



ACCESSIBILITY AND DATA IN TV

Services, workflow and infrastructure

Enric Torres i Feixas
enric@anglatecnic.com

www.anglatecnic.com | +34 934 488 095 | admin@anglatecnic.com

C/ Pintor Ribalta, 13 Local 3 | 08028 Barcelona, Spain

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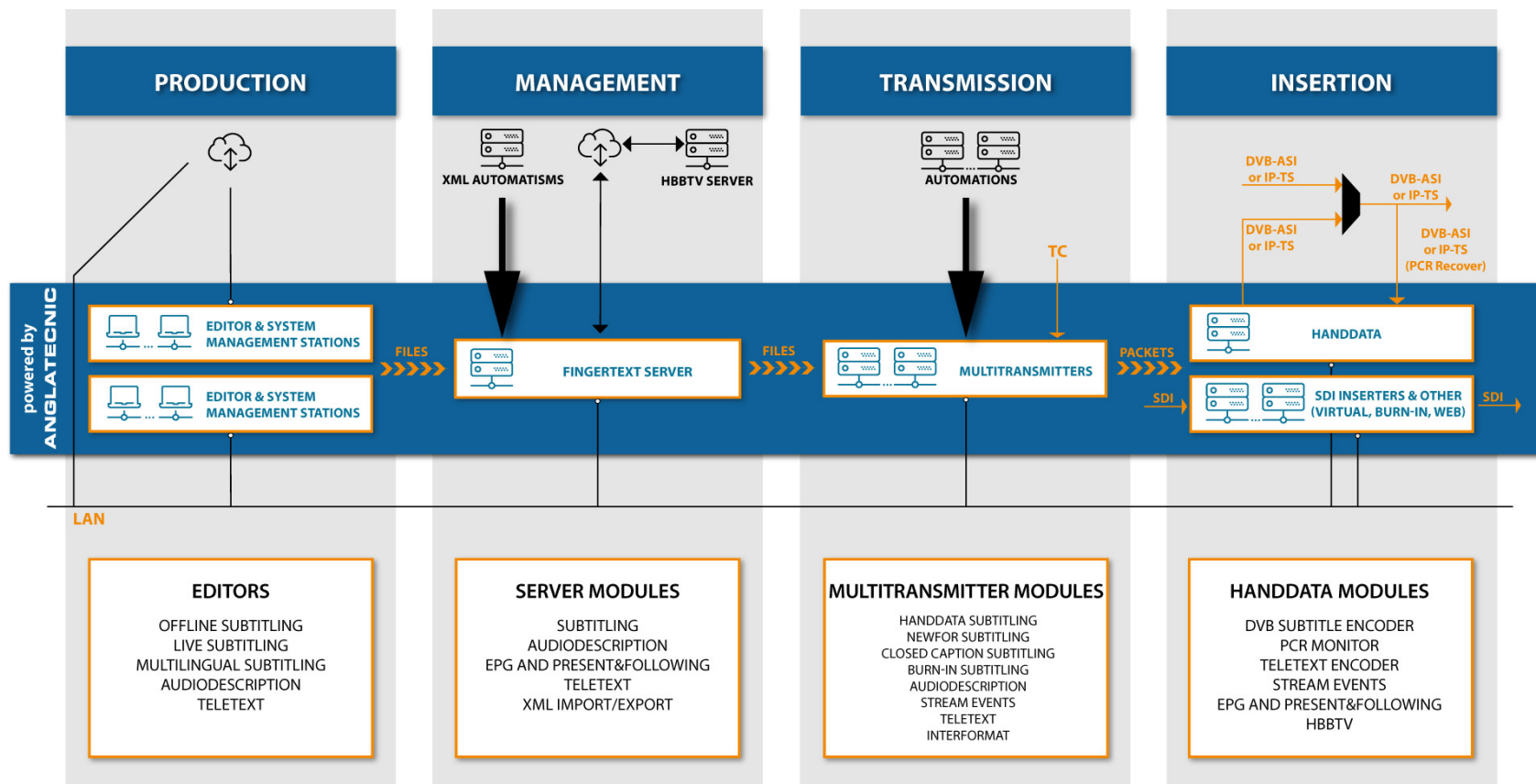
Who we are

- **Anglatècnic's personnel are Telecommunications and Computer Engineers developing projects for:**
 - **The broadcast sector (Television Stations).**
 - **The IT sector (New Technologies).**
- **Our developments consist of:**
 - **Tailor-made solutions and projects.**
 - **Broadcast innovative products for immediate installation at TV stations.**
 - **New Technology products for different types of businesses, such as hospitals, schools, etc.**
- **Fingertext is modular and scalable solution from Anglatècnic that allows a TV station to easily provide accessibility and data services embedded in the TV signal.**

