing industry-wide performance standards. Freeview has heralded the launch of many competing digital terrestrial television adapters and related products in the UK consumer market. These include combined PVR or DVD and digital receivers.

Andy Townend,
BBC Controller of Distribution

Furthermore, the BBC has recently made all its television services available across the UK on satellite free-to-view, without encryption. Potentially, the UK satellite market could develop along Continental lines, with a broader range of DVB based receivers being available to consumers.

Both Freeview and free-to-view satellite are exciting developments in the UK. DVB provides the mechanism for ensuring that common standards are maintained as digital television continues to evolve.

BBC Television Centre

BSkyB congratulates DVB on achieving its 10th anniversary and on its pivotal role in fostering digital television in Europe. As one of the founding members back in 1993, we're pleased that DVB has managed to balance the often contentious views of the various market players in order to achieve pragmatic solutions on many key technical issues. Whilst DVB as an organisation celebrates ten successful years, it is of course the enthusiasm and dedication of many individuals that has made the organisation such a world success. We congratulate all those involved and hope that the DVB will continue to be able to balance the interests of the various market players as we move to the next stage of the digital revolution.

Richard Freudenstein, Chief Operating Officer, BSkyB.

BSkyB Digital Transmission Suite

Professor Ulrich Reimers
Chairman DVB Technical Module

NEW TECHNICAL CHALLENGES AHEAD

DVB has entered phase 2.0 of its activities. Sounds great, but what does it mean in practice?

Well, we are still working in areas which the DVB Project cultivated during the first ten years of its existence. The best example is DVB-S2. This specification was finalised in the summer of 2003. DVB-S2 is the successor of the world-famous DVB-S system for digital satellite broadcasting and is so powerful and so close to the theoretical performance limit (the Shannon boundary) that nobody will ever have to develop a DVB-S3 specification. The ongoing development of the MHP is a second example of DVB's commitment to the support of existing solutions. Personal Digital Recorders (PDR) will have to be supported by the MHP. Multimedia Messaging Services will need to be supported, etc.. But this 'product care' can not be the reason for calling the current phase in the life of the project 'DVB 2.0'!?

"...which will make it possible to deliver data at high data rates to handheld devices like PDAs, multimedia mobile terminals, etc.."

The two fields of activity which justify the new nickname of the project are the integration of DVB services in the part of the world which is governed by the Internet Protocol (IP) and the amalgamation of DVB services and mobile communications networks and services. DVB-H, where 'H' stands for handheld is the name of a specification which we will finalise later this year. The target of the development is a transmission standard which will make it possible to deliver data at high data rates (10 Mbit/s or so) to handheld devices like PDAs, multimedia mobile terminals, etc.. DVB-T can be used for this purpose today but the power dissipation of a DVB-T front-end will not make it possible for the mobile terminal to live from a typical mobile phone battery for many hours. Therefore the name of the DVB-H game is 'power saving'. On top of the DVB-H transmission layer network providers will be able to offer audio and video content which will be source-encoded using the new coding guidelines which will be provided by DVB later this year. Here we are about to adopt coding technology beyond the 'classical' MPEG-2 for video and MPEG-1layer 2 for audio. IP-Datacast will offer the possibility to transmit Internet content via DVB-H and the ad-hoc group on DVB/UMTS co-operation is trying to glue everything together in order to provide a DVB solution for the use of hybrid networks incorporating a broadcast (DVB-H) branch and a mobile communications branch. Does that sound like DVB 2.0?

Watching DVB content via a broadband Internet access network would be nice, wouldn't it? But then: How do you zap from programme to programme? The DVB ad-hoc group on Internet Protocol Infrastructures is currently defining the comprehensive DVB Internet solution. Service discovery and service selection is a big issue there. We seem to face the problem that the DVB requirements for ease of operation and quality of service have so far not been fully addressed in the IETF and other bodies working on Internet specifications. Therefore we are working towards close cooperation with these groups in order to hopefully create joint solutions. Complex stuff - but it sounds like DVB 2.0!?

And DVB 3.0? Well, maybe we will finally start to work in an area which I always wanted to address: telekinesis. It would be wonderful if the DVB chair-people could run meetings by just moving their colleagues into their offices by pure power of the will.

Co-creating the future of digital media in Singapore

NEW MEDIA CITY

Mr Lim Hock Chuan, CEO of Media Development Authority of Singapore

I congratulate the DVB on its tenth year anniversary. The DVB has made significant progress in the adoption of digital television (DTV) in many parts of the world today.

Ten years is a long time in the development of technology. Ten years ago, digital television was largely an untried and untested concept. Today, we see DTV being adopted in many countries. Since Singapore adopted the DVB-T standard in 1998, we have made incremental progress with the support from the DVB.

