Recommendation for Monitor Point Based on DLNA Technology

CHEN REN, CHINA

11 Oct. 2010

Outline

1. Scope
2. Backgrounds
3. Reasons
4. Technology
5. Use cases
6. Point of view from DLNA Side
7. Benefits for user experience
8. Previous work and experience
9. Suggestions

Scope

- Propose a basic reference model and use cases for monitor point under the framework of DLNA.
- DLNA network can work in the monitor point mode, it can also work through the monitor point to control the network devices and resources under the unified management.
- The monitor point will provide protocol conversion, message forward functions which help communication between heterogeneous network.
- Construct a more convenience home network which includes Computer, Communication devices and Consumer Electronics with the help of monitor point.

Background – Existing Standard

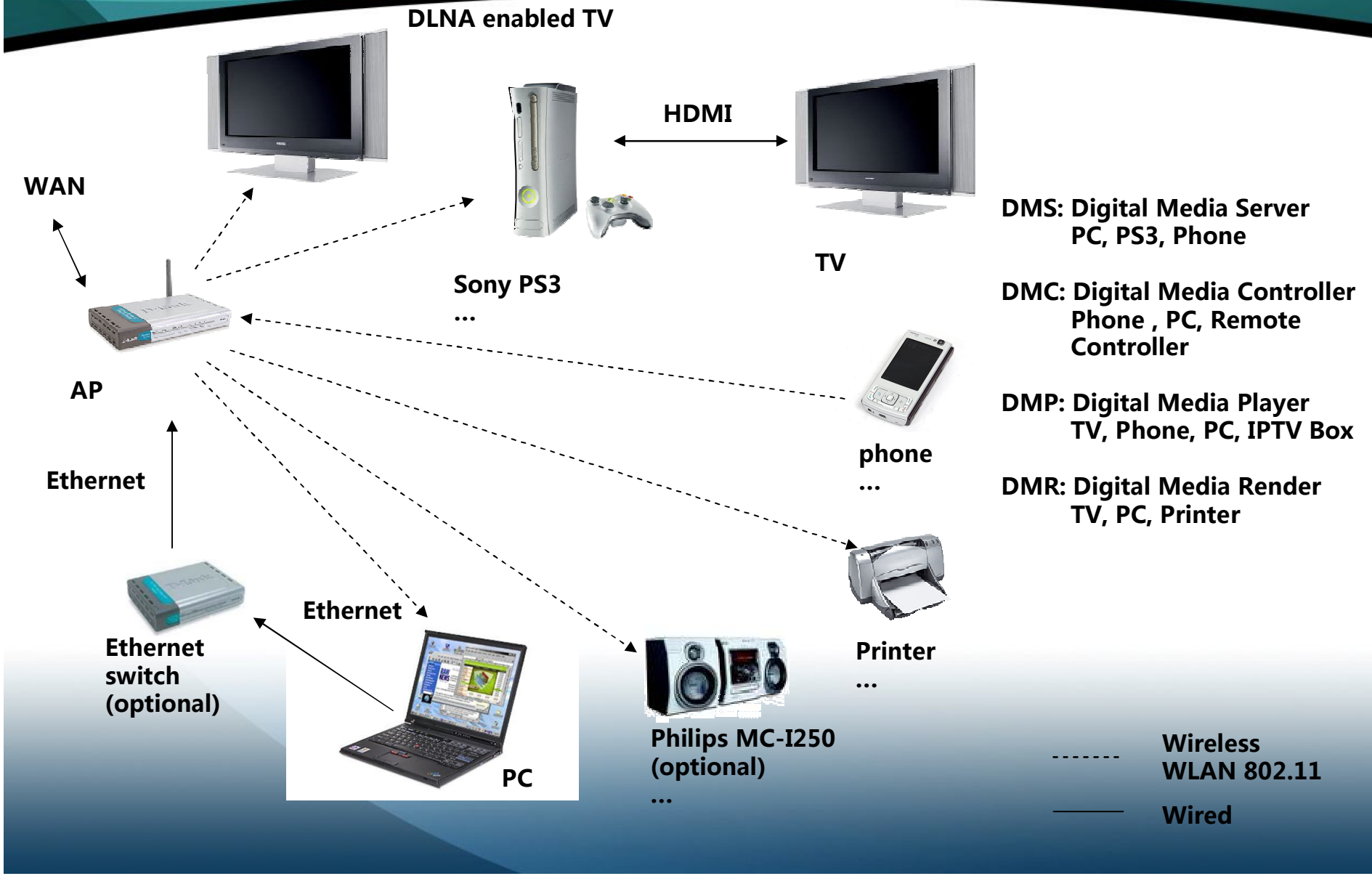
- **Background 1: Current IEC International Standards**
  - **IEC 62481-1:Digital living network alliance (DLNA) home networked device interoperability guidelines - Part 1, Architecture and protocols.**
  - **IEC 62481-2:Digital living network alliance (DLNA) home networked device interoperability guidelines - Part 2, DLNA media formats.**
  - **IEC 62481-3:Digital living network alliance (DLNA) home networked device interoperability guidelines - Part 3, Link protection.**