Accessibility and data services in TV

- **Subtitling:**
 - People with hearing difficulties: Aenor norm UNE 153010 (Spain).
 - Public spaces (waiting rooms, restaurants, etc.).
 - Elderly people (sharing with family, etc.).
 - Support (languages, low volume, etc.).
- **Audiodescription:**
 - People with visual impairment: Aenor norm UNE 153020 (Spain).
- **Sign Language:**
 - People with hearing difficulties: Aenor norm UNE 139804 (Spain).
- **Teletext:** fast access to information with remote control of the TV set.
- **HbbTV and Stream Events:** enhanced information (images, videos, etc.)
- **EPG and Present & Following:** Information from broadcast scheduling.

Fingertext Workflow and tech Infrastructure



The 4 columns (Production, Management, Transmission and Insertion)

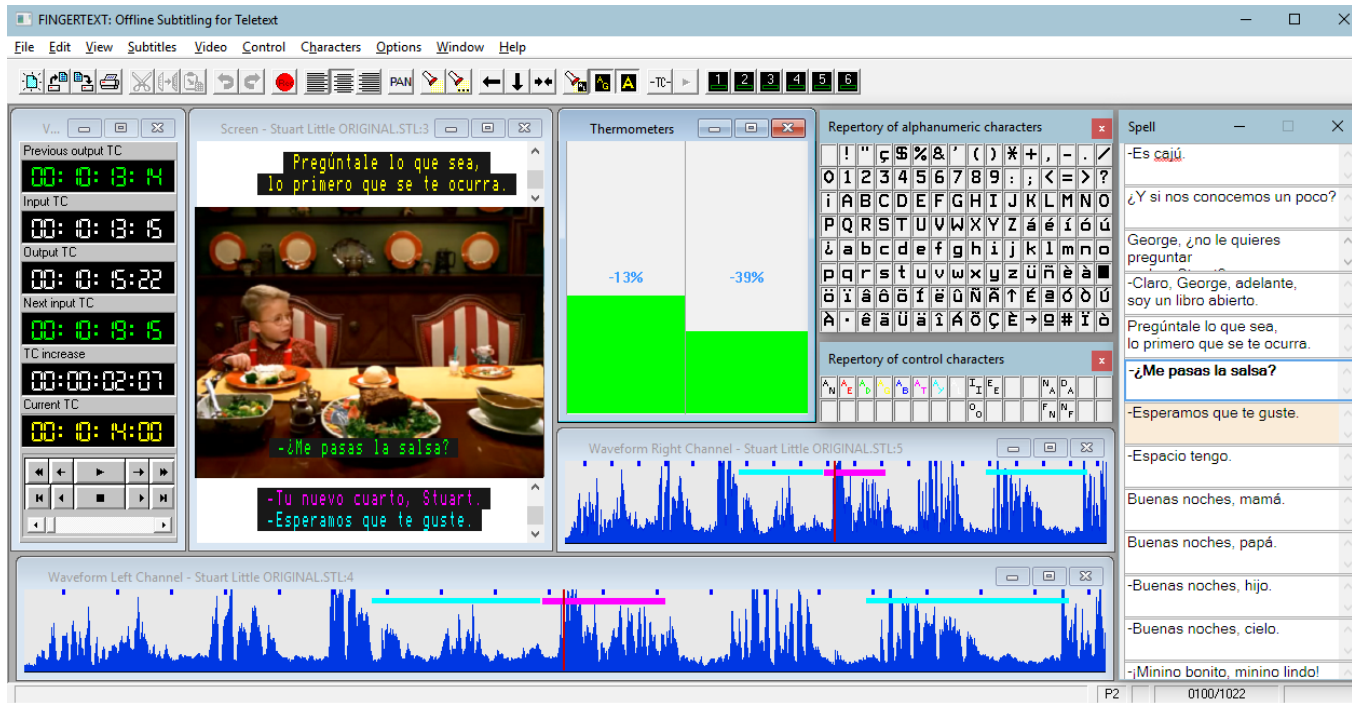
Production

Management

Transmission

Insertion

Offline subtitling for people with hearing impairments



Fingertext Offline Subtitling Editor

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Production

Management

Transmission

Insertion

Offline subtitling for people with hearing impairments

- Video files with different "frame rate" and aspect ratio.
- Graphic help: audio from the program, reading difficulty, etc.
- Subtitles in any position on the screen.
- Work with Characters (configurable and easy to switch).
- Agile editing of time codes, fast keys and quick navigation.
- Automatic checks and simulations.
- Files " * .STL" (EBU N19 format for the exchange of subtitles).
- Import and export to other formats (without styles: SRT, TXT).

