

Digital Signage & Digital TV Out Of Home (DOOH)



Plan



1. Digital Signage : Market and use case

2. About Innes

3. Technologies and Standards



MARKET

Market access



3 large segments

Broadcast

Institutional

Mass Market

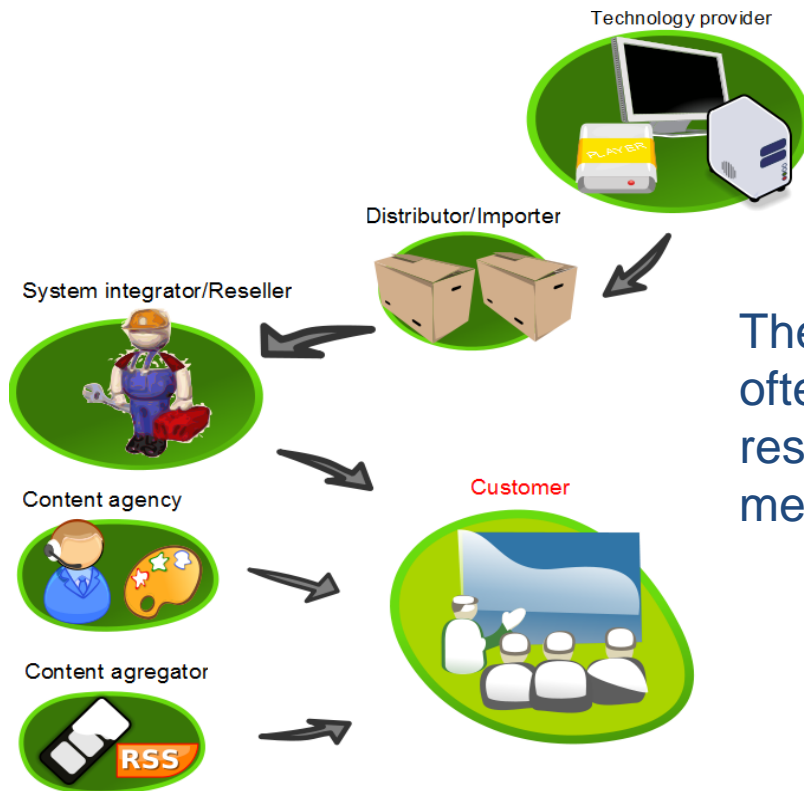


3 main sectors :