As a keen champion for DTV, we jumpstarted the world's first mobile TV service in 2001. The service is now available on 1,500 public buses in Singapore. We further saw a growing interest among local industry players, especially content providers, to create more MHP applications over the last two years. Our cable pay-TV operator, StarHub Cable Vision (SCV) has announced its plans to migrate towards digital using the DVB-C standard. Zentek has opened an interactive TV Content Creation Centre in Singapore to create a cluster of DTV activities to enable content creators to create, validate, test and debug their iTV applications. With all these new developments in Singapore, we can expect DTV to grow in Singapore in the years to come.

We have unveiled our Media 21 blueprint to transform Singapore into a vibrant global media city. We want to see the media industry flourish. One of our key strategies is to develop digital media. Digital broadcasting is an area that we want to develop further.

As thedigital broadcasting and media industries grow, we are proud to have the DVB as our partner. I am confident we can continue to strengthen our partnership and work together to co-create the future of digital media in Singapore.

SPANISH IMPACT

Anatolio Alonso Pardo, DVB Steering Board Member, Ministerio de Ciencia y Tecnologia, Spain

It is a pleasure for me to celebrate this 10th Anniversary, as the Spanish Administration representative in the small group that launched the European initiative that would become the DVB Project in 1993.

I would like to underline the strong impact of DVB activities in Spain. Just a mention of some milestones, in a chronological order: the introduction of satellite digital TV services, utilising DVB standards (today with more than 2 million subscribers); the DVB-SMATV specification, essential for satellite digital TV to reach viewers in some countries, Spain being one of them; the introduction of digital terrestrial TV in 2000, following the 8K option of DVB-T, that has allowed the broadcast of 16 programmes in 4 single frequency networks (SFN) of national coverage, 5 programmes in around 50 SFN of provincial coverage and other large regional SFN, taking advantage of a unique feature of 8K/DVB-T; more recently, the support for the MHP standard through an agreement between industry and broadcasters; and in the near future, the configuration of an attractive offer of content for digital terrestrial TV and a comprehensive plan to ensure a viable analogue switch-off date.

Ministry of Science and Technology, Madrid

From the DVB's inception, when the main focus was in matters such as channel coding or modulation schemes, always with traditional broadcasting services in mind, DVB activities have paid more and more attention to the support of new services related to interactive TV, Internet and mobility. DVB's efforts have become basic tools to promote a ubiquitous Information Society reaching all the social sectors.

Accordingly, it is necessary not only to send greetings to all the DVB family, but also to wish them a brilliant future that equals the first 10 years of success.

SONY

NX200 IDTV

Integrated Digital Television

Sony has a history of launching successful and innovative products and has recently been very active in launching Integrated Digital Television (IDTV) sets based on the open industry standard DVB-MHP (Multimedia Home Platform). These products compliment the Sony Open Datacast platform.

The Sony integrated digital TV was the first receiver to be launched in Europe with MHP middleware and is currently on sale in Germany and Finland.

Key Milestones

- **August 2001**
  The NS100 digital satellite IDTV was launched in Germany
- **May 2002**
  The NX100 digital terrestrial IDTV was launched in Finland
- **Spring 2003**
  MHP certification for 1.0.2b Test Suite. The next generation NX200 was launched in UK and Finland which includes Memorystick capability for viewing digital pictures created using the Sony CyberShot cameras, for example

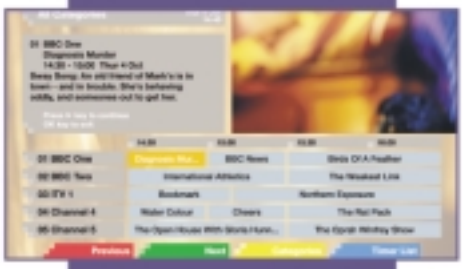
The NX200 implements the MHP 1.0.2 Interactive Service Profile. Other features include the Sony EPG, which allows easy access to all digital content and enables features such as one-touch record and record in standby. The multi-function remote control can also be used to control DVD and VCRs.

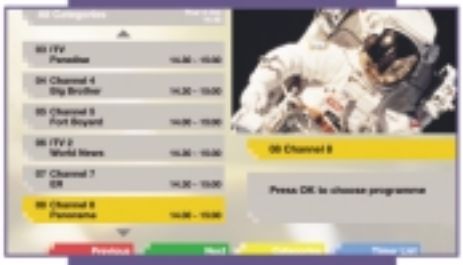
MHEG based integrated digital TV's have been on sale in the UK market since May 1999, and the launch Freeview in the UK has boost confidence in the DTT and IDTV markets.

Sony plans to launch MHP IDTVs into new markets, such as France, Spain and Italy as soon as the DTT services become established, and attractive AV content is available to the consumer.

For more information about Sony Integrated Digital Television contact:

Mark Londero (Mark.Londero@eu.sony.com) or Tim Page (Tim.Page@eu.sony.com)





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Sony Open DataCast Platform

A comprehensive platform, based on Open Standards, for delivery of data services over DVB networks.

Comprised of a number of key components which may be deployed either individually, or as part of a complete system solution.