Production

Management

Transmission

Insertion

Other offline subtitling



Fingertext Multi-lingual Subtitling Editor

Production

Management

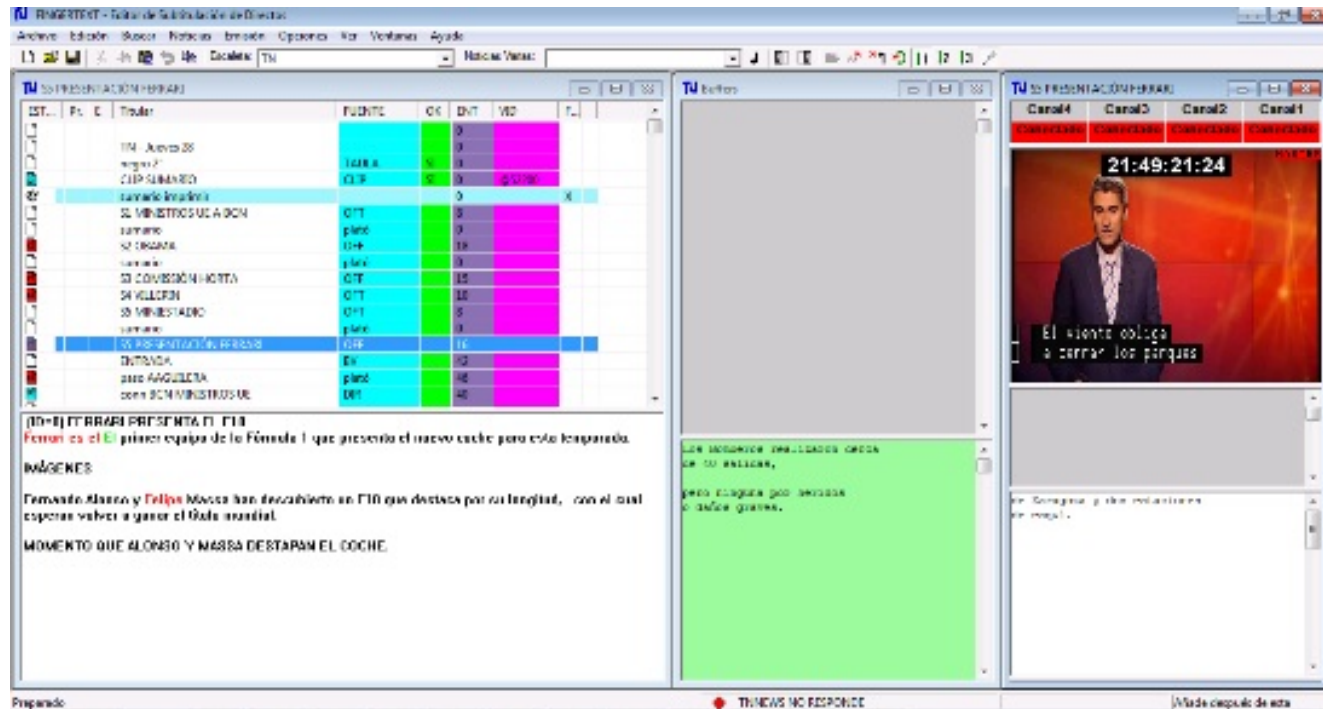
Transmission

Insertion

Other offline subtitling

- **Video control, graphic help, editing and navigation similar to offline subtitling for people with hearing difficulties.**
- **Aid for translation.**
- **Any alphabet.**
- **Exports to formats with styles (TTML, EBU-TT, webVTT, ...).**
- **Record the result (burn-in subtitles).**

Live Subtitling



Fingertext Live Subtitling Editor

Production

Management

Transmission

Insertion

Live Subtitling

- **With scripted texts:**
 - Manual or automatic capture of news systems (I-News and the like).
 - Differences between automatic captures.
- **With non-scripted texts:**
 - "Re-speaking" technique
 - Review "Re-speaking" texts and master-slave operation.
- **Smart Segmentation into subtitles.**
- **Quick editing, abbreviations, change of characters, change of position in the screen, etc.**
- **Automatic delivery**

