MusicPhotoVideo Introduction

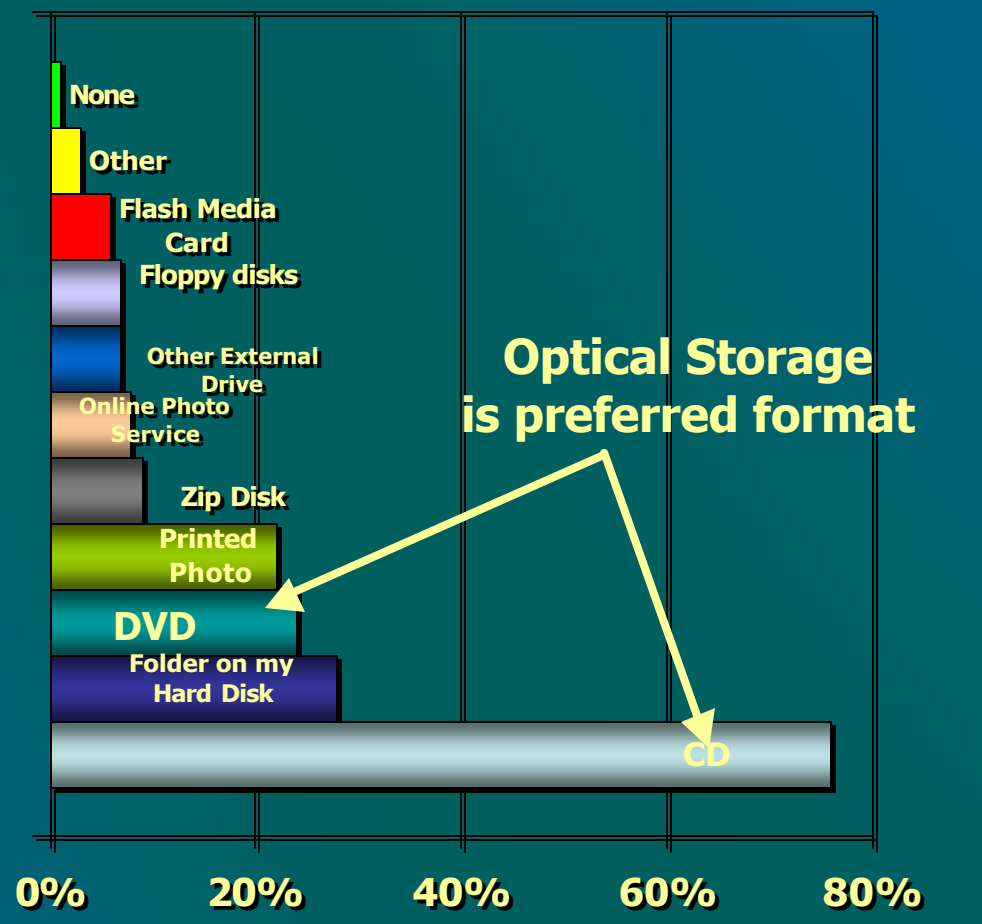
April 2005

About OSTA

- Incorporated in 1992 to promote the use of recordable optical technologies and products
  - Over 50 members including some of today's largest PC, CE, software and media manufacturers
- OSTA past contributions to optical technology
  - Universal Disk Format (UDF)
    - Adopted as the file system for DVD, CD-R/RW
  - Uniform Packet Writing
    - Common form of packet writing for CD-R made compatible multi-session recording possible
  - Multiread
    - Assures readability of CD-R and CD-RW discs on CD-ROM, CD-RW and DVD drives
    - Universally implemented by drive manufacturers
- OSTA is open -- all companies active in the optical recording industry are invited to join