- Point of wait,
- Point of sale,
- Point of transit,

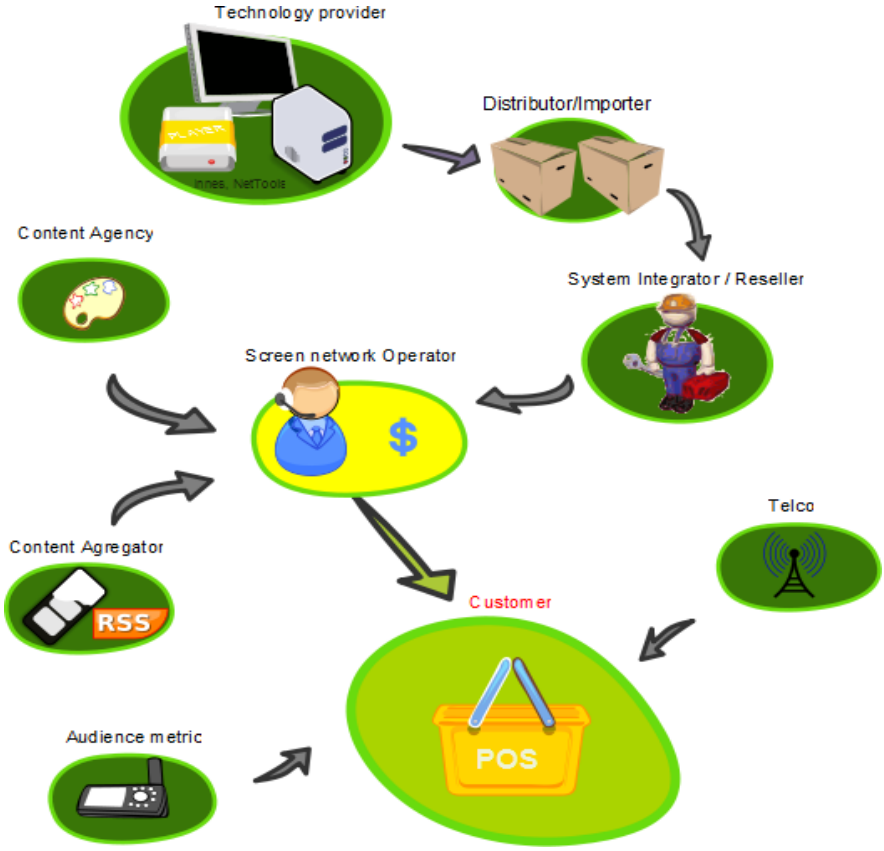
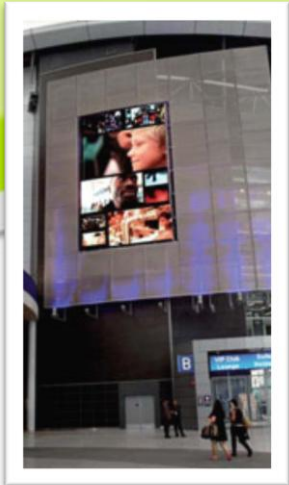
PRICE

Point of Wait: Corporate, Education, Hospitality, Healthcare, Banking



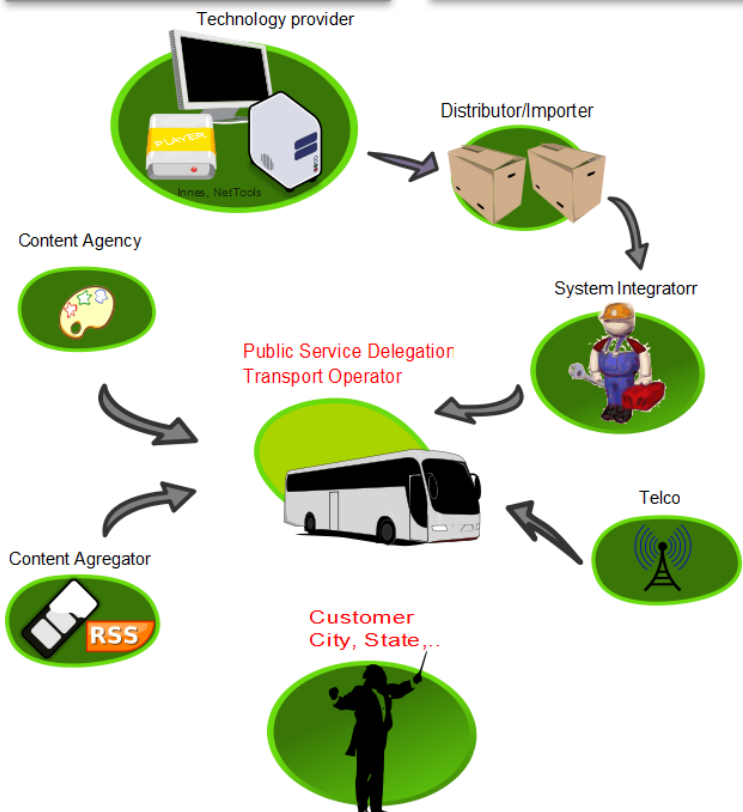
The primary contact for point-of-wait projects is often the system integrator or value-added resellers that bring together the different skills to meet the needs of the customer.

Point of Sale : BRANDING TV, ADS



External communication projects where the goal is a recognized ROI are generally controlled by advertising agencies or screen network operators.