Background – DLNA Framework

- **Background 2: Based on the existing content of DLNA technology**

- **Background 3: Most of the related company become member of DLNA**
  - **According to the DLNA website, DLNA is led by most of the related companies of the world, include Broadcom, Cisco, HP, Huawei, IBM, Intel, Kenwood, LG, Microsoft, Motorola, Nokia, NXP, Panasonic, Philips, Samsung, Sharp, Sony, and Toshiba etc.**
  - **We will work to make DLNA a more safety and convenience technology with better user experience.**

Reference Network of DLNA



Reasons

- **Our concern, private -> public**
  - **Reason 1: DMP or DMC can find contents in one DMS at one time only. If there are several DMS in the home network, how can we find the exactly content through easier way.**
  - **Reason 2: Log function. Such as who read or copy the content, it could be used as parent control.**
  - **Reason 3: Share information with other devices in the home network. Combination with the home multimedia gateway which is defined in IEC 62514, the monitor point could work as a DMS with upload option, catch the media file, translate to proper format.**

Reasons

- **Our concern, private -> public**
  - **Reason 4: If there are several DMCs in the same network, who will manage and give the current DMS\DMC\DMR stage. We consider no device want to be disturbed or interrupted by the other DMC's action. So MP will try to solve this problem.**

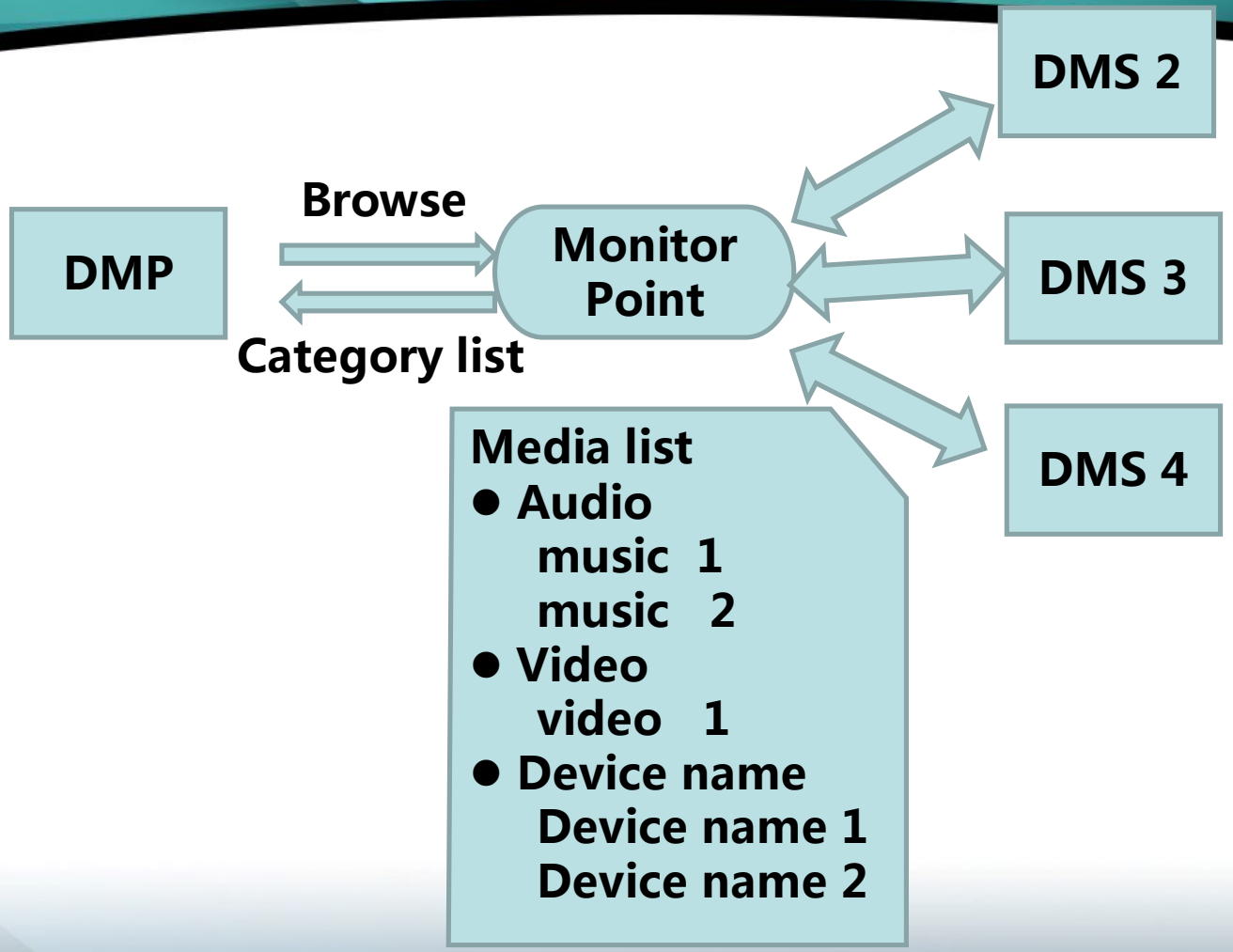
There are some companies who have already proposed or developed related technologies , but not yet been standardized. Thus these technology can not be identified and used by other developers.

