TV Track Kickoff Session

Bill Sheppard

Chief Digital Media Officer
Client Software Group
Sun Microsytems, Inc.

TS-5723

Welcome and Comments

Today's Agenda

Time	Code	Session	Speakers
10:55 - 11:55	TS-0011	**OCAP: Summary of Technical Features and APIs**	Kevin Flanagan, CableLabs / Labeeb Ismail, Comcast Cable
11:55 - 1:30		Lunch	
1:30 - 2:30	TS-0697	**Java Technology for Interactive TV: Developing and Deploying Effective OCAP Applications**	Anne Dirkse, Vidiom Systems
2:50 - 3:50	TS-5931	**OCAP Roadmap and Future Interactive Services on Cable TV**	Frank Sandoval, CableLabs / Michael Lobb, TVWorks / Mark Jensen, Cox Communications
4:10 - 5:10	TS-0887	**Producing Blu-Ray Java Software Titles for Hollywood**	Bill Foote, Sun Microsystems, Inc. / Michael Zink, Technicolor / Philip Starner, Javelin Ventures / Kyle Prestenbeck, Walt Disney
6:35 - 7:35	TS-5894	**The Role of Java Technology in IPTV**	John Allen, Digisoft TV
7:55 - 8:45	BOF-0889	**Talk to the Stars: A Discussion of Blu-Ray Java Technology**	Bill Foote, Sun Microsystems, Inc. / Michael Zink, Technicolor / Philip Starner, Javelin Ventures / Kyle Prestenbeck, Walt Disney
8:55 - 9:45	BOF-5724	**TV Technology Q&A**	Bill Foote, Sun Microsystems, Inc. / Michael Zink, Technicolor / Bill Sheppard, Sun Microsystems / Kevin Flanagan, CableLabs / Michael Zink, Technicolor / John Allen, Digisoft

Session Agenda

- ## Introduction to OpenCable
  - ### So Vang, CableLabs

- ## Cable Industry's OCAP Status
  - ### Phil Won, Time Warner Cable

- ## Hollywood Studios and Blu-ray Disc Interactivity using BD-J
  - ### Sumit Malik, Sony Pictures Entertainment

Introduction to OpenCable

So Vang

Vice President
Advanced Media Platforms CableLabs

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OpenCable Goals

- Encourage set-top supplier diversity
- Enable retail Cable compatible products
- Enable third-party application developers
- Leverage existing standards and technologies

