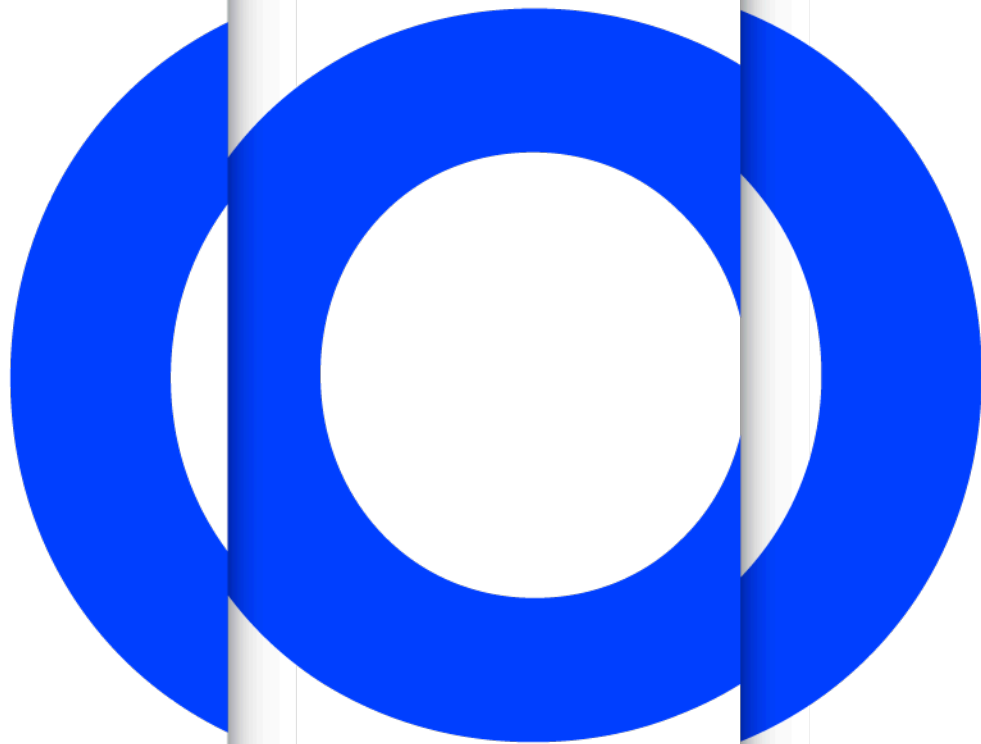


EBU

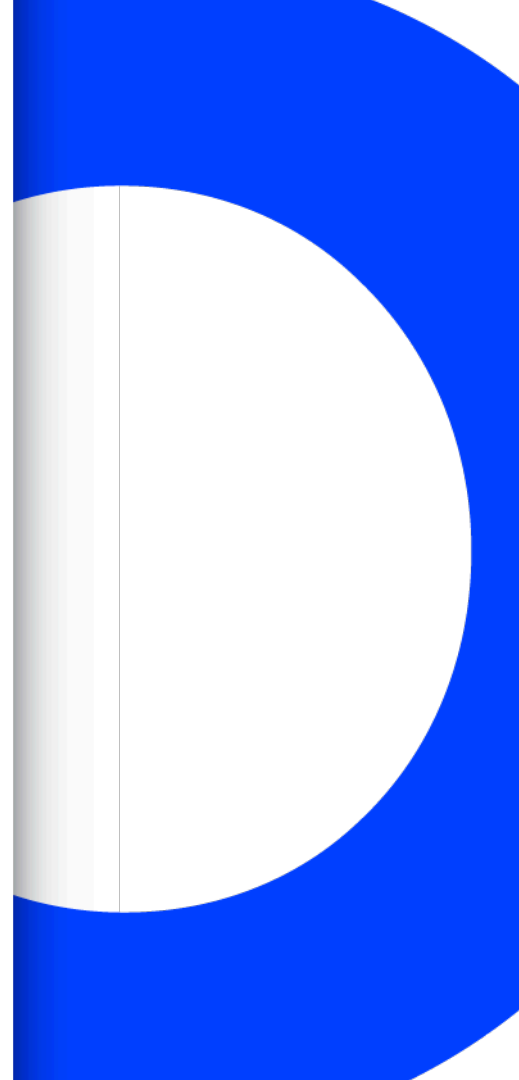
OPERATING EUROVISION AND EURORADIO



ADDING SUBTITLES TO DASH.JS

SOLÈNE BUET

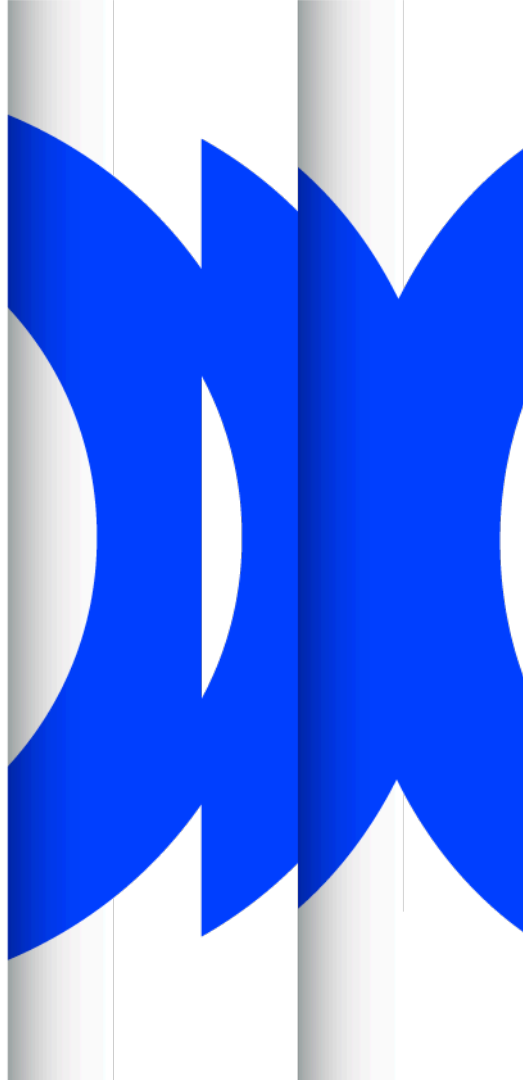
30.01.2016



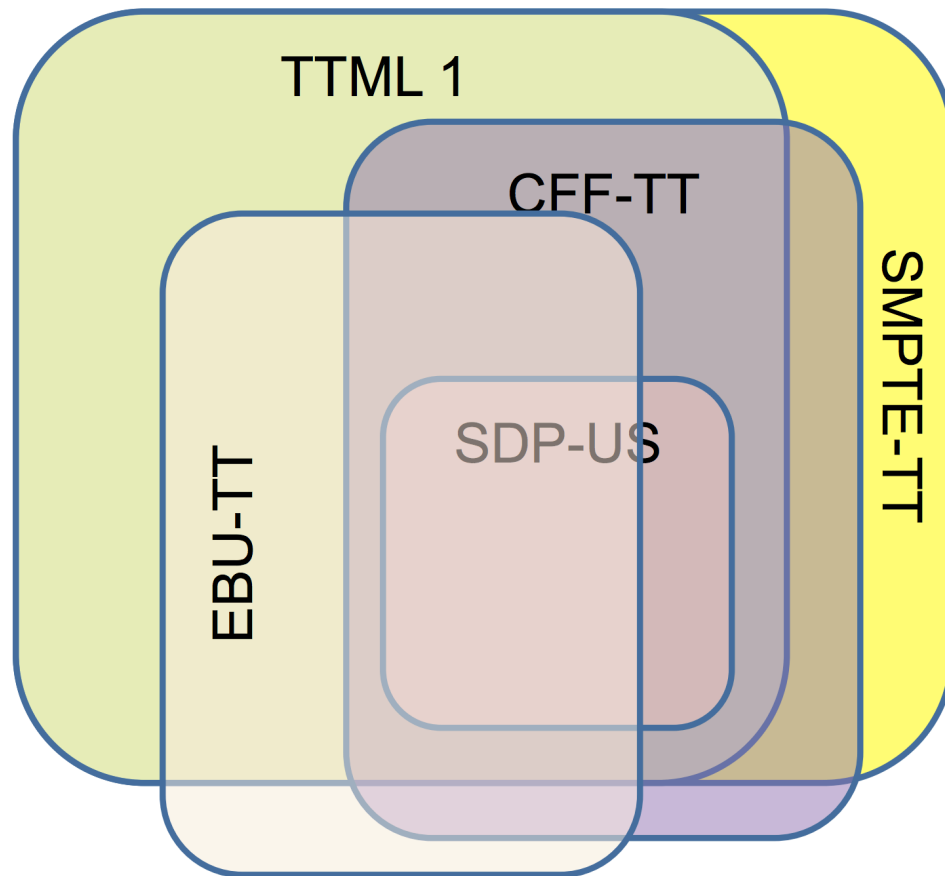
CONTENT

- ◆ **PRESENTATION**
- ◆ **PROJECT & EBU-TT-D**
- ◆ **DASH.JS & SUBTITLING**
- ◆ **PROCESS & DEVELOPMENT**
- ◆ **FINAL FEATURE - DEMO**
- ◆ **QUESTIONS**

EBU-TT-D



SUBTITLING: EBU-TT-D



SUBTITLING: EBU-TT-D

Styling:

```
tts:backgroundColor = <ebuttdt:distributionColorType>
tts:color = <ebuttdt:distributionColorType>
tts:direction = ( 'ltr' | 'rtl' )
tts:fontFamily = As defined in TTML 1.0 [1], section 8.2.8
tts:fontSize = <ebuttd:distributionLengthType>
tts:fontStyle = ( 'normal' | 'italic' )