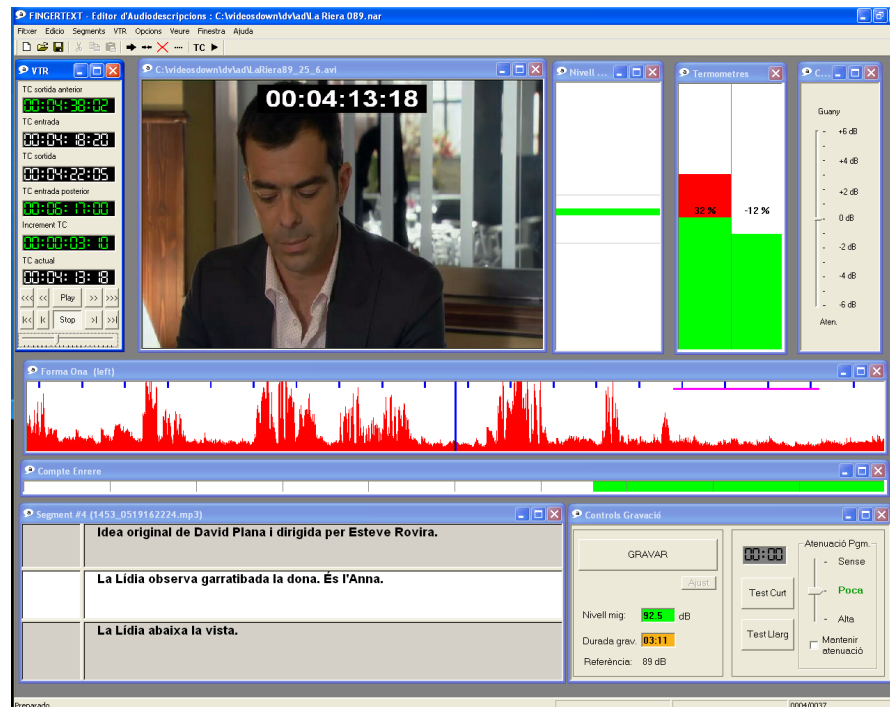
Production

Management

Transmission

Insertion

Audio description for people with visual impairment



Fingertext Audio Description Editor

Production

Management

Transmission

Insertion

Audio description for people with visual impairment

- **Video control, graphic help, editing and navigation same as offline subtitling for people with hearing difficulties.**
- **Preparation of the script.**
- **Recording of segments of audio description independently.**
- **Audio help: graphic visualization of the recording, automatic levels, etc.**
- **Segments settings: gain, program attenuation, etc.**
- **Simulation of results and at segment level.**
- **“.NAR” and “.ESF” files (only segments and index).**
- **Audio track complete with or without mixing.**

Production

Management

Transmission

Insertion

Signed language



Fingertext Signed Language Emitter

Production

Management

Transmission

Insertion

Signed language

- **Video mix generation: composition with the webcam video received (the person making the interpretation in sign language) and the video from antenna (programme video).**
- **Delivery of mixed video in MPEG DASH Live format (video h264 and AAC audio at 2 or 3 Mbps) to the streaming server on the Internet.**
- **Basic requirements:**
 - **Internet connection (a minimum of 6Mbps of download and upload is recommended).**
 - **TV antenna connection.**

