



MBI's solution for content distribution

Introduction

MBI is an ICT company that operates in the field of multimedia content processing over heterogeneous networks. MBI has designed and created a solution for secure transmission of files of any type and size in *push* mode. At the heart of this system is an *Operating Centre* that transmits scheduled content at scheduled times, as opposed to the *pull* mode, which is typically used by on-demand systems over the Internet.

MBI's solution is based on the transmission of data to a group of receivers at the same time (*multicast*). The method is to transmit the data once only, thus avoiding repeated transmissions of the same content and therefore minimising the use of network resources, unlike many on-demand systems based on the *unicast* model.

The solution can be used with terrestrial, wireless or satellite networks. Since the satellite network is *broadcast-based*, it is the most suitable for multicast transmissions.

Our solution has been used for many years as the base component of the Opensky platform by Eutelsat, one of the world's leading satellite communication operators. Using the Opensky platform, Eutelsat provides satellite broadband connectivity and distribution systems for content of any type and size.

The solution is based on a platform, called *Multimedia Delivery Framework (MDF)*, which has the following main functions:

- Content acquisition in an operating centre
- Content registration and storage in a secure storage area
- Transmission scheduling
- Secure content transmission
- Content delivery on enabled devices
- Device control and monitoring

Applications

Push-based transmission is the best low-cost, high-efficiency and high-security system when it comes to transmitting the same content to several users at the

same time or transmitting content at scheduled times. It has a multitude of applications including the following:

- **Publicity campaigns.** Advertisements can be shown in a variety of public places (airports, stations, department stores, stadiums, etc.) on a flexible or scheduled basis.
- **Large distribution chains and franchises.** A series of information and/or promotions can be distributed to all branches.
- **Banks and insurance companies.** In this case transmitting the same information and/or updates to all branches without using the LAN is considered essential. The content transmitted can be encrypted and it can include large files.
- **Journalism.** Live or radio content can be broadcast to branches, etc
- **Cinema.** HD content can be distributed eliminating the cost of extra copies

This solution can be adapted to several commercial needs, as it does not change the business models involved. Its purpose is to:

- substitute the existing content distribution management system
- reduce transmission cost and risk
- guarantee content transmission at the scheduled times
- guarantee content protection during transmission

Key features

- **Reduced distribution times, risks and costs:** transmission times are very low as compared to distribution based on physical storage devices. Content delivery over satellite is guaranteed at the agreed time. The distribution cost is dramatically reduced, as is the risk of storage devices getting lost or being damaged in transit.
- **Any type of content can be managed:** the system can distribute content of any type and size acquired from any type of storage device (HD, CD, DVD, HD-DVD, Blue-Ray DVD, etc.) and encoded with any type of encoding standard (MP3, MPEG-2, MPEG-4, WM9, JPEG2000, etc).
- **Extra content can be managed:** extra content (e.g. content previews, details, length, etc) can be transmitted along with the content