POINT OF TRANSIT: TRANSPORT, INFORMATIONS FOR TRAVELLER



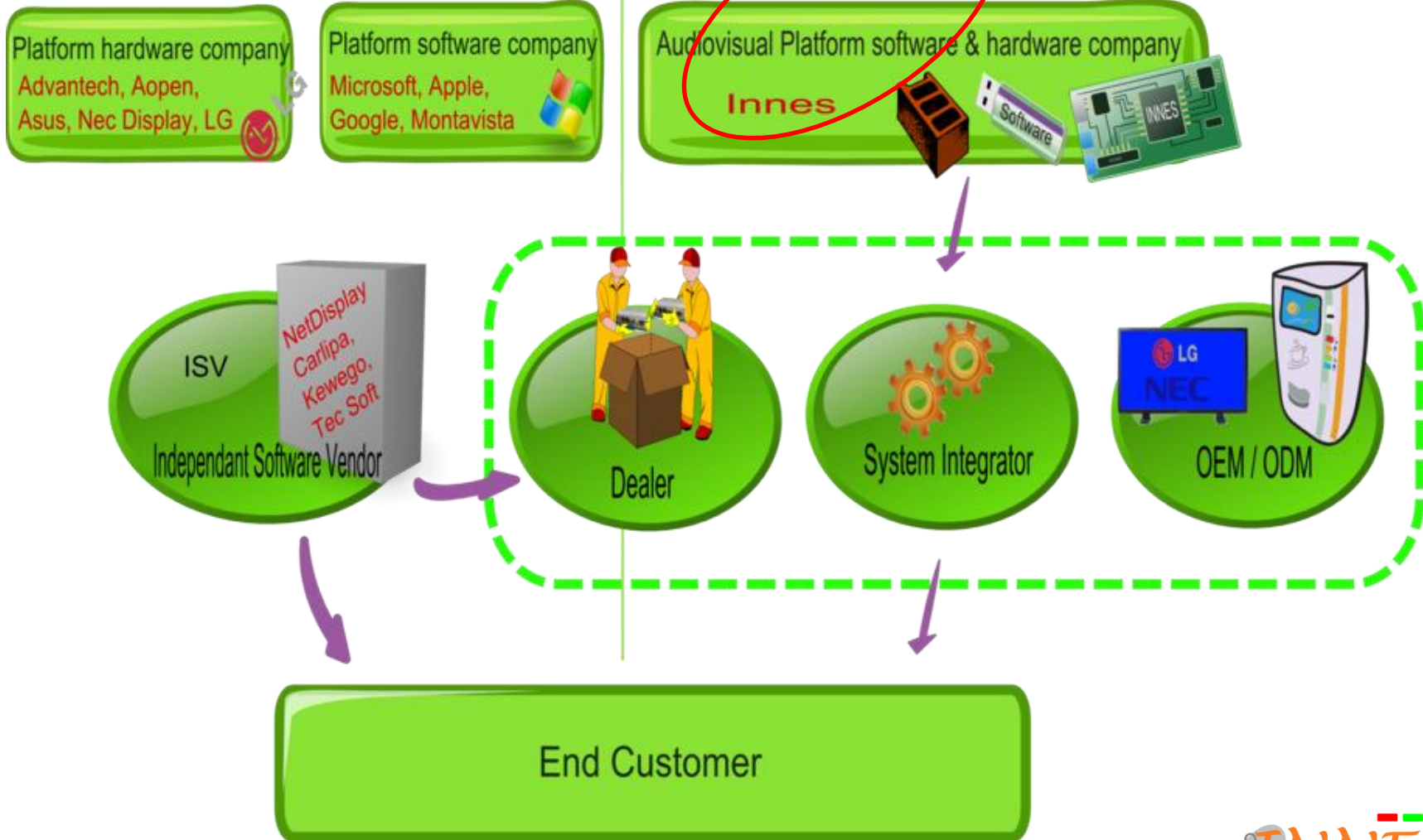
The “transportation” projects are often supported by the system integrator in connection with the public service delegator transport operator.