Technology

- **Dynamic Content Category**
- **Key Point Movement Log for Content Change**
- **Reference Model for Multiple Media control**

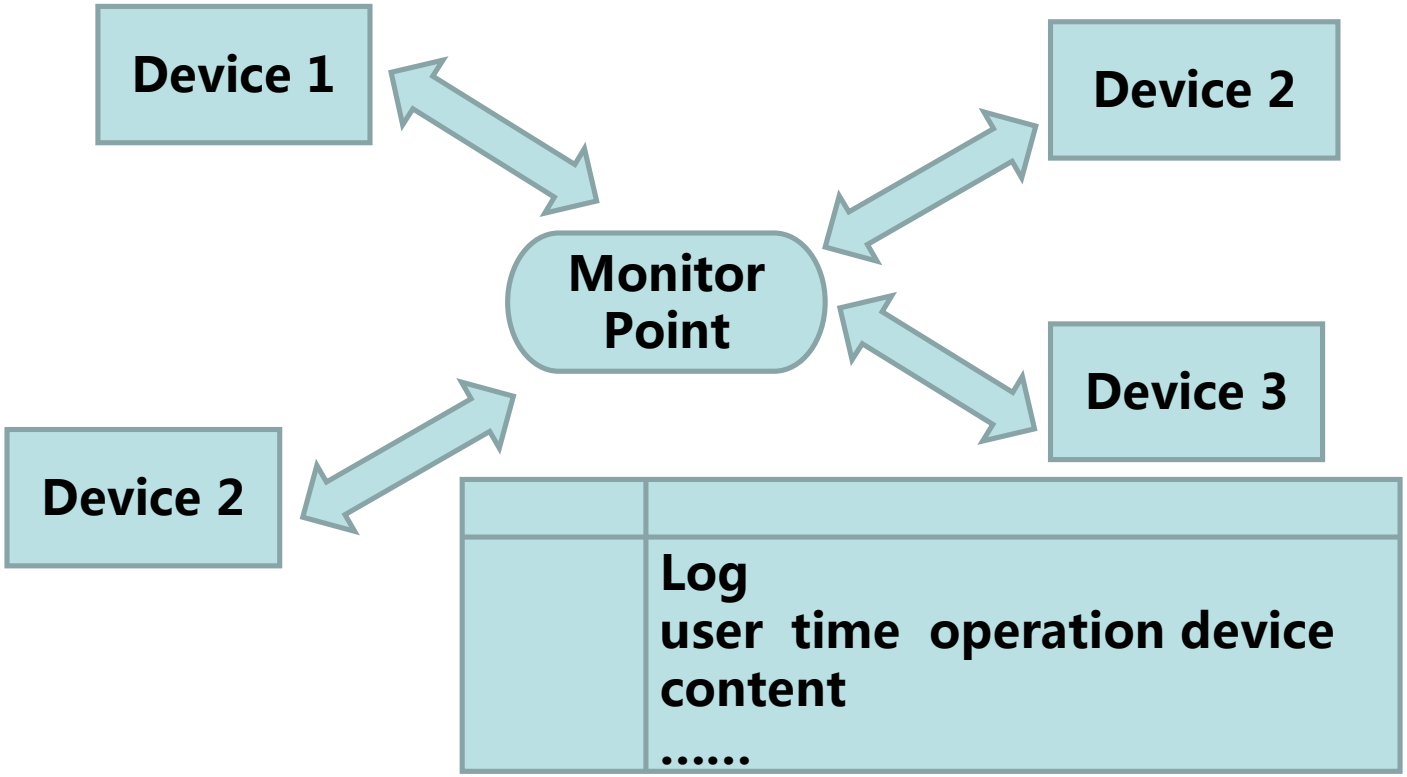
Monitor Point can be a practical device which works as role of DMC+DMS or even plus DMP, or it can just be part of the previous DMS/DMC/DMP like an additional function.