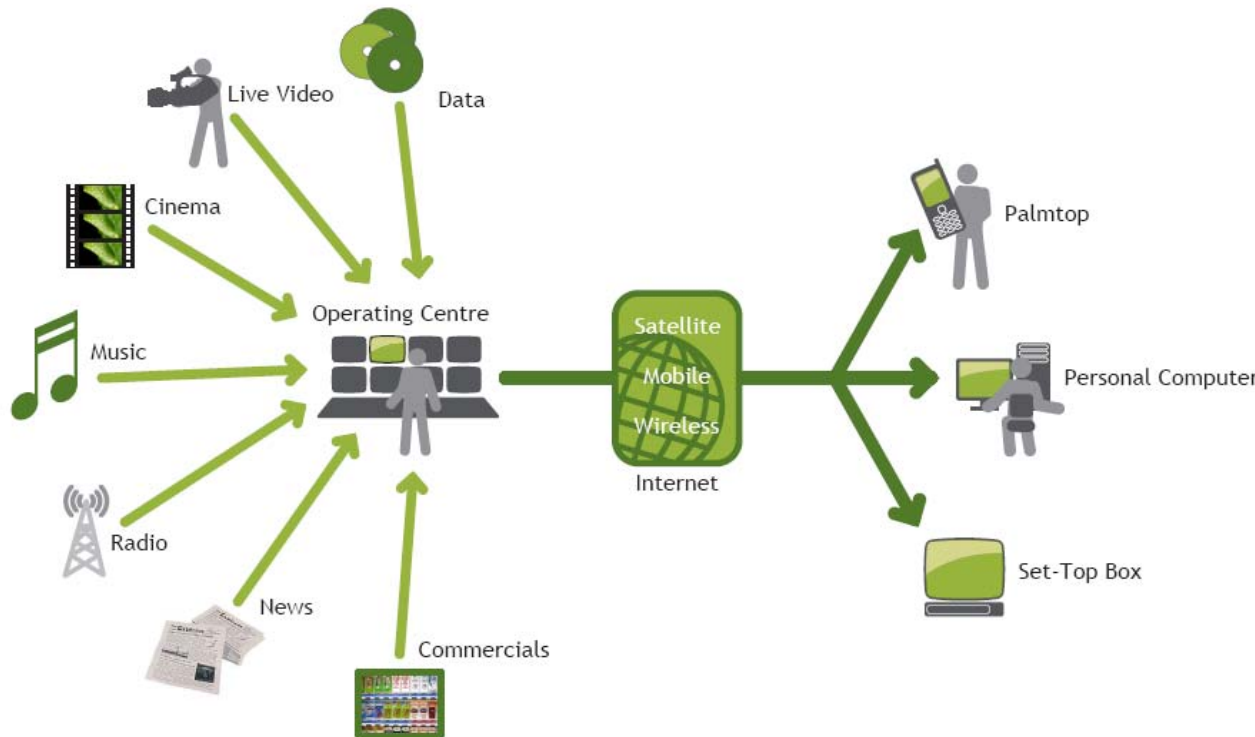
- **High flexibility in creating new business scenarios.** The relationships between the partners involved will not be changed by introducing the new distribution means.
- **A variety of devices can be used as receiving terminals:** The solution is software-based and works on hardware systems with standard operating systems. The system can be managed and updated remotely.
- **Secure distribution procedure:**
 - The transmitted content can only be received through a software program that will be installed on a low-cost receiving terminal.
 - Only registered terminals will work correctly. Unregistered terminals will not be able to receive any content
 - All content transmitted is encrypted and the registered terminals need to be enabled for decryption

The MDF system

The **MDF** system - *Multimedia Delivery Framework* - is a complete software solution for transmitting multimedia files in push mode over IP networks configured for multicast protocols.

Overview

It is made up of a Server component, which will be installed in the Operating Centre and will handle the content distribution service; and a Client component, which will be installed on computers and will receive the transmitted content.



The Operating Centre can acquire digital content of any size stored on any type of storage device (HD, CD, DVD, HD-DVD, Blue-Ray DVD, etc.) and encoded with any type of encoding standard (MPEG-2, MPEG-4, WM9, JPEG2000, etc).

The Operating Centre encrypts the content and transmits it to the enabled terminals, where the content is decrypted and stored on hard disks. The content can then be played out as many times as needed.

The Operating Centre

The Operating Centre is made up of the following modules:

- *MDF Server*, which handles content scheduling and transmission
- *CAS - Conditional Access System*, which guarantees transmission security by encoding the content in such a way that only registered and enabled terminals can receive it
- A storage area to protect and save the content so that it can be available online every time it needs to be (re)transmitted

- A network management system for controlling and monitoring the receiving terminals

Operators of the Operating Centre will be able to carry out the following actions on a series of interfaces:

- Acquire digital content and save it in the storage area
- Create playlists to be transmitted with the content
- Add extra data to the content (e.g. details, length, comments, previews, etc.)
- Schedule and check the content transmission (including extra data)
- Transmit the content to all receiving terminals in a secure way
- Check the content transmission and delivery
- Monitor the transmission devices installed and give support to the operator

The receiving terminal

The MDF system requires a low-cost Set-Top-Box-like receiving terminal that works automatically and can be controlled remotely. Any PC, even a low-budget PC, can be used as receiving terminal. It only needs to be equipped with the following:

- A piece of software, called *MDF client*, for receiving the content transmitted by the Operating Centre; and its user interface
- A storage area appropriate for the size and the amount of content to be stored

The following is also required for the receiving terminals to work:

- A terrestrial connection channel (preferably ADSL, but ISDN or PSTN can also be used) to connect the receiving terminal to the Operating Centre for monitoring and remote controlling
- If satellite transmission is to be used, a satellite receiver needs to be installed (one-way or two-way) and configured to receive the signal from the satellite/transponder

The following actions can be carried out on an easy-to-use graphical interface:

- View the content being transmitted
- Request the content
- Monitor the content delivery
- Save the content in the local storage area
- Display any extra content