Digital Content Explosion:
Digital photography takes off

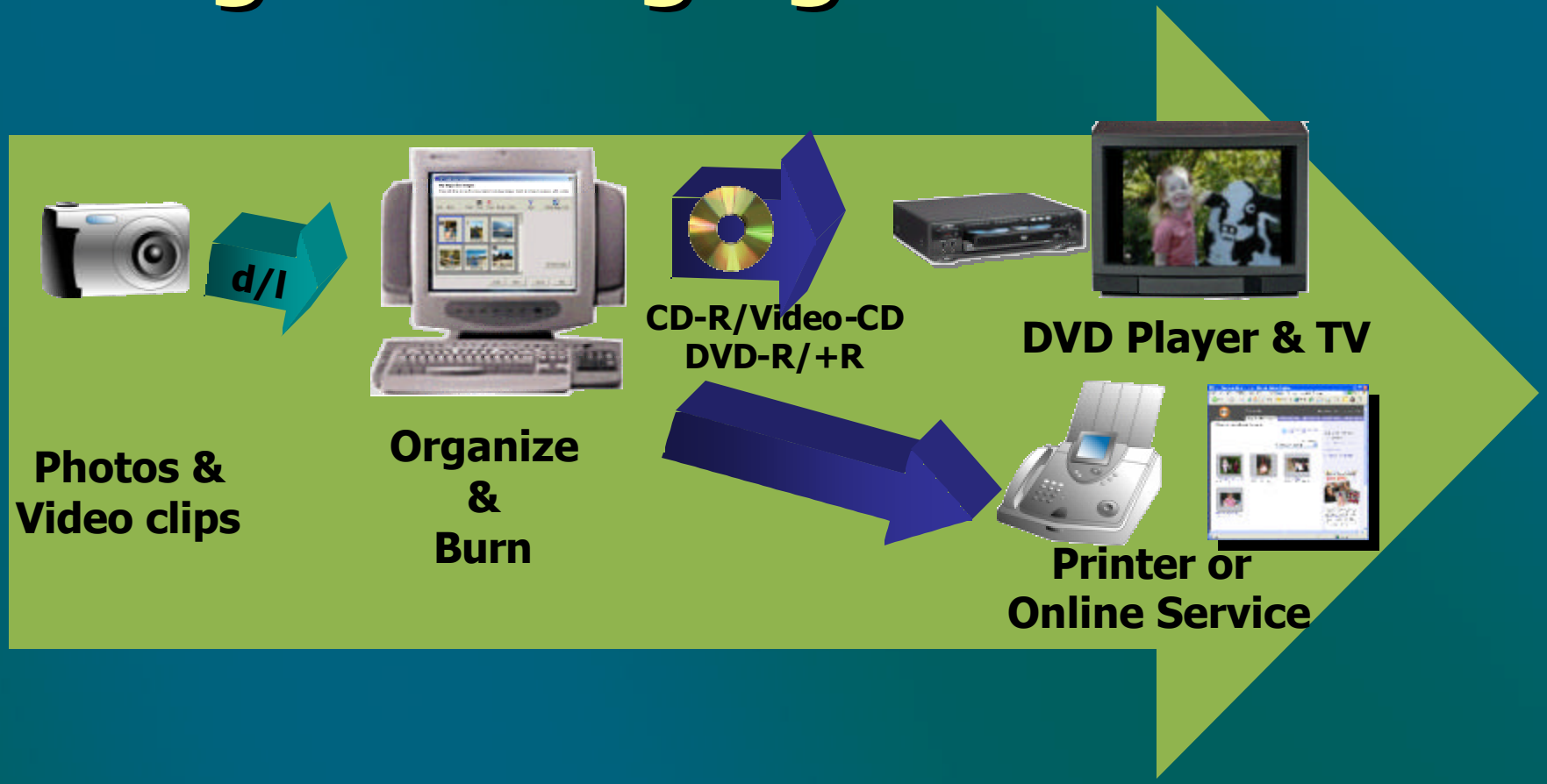
- Digital camera sales exceed 35mm camera sales in 2003
- Archiving precious memories is a top consumer concern
  - 76% of consumers think of archiving on CD
  - Easy access and retrieval from archives is also important
- Consumers organize their photos into collections but there is no standard way to interchange photo collections from computer to CE devices



Long Term Storage Plan for Digital Photos

Source: Infotrends' 9/04 Web-based US Home Printing Trends Survey

Digital Imaging in the Home



Interchange from PC to CE loses photos' metadata and the notion of "collection"