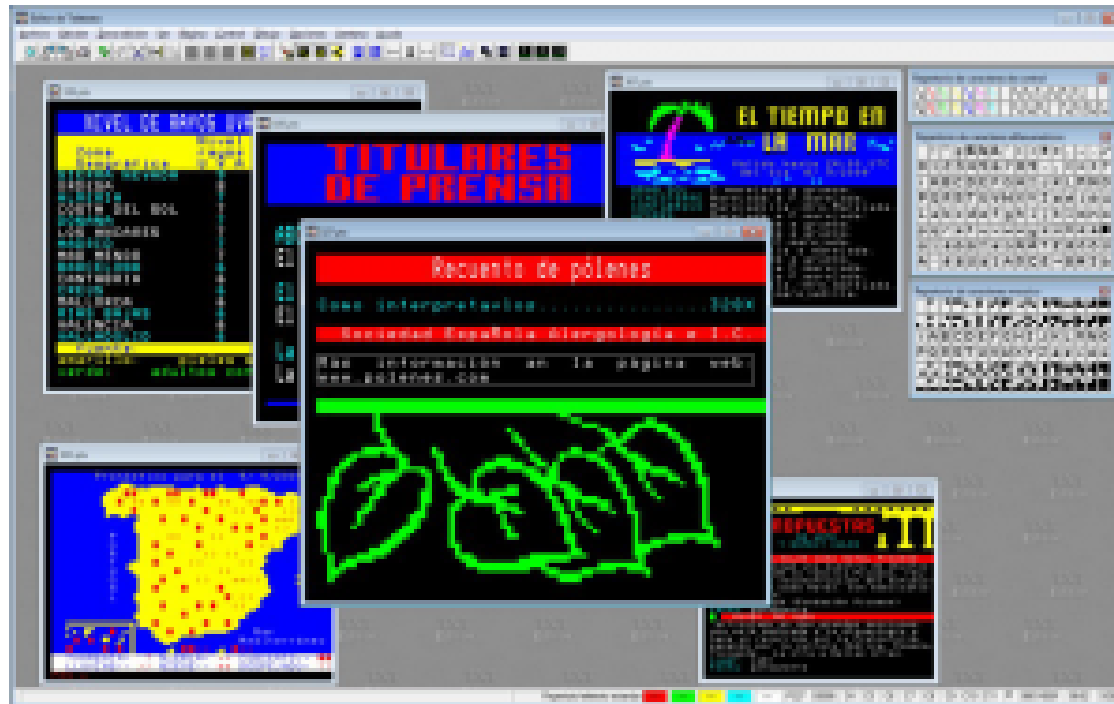
Production

Management

Transmission

Insertion

Teletext



Fingertext Teletext Page Editor

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Production

Management

Transmission

Insertion

Teletext

- **Editor that meets the requirements of the Improved Teletext 1.5 level specifications (ETSI EN 300 706).**
- **Configurations both at page level and at subpage level.**
- **Preview the page as seen on a television with teletext.**
- **Aids for the rapid creation and edit of pages such as display of control characters, areas of publication, protection masks, mosaic fonts with mosaic teletext characters, drawing tools, etc.**

