Adding metadata and file transfer to the News Exchange

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How?

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-By using the POPs and SuperPOPs distributed to Eurovision members and connected to Xtranet (data channel over satellite).

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What is a POP?

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-A POP (Point Of Presence) is the preferred way to communicate news related data from Geneva to the Eurovision members. It is handling the main part of the metadata.

Technically, is a

1. Device: a computer acting as web/ftp/streaming server, controlled and fed over satellite from Geneva HUB. Data is prepared/packaged in advance in Geneva and then "pushed" into local POPs via the Xtranet carrier (the data channel over satellite). The user is then able to access this data locally (from his POP) taking advantage of the proximity arrangement.

2. Service: data preparation, implementation and support of the abovementioned

functions

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What is a SuperPOP?

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-A SuperPOP (Super Point Of Presence) is the video broadcast complement of the existing POP.

Technically, is a

1. Device: a "video/transport stream" file server with

    - Record and Edit functions controlled centrally from Geneva HUB

    - Play and File Transfer controlled locally by the user

2. Service: implementation and support of the abovementioned functions and integration with the existing POP services

What is the role of a SuperPOP?

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-   To enhance the Speed, Availability and Convenience of the Eurovision's News Exchange

-   To introduce video file transfer capabilities at user's premises

-   To support future developments of Eurovision services (FiNE, HDTV, Sports etc.)

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How it works?

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- The video content is "ingested" -mainly- as MPEG Transport Stream, directly from satellite (without being decoded to uncompressed format). Then it is (roughly) edited and presented as "files" to the user, ready to be Played or transferred to other video systems. A second possible "ingestion" method is (direct) file transfer (e.g. over fibre).

EBU controls directly, via satellite, the start/stop/rough-edit/transfer/availability commands. Once a file has been made available to a client, flagged "ready to use", the client could transfer it (as a file, to a local video editor) or play it (as video SDI) whenever is convenient for him.

Here it is the timeline of activities:

1. **BEFORE TRANSMISSION:** in the (normal) POP website, and probably in the local news system too, there is an entry/mention/dopesheet announcing the existence of the material and a possible timing for transmission.

2. **AT THE START OF THE TRANSMISSION**:

    - on the 4wire circuit (NCC) there is an announcement

    - on satellite (Xtranet) there is sent a START-REC "signal" for all recording systems (the equivalent of today's modem generated "startrec")

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3. **DURING THE TRANSMISSION:**

   - the existing (today's) arrangements are kept: the user's video server/Beta/DVCPRO etc. are able to record the video coming from satellite

   - independently, the SPOP will start also recording

4. **AT THE END OF THE TRANSMISSION**:

   - on the 4wire circuit (NCC) there is an announcement

   - on satellite (Xtranet) there is sent a STOP-REC "signal" for all recording systems (the equivalent of today's modem generated "stoprec")

5. **LESS THAN 1 MIN. AFTER THE END OF THE TRANSMISSION (4.)**

The entire recording (video broadcast quality) is made available in the SPOP (for Play or File Transfer)

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6. **LESS THAN 5 MIN. AFTER THE END OF THE TRANSMISSION (4.)**

The additional metadata (keyframes, time indexes, video low-res etc.) is made available in the normal POPs

7. **2-5 MIN. AFTER** (6.)

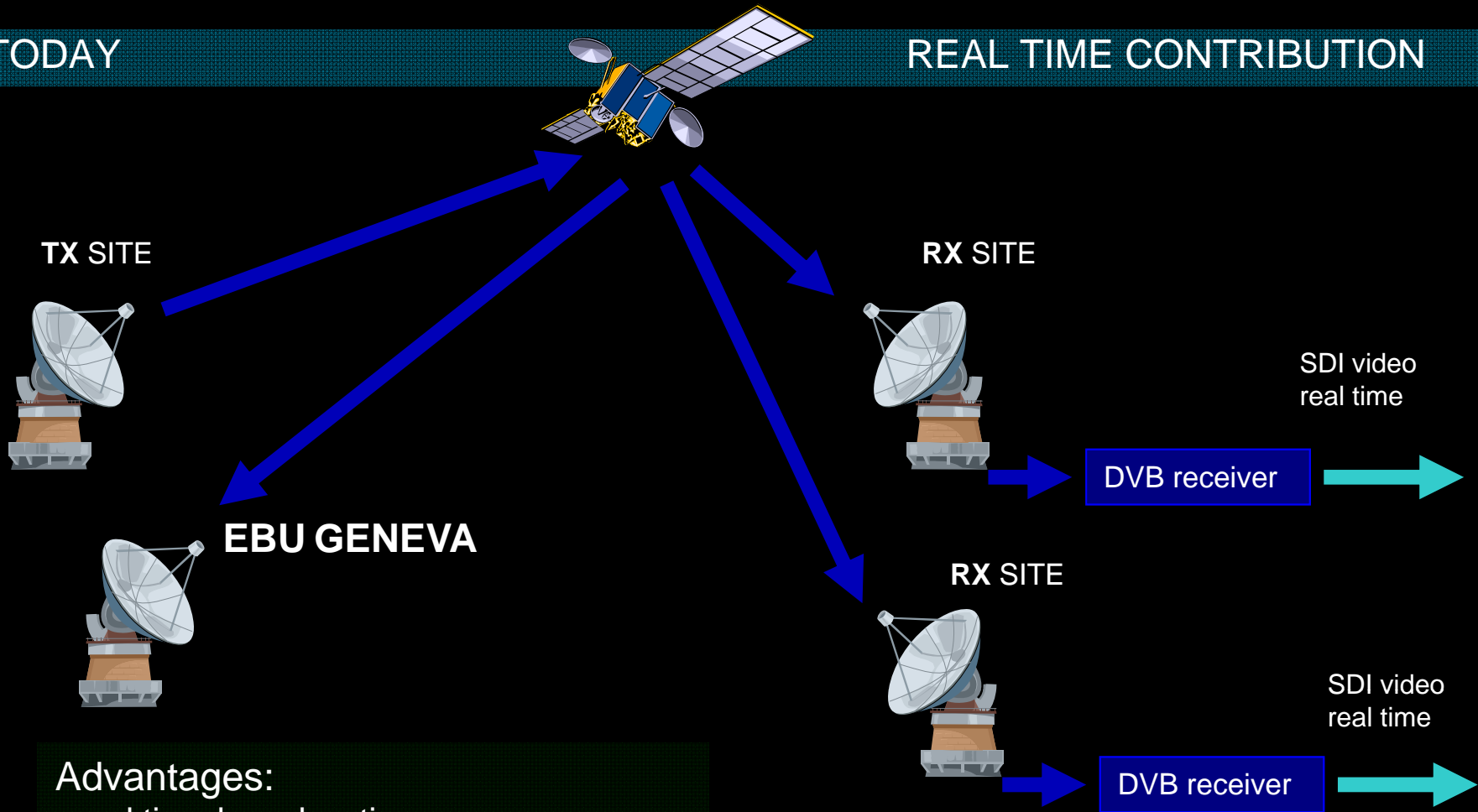Individual items (video broadcast quality) are also available in the SPOP