Camera Phone Market

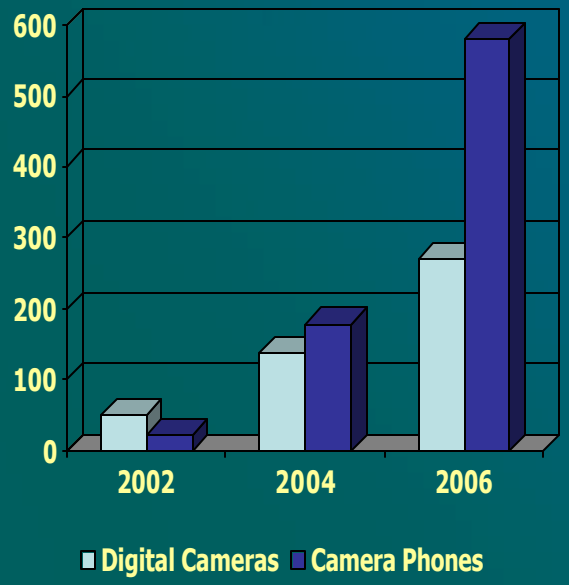
Dramatic Rise in Market Share

Keyboard allows for metadata entry

Phone to web

Phone to phone

Photo Sites & Blogs

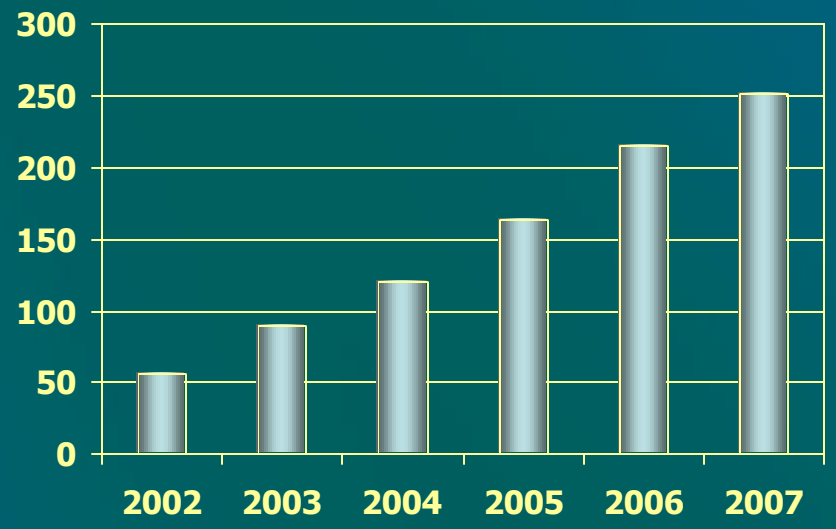


Source: Infotrends' 11/04 Worldwide Consumer Digital Camera Forecase Summary

Immediate Capture, Catalog and Share

Digital Content Explosion:
MP3 Everywhere

- PC is becoming the main storage device for music collections
  - Digitized personal collections
  - Online services
- Consumers want to play their music on <u>multiple</u> CE devices
  - Car stereos
  - Home stereo
  - DVD player
  - Portable jukeboxes



MP3 Player sales (all types – MU)

Source: IDC, WW & US Compressed Audio Player Forecast & Analysis 2002-2007, May 2003

Personal Music in the Home

Interchange from PC to CE loses notion of "playlists" and most music metadata

Video Content Proliferation

- Consumers will soon exhaust the hard disk drive space on their PVRs
  - Desire to archive on optical discs
  - Next generation PVRs have DVD recorder
- New devices for video capture and playback are reaching consumers
  - Many Camera phones record video
  - Portable Media Players