Integration Ban

- Telecom Act of '96—Commercial availability of set-top boxes
- FCC rules in '98—Ban on "integrated Security"
  - Cable Operators must include CableCARDs in *leased* devices
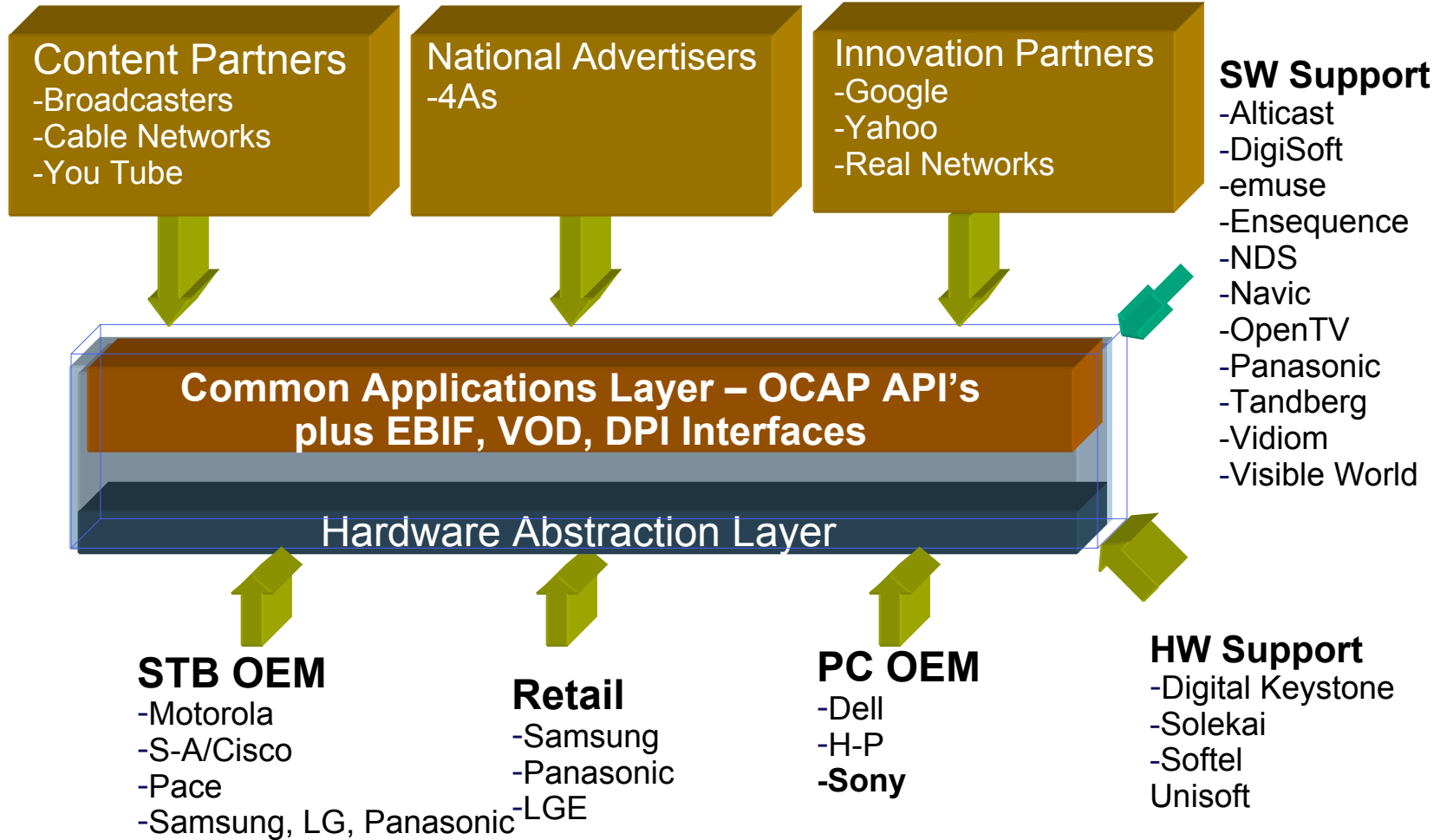
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OpenCable Evolution
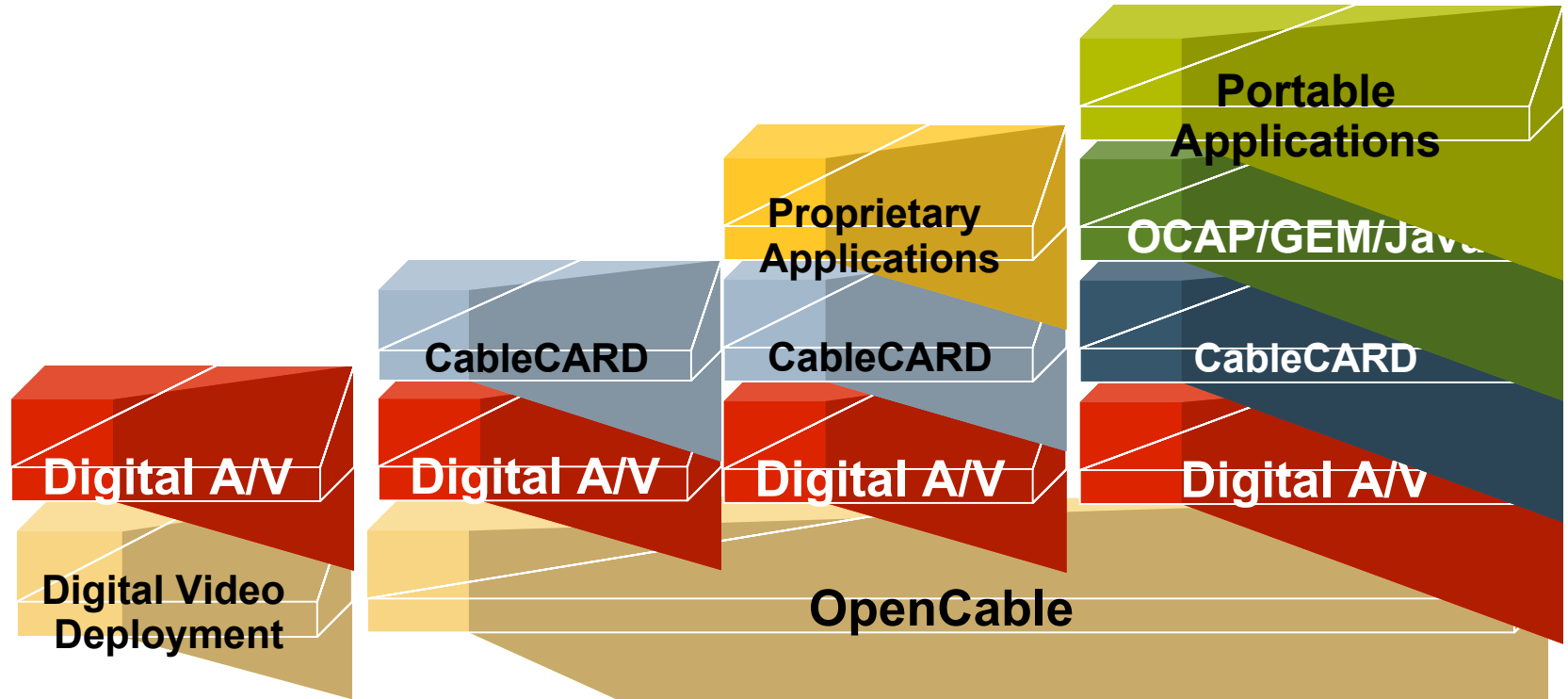
Where Is OCAP Today?