Media*Gateway*

a powerful MHP Authoring System. It takes the 'programming' out of MHP, leaving media professionals to do what they do best – concentrate on content and design!

Media*Manager Server*

provides the tools necessary to enable network operators to manage the complex business and technical relationship with any number of networked content providers.

Media*Manager Client*

offers the functionality by which each individual content provider may manage their own content and delivery schedules within the constraints established by the network operator.

Media*Caster*

a highly versatile Application Server provides for delivery of data services over DVB networks using industry standard DSM-CC and DVB-MPE protocols.

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a complete mini head-end system for testing and validation of data services over a real DVB network.

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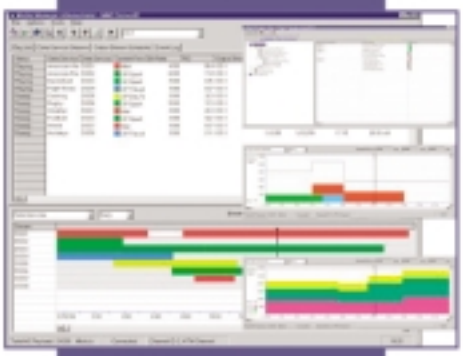

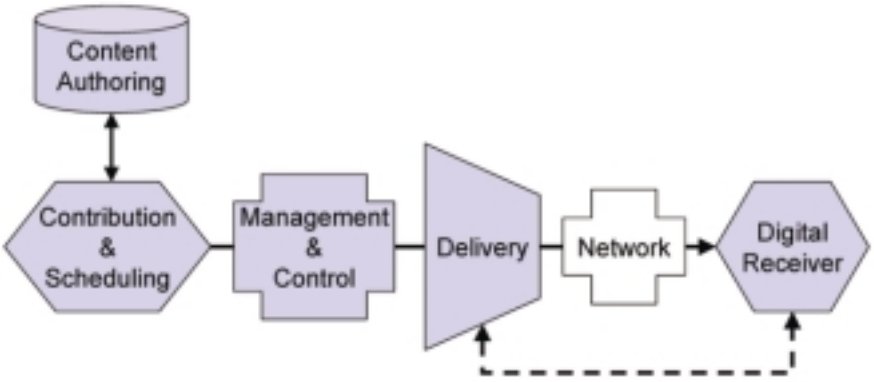

Change an audience of millions...

...into millions of audiences of one.

DVB Digital Video Broadcasting

mhp

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MISSION ACCOMPLISHED

The DVB has provided a fascinating experience and a huge wave of innovation over the last ten years. In today's competitive world it is unique to find an organisation that has gained the cooperation of hundreds of competing companies in order to reach a common objective that has created the scientific and industrial landscape for the future of television broadcasting.

With our new venture, Teamcast, we look forward to the next ten years of working with the DVB to deliver OEM products that embrace such DVB technologies as DVB-T, DVB-RCT with a particular emphasis on the recent DVB-H (targeting handheld & mobile digital TV applications).

Jean-Luc PAVY, CEO of TeamCast
Gerard FARIA, Managing Director of TeamCast (right)

The tenth anniversary of DVB is the opportunity to look back with pride and to look forward with excitement.

We can see the considerable achievements of the past 10 years, and the worldwide success of DVB compatible digital TV.

Further enhancements are on the way … hierarchical modulation; antenna diversity; in-band return channel (DVB-RCT); DVB for the handheld terminal (DVB-H); collaboration with 3G cellular networks (DVB-UMTS) … these are exciting new technologies, offering real capabilities far beyond the TV services targeted when DVB was launched some 10 years ago.

Long life to the DVB adventurers!

Alain Untersee, Director, Product Management and Marketing, ITIS Products, Harris (left)

David Crawford, Managing Director, Harris Broadcast Europe

Dr. Hans Hege of the Medienanstalt Berlin-Brandenburg

Terrestrial TV reception in Berlin has been fully digital since 4th August 2003 when the last analogue frequencies were switched off.

The Berlin example proves that switchover from analogue to digital transmission is accepted by consumers. Competition between the routes of transmission is upheld while the choice of services increases.

The switchover was based on the synergies within the DVB-T system. In addition, DVB-T in Berlin benefited from the reduction in prices for satellite boxes and the successful introduction of DVB-T in other countries.

The Berlin changeover also shows that the digital technology not only works for pay services but also for free-to-air television - an indispensable prerequisite for switchover.

Following the switch off of the high-power analogue frequencies, portable indoor reception can be introduced when suitable integrated receivers are available.

The next step will be the convergence of broadcasting services and mobile radio services as well as DVB-H.

Following the switchover, the frequencies required for this step are available. There is still a lot to do, but the Berlin example proves that who dares to change things can win.

Believe in DVB!

Our long term collaboration to establish DVB in Europe and now the tied cooperation in the US in finalising DVB and MHP in DCAP (DTV Common Application Platform CableLabs) makes us proud in taking part in how and where people watch TV today and tomorrow.