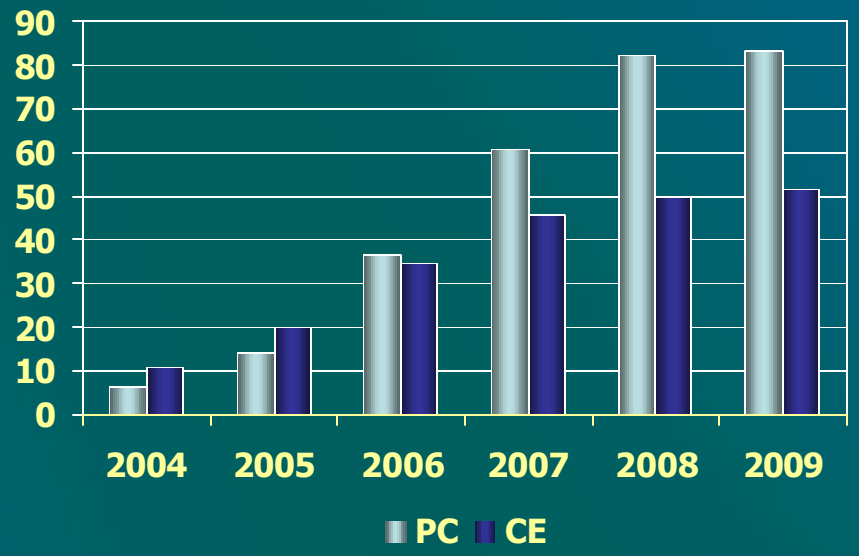
Archived TV Content

Customers will want easy access to their archived TV content

Digital Content Explosion:

Optical Storage transition from CD to DVD

- DVD burner sales take off in 2004
  - 10.7 MU of PC DVD burners
  - 40% of Home PCs ship with DVD recorder
  - <$100 for aftermarket drives (8X)
- <$1 per blank DVD disc (DVD-R)
- Consumer DVD recorders reaching mass market price
  - <$400 for brand name



DVD Burner Shipments (MU)

Source: Santa Clara Consulting Group, Mar. 2005

Consumers will be storing more photos & music files on every disc

Today's Experience
DVD-R/CD-R Playback on DVD Player

- Difficult to navigate
  - Truncated song names
  - Tree structure
  - No sorting
- Lengthy disc start-up
- No metadata
  - For photos: caption, date/time
  - For music: genre, duration, year, etc.

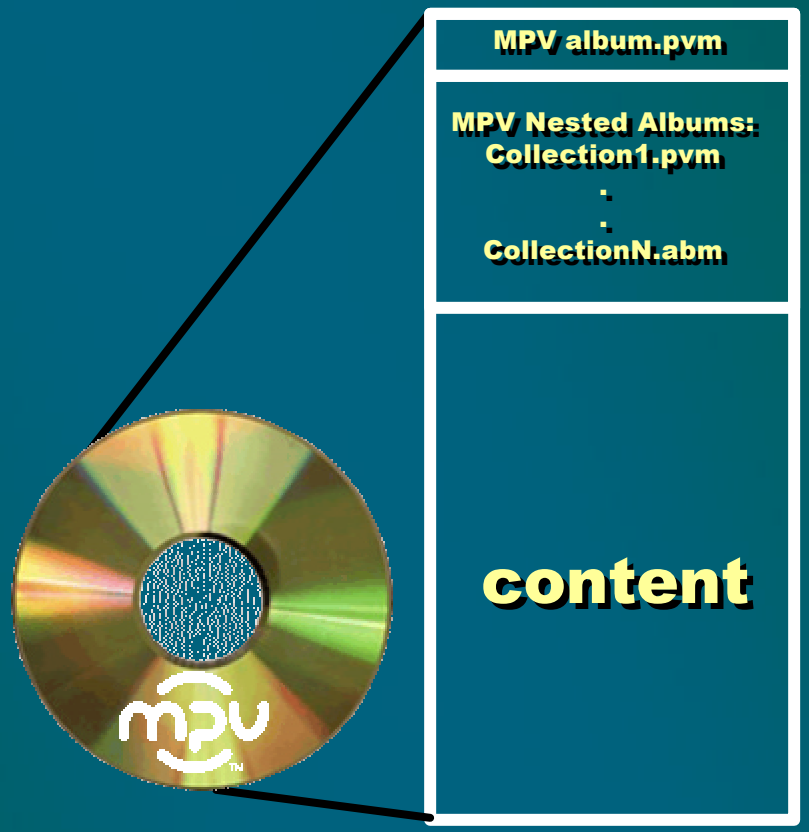
Unsatisfactory Consumer Experience

There is no <u>universal</u> way to represent collections of music, photo and video