Dynamic Content Category



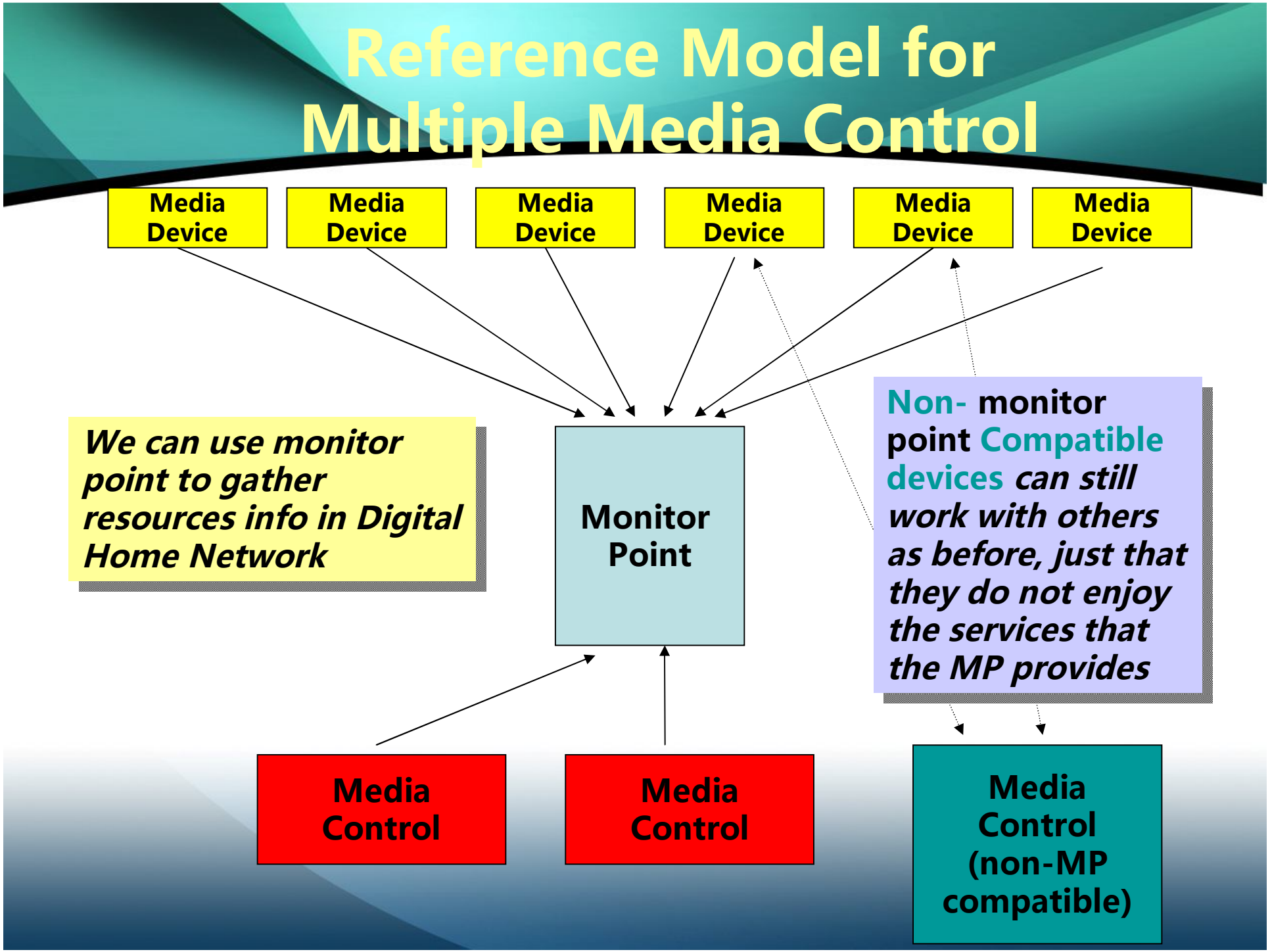
MP will try to browse and collect media contents dynamically in home network or sub network, and create a complete media and device list for further usage.