DVB has allowed us to build up many new business relationships and friends within the broadcasting industry.

Thank you DVB for making it all happen today and in the future.

Lothar Kerestedjian, Business Development | New Technologies, Panasonic Marketing Europe GmbH

Looking back at 10 years of DVB, the most striking thing to me is that the DVB is one of the rare examples of successful standardisation out of Europe driven by an industry itself. Even on a global scale it is remarkable for an industry consortium to be as influential as the DVB project. Somehow, the DVB project managed to strike the right balance of technical, commercial and regulatory interests to shape the digital television industry. I congratulate DVB on reaching its 10th anniversary!

Graham Kill, CEO Irdeto Access

CryptoWorks™

The most reliable Conditional Access solution available today

- Reliable, with proven maximum security
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Philips' CryptoWorks is acknowledged worldwide as the industry benchmark solution for conditional access. Secure, flexible and cost-effective, CryptoWorks is specifically designed for state-of-the-art digital television applications. Operator independent, it complements, and is fully compatible with MPEG-2/DVB-compliant compression and distribution systems. It is the optimal solution for successful management of Pay-TV and other pay-per-view broadcast services. Proven in many installations throughout the world, CryptoWorks is the ideal answer for protection of broadcast and on-demand content, whether satellite, cable, terrestrial or broadband IP-based.

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PHILIPS

SETTING AN **EXAMPLE**

David Wood,
Head of New Technology, EBU

Henry Ford did not include a reverse gear in his first car. Naturally, politicians found this very inconvenient. There is a French proverb - 'mistakes are the best teachers'. Henry Ford became the world's most successful manufacturer. It would be wrong to draw many parallels between the successful exponent of the production line, and one of the world's most successful exponents of digital broadcasting standards, the DVB Project. But both learned from what had gone before, and adapted themselves continually to better ways of doing things. This is the real strength of the Project.

At the beginning of the 1990s the world was on the threshold of digital television broadcasting - the DAB standard for digital radio had been developed, and the MPEG1 video compression system, developed by the IEC/ISO JTC, augured the new age of DCT which could be applied to television broadcasting. An analogue HDTV broadcasting system, HD-MAC had just been developed by a consortium of European manufacturers and others. This stood for 'Hardly Desired - Money Approved by the Commission'. A vast investment - well intentioned - had only produced something whose time had come and gone before it was used.

Where was the genesis of the DVB Project? Certainly the EBU Technical Committee - the collective entity of national broadcasters - believes it was part of it. The first chairs of all the groups ten years ago except the Steering Board came from national broadcasters of the EBU. And the EBU organised and managed the Project. But we saw this as just a holding situation - nurturing the child - because one thing was clear from the past. New systems need the buy-in of all parts of the broadcast chain, or they will not get used. Everyone in the value chain has to see an advantage in using a new system. Everyone - broadcasters, networks, carriers, manufacturers - have to be in on the deal.

At the insistence of the large private broadcasters, the DVB Project also became 'bicameral'. There are two bodies which check each other's work – the Technical Module and the Commercial Module. One group asks the questions like 'what does this need to do to be a business success', or 'does the world really need this'?. The other group of technical experts is locked away until they come up with a technical solution which does the desired things. This was a true inspiration, and has served the Project well in all its term. In addition, the Project gained the self confidence to develop standards collaboratively in committee - rather than having individual companies come along with their own systems in their pocket, and which, surprise, surprise, can't be agreed on by other companies.

Procedures were not the only thing learned. You have to be lucky too. You need leadership from articulate individuals who will drive forward progress, and who have the confidence of everyone to be fair.

Sometimes the Project has stumbled, but it has not fallen. We know that he who never makes a mistake never makes a discovery. The Project has given the broadcasting world a well designed and commercially realistic set of technical standards which will serve us well for the next decades. Clearly we have a reverse gear in our car.

Sony congratulates DVB on its 10th anniversary. DVB has achieved truly remarkable success in bringing all elements of the digital TV industry and regulators together to create commercially driven specifications which will stand the test of time. DVB continues to play a critical role in identifying, addressing and solving the difficult and challenging issues which promote the emergence of new digital TV businesses and ensure Europe continues to lead the world in the creation of technical standards.

Terry Hurley, General Manager, Sony Network Products Europe

The tenth anniversary of the DVB consortium coincides with almost ten years since Philips introduced its conditional access flagship product, CryptoWorks. The pioneering efforts and close co-operation between Philips and the DVB were instrumental in helping us to define and bring CryptoWorks to market, where it is universally acknowledged as one of the most reliable and secure CA systems available today. In this way, we feel that we are greatly contributing to the widespread implementation of a truly open platform in digital TV technology, at the same time as helping to combat the growing challenge of broadcast content piracy.

Alex Terpstra, General Manager, CryptoTec business group, Philips Consumer Electronics.