tts:lineHeight = ( 'normal' | <ebuttd:distributionLengthType> )
tts:fontWeight = ( 'normal' | 'bold' )
tts:textAlign = ( 'left' | 'center' | 'right' | 'start' | 'end' )
tts:textDecoration = ( 'none' | 'underline' )
tts:unicodeBidi = ( 'normal' | 'embed' | 'bidiOverride' )
tts:wrapOption = ( 'wrap' | 'noWrap' )
ebutts:multiRowAlign = ( 'start' | 'center' | 'end' | 'auto' )
ebutts:linePadding = <ebuttdt:linePaddingType> >
```


Twinkle, twinkle, little bat!
How I wonder where you're at!

Background Color

In spring, when woods are getting green,
I'll try and tell you what I mean.

Color

Little birds are playing
Bagpipes on the shore,
erons stsiuot eht erehw

Direction /
Unicode-Bidi

"The time has come," the Walrus said,
"to talk of many things:
Of shoes, and ships, and sealing wax,
Of cabbages and kings,
And why the sea is boiling hot,
and whether pigs have wings."

Font Family

In autumn, when the leaves are brown,
Take pen and ink, and *write it down*.

Font Style

They told me you had been to her,
and mentioned me to him:
She gave me a good character
but said I could not swim.

Font Weight

He thought he saw an elephant,
That practised on a fife:
He looked again, and found it was
A letter from his wife.
"At length I realise," he said,
"The bitterness of Life."

Line Height

Then fill up the glasses
with treacle and ink,
Or anything else
that is **pleasant** to drink.

Font Size

The sea was wet as wet could be,
The sands were dry as dry.

Text Decoration

I'll tell thee everything I
There's little to relate.
I saw an aged aged ma
A-sitting on a gate.