- US market
  - Cable operators have begun OCAP rollout
  - Cable industry to be fully OCAP ready by end 2008

- South Korea
  - Started OCAP deployment 2005
  - 420,000 devices deployed and growing

- Europe MHP deployment
  - Italy
  - Belgium

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Cable Platform Ecosystem

Content Partners
-Broadcasters
-Cable Networks
-You Tube

National Advertisers
-4As

Innovation Partners
-Google
-Yahoo
-Real Networks

SW Support
-Alticast
-DigiSoft
-emuse
-Ensequence
-NDS
-Navic
-OpenTV
-Panasonic
-Tandberg
-Vidiom
-Visible World

Common Applications Layer – OCAP API's plus EBIF, VOD, DPI Interfaces

Hardware Abstraction Layer

STB OEM
-Motorola
-S-A/Cisco
-Pace
-Samsung, LG, Panasonic

Retail
-Samsung
-Panasonic
-LGE

PC OEM
-Dell
-H-P
-Sony

HW Support
-Digital Keystone
-Solekai
-Softel
Unisoft

OCAP Support Resources

- OCAP developer community
  - www.opencable.com/ocap
  - www.opencable.com/etv
  - www.opencable.com
  - www.cablelabs.com

- OCAP developer conferences

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Cable Industry's OCAP Status

Phil Won

Sr. Director Strategy and Development
Time Warner Cable

Cable Industry's OCAP Status
Where we are and where we are going

Cable industry's plan for Java™ technology and the opportunities presented for application developers and programmers.

Agenda

Cable industry at a glance

Java TV™, Again!?! What's different this time

Time Warner Cable's Java technology strategy

Interactive services for Cable

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Cable Industry Statistics

US TV Households (12/06)[1]	111,600,000
Homes Passed by Cable (12/06)[1]	112,600,000
Basic Cable Subscribers (12/06)[1]	65,600,000
Cable Headends (3/07)[2]	8,360
Annual Cable Revenue ('07 estimate)[1]	$74.7 billion
Total Advertising Revenue ('07 estimate)[1]	$26.9 billion

Source: [1] Kagan Research LLC
[2] A.C. Nielsen Media Research
from the NCTA website

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Top MSOs

	Subscribers
Comcast Cable Communications	24,161,000
Time Warner Cable	13,402,000
Charter Communications	5,398,900
Cox Communications	5,395,100
Cablevision Systems	3,127,000
Bright House Networks LLC	2,307,400

Source: Kagan Research LLC
from the NCTA website

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Many Failed iTV Efforts in the Past

What's different this time?