Congratulations to everyone involved with DVB on the 10th anniversary. As digital standards progress, DVB remains a critical organisation for Espial, our many customers and industry partners. The initial vision of interactive television is now a reality with more viewers utilising iTV services everyday. As a leading supplier of browser and user interface technologies, everyone at Espial salutes the important groundwork DVB has done to provide important guidance for the rapidly changing industry.

Dr. Neale Foster, Director of Marketing, Television, Espial.

SATELLITE MIGRATION

Cobus Stofberg, CEO, MIH Group

Our FilmNet service (part of the Nethold Group at that time) was one of the original signatories of the MoU of the DVB Project in 1993. Like our pay television confreres Sky and Canal+, we made the commitment not to launch a digital satellite service until the DVB had finished its work on DVB-S, the digital standard for transmission by satellite. We threw ourselves into the work of the DVB's modules on the technical and legal side, and also the development of the Common Scrambling Algorithm.

While the DVB made steady progress towards DVB-S, FilmNet's implementation team was completing the infrastructure chain of play-out centres, muxes, transponders and set top boxes for subscriber households for an early launch of digital services across our territories. This effort resulted in us being the first to roll out commercial services to the DVB specifications.

FilmNet and our African affiliates had a number of commercial challenges across our territories and DVB-S was an attractive technology that met some of them. FilmNet offered pay television services – films and sport – in Nordic countries, Benelux, central Europe, in addition to Greece and Italy. Within Europe our analogue satellite services used a common video image with local language subtitling accessible to the subscriber through the vertical blanking interval lines. In these markets, digital compression allowed us to offer a more sophisticated service (for example, dubbing in the local language) and of course, for the same number of transponders, a larger bouquet of programming. In Benelux, we shared analogue infrastructure capabilities with cable operators. The ability to have 'cable in the sky' – a wealth of channels outnumbering those on analogue cable – gave us significant commercial advantage.

Our original television territories were in Africa, extending from our South African base. In many African countries, cable and terrestrial broadcasting are often impractical to reach our markets. With DVB-S, our satellite platforms could offer these audiences a wealth of diverse and varied programming.

Since those early days in the mid-90s, FilmNet, and now MIH, have brought the message of DVB to China, Thailand and elsewhere in Asia. In many of our markets, the conversion of our subscribers from analogue is nearing completion. Through Irdeto Access, we have continued to convene the companies who developed the Common Scrambling Algorithm, and to help manage a licensing programme through the ETSI, which is one of the success stories of DVB.

Thanks to the enormous engagement of its promoters DVB has become the worldwide synonym for digital TV. At some point in time DVB might be as well recognised in the world as Coca-Cola is today... who knows?!

The worldwide DVB standards allow globally active companies like ND SatCom to offer a portfolio fitted to international requirements.

However, success is also a challenge: ND SatCom values the commitment of DVB to play a significant role in the world of data transmission on the Internet. We are looking forward to DVB's 20th anniversary and hope by then DVB and IP will have written the second chapter of the DVB success story.

Congratulations!

Dr. Bernhard Neumeyer, Senior Manager Technology Programs, ND SatCom AG Germany

Humax would like to congratulate DVB on its 10th year anniversary.

Establishing quality criteria for a new technology is never an easy task and the fact that on a world wide basis there is recognition for the DVB trade mark across a range of products is testimony to the hard work and contributions of all in the broadcast sector.

Certainly from the Humax standpoint the logo stands for reassurance to its customers that our product meets the exacting requirements of the DVB standards.

We hope that the DVB continues to meet the challenges of the next 10 years and wish it every success.

Dale Heathcote, Commercial Director, Humax Co.Ltd

As a leading supplier of chips to the digital consumer market, NEC has always welcomed open standards. In the area of digital broadcasting the DVB consortium has provided an environment which promotes common specification and understanding, allowing the definition of standard high volume chips for a worldwide market. NEC is proud to have been actively participating from the inception of this organisation, helping to create and support the globally recognised structure that DVB has become.

Shigeo Niitsu, General Manager, 2nd System LSI Div., 2nd Business Development Operations Unit, NEC Electronics Corporation, Japan

CABLE ATTRACTIONS

Philippe Perrot, Standards and Advanced Studies Manager, Canal+ Technologies

Knowing Canal+ Technologies' commitment to the DVB standard, choosing just one topic as an example to celebrate the 10th anniversary of its launch is not an easy thing. Should we focus on this year's announcement: the MHP certification and the release of MHDK, our authoring development tool and MHP simulation environment, or should we tell the tale of how the company managed to develop the first DVB simulcrypt? As the occasion warrants, one little known story is how Canal+ Technologies pioneered the DVB-C standard. As mandated by its mission, the DVB project in the early nineties defined a number of standards for digital video broadcasting over all transmission networks including satellite, terrestrial and cable systems.

