NOTE

- This presentation was held at the DVB World conference 2006 and addresses a wider range of MHP in general.
- Reference to the work on Test Suites is made on slides 11-15.

Roadmap for MHP and Related Technologies

Contents

- Today's specifications
  - MHP 1.1.2
  - PDR/PDR/DVR
  - GEM terminal specifications : OCAP, ACAP, Blu-ray
- Receiver test suites
- Tomorrow's specifications ?
  - MHP for IPTV
  - Conditional access API
  - MHP for mobile applications
  - MHP & Home networking ????
  - Hybrid devices

MHP 1.1

- Much of original MHP 1.1 was features not important enough to make MHP 1.0.
  - Hence low interest in implementation
- MHP 1.1.2 adds new features
  - HD
  - “drop call” tele-voting
  - Better scalability – e.g. multiple tuners
  - Return channel authentication with smart cards
- Implementers known to be working on 1.1.2
  - Deployment announced with Telenet in Belgium
  - Adopted by Austrian DTT draft specification with ORS
  - Partial implementation in Italy

PVR / PDR / DVR

- Really 3 separate DVB specifications;
  - Common part with OCAP DVR specification
    - Most advanced, contributions from OCAP implementers
  - DVB specific extensions
    - Known to be implementations in progress
  - Access to TV-Anytime content referencing & metadata
    - Partial prototypes known to exist
- Expect the first two to evolve in the next year
  - Bug fixes
  - Small functional additions needed to fill gaps

OCAP Deployments

- Deployments start in named US cities in 2006
  - Comcast: Philadelphia; Denver; Union, NJ; and Boston
  - Time-Warner Cable: New York City; Milwaukee; Green Bay; Lincoln, NE; and Waco, TX
  - Manufacturers include Panasonic, Samsung, LG
  - Mostly HD-PVR STBs
- OCAP inter-operability events continue
  - Additional manufacturers & implementers involved; e.g. ADB, Alticast, NDS, Motorola, Osmosys, Pace, Pioneer, Scientific-Atlanta, Vidiom
- Also being deployed in Korea

OCAP Specifications

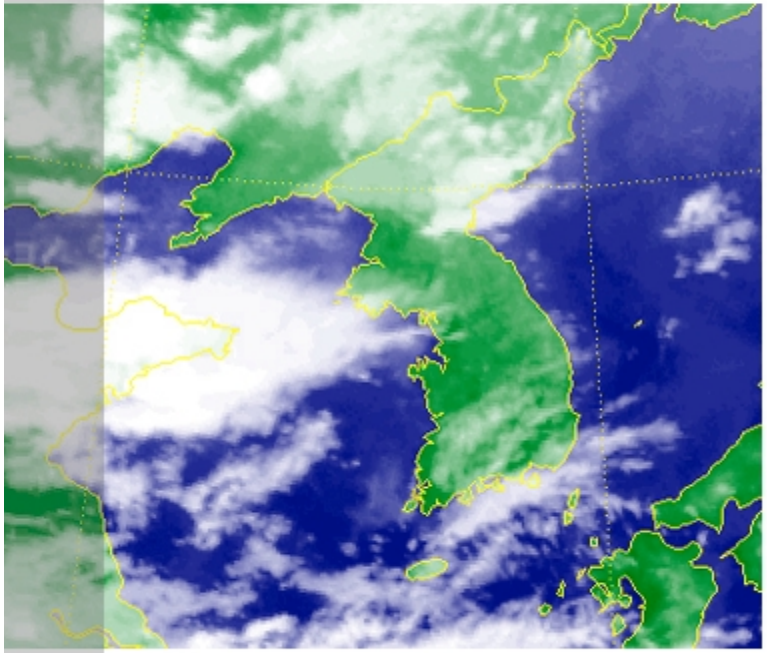
- OCAP 1.0 based on MHP 1.0 via GEM 1.0
  - Work in progress on a GEM 1.1 based on MHP 1.1
  - Will enable an OCAP 1.1
- OCAP also has extensions
  - DVR extension most well mature
  - Home Networking extension specification published
  - Other smaller extensions exist
- One source of future OCAP changes may be negotiations between CE & cable industries
  - Reports to FCC mention a joint group on technical issues with integrating OCAP in multi-function devices

ACAP

- USA
  - No real market interest in terrestrial interactive TV yet
- Korea
  - Receivers and applications exist
  - Inter-operability events have happened
- Mexico
  - Trials between broadcaster and Korean companies

날씨정보

날씨뉴스 | 간추린날씨 | 기상특보



4일(수) 12시 예보

오늘 중부지방은 가끔 구름이 많이 끼는 가운데 한때 비가 오는 곳이 있겠고 남부지방은 맑은 뒤 차차 구름이 많이 끼겠습니다. 또 영동지방에서는 바람이 강하게 불겠고, 낮 최고기온은 서울 13도 등 전국이 13도에서 20도로 어제와 같거나 조금 높겠습니다. 바다의 물결은 폭풍주의보가 내려진 서해중부와 동해중부 전해상에서 2에서 4미터로 높게 일겠습니다.