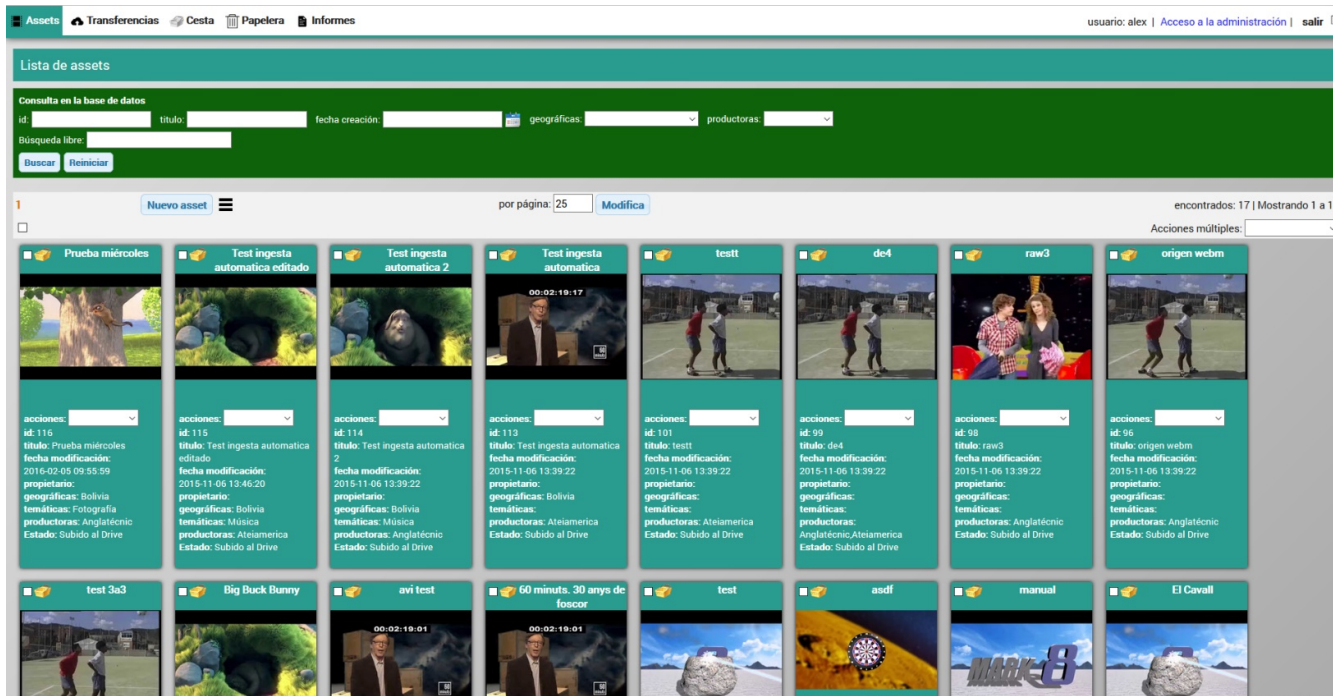
Production

Management

Transmission

Insertion

Submitting video files



The screenshot displays the NetClip system interface. At the top, there are navigation tabs: Assets, Transferencias, Cesta, Papelera, and Informes. The user is logged in as 'alex' with a link to 'Acceso a la administración' and a 'salir' button. Below the navigation bar is a section titled 'Lista de assets' with a search bar and filters for 'id', 'titulo', 'fecha creación', 'geográficas', and 'productoras'. A 'Búsqueda libre' field is also present. The main area shows a grid of video assets, each with a thumbnail, title, and metadata. The assets include 'Prueba miércoles', 'Test ingesta automatica editado', 'Test ingesta automatica 2', 'Test ingesta automatica', 'testt', 'de4', 'raw3', 'origen webm', 'test 3a3', 'Big Duck Bunny', 'avi test', '60 minuts. 30 anys de fosc', 'test', 'asdf', 'manual', and 'El Cavall'. Each asset card shows details like 'acciones', 'id', 'titulo', 'fecha modificación', 'propietario', 'geográficas', 'temáticas', 'productoras', and 'Estado'.

NetClip system

Production

Management

Transmission

Insertion

Submitting video files

- In order to create the accessibility content of a television program the corresponding video file is needed.
- It is recommended to work with low resolution video files (smaller size) that allow frame-to-frame scrolling.
- It is advisable to automate the sending and transcoding of the video files to the companies that will create accessibility content.

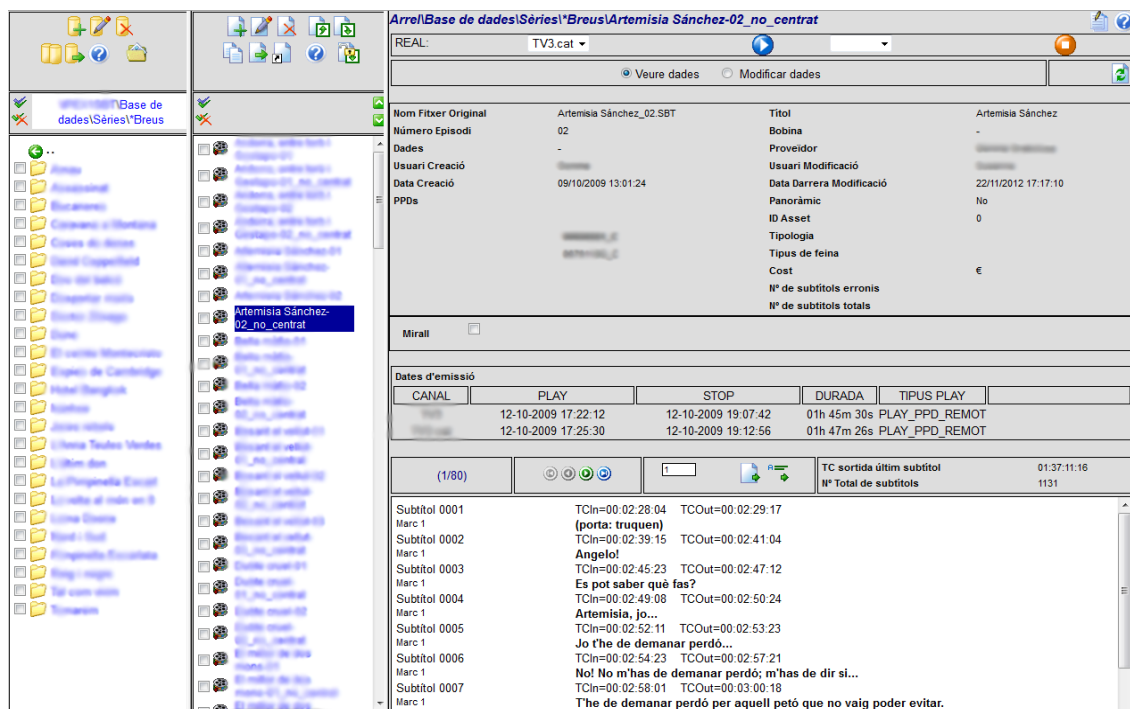
Production

Management

Transmission

Insertion

Management and administration



The screenshot shows the Anglatecnic Management and administration interface. The left sidebar contains a tree view of the database structure, including 'Base de dades\Sèries\Brous' and 'Artemisia Sánchez-02_no_centrat'. The main window displays the 'Artemisia Sánchez-02_no_centrat' series details, including episode information, creation date, and a list of subtitles with their respective timecodes and durations.