- MSOs are committed to rollout of OCAP

- Device manufacturers' hardware economics make sense

- Retail availability of OCAP devices

- Competitive forces driving interactive services
  - Interactive advertising presents attractive opportunities

- Content partners are already invested in interactive initiatives on multiple platforms

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TWC's OCAP Strategy

OCAP/Java technology is a strategic solution for TWC

- TWC Digital Navigator is a Java application and will be deployed to all divisions

- Starting this month,all future STB purchases will be OCAP capable boxes

- A significant percentage of our divisions will have deployed OCAP by EOY '07

- We are working with Samsung on support policies for retail OCAP devices

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TWC OCAP Status

Beginning of the rollout

- ## TWC Digital Navigator and applications
  - TWC Digital Navigator is being beta tested on SA and Samsung boxes and has begun initial testing on Motorola boxes
  - Third-party applications are undergoing verification testing
  - New OCAP-specific applications will be developed

- ## Set-top Boxes
  - Divisions are placing orders for OCAP boxes and some boxes are already in inventory
  - Vendors for OCAP remote control units have been selected and have manufactured units available

TWC OCAP Status

- Set-top Boxes
  - Full line up of TWC boxes will be OCAP including:
    - DVR boxes
    - HD as well as SD
  - Still not a PC
    - Have to be mindful of hardware resources
    - Performance optimization

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Interactive Services

Direction of future services with OCAP

Initial efforts will be to reach parity on legacy interactive services

- OCAP EPG (Electronic Programming Guide) options are now available to MSOs
    - TWC has devoted resources to internally develop its own EPG

- Unique Java language-based OCAP applications will be developed to take advantage of the OCAP host hardware

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Interactive Services

Direction of future services with OCAP

Interactive advertising is a promising field

- Advertisers are interested in the possible benefits of interactive advertisement on TV

- Applications that can leverage the benefits of cable's multiple offerings

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Interactive Services

Porting legacy applications to OCAP

Interactive Services
TWC Digital Navigator

Hollywood Studios and Blu-ray Disc Interactivity Using BD-J

Sumit Malik

Executive Director
Advanced Technology
Sony Pictures Entertainment

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Hollywood Studios and Blu-ray Disc Interactivity Using BD-J

An Introduction to the Blu-ray platform, a brief overview of the BD-J framework, and a sampling of BD-J content.

Agenda

Companies, Players, and Titles

The Blu-ray Disc Platform

BD-J Mode

Developing BD-J Code

Use Cases

Demo

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Content and Hardware Support

Blu-ray Players, PCs, and Drives

… and others

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BD-J Titles
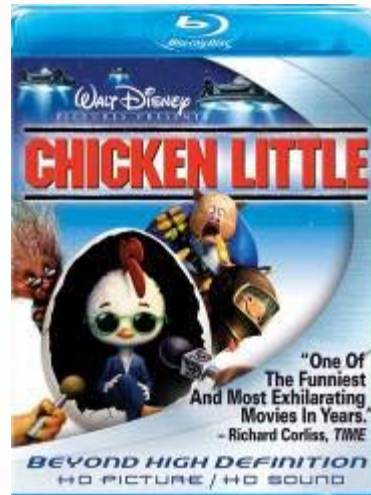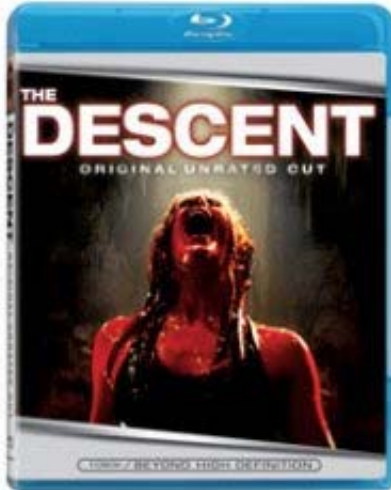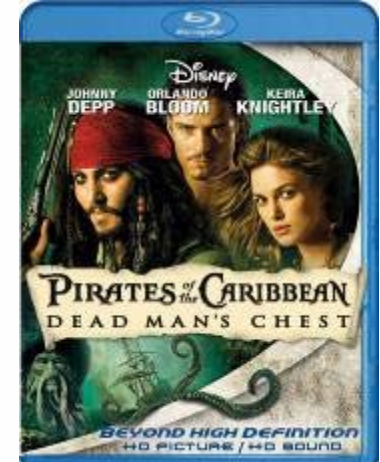
Market Situation

