What is MHP?

The Standard Platform

That handles interactive Digital Television and integrates the Internet
Too Many Choices..

Holding back the market

B-HTML  MHEG-5  Liberate™  openTV

BetaNova  BetaResearch

JavaTV  UltimateTV®

ATVEF  PHILIPS
Why a standard for interactive DTV?

- **Without a standard you will have:**
  - Consumers would need multiple boxes to receive multiple services.
  - No cost-effective Free-To-Air digital TV products.
  - Islands of Pay-TV subscribers, using different *incompatible* technologies.
  - Uncertain consumers refusing to buy products.
  - Over 50% of population long term without Pay-TV. (“Digital Divide”)

- **With a standard you will have:**
  - One STB or iDTV box to receive all services (just like the GSM market)
  - Consumers buying STBs & iDTVs in retail stores (No subsidy models necessary)
  - A thriving market in Equipment, Content, Services, Products (Economy of Scale)
What is MHP?

- **MHP is Software**
  - Like “Windows” but for Digital Television
  - Based on a standard so we will not have to pay one company for ever
  - Softworks makes MHP software, but so do others

- **Think of it as like the “teletext” feature was for analogue**
  - Teletext used to be thought of as too expensive and complex
The Core of MHP

Applications

- Independent developers
- Different service providers
- Various application areas

Generic SW Interface (API)

- Independent implementations
- Different hardware
- Different software
- All kind of terminals
  (low-end STB / High-end PC)

MHP Terminals
The basics of MHP

- 3 profiles - Enhanced TV, Interactive TV, Internet TV
- Uses Java as its foundation
- TV Centric
- Same system for Satellite, Cable, Terrestrial
- Covers end-to-end chain
- Secure, Open, Scalable
- Only Proven Interoperable Solution
Philips Softworks

What does interactivity look like?
MHP delivers THE new interactive digital TV experience
Philips Softworks

The End-to-end value chain
End-to-End chain

Video Content → Modulator → Transport → MHP Server & Response System → Return Path → Client → Applications
Value Chain

- Applications & Content
- Programmes & Services
- Conditional Access
- Networks / Transport
- Receivers / Terminals

Diagram:

- Supplier 1, Supplier 2, Supplier 3, Supplier 4
- Provider 1, Provider 2, Provider 3
- Operator 1, Operator 2, Operator 3
- Manuf. 1, Manuf. 2, Manuf. 3, Manuf. 4
The new paradigm for interactive applications

- Dis-entanglement of the chain:
  - Interactive content produced by content providers
  - Driven by open standards (MHP)
  - Focus of service providers:
    - Services that are independent of TV channel (Service Guide, Portal, VoD, PPV, Service channel, Internet access etc.)
    - Revenue sharing based on added value to broadcasters or advertisers (consumer data / profiles) creating win-win
- Increase competition
- Reduce prices and costs
- Focus on value adding instead of blocking
- Increase freedom of choice for consumers
- DRIVE MOMENTUM for roll out of Interactive TV services
What’s in it for broadcasters?

- Huge Cost savings
  - Don’t have to buy boxes!
  - Pay-TV capable
  - Cheaper broadcast equipment
  - Cheaper Applications – can buy them

- Huge savings on return channel infrastructure
  - Use viewers ISP to get to internet
  - Use web servers as return infrastructure

- Interactive offering for Free-to-air
Conclusions

- Proprietary standards have been good to get a fast time to market
- However, economical production of interactive digital TV content requires open standards and mass deployments of devices
- Consumer adoption of DTV will be driven by the amount of compelling interactive content and services offered
- Horizontal and vertical models will co-exist
- Each player in the value chain can have a good business
- Each stage in the value chain has many subsidiary businesses supplying it.
Philips Softworks

The most basic MHP: Enhanced Broadcast
Enhanced Broadcast MHP

Philips Navigator

Java™ Virtual Machine

Accelerator

MHP Class Libraries

Philips Digital TV Software Platform

Philips Hardware Drivers

and more...

MHP API
Philips Softworks

Add a return channel: Interactive Broadcast
Interactive Broadcast MHP

Philips Navigator

Java™ Virtual Machine

Accelerator

Philips Digital TV Software Platform

MHP Class Libraries

Philips Hardware Drivers

and more...

MHP API

Return Channel
Philips Softworks

Get wired:
Internet Access
Internet Access MHP

use your imagination...

Philips Navigator

Java™ Virtual Machine

MHP Class Libraries

Internet Access Support

Philips Digital TV Software Platform

Philips Hardware Drivers

Return Channel
MHP Profiles

Enhanced Broadcast
MHP 1.1.x

+ smartcard API
+ application storage

+DVB-HTML option

Interactive Broadcast
MHP 1.1.x

+ smartcard API
+ application storage
+ xlet via http

+DVB-HTML option

Internet Access
MHP 1.1.x

+Java APIs to link to web/email

+Broadcast Transport Protocols: IP

+Web Browser and Email Client

+DVB-HTML option

Enhanced Broadcast
MHP 1.0.x

Java VM

DVB Java APIs

Media Formats: MPEG, GIF, JPG, PNG, etc

Broadcast Transport Protocols: DVB OC

Interactive Broadcast
MHP 1.0.x

+DVB Java API extensions for interactivity

+Interactive Transport Protocols inc IP

Media Formats: MPEG, GIF, JPG, PNG, etc
History of DVB

- The Digital Video Broadcasting industry forum was formed in September 1993
- Defined and Published Technical Standards based on MPEG2
- DVB harmonised the broadcast chain
- DVB evolved as fast as the market
- DVB started to reach maturity