The main difficulties of the sector is the need to conform to many standards (EN50155, ...). Unlike the previously described sectors, the equipment onboard, such as media players or display must endure a high temperature range (for instance -25° C/+70° C) and to be anti-vibration.

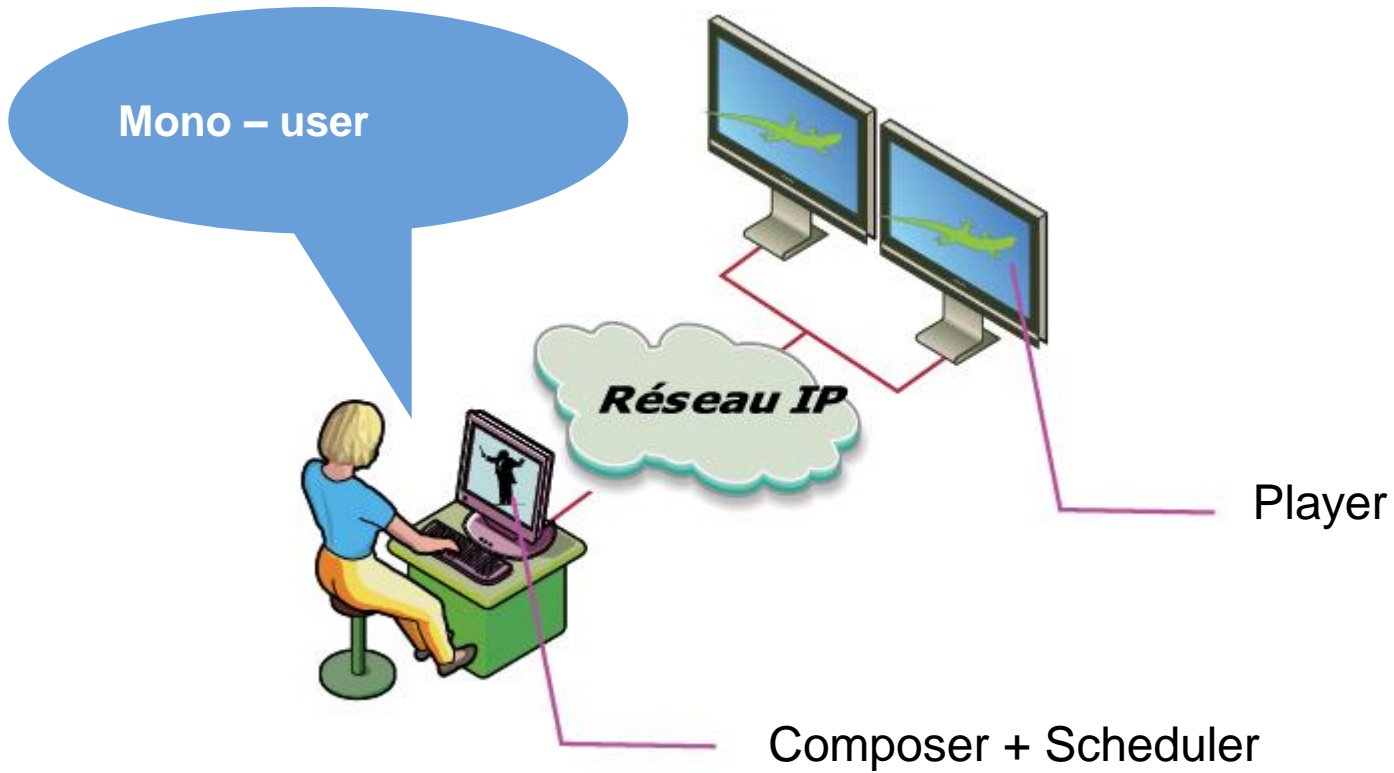


INNES

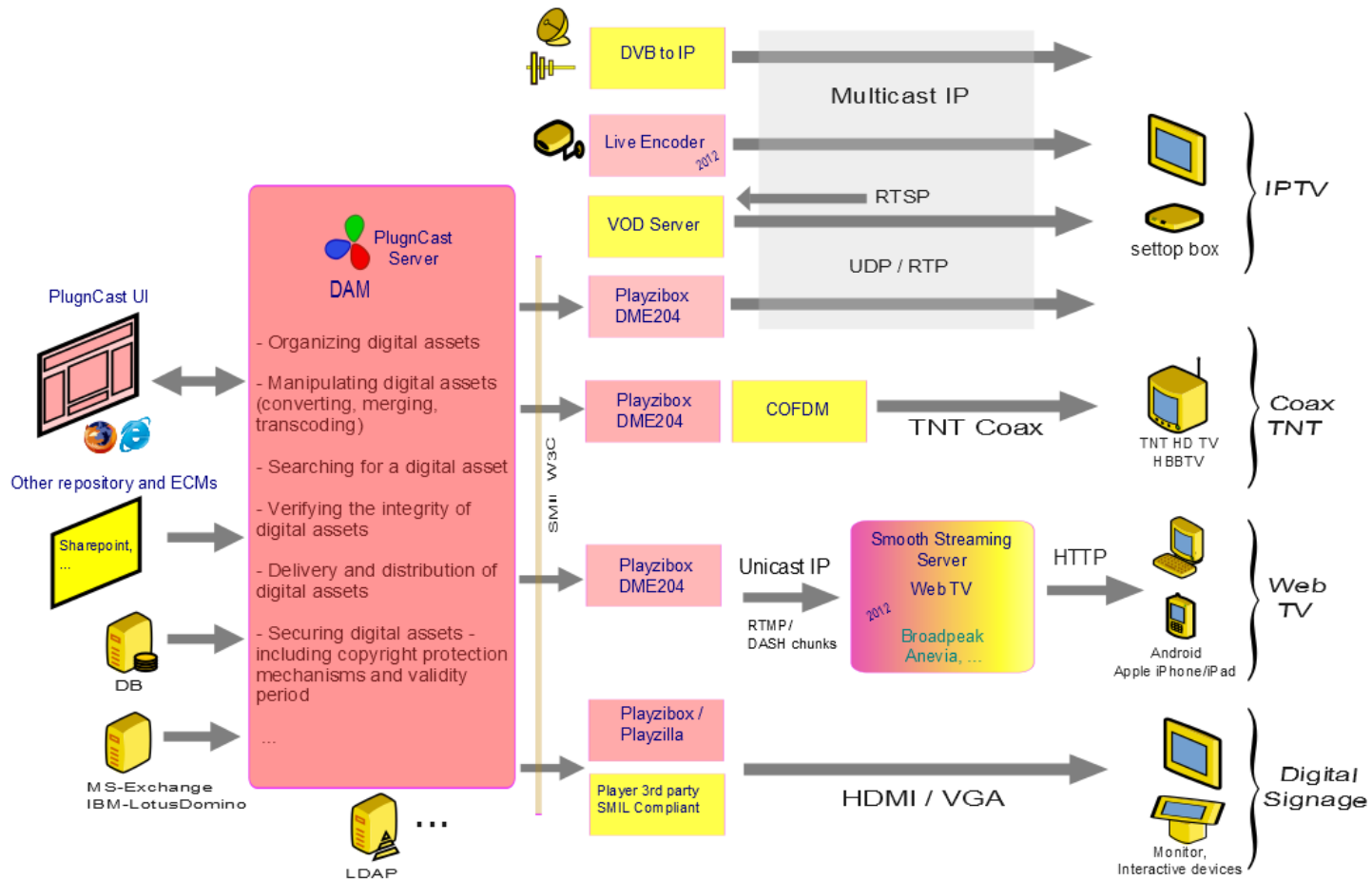
Innes : Manufacturer of Richmedia players and encoders



Peer to peer usage



Server usage (many people use the system)





TECHNOLOGIES AND STANDARDS

Technology : What are we trying to solve ?