Key Point Movement Log



MP will record all the users movement inside home network or sub network (depends on the user's definition).

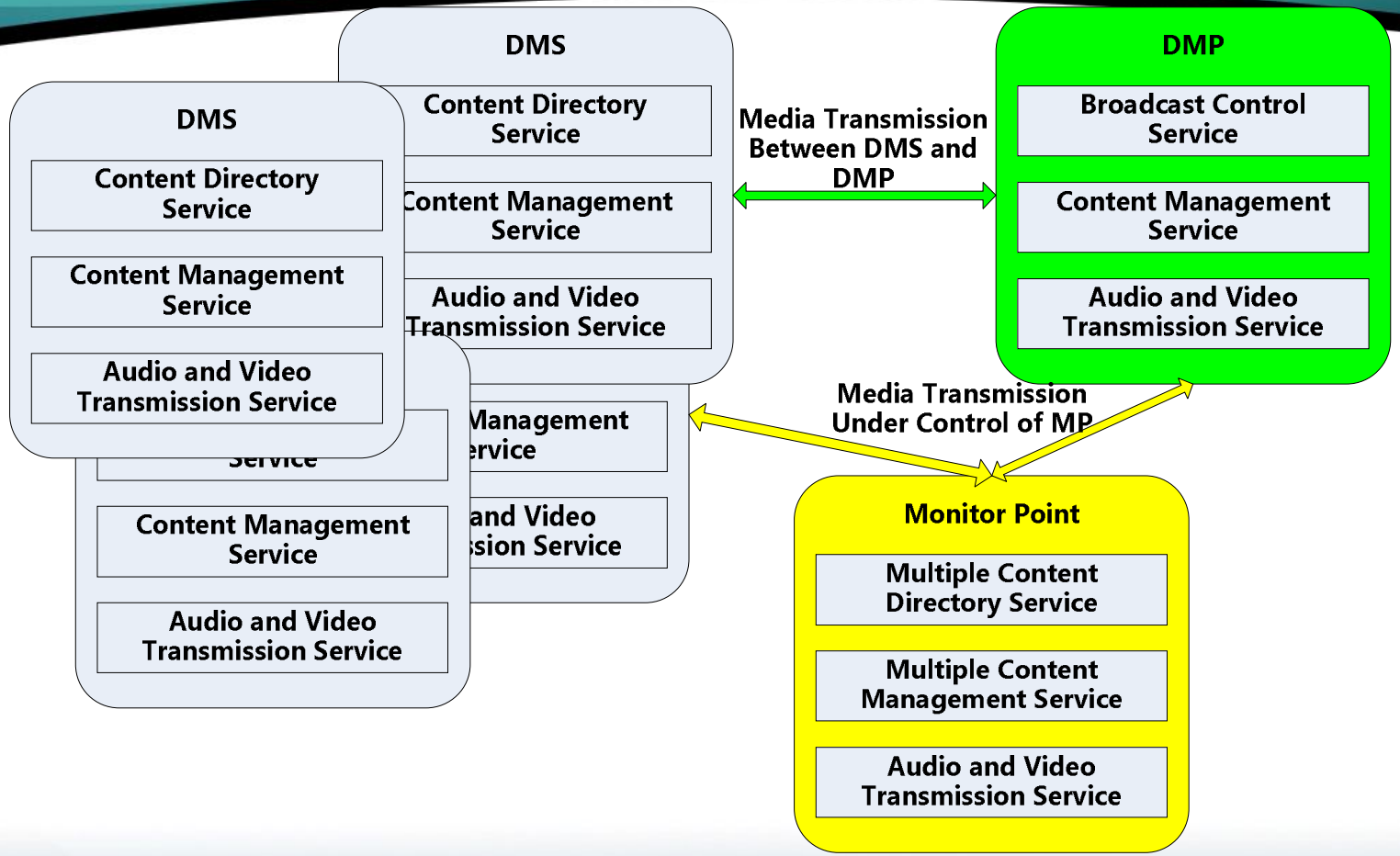
Reference Model for Multiple Media Control



Use Cases

- MP+DMP+DMS+DMS
- MP+DMC+DMS+DMP+DMR
- Share information with sub network which use different interoperate protocol
- Reference Model for Multiple Monitor Point Use Cases