- YTD sales are 766,864 units, representing a 15:7 ratio vs. HD-DVD

- Cumulative sales stand at just over 1.06 million units

- Of the Top 25 High Def Titles for 2007 YTD, 22 are BD

Total Next Generation Disc Market
Weekly Sales Volume

HD-DVD   BLU-RAY
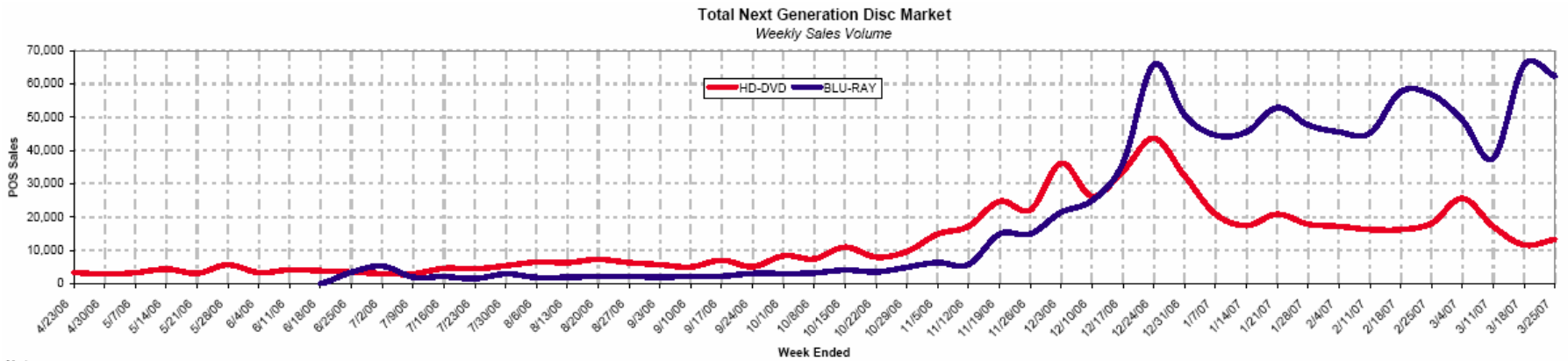
Note:
POS totals are based on All A.C. Nielsen VideoScan reporting channels which excludes some retailers including Wal*Mart.

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Companies, Players, and Titles