In 1997, Canal+ Technologies provided one of the first cable interactive systems to its French cable customer NC Numéricâble, a cable operator majority owned by the Canal+ Group. The middleware platform used was the Pantalk version of Mediahighway, a proprietary yet interoperable solution developed by Canal+ Technologies. The same type of solution was soon offered to Canal+ Group's other cable operators in Belgium and in the Netherlands, Canal+ NV and Canal Digitaal Bouquet. Today, the three operators total some 600,000 digital subscribers.

What DVB-C brought to these operators was the ability for a smooth transition from analogue to digital in an open and competitive environment. To subscribers, it represented access to truly innovative services directly to their homes.

As middleware technologies matured, another era started in 1999 when Canal+ Technologies launched the world's first Java based and DVB-RC compliant (return path) cable system with commercially available services. Attracted by the flexibility and openness such platforms offered, US cable operator MediaOne launched the service in 30,000 homes in Jacksonville, Florida. Canal+ Technologies' Java based solution went on to further expansion on the American continent as the cable operator WINfirst (known today as SureWest) launched another Java DVB-RC based system in California's capital Sacramento in 2001. On the other side of the globe, the Chinese cable operator Beijing Gehua Cable Television has also chosen the Java-based version of Mediahighway to launch its digital service in Beijing later on this year.

With such a broad experience behind us, we at Canal+ Technologies believe DVB in all of its configurations has a long future ahead of it, one of the most promising proofs being the adoption by the US CableLabs OpenCable initiative of the DVB-GEM (Globally Executable MHP) specification.

CableLabs congratulates DVB on your tenth anniversary milestone. The hard work of the DVB membership is apparent in DVB's many achievements.

In particular, CableLabs and the North American cable industry have benefited greatly from DVB's vision for interactive television through the development of MHP. DVB's groundwork made it easy for CableLabs to form a partnership on MHP and drive toward a true world standard for interactive multimedia. We look forward to the next ten years!

Richard R. Green, Chief Executive Officer, Cable Television Laboratories

We were one of the first companies in North America to adopt the DVB standard. As an open standard it has been critical to helping us grow our business and carve out a significant niche for ourselves in the emerging broadband IP over satellite market. DVB has enabled us to pioneer multimedia and reliable multicast applications for Internet connectivity, distance learning and enterprise networks and become part of the open standards revolution happening around the world.

We are now into our second generation of DVB products, and moving from mere edge receivers into the realm of satellite multimedia appliances.

We are proud to be members of the DVB organisation. We salute the work it has done and continues to do into the future of wherever this tidal wave of technology takes us.

Ron Clifton, President & CEO, International Datacasting

CREATIVE AUTHORING

Apart from being the first open Application Programmers Interface (API) for delivery of digital interactive television services, the Multimedia Home Platform (MHP) has Java at its core. As such, MHP benefits considerably from the widespread availability of Java authoring tools available on the market and indeed the popularity of Java among programmers. That said, while knowledge of Java represents a significant advantage, Java alone is not enough.

While anyone with knowledge of Java programming can write an MHP application which may run on a compliant device, it is not likely to be the most aesthetically pleasing due to an understandable lack of appreciation of the underlying television techniques within the programming community - including such things as colour space, aspect ratio, and interlace etc. Conversely, the TV production specialist without any programming skill whatsoever is unlikely to get past the first post.

Competent MHP application authoring requires a combination of both programming skill and a good understanding of television techniques. While there is no doubt that such suitably talented individuals who possess this mix of appropriate skills exist, they are relatively rare and generally come at a premium price.

This situation has given rise to two mainstream approaches towards authoring; applications authored by Java programmers with the appropriate skills, and those produced by non-programmers using a selection of highly automated MHP authoring tools which have begun to appear on the market.

Arguably the best applications to date have been those produced 'by hand' using highly skilled individuals as described above. Despite the significant progress seen in automated authoring tools, these still tend to produce somewhat unwieldy code.

Sony has identified an alternative approach that combines the benefits of both worlds in its MediaGateway to enable production of broadcast ready MHP compliant interactive television services. The system provides the tools necessary to generate new content, or import existing content from a variety of sources and a feature rich graphical tool-set with which to design the visual appearance of the applications.

Sony's MediaGateway employs a finely tuned, thoroughly tested 'template' via a variety of user friendly graphical interfaces, to be populated, both in terms of 'design' and 'content' by those with design and editorial skills, but with no knowledge of Java programming. It supports a networked environment of standard PC's designed to embrace the essential workflow characteristics of the authoring process thus enabling creative and editorial staff to contribute jointly to the development of new interactive services.

This approach effectively takes the programming out of MHP, leaving media professionals to do what they do best – concentrate on content and design!

The hard work of the DVB Project Office has clearly made digital broadcasting a reality for today and in the future. From the vendors in the DVB industry, we thank you for making analogue signals and limited bandwidth memories of the past, while ensuring interactive television with revenue generating streams is just one image of our bright future in DVB. We are confident that the DVB organisation and its members will continue with the same level of success as it standardises all DVB platforms, including MHP and GEM, and its harmonisation efforts with other standards like ATSC-DASE, OCAP and ARIB, around the world.