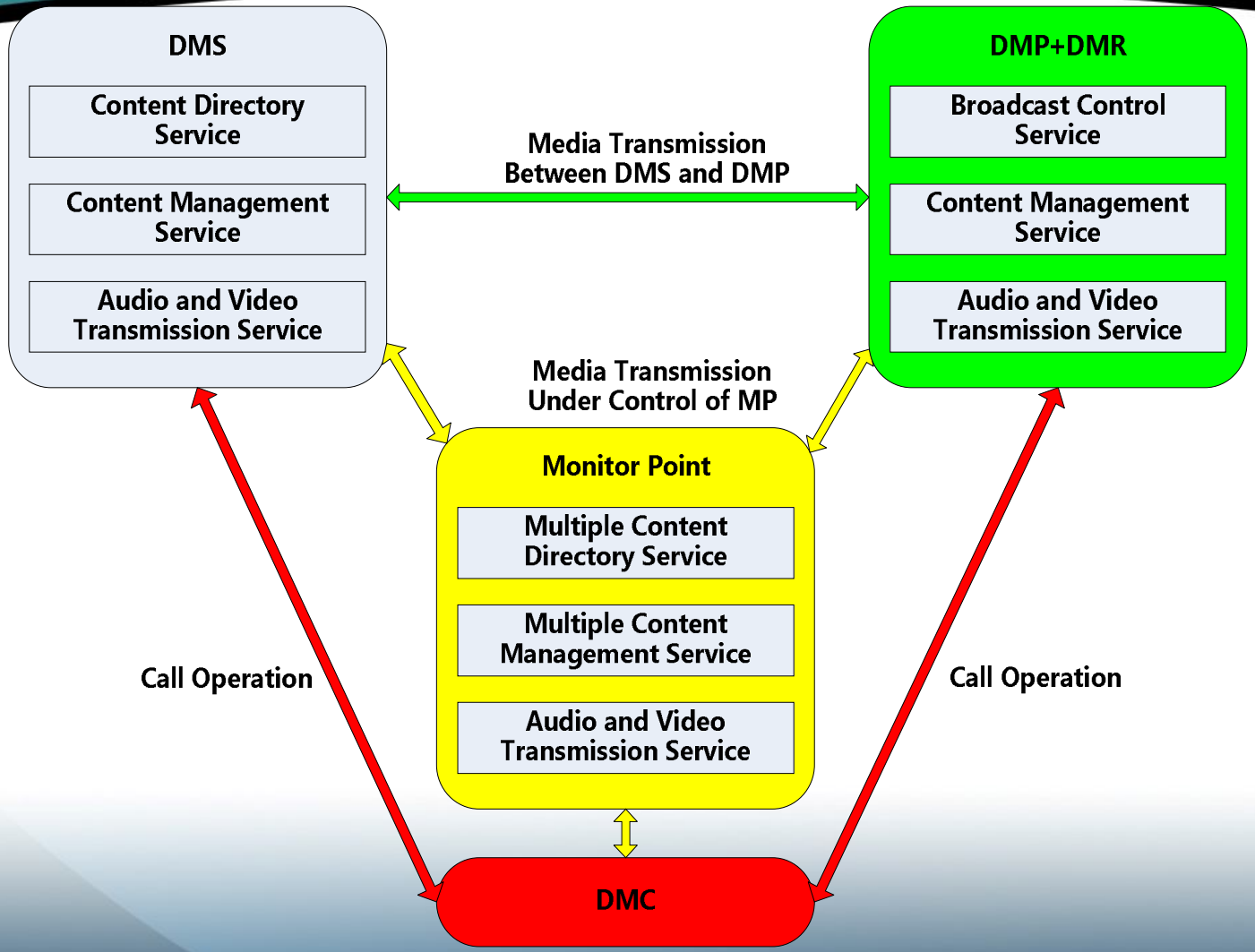
Use Case 1: MP+DMP+DMS+DMS



MP will efficiently manage different DMS to transmit media flow to DMP.

