

CONTENTS: SPECIAL EDITION ON TV

- U-SHARE: A DIGITAL CONTRIBUTION SYSTEM

U-Share is a digital contribution system based on the creation of a DVB (Digital Video Broadcast) network designed for sites remote from each other to exchange video data automatically.

With this turnkey network different points can be connected and related to each other. Images are transmitted from a remote national or foreign production site (which can be fixed or mobile) to a main image receiving and processing centre or to other fixed or mobile sites.

The management system for an audiovisual contribution network via satellite is actually a tool to pilot a set of satellite transmitting/receiving stations, which can be fixed and/or mobile and which share the same satellite bandwidth.

The system is a multi-customer manager allowing satellite resources to be shared without having recourse to a provider.

Equipment description:

A **database server**, which can be accessed by all remote stations, manages the entire customer configuration, transmitting and receiving sites and transmission. This server memorises all past and future transmissions and all modifications. It also serves to manage frequency bands in relation to users and satellite occupancy.

Transmission information is recorded and can be used, after extraction from the database, for detailed invoicing.

The operator uses the **Bandwidth Manager** to generate orders directly linked to the database. These orders are in fact bandwidth space reservations for transmission from a transmitting chain to one or more receiving chains (e.g., the site in Montpellier sending locally-produced news to Paris for broadcast). The bandwidth can be allocated on different types of satellite slot: dedicated slot (reserved to a single customer), overflow slot (for a single customer but paid per minute of use) or public slot (access available to several customers). Unless the user makes a specific request, the system gives allocation priority to customer-dedicated slots, then to overflow slots and lastly to public slots.

The bandwidth system can be managed by a set of workstations spread over different sites and sharing the same database.

All information is automatically sent to all the customer's bandwidth managers.

The bandwidth manager can manage all transmissions for a customer. Customer “A” cannot consult, modify or delete a transmission he does not own.

There are three modes for giving an order:

- Direct mode: the operator decides the date, time and duration of the transmission (this usually involves priority transmissions).
- Delayed mode: the operator proposes a duration and time slot for the transmission (start and end of a time span). The main database searches for the for time slot available for this span and proposes it in return to the operator who can confirm or cancel the reservation.
- Immediate mode: the system checks that all resources are available and starts the transmission immediately. The average time taken for the video to be received on site is about 40 seconds.

The operator also chooses the transmitting and receiving chains, the MPEG encoding quality and the video and audio encoder sources. The transmission can be encrypted with a fixed key. This is generated at random and is different for every transmission.

The operator can subsequently modify or delete the reservation.

In all cases, the system queries the database server to confirm whether the transmission can take place with the specified parameters (time, receiving or transmitting chain, etc.).

All transmission information is sent to all sites in order to update local transmission playlists.

A **main control station** (Central Operation Centre) holds the playlist of all a customer’s transmissions. It receives the information from the database in real time and can thus update all the local playlists. It manages transmission synchronisation.

A number of **local control stations** (Local Operation Centre) hold the local site playlist. They also manage all the components of the transmitting and receiving chains. They are piloted and updated by the central control station. All video equipment is managed by SNMP.

Description of a transmission: *(cf. accompanying diagram)*

- A few seconds prior to the start of transmission, control of the equipment involved in transmission.
- Activation of the transmitting chain: the system (Central Operation Centre) sends the activation order to the transmitting chain.
- Activation of the receiving chain: the system (Central Operation Centre) sends the activation order to the receiving chain(s).
- Carrier set up on the transmission site.
- Eb/No value measured on the receiving site(s)
- Transmission status updated in the database (Transmission in progress).
- Periodic transmission control (Eb/No measured on each receiving site).
- Transmission stopped on the transmitting site carrier (IFL switched to Off). Management of some SMNP Traps deactivated.
- Transmitting chain deactivated.
- Receiving chain deactivated.
- Transmission status updated in the database (Transmission over) (Eb/No Start, Eb/No End, Eb/No Num. Threshold overshoot).
- Reactivation of SMNP Traps.

Implementation of a U-Share system mainly involves:

- a centralised management network tool for managing video traffic and supervising network resources;
- a Local Operation Centre which can dialogue in SNMP with local equipment, including those described by MIB and supporting an SNMP agent;

In addition, use of this service ensures 3 major matters are dealt with:

- Ensuring constant availability of a network for transmission between fixed or mobile production centres.
 - Independent and automatic transmission management and optimisation.
 - Exchanging voluminous image files between production centres without exceeding budgets.
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