- **Audience Metric**
 - How many people view screen for how long ?
- **Placement Metric**
 - How do I buy a unit of advertising on a screen ?
- **Proof of Performance**
 - How many times my is ad actually played and when ?
- **Technology Interoperability**
 - Screen / Player / Server

Digital Signage: Architecture of a « open » player



User Application

SMIL+, JavaScript , CSS3, HTML5, XPATH, XSPF, XMP, iCal, Device API...

WS-*

Rich Media Engine
AV Framework + Web Framework (Gecko, Webkit, ...)

SOAP
DPWS
WS-Management

Popai
Play-log

Direct X

Kronos API (OpenGL, Open VG, OpenMAX, ...)

X86
Windows

X86 Linux
X.ORG Server 7.X

Intel 9xx

Intel
Poulsbo

Nvidia

ARM9 / Cortex A8
eLinux

Davinci
ARM9 +
DSP C64

OMAP
CortexA8
+ DSP

...

SMIL W3C : Open Digital Signage



SMIL (pronounced "smile") stands for "Synchronized Multimedia Integration Language" and defines scheduling ("Synchronized"), video, audio, images, text ("Multimedia"), multi-zone screen layout ("Integration") in an XML-based text file format ("Language").



It is an open specification (royalty-free to use) created by the W3C, the same organization responsible for defining the HTML5 language, an open standard for the Internet.

As the digital signage market expands out of the "emerging" status, mainstream customers demand compatibility and interoperability among products from different vendors : SMIL appears to be an ideal technology to answer the needs of the industry.

Digital Signage products that utilize SMIL are available from leading companies such as Iadea, Advantech, Scala, Spinetix, Stinova, Innes,....

<http://www.w3.org/AudioVideo/>

http://www.a-smil.org/index.php/Main_Page

Player language proposal



Innes proposal : SMIL + CSS3 + JavaScript

- The power of a declarative language (easy for authoring software)
- The power of a style language like CSS3 (layout, animation,...)
- The power of a script language known for a large public (web designer) and a collection of APIs (device, canvas, webgl,...)

Open Pluggable Specification



NEW

The Open Pluggable Specification (OPS) is supported by industry leaders in digital signage, including Microsoft, NEC Display Solutions and the Taiwan Digital Signage Special Interest Group (Axiomtek, Advantech,...).

The Open Pluggable Specification was created to address fragmentation in the digital signage market and simplify device installation, use, maintenance and upgrades.

With the specification, digital signage manufacturers will be able to deploy interchangeable systems faster and in higher volumes, while lowering costs for development and implementation.



Popai Digital Signage



POPAI Digital Signage Standards committee has released a reference system and a glossary on common terminologies that are available for download from POPAI site or following hypertext.

- [Content Standards](#)
- [Screen-Media Formats](#)
- [RFI Working Template](#)
- [POPAI Digital Signage Device RS-232 Standards](#)
- [POPAI Digital Signage Playlog Standards V 1.1](#)
- [Digital Control Commands](#)
- [Industry Standards of Digital Signage Terms](#)
- **Work-in-Progress: Server-Player API Standard**