Subtítol	TCIn	TCOut
Subtítol 0001	TCIn=00:02:28.04	TCOut=00:02:29.17
Subtítol 0002	TCIn=00:02:39.15	TCOut=00:02:41.04
Subtítol 0003	TCIn=00:02:45.23	TCOut=00:02:47.12
Subtítol 0004	TCIn=00:02:49.08	TCOut=00:02:50.24
Subtítol 0005	TCIn=00:02:52.11	TCOut=00:02:53.23
Subtítol 0006	TCIn=00:02:54.23	TCOut=00:02:57.21
Subtítol 0007	TCIn=00:02:58.01	TCOut=00:03:00.18

Fingertext Server

www.anglatecnic.com | +34 934 488 095 | admin@anglatecnic.com

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Production

Management

Transmission

Insertion

Management and administration

- **Restricted access and different profiles (external company, external system, management, etc.).**
- **Structured cataloguing of all the accessibility and data contents (teletext, subtitlings, audio descriptions, EPGs, etc.) for fast access.**
- **Assignment of programme ID to the corresponding accessibility and data contents in order to trigger the services automatically.**
- **Exports for multiple media (STL, TTML, EBU-TT (D), WebVTT, etc.).**
- **Automatic imports (teletext content via XML, EPGs, subtitling files, audio descriptions files, etc.).**
- **Information for external systems via webservice (state, EPG, ...).**
- **Statistics and new records (database events).**

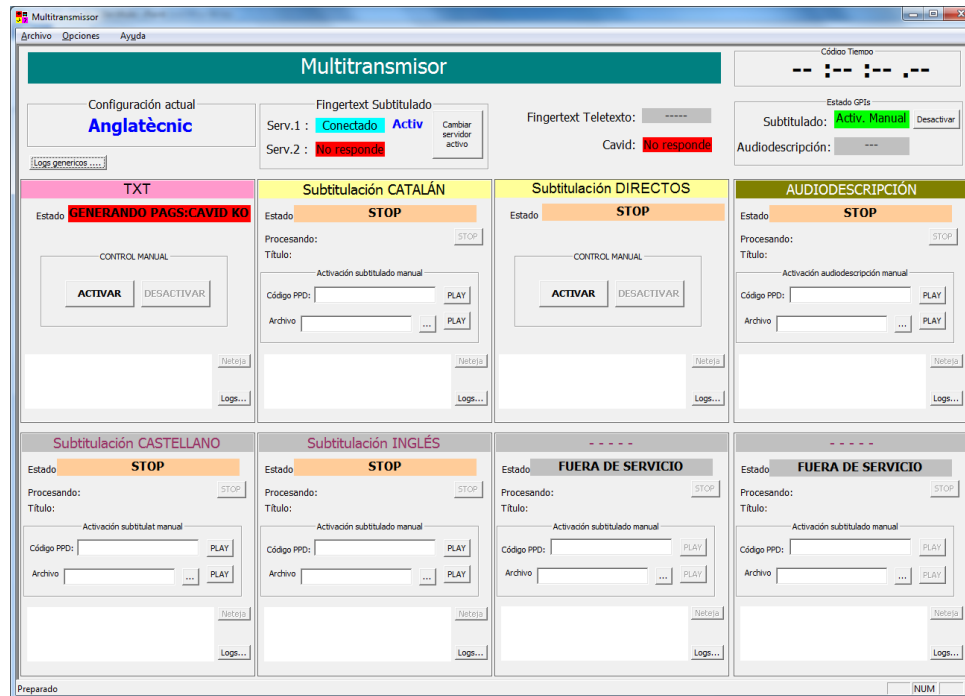
Production

Managing

Transmission

Insertion

Transmission in real time



Fingertext Multitransmitter

Production

Managing

Transmission

Insertion

Transmission in real time

- Preparation in real time of teletext carousel, different types of subtitles (teletext, DVB, live, etc.), audio description segments, Stream Events for HbbTV, Present and Following.
- Accordingly to the TV Playout:
 - Orders:
 - from the Automations (Cue, Play, Stop, etc.).
 - manually (select and execute file).
 - Time code (TC).
- Accepting input protocols (from production tools) and sending output protocols (for inserters).
- Automatic generation of files (saving live subtitling to file to be used in reemissions).

Production

Managing

Transmission

Insertion

Teletext and Subtitling



Different insertion equipment used by Fingertext

Production

Managing

Transmission

Insertion

Teletext and Subtitling

- **Different types of insertion:**
 - **Teletext and subtitling for teletext in SD-SDI signal into the corresponding audio-visual channel through CAVID.**
 - **Closed Caption in SD-SDI signal into the corresponding audio-visual channel.**
 - **OP47 Subtitling in HD-SDI signal into the corresponding audio-visual channel.**
 - **Teletext and all types of subtitling in TS into all audio-visual services / channels through HandData.**
 - **Burned-in subtitles.**
 - **Other protocols and formats (Internet, HbbTV).**

Production

Managing

Transmission

Insertion

HbbTV and Stream Events



HbbTV application by Anglatècnic on a TV receiver

Production

Managing

Transmission

Insertion

HbbTV and Stream Events

- Signals in the TS the path of the HbbTV application on the Internet using HandData as TS inserter.
- Applications published on the Internet.
- Using CDN when video is used.
- Launches asynchronous applications as requested by TV Station by sending Stream Events through the TS by using the HandData as TS inserter.
- Capability to obtain enriched metrics of audience.