MPV™ (MusicPhotoVideo)

A media management solution for the interchange of media collections

MPV Overview



- MPV is a XML-based "control" file(s) listing all the assets and their associated metadata
- MPV is based on a series of "profiles" each addressing a technology or media type
- Independent of storage technology
  - can be used on optical storage, flash memory, HDD, home network, client/server Internet transactions, etc.

MPV Enabled Products

- Guarantees a consistent and easy navigation
- Rapid startup
  - Single file to be read from disc or transferred along home network
- Rich metadata available

MPV Architecture

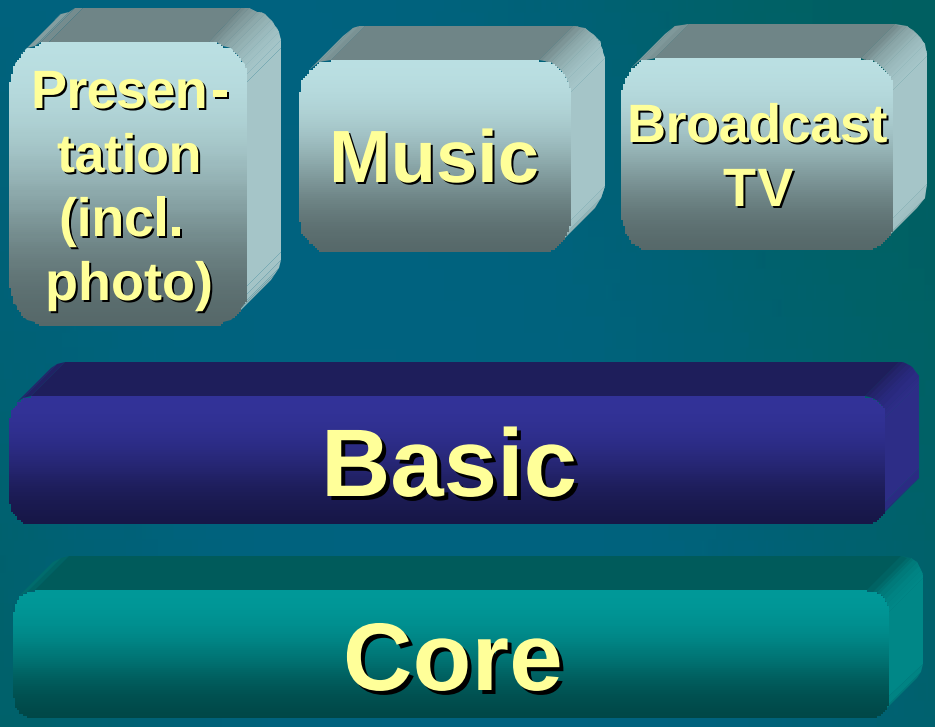
Guideline Specs

Device or Media -specific Profiles

Basic & Core Profiles

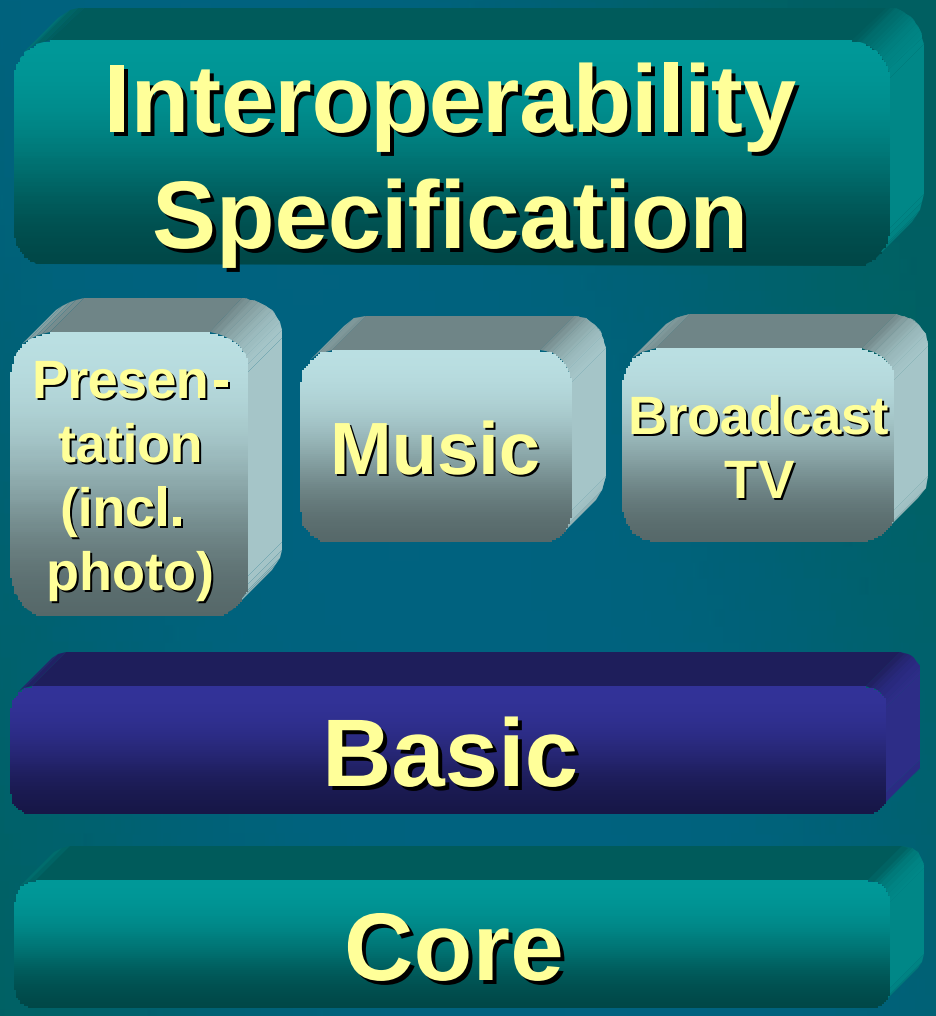
- Core and Basic profiles define the assets and album (or collections)
- Device or data type specific data profiles are built upon the Core & Basic