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More details?

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TX SITE

RX SITE

SDI video
real time

EBU GENEVA

DVB receiver

RX SITE

SDI video
real time

DVB receiver

Advantages:
- real time broadcasting
- simultaneous availability for all users

Disadvantages :
- recording synchronization for all users

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REAL TIME CONTRIBUTION
AND VIDEO FILE AVAILABILITY
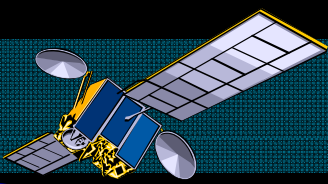
TX SITE

RX SITES

Xtranet

data

channel

SDI video
real time

DVB receiver

EBU GENEVA

SDI video
real time

DVB receiver

ASI

SDI video
recorded

Dopesheets
+ Low res
(metadata)

POP

SUPER**POP**

V I D E O   M A T R I X

RECORDING

VIDEO
ANALYZE

METADATA
CREATION

whole RECORDING VIDEO file

ITEMS
available
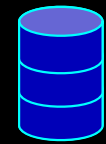
File transfer

Local EDITING System

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Where is metadata present?

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-In the "normal" POP.

The POP configuration is prepared to handle different types of data presentations: web, ftp, video (preview) streams. It is already in use and sometimes integrated into local news systems, therefore metadata extensions are easier to integrate and support.

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Is MXF used?

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- A second phase of SPOP development will consider MXF wrapping for the existing video content (format). It is a software solution; no hardware has to be changed.

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Are there changes in today's EVNs workflow on the user side?

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The existing workflow could be maintained for the distribution of EVNs! That is the case of REAL TIME CONTRIBUTION (see title) . But, instead of only 1 instance (moment) when video is available on satellite (as it is today), with the SPOP will be 3:

1. original (on-air) transmission

2. recorded transmission, available immediately at the end of the "on-air" one

3. recorded individual items (rough edit), available minutes after the "on-air" transmission

Cases 2. and 3. could be "played" or "file transferred" whenever is convenient for user. This is an added functionality -VIDEO FILE AVAILABILITY-

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This functionality offers to the user:

- flexibility in programming recording resources

- resilience for "last minute announced" news items

-      convenience

The client may change his workflow in order to take advantage of these. A suggestion could be to take the "hot" news in "classic" arrangement and for the other items to use the SPOP like a "huge" inbox.

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What are the necessary preparations?

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-Installation: rack space (6u), L-band W3 (H), ASI output from the sat. receiver dedicated for PNN (J2 ch.), video/audio distribution (same arrangement as for the "news" receiver), high-speed Ethernet connection (for file transfer)

-IT specifics: the SPOP needs a connection to a NTP server for normal functionality. In order to transfer the video files faster it is required to be directly connected to the high speed (Gigabit) network used by the in-house video servers. The SPOP does not need to access Internet. The protection of the SPOP (much like other video servers) must be done by existing arrangements (external firewalls, etc.) – due to stability and speed considerations, few if any security patches will be provided/installed!

-Video content delivery from SPOP:

    1. Playout as SDI – most compatible, no additional costs but limited at 1x speed

    2. File transfer – much faster than real time (up to 20x) but the file system needs to be compatible between different video servers. As the SPOP is using the original MPEG2 of the satellite (adapted for transport rather than editing), a transcoding process is necessary in most of the cases.

The transcoding process is treated separately, case by case, and , if provided, it will be considered an additional service.

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What is the summary of advantages of this solution?

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Advantages:

- **Total compatibility**: the existing video content delivery (MPEG/DVB) is preserved; all functionalities are added, not replaced

- **No additional bandwidth** required: the biggest advantage, as the material is recorded directly from satellite (MPEG/DVB). By consequence, it is not necessary to be transmitted twice, once as "real-time" video and once as file; still the material is available as file for the user (of course time-shifted relative to "live")

- **Fast availability**: few moments after the end of the transmission

- **Preserve quality**: exactly the same quality as of the "real-time" transmission; no supplementary encoding-decoding process

- **Multifunctional**: "classical" Video File transfer is only a subset of SPOP functions! SPOP could "ingest" a material as a stream recorder OR via file transfer; the file transfer could also occur on satellite or on fibre (FiNE ready).

- **HDTV ready**: by changing only the output decoder, the SPOP can handle also HDTV

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Thank you!

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