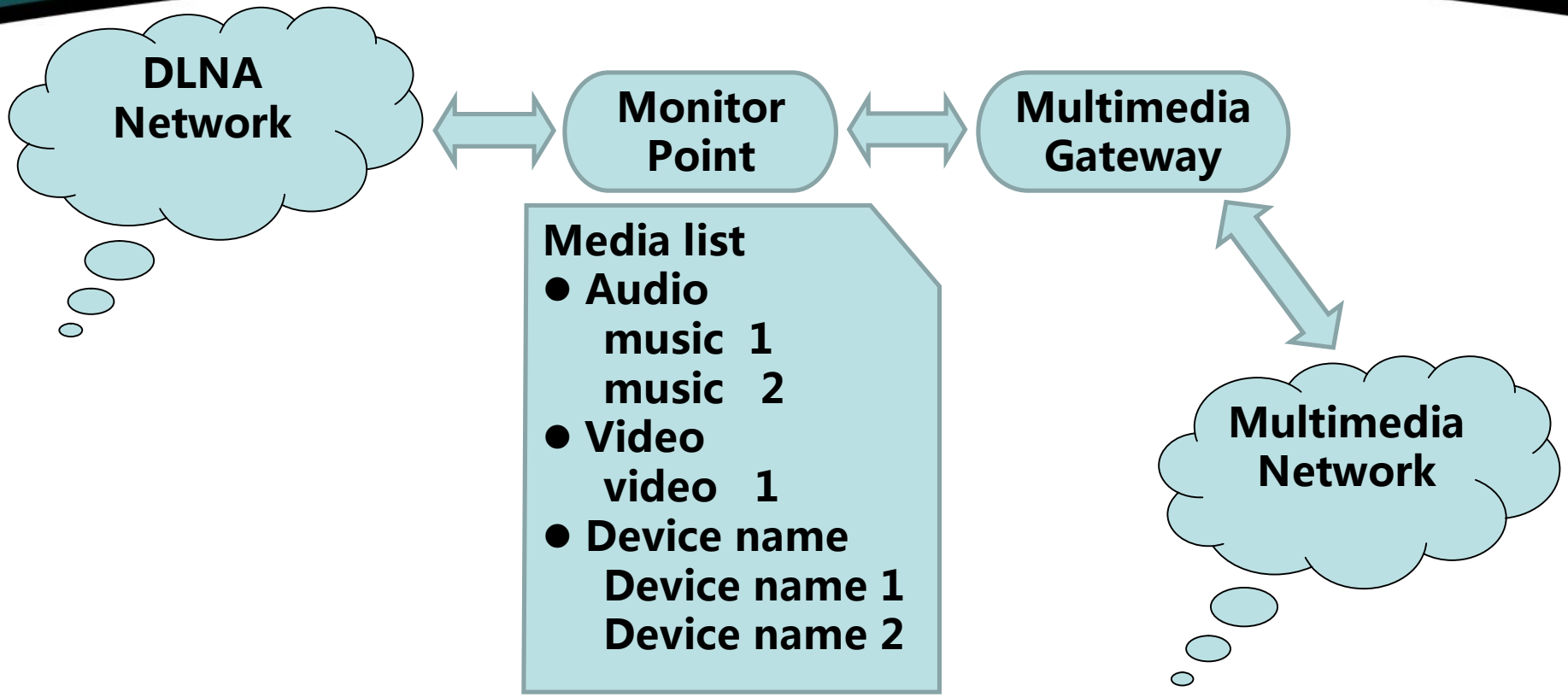
Monitor Point = WireShark (Network Track) + AV media Controller (DLNA Content) + Device Spy (Device Protocol Profile)