Seung L. Jee, CEO Alticast

Thanks DVB for ten amazing years! The DVB standard is truly an enabler for bringing low cost satellite broadband to the world. The DVB standard, and its associated technology, has enabled Comsat Labs to bring cost effective two-way satellite communications to every continent on the globe. The richness of the applications of our DVB systems run from providing internet to schools in Mexico and ISPs in Africa to providing communications to the oil industry in Russia and China. I think that without a doubt DVB has contributed to the betterment of people throughout the world. With this being said, it's increasingly important that we do not rest on our laurels, but look for ways to take the DVB standard to the next plateau. Imagine what heights DVB can reach in another ten years!

Dr. Benjamin Pontano, President, Comsat Labs - A division of ViaSat Inc.

The DVB has carried the torch for digital broadcasting across Europe and around the world for a decade and I'd like to take this opportunity to thank and congratulate the people at the DVB for their progressive vision for the TV industry. Not only has the DVB evangelised the concept of digital broadcasting, but it has also established strong standards through inter-company collaborations that have dramatically changed the economics and ways through which television is delivered to homes today. Tandberg Television has worked closely with the DVB for the past ten years and I look forward to continuing our close relationship as we take the next steps in the evolution of the broadcast industry towards on-demand, interactive content delivery and new interoperable technology platforms.

Eric Cooney, President and CEO of Tandberg Television.

SMART ANSWER

Philips' CryptoWorks is generally acknowledged by broadcast and related industries as one of the most reliable, secure and cost-effective conditional access (CA) systems available on the market. To date, the solution has proven applications worldwide in the domains of pay-TV and IP conditional access, video-on-demand (VoD) and e-commerce.

Austria's premiere broadcaster, ORF, and a key customer for Philips was experiencing difficulties with its CA system, and approached the company for a solution. A major challenge, but CryptoWorks provided the answer. The system was installed without a hitch and to ORF's pleasant surprise was ready for immediate operation. ORF was able to provide a higher than expected number of CryptoWorks smart cards to meet the high level of subscriber demand. In addition, ORF has recently entered into a major CryptoWorks service agreement with Philips covering several years, underscoring the broadcaster's satisfaction with the system's world class security and reliability.

Since its introduction in 1994, the CryptoWorks CA system has been continually improved with state-of-the-art technology to ensure optimal conditional access to MPEG transport streams that carry digital video and other data to set-top boxes or PCs. The system protects MPEG-2 and/or IP streams and/or VoD content, as well as local content stored in PVRs, all with one smart card. Examples of high-bandwidth IP-based networks include fibre-to-the home (FTTH), fibre-to-the-curb (FTTC) and Ether-to-the-home (ETTH). Some recent additional innovative features include CAPS (conditional access parameter scheduling) for flexible standalone operation; greatly reduced footprint using the Compaq Proliant server, and comprehensive service and security agreements.

In dynamic pay-per-view (PPV) and impulse-pay-per-view (IPPV) services, CryptoWorks provides close interaction between conditional access and electronic programme guides (EPGs). The system functions smoothly with EPGs to verify subscriber access rights and manage IPPV requests. In addition, CryptoWorks supports programmable 'sneak previews' in a broadcast programme.

Microsoft works closely with the European broadcast and broadband industries to provide technologies that offer a broad range of new content delivery opportunities. Microsoft is delighted to be able to continue this work as a member of the DVB Project. Over the past ten years, the DVB has encouraged openness and cooperation within the industry and has strived to promote cross border communication in Europe and beyond. Microsoft looks forward to playing a support role in the DVB's development over the next ten years.

Jim Beveridge, Director of Broadband Policy, Microsoft's Windows Digital Media Division

DVB is to be commended for navigating and leading through tough times and rough waters with dignity and grace. While the upcoming seas may be anything but smooth sailing, the leadership and membership of the DVB organisation have proven that it is possible to meet many diverse needs under the umbrella of a single set of interrelated standards.

Hats off to DVB for a job well done! In the next decade may DVB continue to lead the good and noble cause of evolving with the rapid changes and needs we discover as our future businesses and global roles in communications move forward.

Mark A. Aitken Director, Advanced Technology, Sinclair Broadcast Group

Happy birthday DVB! We're delighted to be working with you to deliver a new level of broadcast entertainment experience.

Tony Spath, Marketing Director - Technology, Dolby

ADB has been working closely with DVB since entering the set top box world in 1996 and especially since commencing in the MHP market in more recent years. We are proud to be able to participate in the inner sanctum at the centre of excellence for the benefit of the broadcasting industry as a whole. The DVB stand presence at the major tradeshows is a key element to the work of the consortium and has been a place to where ADB brings its customers to see the superb work that the consortium offers. DVB is always considered as the neutral meeting place for members of opposing camps and is highly regarded by overseas visitors involved in all aspects of digital television.