Blu-ray

- Many blu-ray players & discs announced at CES in January
  - Players : Panasonic, Philips, Pioneer, Samsung, Sony
  - Discs : Sony, Paramount, Fox, Lionsgate
- Interactive component based on MHP 1.0
  - “packaged media” target added to GEM 1.0
    - A subset of the GEM “broadcast” target
- Focus of BDA is on products & content not on technology evolution
  - DVB expects input from BDA to be bug fixes not requests for changes

Receiver Test Suites

Background

- Receiver test suites key to inter-operability between different MHP implementations
  - Broadcasters & developers benefit directly from reduced testing costs
  - Manufacturers benefit less directly
    - More / better content / applications
    - Fewer support calls from developers
- Current non-Sun MHP test suites cost millions
  - Many more organizations benefit than contribute
  - EU support via IST project “MHP Confidence”

Receiver Test Suites – MHP 1.0.3

- MHP 1.0.3 test suite completed November 2005
- Non-Sun tests increase from 3738 to 5305 tests
  - From the EU IST “MHP Confidence” project / MHP Test Consortium (“MTC”)
  - Focussed on areas where inter-operability problems were found in the market
- Not yet distributed due to non-finalised licensing terms for MTC portion
  - MTC goal is to share part of the costs of creating tests with those who benefit but have not contributed
  - Expected to carry a 10K Euro fee

Receiver Test Suites – MHP 1.1.2

- Sun tests
  - Substantial improvement in test coverage expected
    - Sun learnt a lot about test suites since the ancestor of the 1.0.3 test suite was made
  - New licensing arrangements passed legal review
- Non-Sun tests
  - Test spec. delivered to MTC late 2005
  - Focusses on important features for the market
    - Does not address optional features – DVB-HTML
    - Does not address more esoteric mandatory features
  - Contracts for test development being placed right now
  - Test suite release likely before end 2006
    - If not addressing some mandatory features is okay

Receiver Test Suites – PVR

- Test spec. currently in review in MTC
  - Covers “common core” with OCAP
  - Covers DVB specific extensions
  - Does not over TV-Anytime metadata & content referencing
- Contracts for test development placed soon
- Test development & review will take some time
  - Requires implementations so chasing moving targets will slow things down for a while
- Too early to predict test suite release date

Tomorrows Specifications

MHP for IPTV (1)

- Extension to MHP 1.1.2 so applications can
  - Discover IPTV content
  - Present & control IPTV content
- Targets 2 kinds of devices
  - Hybrid devices supporting both IPTV & classic DVB
    - e.g. DVB-T + IPTV
  - Pure IPTV devices
- Technical work just starting in DVB
  - Too early to predict specification completion
  - What follows is a guess of what could result

MHP for IPTV (2)

- Existing MHP 1.0 APIs extended as follows
  - JavaTV service information API supports listing IPTV services
  - Media presentation APIs support presenting IPTV services including any service bound applications
- May be OCAP-style “unbound applications”
  - Ease permanently running operator EPGs & portals
  - Many complex issues to address for this
- Profile using DVB IPTV protocols expected
  - May be other profiles enabling use of non-DVB IPTV protocols or in totally non-DVB environments
  - May re-use parts of PVR API for access to TV-Anytime based “Broadband Content Guide”