The Blu-ray Disc Platform

BD-J Mode

Developing BD-J Code
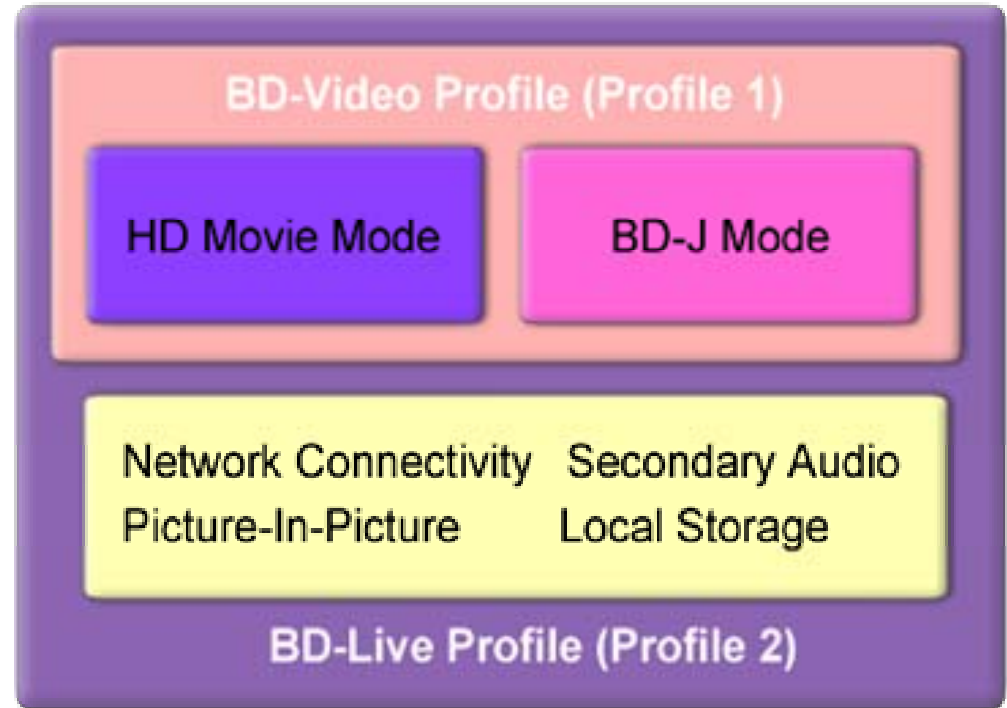
Use Cases

Demo

The Blu-ray Disc Platform

- The most powerful packaged media platform ever made
  - HD video, Great audio
  - Full Color graphics
  - Local Storage, Network Connectivity
  - 50GB of capacity

- Fully programmable Java-based virtual machine

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Profiles and Capabilities

- Multiple profiles
  - BD-Video
  - BD-Live
  - Audio-Only
- Two Modes of Presentation
  - HD Movie Mode
  - BD-J Mode
- Seamless to the viewer

*BD-J is available in ALL Blu-ray players

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Before BD-J There Was Movie Mode

- Blu-ray Movie Mode makes significant advancements over the legacy format capabilities

Blu-ray BD-J Mode

- GUI Framework and 32-bit graphics
- Network Connectivity
- Local storage
- Audio mixing
- Java Security
- Picture-In-Picture
- Multi-disc applications

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GUI Framework and 32-Bit Graphics

- 1920x1080 32-bit graphics plane

- Alpha-blended with video plane

- 45.5 megabytes of image memory in BD-Video profile

- Ability to use PNGs, JPGs, and GIFs

- GUI framework is not a desktop GUI framework like Swing or AWT but more like HAVi

- Mechanisms for remote control navigation

- Background Device, a Video Device, and a Graphics Device

Network Connectivity

- BD-Live players mandate network support
- Download of multimedia content and BD-J apps
- Progressive downloads technology for instant playback
- Support of JSSE for e-commerce

Internet Server

BD-ROM
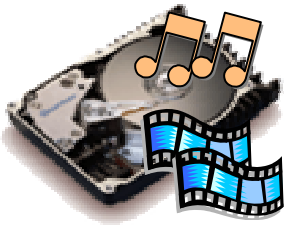
Local Storage

- Download and store additional content
- Save bookmarks, scores and personalization data
- Virtual package mechanism binds disc and HDD
- Supports removable media, flash, or HDD
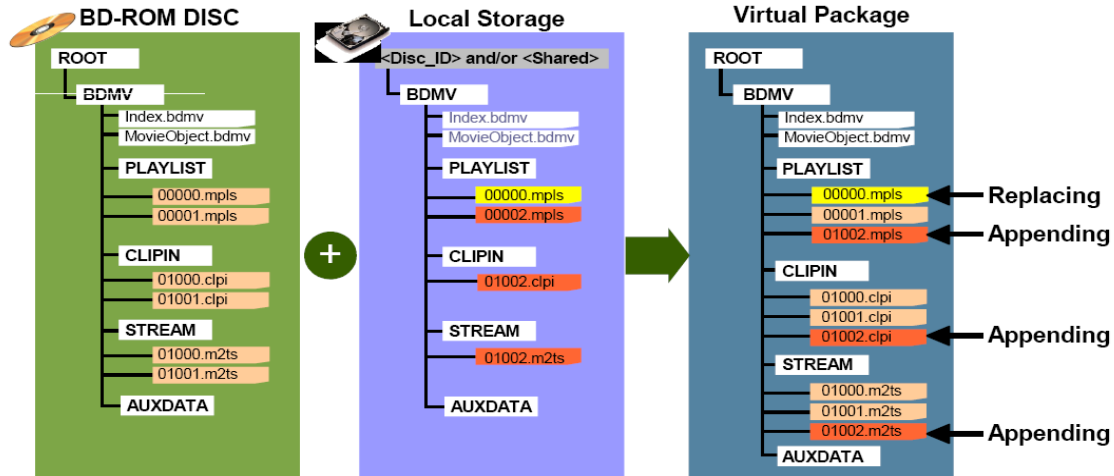
Audio Mixing

Secondary Audio		
	DD+	DTS-HD (LBR)
Sampling	48kHz	48 kHz
Channel	5.1	5.1
Bit Rate	256Kbps	256Kbps