ADB and its new company, Osmosys which now includes the original authors of the ADB MHP implementation, are proud to be part of this year's DVB stand at IBC.

Anthony Smith-Chaigneau, Head of Market Development, Advanced Digital Broadcast

I believe the importance that DVB has had in the industry is vastly underestimated, not only for Europe, but also worldwide. Without the common work of end-users, suppliers and researchers under the DVB umbrella, we would be suffering from the inefficiencies and high costs that are often inherent when we have extensive interoperability issues to deal with.

Because of the substantial efforts of all members in the DVB group, we enjoy common standards for a large part of the equipment involved, no matter what delivery mechanism to the home is used.

At Scientific-Atlanta we have embraced DVB since the beginning. This has allowed us to develop generic and cutting edge headend and playout solutions that can be used for all systems: cable, satellite, terrestrial or recently also xDSL lines.

We are looking forward to another exciting 10 years in a further converging industry.

Dean Rockwell, Vice President and General Manager, Transmission Network Systems, Europe, Scientific-Atlanta

Eutelsat is very proud to have been part of the DVB success story since the pioneering days of developing an open standard for digital television broadcasting, and to see how much DVB has enriched the viewing experience for millions of homes in Europe and worldwide. More than 1,300 DVB channels are broadcast through our satellites alone.

With the arrival of the DVB-S2 standard we expect satellites to maintain their competitive advantages for an evolving generation of broadcast and interactive services for the consumer and business market.

We at Eutelsat look forward to playing our role in this ongoing adventure.

Antonio Arcidiacono, Director of Consumer Multimedia Services at Eutelsat

As we reach this milestone – the first decade of DVB – Scopus is proud to have played a role in its growth. DVB is a major force organising industry specification standardisation for the digital broadcasting market and has become the de-facto industry standard.

As DVB's second decade begins, new DVB-based standards are emerging to lead the industry. Scopus is already hard at work developing platforms around these emerging standards and we look forward to greater successes.

David Mahlab, Scopus Network Technologies CEO

TechniSat Data Services S.A. would like to congratulate DVB on ten years of fair, reasonable and non-discriminatory open digital television standards with worldwide adoption.

With the DVB Project you can see that working to strict commercial requirements ensures benefit for everybody in the transformation to digital television.

TechniSat as a well known developer and manufacturer of DVB hardware is more than glad to have an interoperable flexible open standard which guarantees that compliant systems will be able to work together.

We are looking to a prosperous future with one of the rare worldwide standards.

Klaus Fuchs, Managing Director, TechniSat Data Services, Luxemburg

Why has the DVB made a strong impact on the digital TV world? It has all the constituents of the industry and reflects their needs in its work; it has remained technically competent and pragmatic in its specifications and it has felt able to grapple with the problems of designing a new industry based on its technology. Especially in the wider complexities of conditional access and MHP. We look forward to many more people in the world using DVB technology over the next decade.

David Cutts, Director, Strategy & Technology Ltd

As the DVB celebrates its tenth anniversary, Canal+Technologies is very pleased to be able to look back on ten years of successful collaboration in this great adventure. Our commitment to open and interoperable systems has led us to participate actively in many DVB modules. Together with our industry partners in the consortium, we have crafted a powerful way for digital television to develop worldwide. One of its latest and most striking examples is the adoption of the MHP standard which will bring many benefits to the entire digital television value chain - content providers, broadcasters and CE manufacturers. Today, we can all cheer and wish 'Bon anniversaire, DVB !'.

Jean-Charles Hourcade, Chairman and CEO, Canal+ Technologies, and Chief Technology Officer, Thomson.

PHILIPS

Let's make things better

You can do so much more than just watching television. Now you can exchange messages with friends, take part in quiz shows and, in the future, even take care of your bank transactions. So, just sit back, make yourself comfortable and rediscover your TV. Enjoy the unique brilliance of digital image and sound quality at the same time as getting all the information you want. Bring total entertainment and communication into your living room.

● Interactive television lets you participate in voting, betting and in quiz shows. ● Communicate with friends: chat, e-mail and SMS. ● An Electronic Programming Guide lets you select your favourite channels using key words. ● And, soon to be available, home banking and home shopping. So, open up a new world of exciting potential with a digital satellite receiver – from the comfort of home.

For more information - Tel: +33 1 47 28 56 83

mhp®

The most exciting thing about your business is the potential to turn ordinary TV into an extraordinary interactive experience. That's where Scientific-Atlanta comes in. We help you evaluate technology, services and business models – and transform them into your vision of the future. Right here. Right now.

Scientific Atlanta

These advanced DVB headend solutions will make you feel like a

kid in a candy store.

Austria
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Hungary
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Poland
Portugal
Romania
Russia
Scandinavia
Slovakia
Slovenia
Spain
Switzerland
United Kingdom

Asia
Australia
Middle East
North America
South America

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