The Strength of DVB - Solutions to Market Requirements
MHP was Born in 1996

- EBU and UNITEL encouraged the formation of the MHP Group
- 1996 saw the launch of the MHP Launching Group meetings in collaboration with key representatives from the High Level Strategy Group Industry).
- Requirements for standardisation and exploration for an appropriate framework
- DVB CM created outline for an ad-hoc group under the Commercial Module
- March 1997 – Sub group of the CM called DVB-MHP - Chairman – Georg Lütteke (Philips)
## Recent History

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
</table>
| 1997 | Oct: First DVB-TAM meeting  
       | OpenTV vs MHEG warfare |
| 1998 | July: DVB selects Java for MHP |
| 1999 | Jun: setback to Sun/DVB IPR talks  
       | DVB-HTML work started |
| 2000 | Jun: MHP 1.0 pub by ETSI |
| 2001 | Jan: MHP 1.0 Completed  
       | Jun: MHP legal details completed  
       | Jun: MHP 1.1 approved |
| 2002 | Feb: MHP 1.0.2 completed |
MHP Declaration of German Broadcasters & Media Authorities

- signed on 19 September by
  - public broadcasters: ARD, ZDF
  - private broadcasters: Bertelsmann Group, Kirch Group
  - media authorities of German Lands (regulators licensing private broadcasters)

- covering Free TV and Pay TV
- fast and coordinated migration to MHP
- to develop all new interactive added-value functions based on MHP
- to offer the first services in MHP standard by 01-07-2002
- to convert all existing interactive services to MHP within a limited period
MHP on the road

- **IFA Berlin August 2001**
  - 11 companies with receivers and middleware
  - 16 application / service providers

- **IBC Amsterdam September 2001**
  - 29 companies with MHP applications / services, equipment and middleware

- **Western Cable Show, Anaheim, CA**
  - Philips demonstrated MHP 1.0 to the cable industry

- **MHP was at MILIA 2002**
  - Milia aimed at interactive content companies
  - Many stands, strong support from Philips, Canal+ Technologies and OpenTV
Players - Specification

- Main participants in the writing of the specification.
  - Canal Plus Technologies
  - IRT
  - Microsoft
  - Nokia
  - OpenTV
  - Panasonic
  - Philips
  - Sony
  - Sun

- Specification was edited by Nick Birch of S&T.
MHP 1.0 Specification

Contents

- MHP 1.0 is not just Java & Java APIs
  - It defines all the bits in the TV signal for the box to receive

- Non-API contents include:
  - Transport protocols - broadcast & return channel
  - Content formats - video, audio, images, fonts, ....
  - Application model - rules for starting & stopping applications
  - Application signalling - support for application model rules
  - Security model - how to authenticate applications
  - Graphics reference model - how graphics & video go together
  - System integration - glue holding it all together
  - Minimum receiver requirements - remote control, graphics, ..
  - Profiles - see next slide
MHP Conformance
Conformance & System Testing

- Conformance testing
  - A formal / legalistic approach to testing that an MHP implementation is complete.
  - Simple tests of each really small part of the specification
  - Done though DVB.
  - Implementations required to pass to claim MHP logo

- System testing
  - Reliability testing
  - Testing the system in realistic usage models
  - Not part of DVB
  - Not required to claim the MHP logo
  - Part of the normal quality process for a product
Philips Softworks

A glimpse into the future
Interactive TV

MHP use of convergent technologies gives a richer consumer experience

Enhanced TV-centric content t-commerce

Internet Access Email - SMS – MMS e-commerce

Storage Timeshift technology PVR - PDR

Wifi – Bluetooth Ethernet – 1394 Home Networking

Audience Participation

Communication Peer-to-Peer

Consumer Control

Connectivity Broadband
MHP 1.1

- Mandatory extensions
  - Small extensions to profiles 1 & 2
    - Most helpful in DVB-T markets
      - Application download via HTTP
  - Webbrowser and e-mail client integrated
  - Full Broadcast transport protocol (IP)
  - ...

- Optional
  - Application Storage
  - DVB-HTML
MHP 1.1 Application

- MHP 1.0 lifecycle based on TV services

- MHP 1.1 extends this with "generalised" services
  - Not related to any broadcast TV services or content.
  - Logically considered as services from the point of view of the architecture and the APIs.
  - MHP navigators can offer these in the same service list as broadcast services.

- Some examples:
  - Locally stored applications in the box
  - Applications signalled over the return channel
  - Internet access applications - WWW browser, email client, ..
The Future

MHP is defined by and for the TV

- **MHP 2.0**
  - Mobile MHP
  - PVR

- **Co-operation with other standardisation bodies**
  - OSGI, Telecom, ..

- **OCAP**

- ......