- Secondary Audio
  - Provides the ability to mix two independent audio streams such as primary dialog and director's commentary

- Interactive Audio
  - Can play up to 8 simultaneous sounds for games

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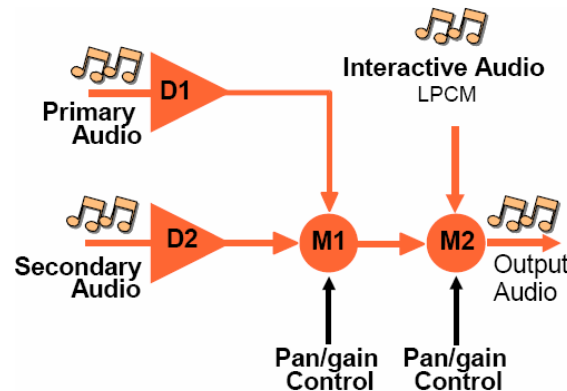
Java Security

- Access control for device resources
- Credentials for local storage management
 - Permission Request Files
- Java Archive (JAR) Signing

Picture-in-Picture

- Dual decoders for simultaneous playback
- Synchronous and Asynchronous PiP
- Adjustable position and size
- Luma-key ability
- Secondary audio and subtitles linked to PiP

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Multi-Disc Application Lifecycle

- Application lifecycle can span multiple discs
- Enables multi-disc scenarios such as TV series, sequels, and trilogies
- Themed UI between discs—No player logo
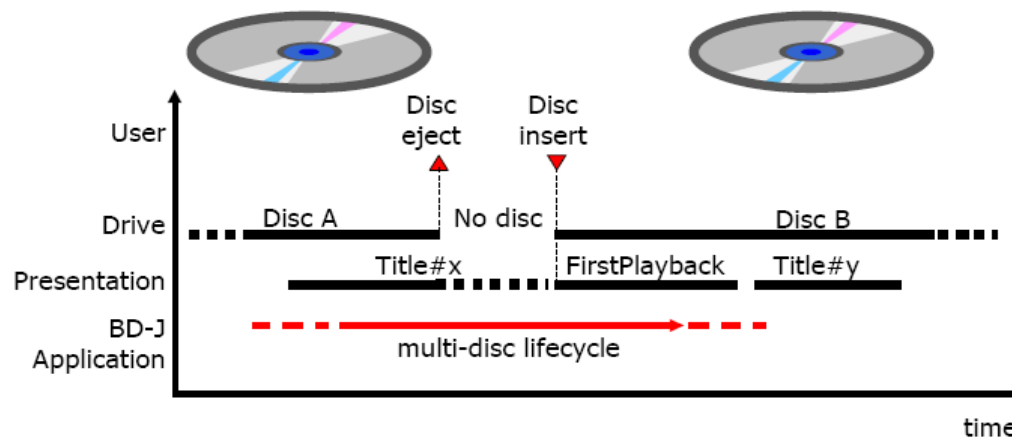
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Developing BD-J Code

- Guideline Book for authors
- Sample code
- Stubs
- Public Disclosure of BD-J related information
- Creation of BD-ROM Part 3 V3 that supports HDMV and BD-J on BD-R/RE
- Blu-Dahlia

Authoring Tools

- HDMV Authoring
  - Sony Pictures Blu-print
  - Sonic Scenarist

- Upcoming BD-J Tools
  - Blu-print BD-J libraries
  - Sonic BD-J tools
  - Ensequence On-Q
  - DoStudio—DVD One Studio
  - Others

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Companies, Players, and Titles

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Use Cases

- Menus
- In-movie interactivity
- Games
- Persistence of information
- Dynamic content
- Downloading content
  - Subtitles
  - Audio commentaries
  - Games
- Network-based Scenarios
  - Synchronized live events
  - Community-based shared experiences

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Menus—Open Season

Menus—Big Fish

Blu-ray BD-J Games—xXx Pinball

Blu-ray BD-J Games—Stealth Raptor

Blu-ray BD-J Games—KFH Puzzle

DEMO

Live demo of BD-J

Next Steps

- The Java developer community is encouraged to explore this new format

- There is a growing demand for content authors

- All the studios are extremely eager to release more BD-J content

http://www.sony.com/bluray
http://www.sonypictures.com/homevideo/bluray/

Q&A

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