Unambiguously object media definition

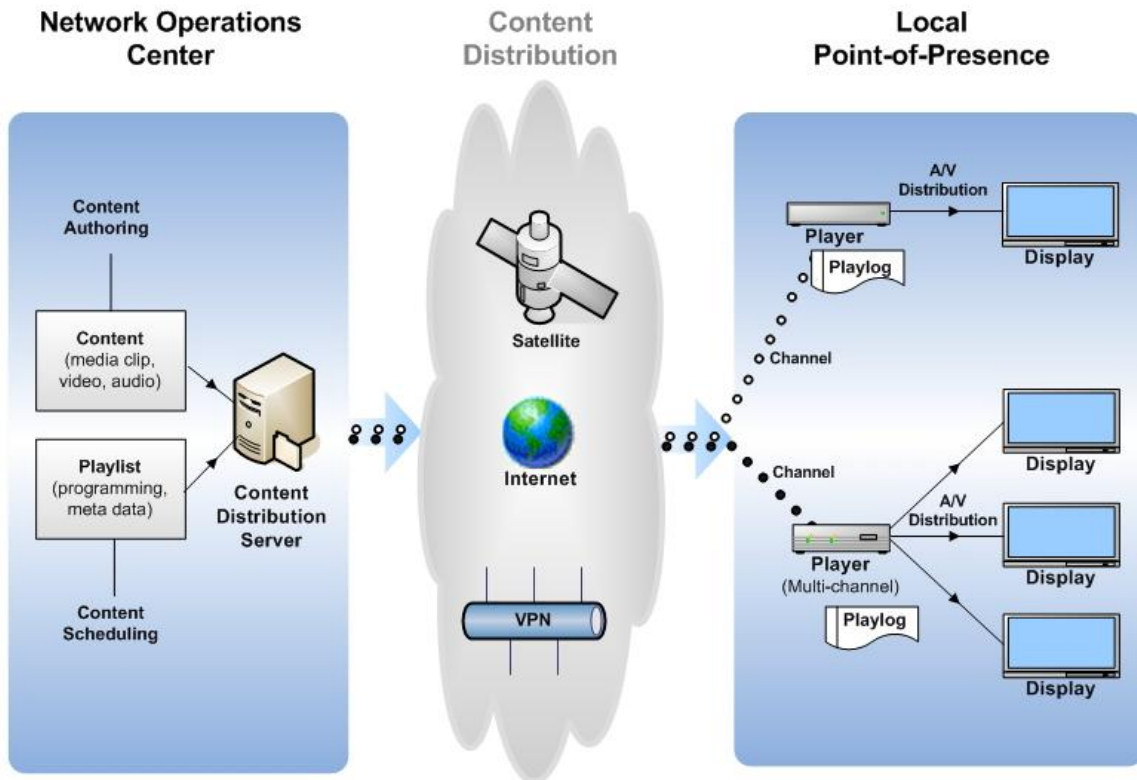


What are the formats that can be played by the player ?

- POPAI Screen-Media Formats
<http://popai.com/docs/DS/ScreenFormat%20Standards%20Draft%20rev097.pdf>
- RFC4281: The Codecs Parameter for "Bucket" Media Types

Playlog

“Popai Playlog is a collection of record or information created from the digital signage system reflecting the content played, the system performance and other data. (Synonyms: billing log, performance log, audit log, proof-of-play report)”