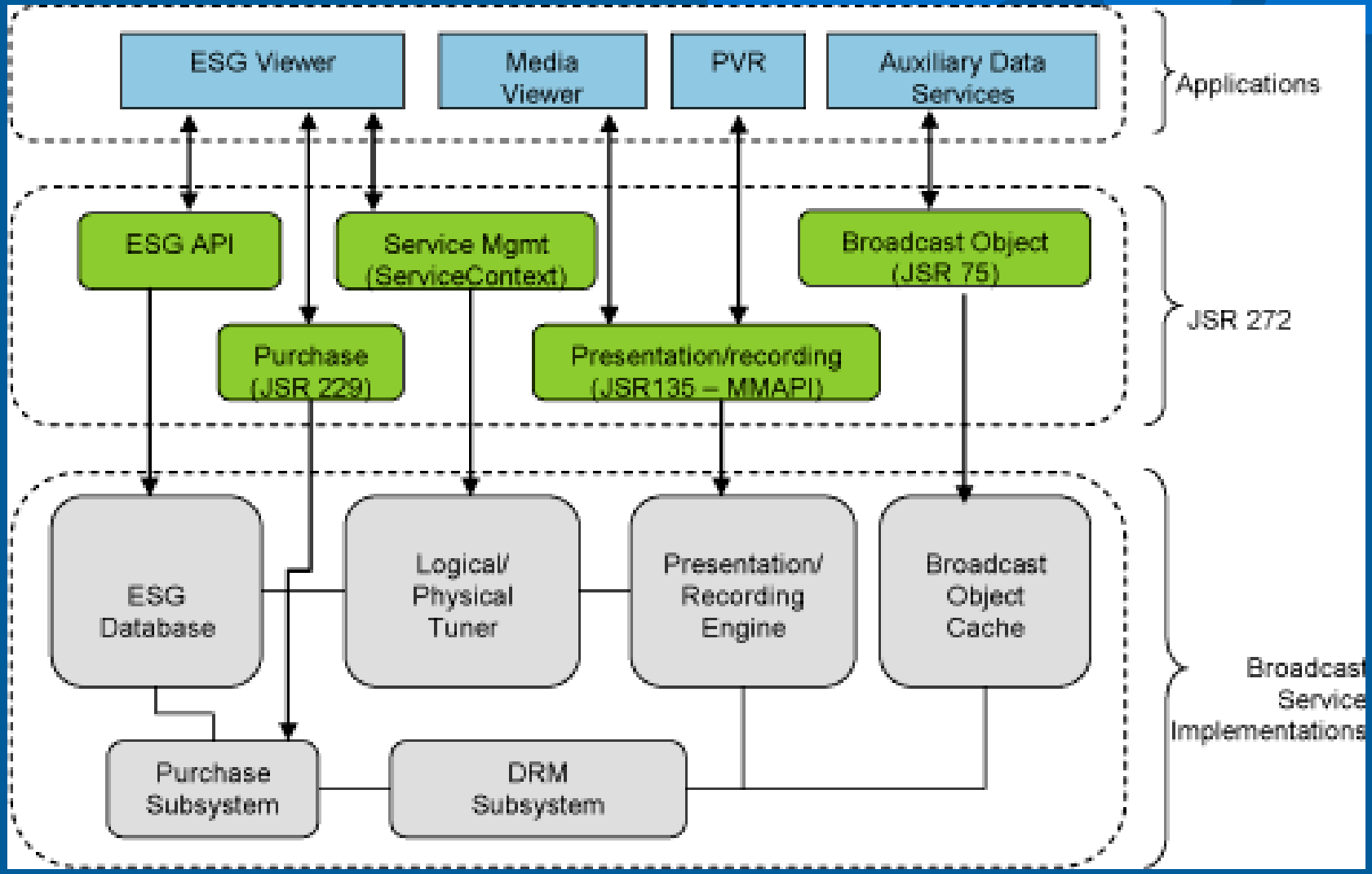
New Conditional Access API

- Commercial requirements just approved
  - Will enable innovative CA applications
    - pre-paid accounts, pay per event, pay per time, short duration subscription (one evening…), pay per bundle
- Existing CA API has drawbacks
  - Features limited by common interface protocol
  - Not widely used & not covered by conformance tests
- New API will avoid some of these drawbacks
  - Will not be limited by common interface
  - De-facto solution in Italian market has been proposed

MHP for Mobile Applications ??

- May never exist
  - Java APIs for mobile TV in mobile phones will be defined by same process as other Java APIs for mobile phones - JCP
- JSR-272 "Mobile Broadcast Service API for Handheld Terminals”
  - Particpants are a wide mixture of global operators, handset vendors and technology suppliers
  - First public draft now available for review
    - Includes features ESG, payment,media presentation & broadcast data
    - Open for public review until March 19th

JSR-272


ESG Viewer
Media Viewer
PVR
Auxiliary Data Services
Applications
ESG API
Service Mgmt (ServiceContext)
Broadcast Object (JSR 75)
Purchase (JSR 229)
Presentation/recording (JSR135 – MMAPI)
JSR 272
ESG Database
Logical/ Physical Tuner
Presentation/ Recording Engine
Broadcast Object Cache
Purchase Subsystem
DRM Subsystem
Broadcast Service Implementations

MHP & Home Networking ??

- CableLabs have a home networking extension for OCAP
  - Operator applications can discover & present content found elsewhere in the home network
    - Only supports presentation of HN content on OCAP STB
    - Does not address presentation of cable content on other HN devices
  - In theory, independent of protocol
    - In practice, only UPnP defined
- Unclear if there are commercial requirements for something similar in DVB
  - Not obvious how broadcaster applications would use home networking

Hybrid Devices

- A possibly interesting convergence is MHP+Blu-ray or OCAP+Blu-ray
  - Single device supporting both HD broadcast & HD optical content
  - Single software stack can probably support simultaneously Blu-ray and either MHP or OCAP
  - Might be opportunity for hybrid applications mixing content from broadcast & from optical disc
- Commercial requirements unclear
  - Blu-ray people have higher priorities right now
  - Broadcast content on optical disc is not a major driver for Blu-ray
- Could be interesting IP & compliance issues

Thank You