- Guideline Specifications define a narrow interpretation of profiles to solve a particular problem

Ratified MPV Profiles



- Core and Basic profiles define assets and albums
- Presentation Profile for screen display
  - Foreground, background
  - Enables slideshows with background music and audio annotations
- Music Profile describes collections of music files and their associated metadata (artist, genre, year, online info, etc.)
- Broadcast TV for video content on PVRs

Interoperability Specification



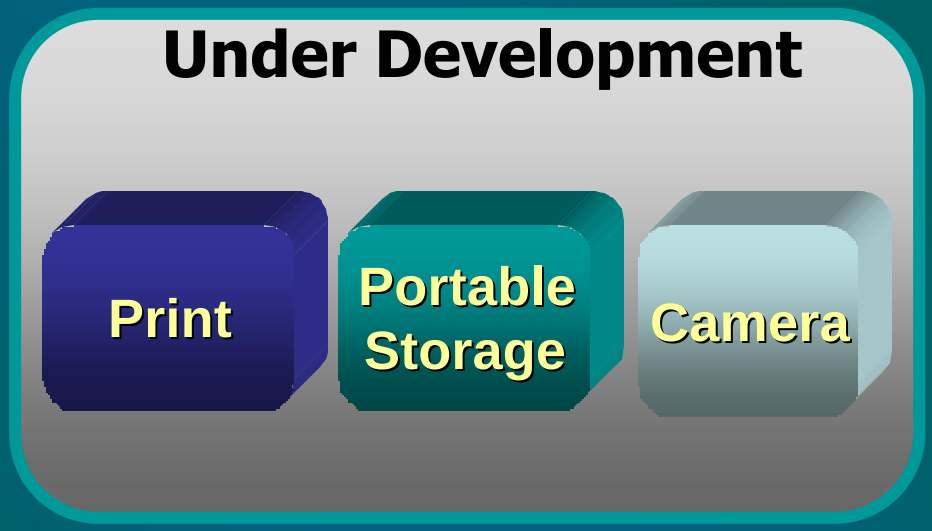
- Specification designed for interoperability on consumer electronics devices
  - Limited processing power
  - Limited memory
  - Maximized consumer experience
- Limits use of profiles to ensure proper exchange and interoperability
- Available via click-through license
  - Use in products requires full license agreement (ie, passing validation tests)