Production

Managing

Transmission

Insertion

EPG and Present&Following



Pasapalabra

02:00
BE MAD MOVIES: 'PÁNICO EN EL MAR'
Película
Duración Aprox.: 86'
Título Original: SEA GHOST
Int.: Billy Warlock - Kurt Max Runte - Peter Graham-Gaudreau - Catherine Lough Haggquist - Jake D. Smith - Warren Christie - Colin Lawrence.
Dtor.: Jim Wynorski
Producción: Americana/ Color/ 2004/ Accion
Sinopsis: En una plataforma petrolífera del golfo de México se realizan experimentos de alto secreto por orden del gobierno de EEUU. El objeto de estudio es un extraño ser

5 15:35 DEPORTES D 9	15:45 EL TIEMPO 9	16:00 SÁLVAME LIMÓN D 9	16:59 SÁLVAME NARANJA D 9
12:00 LAS MAÑANAS DE D 9	14:15 NOTICIAS CUATRO D 9	14:44 EL TIEMPO 9	14:55 NOTICIAS CUATRO D 9
F. 13:20 LA QUE SE AVECINA: D 9	15:09 LA QUE SE AVECINA: D 9	16:59 LOL :-) D 9	17:05 LOL :-) D 9
Boing 13:34 DORAEMON D 9	13:59 CLARENCE: 'COLEGIO D 9	14:10 CLARENCE: D 9	14:24 CLARENCE D 9
E. 19:59 C.S.I. NEW YORK: D 9	20:40 C.S.I. NEW YORK: D 9	21:40 HAWAI 5.0: 'NEGOCIO D 9	22:20 HAWAI 5.0: 'ADIÓS. D 9
d. 13:39 THE CLOSER: D 9	14:19 THE CLOSER: 'SOCIO D 9	15:15 THE CLOSER: D 9	16:05 THE CLOSER: 'NO ES D 9
BE MAD 23:44 BE MAD MOVIES: D 9	02:00 BE MAD MOVIES: D 9	03:24 BE MAD EXTREME D 9	03:24 DOG EL D 9

Salir El Tiempo Noticias Guía de televisión Navegación OK Seleccionar

Electronic programme guide (EPG)

Production

Managing

Transmission

Insertion

EPG and Present&Following

- Insertion in the TS through the HandData of the EIT tables in order to:
 - send the EPG programming guide
 - submit the present and following information.
- Requirements:
 - receiving the real rundown of programs.
 - receiving all updates of events of the rundown.

Companies that intervene in the process

- **Service companies to create accessibility and data content (associations of deaf people, private companies, etc.):**
 - **Column 1: production.**
- **Audio-visual companies (tv broadcasters, theatres) in order to add accessibility and data:**
 - **Column 2: managing.**
 - **Column 3: transmission.**
 - **Column 4: insertion.**

Conclusions

- **Complex infrastructure (accurate planning is required).**
- **Complex operation (needs planning for the operation of the services):**
 - **coordination is necessary between the owners of the audio-visual content and companies that provide the accessibility and data services (for example, deliver the video files fast and in advance).**
 - **an infrastructure that allows automation and reusing of the accessibility and data content is necessary.**
- **Fingertext is a modular, scalable system designed to allow companies to start with a simple system and build from there when new needs arise.**

P.D.: Introduction to the ImAc project

Anglatècnic is one of the nine partners of the Immersive Accessibility project (ImAc project) financed by the European Union Research and Innovation programme Horizon 2020 among other private companies, universities, tv stations and public centers.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 761974.



P.D.: Introduction to the ImAc project

- **An immersive platform for all citizens: subtitling, audio description, audio subtitles and sign language services for immerse content such as 360 videos and VR.**
- **The objectives of the project are:**
 - **Create accessible and fully personalised services for all citizens.**
 - **Deliver novel resources for the broadcasting industry to provide adapted content ensuring accessibility in immersive environments.**
 - **Demonstrate the tools and platform in open pilots.**
 - **Work towards standardisation of accessibility data in an immersive content environment.**
 - **Maximize impact on society delivering real and useful solutions.**



Thank you for your attention!

Enric Torres i Feixas
enric@anglatecnic.com