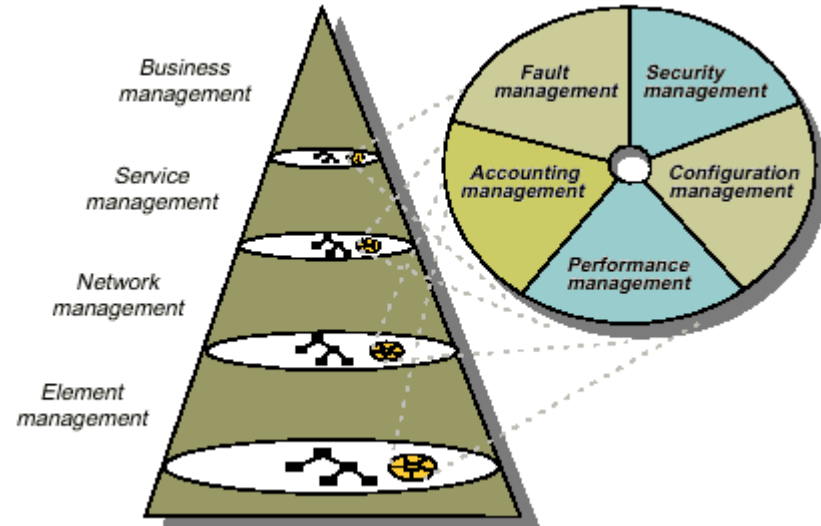


Player Management in a Telecommunications Management Network (TMN) model



Two candidates :

- SNMP (set, get, trap primitives commands)
- WS-Management (object model)



Pro of the second solution :

WS-Management is available with Microsoft PowerShell architecture

Use HTTP/HTTPS

Easy to integrated with a DPWS (Device Profile for Web Service) stack

Device API



BONDI

W3C

- **Battery status**
- **Media Capture** (camera, microphone)
- **Messaging** (SMS, MMS, emails)
- **Sensor API**
- **Calendar** (iCalendar, ISO-8601)
- **Permissions for Device API Access**
- **Systems info and events** (CPU, network, etc.)
-

Server-Player API Standard



- Object Media downloader
- Player language downloader
- Software downloader

Some tracks :

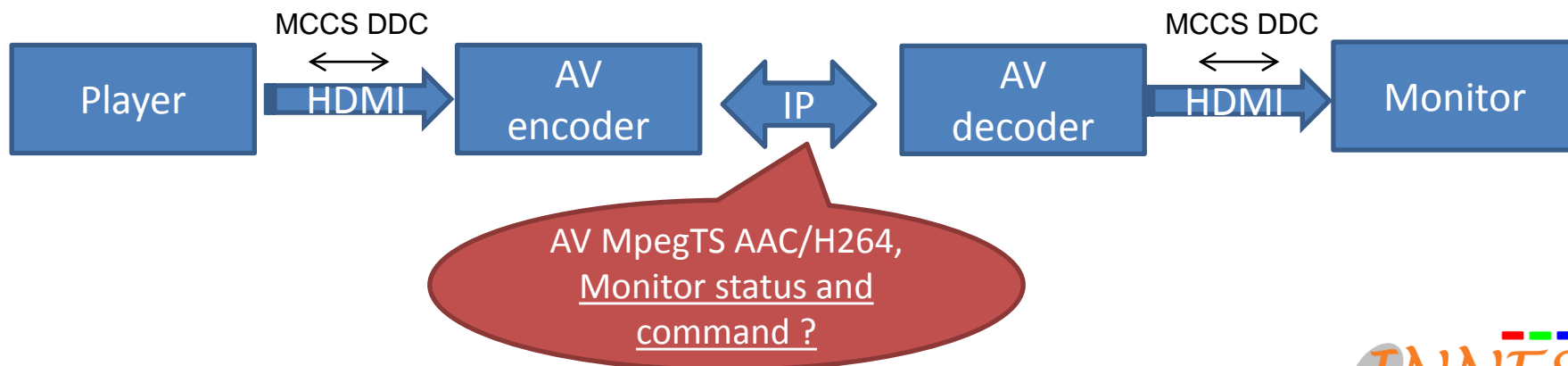
- REST HTTP,
- HTTP cache API like Manifest HTML5
- SOAP
- FUMO FOTA (Firmware Over the Air) ([Open Mobile Alliance](#),)

Player - Monitor :

AV Signal Transport, Monitoring and commands



- Proprietary protocol like Samsung MDC
RS232, Ethernet
- VESA **Monitor Command Control Set (MCCS)** and DDC/CI
I2C on DVI, VGA, HDMI, Display Port, HDBaseT
- Signal transport TCP/IP oriented (SMPTE 2022 FEC)





THANKS

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