Interoperability
Licensing and Certification Program

- MPV-IS is a self-testing, self-certifying program
- *Validate*MPV!™ Validation Tool
  - Available from Software Architects, Inc.
  - Support for Windows, Linux and Mac
  - Command line interface
  - Automatically outputs a detailed report which refers to each MPV-IS requirement
  - Support for Windows, Mac and Linux
- One-time administrative licensing fee (no royalties)
  - $$ option 1 – one-time
  - $$ option 2 – per product

  Price still to be set by OSTA board at June meeting
- Trademarks and Logo
  - Use is optional but highly encouraged

Upcoming Profiles



- OSTA members are currently working on new profiles
- Upcoming Profiles
  - Portable storage for transfer of files (example: flash memory card) to PC (hard drive)
  - CE Playlists for enhanced playback of collections (multimedia slideshows, music playlists) on all devices
  - Digital Camera

New Interchange Enabled by MPV

PC-less

Printer & Online Service

UPnP

Wireless Media Adapter

MPV Adopters and Supporters

Adopters

Supporters

MPV Committee

Sub-committee or WG	Leadership	Company
MPV Committee Chair	Felix Nemirovsky	Chuba Consulting
MPV CORE Specifications	Pieter van Zee	HP
Camera WG	Kenji Ichimura	Olympus
Portable Storage WG	Po-Chieh Hung	Konica Minolta
Broadcast TV WG	Eric Shalkey	TV Guide On Screen
Interoperability WG	Youngyoon Kim	Samsung
Music WG	Raza Zaidi	Jadugar Consulting
Print WG	Fumio Nagasaka	Epson

MPV Adoption by Other Standards Bodies

- PASS Initiative
  - Picture Archiving and Sharing
  - An initiative by Kodak, Fuji and Konica/Minolta
  - Guarantees playback in DVD players of discs created by photo-finishing kiosks and services
- CEA R6WG11 Audiobooks
  - Advanced Metadata for books on CD

MPV™ Advantages

Open

- Developed in an open fashion by OSTA's participating members

Extensible

- Extensible to new technology areas
  - Portable storage and CE playlist profiles coming soon

Royalty-Free

- No royalties from OSTA
  - Minimal one-time administrative logo licensing fee

Expected MPV Products

	Acquire	Manage	Share/ Enjoy
Photo/ Video	Cameras Camera Phones Scanners Disc Mastering software	Photo Management Softwares	TVs Printers Online photo services PVRs DVD Players Wireless Media Adapters
Music	Online music services	Music jukebox software	Portable players

Developing for MPV

- Free SDK http://www.sourceforge.com/projects/mpvtools
  - ANSI C source code for basic reading and writing of MPV
  - Sample playback routing written in DHTML and Javascript (for IE6.0 only)
  - Expat XML parser

	Factor	Company/Project
Development time	2 weeks	Olympus Camera firmware
MIPS	58.1 (vs. 94.5 for JPEG CD)	Samsung DVD Player – MPV Photo "Play Slideshow" routine
Memory Footprint	54KB (compressed)	Samsung DVD Player – MPV Music and Photo including XML parser and formatter

- No additional hardware required
  - MIPS requirements are comparable or even lower than standard JPEG playback
  - Small Memory footprint
- Time to market – short development time to add MPV to CE devices

Summary

- MPV provides a universal way to interchange collections of photos, video and music
- MPV is easy to implement and being adopted by many of today's leading PC and CE manufacturers
- MPV is open, extensible and royalty-free from OSTA