Use Case 2:
MP+DMS+DMC+DMP+DMR



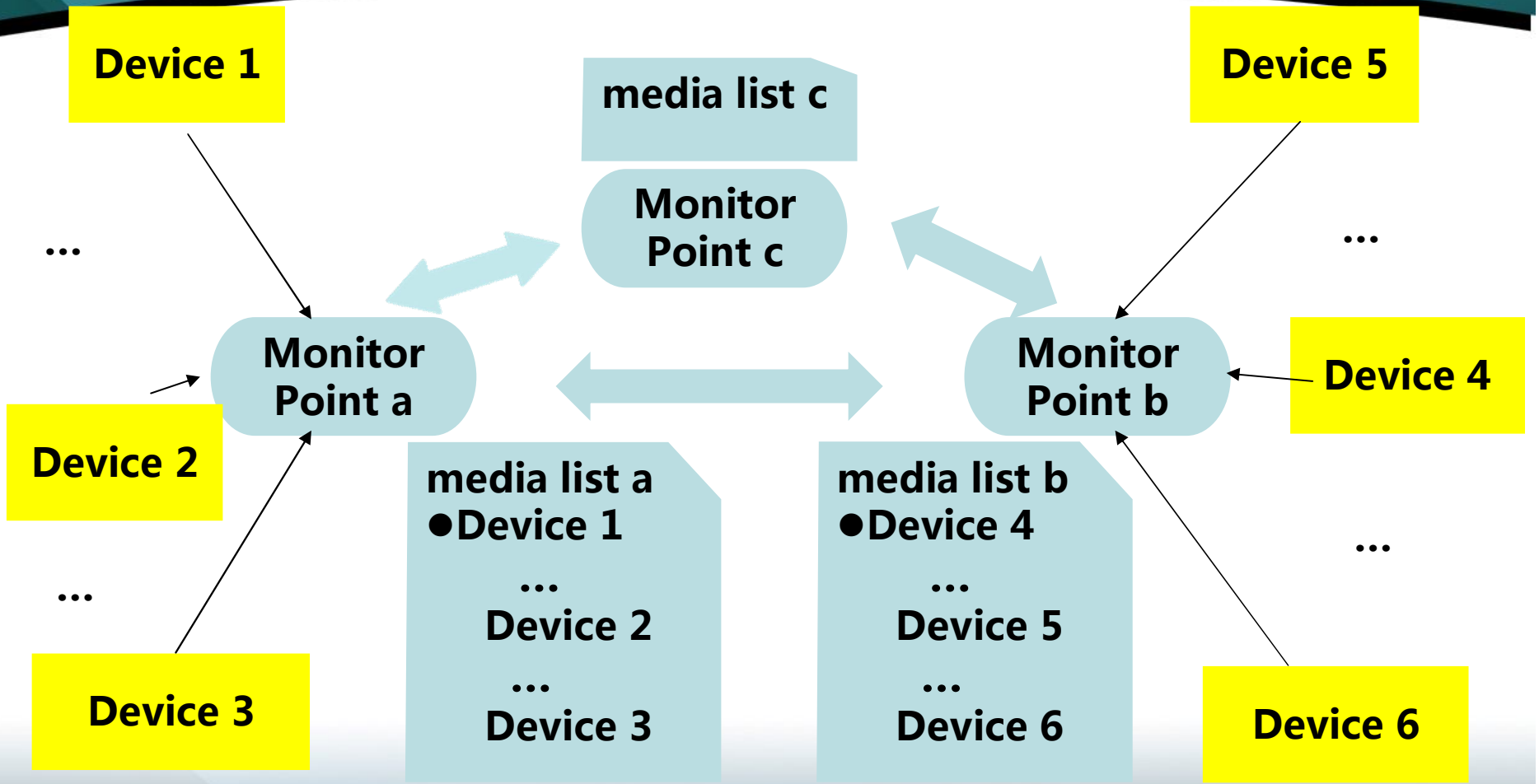
MP will help the DMC to use DMP(DMR) more efficiency, avoid interrupt or disturb the current workflow on DMR(DMP).

Use Case 3 : Multimedia Content Sharing between Sub networks



MP will help sharing multimedia content between heterogeneous network if work together with multimedia gateway

Use Case 4: Reference Model for Multiple Monitor Point



MP will help to divide home network to separated heterogeneous network according to different user requirement.

Point of View from DLNA Side

- From DLNA side, monitor point could be looked as DMS plus DMC plus DMP.
- Using the same DLNA technology, the same network interface, the same IP address named in DLNA network.
- More useful use cases and technology can be combined.
- Adds some new key technology at application level.

Benefits for User Experience

- Easy operation including content ranking and searching and sorting.
- Time efficiency and higher target shooting.
- Intelligent personalization based on user behavior tracing and recording.
- Enlarge content sharing scope and sub-network interoperation.

Previous Work and Experience

We have already developed some use cases in Chinese national standard, a few of DLNA members, including Sony, Nokia, Samsung, Siemens, Haier, also joined in the workgroup and make contributions.

- Some of the referenced Chinese standards are:
  - GB/T 9387-2005 Information processing system - Open system interconnection - Basic reference model
  - SJ/T 11316-2005 Home network – Architecture and reference model
  - SJ/T 11312-2005 Home network – Communication protocol of backbone network
  - SJ/T 11314-2005 Home network – Communication protocol of Control sub-network
  - SJ/T 11317-2005 Home network – Device description

Suggestions for IEC TC100

- Start New Project on this area.
- Draft specification as soon as possible.
- Proposed project name is :
  - Specification of Monitor Point based on DLNA Technology – Architecture and Reference Model
- Proposed team member include:
  - Members from DLNA
  - Potential developer of DLNA application and technology

Thanks and have a nice day!