Wrap Option

Text Align

'Tis the voice of the Lobster:
I heard him declare,
"You have baked me too brown,
I must sugar my hair."

Beware the Jabberwock, my son!
The jaws that bite, the claws that catch!

Beware the Jubjub bird, and shun
The frumious Bandersnatch!

Multi Row Align

Some **centered** text
on two lines.

Some **centered** text
on two lines.

Line Padding

SUBTITLING: EBU-TT-D

Positioning:

```
tts:origin = <ebuttd:distributionOriginType> #REQUIRED  
tts:extent = <ebuttd:distributionExtentType> #REQUIRED  
style = <xs:IDREFS>  
tts:displayAlign = ( 'before' | 'center' | 'after' )  
tts:overflow = ( 'visible' | 'hidden' )  
tts:padding = <ebuttdt:distributionPaddingType>  
tts:showBackground = ( 'always' | 'whenActive' )  
tts:writingMode = ('lrbt' | 'rltb' | 'tblr' | 'tblr' | 'lr' | 'rl' | 'tb')>
```


I sent a message
to the fish:

I told them
"This is what I wish."

The little fishes
of the sea,

They sent an
answer back to me.

X
Y

"To dine!" she shrieked in dragon-wrath.
"To swallow wines all foam and froth!
To simper at a table-cloth!"

Origin / Extent

Writing Mode

Display Align

"But wait a bit," the Oysters cried,
"Before we have our chat;
For some of us are out of breath
And all of us are fat!"

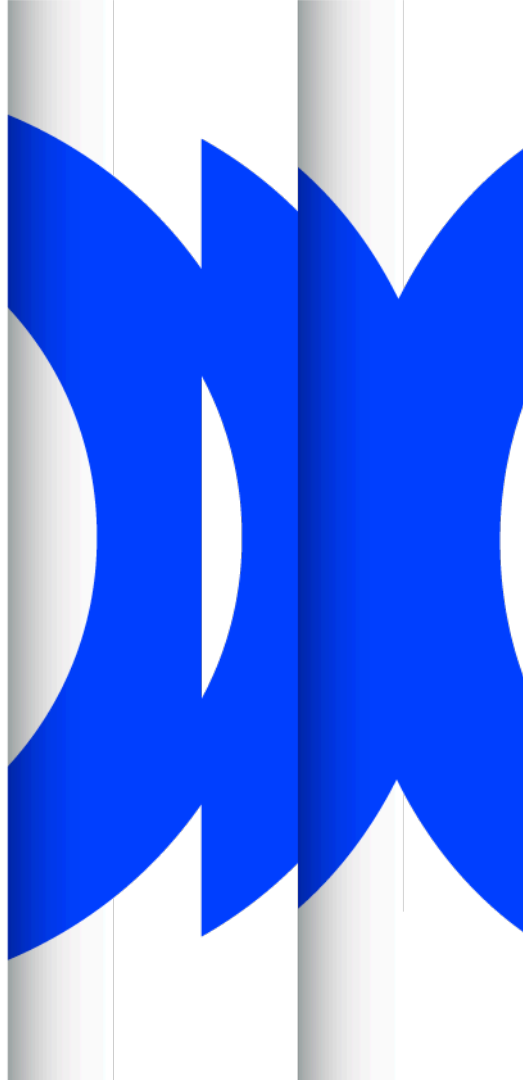
Overflow

Just the place for a Snark! I have said it twice:
That alone should encourage the crew.
Just the place for a Snark! I have said it thrice:
What I tell you three times is true.

Padding

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DASH.JS AND SUBTITLING



DASH.JS & SUBTITLING

DASH.JS...

1. ..decodes the fragments by parsing the ISOBMFF boxes;
2. ..creates a **VTTCue** with the **start** and **end** values of the document received;
3. ..adds the **text** parsed by the TTML Parser to the VTTCue;
4. ..adds the cue to the text track

Something missing?

DASH.JS & SUBTITLING

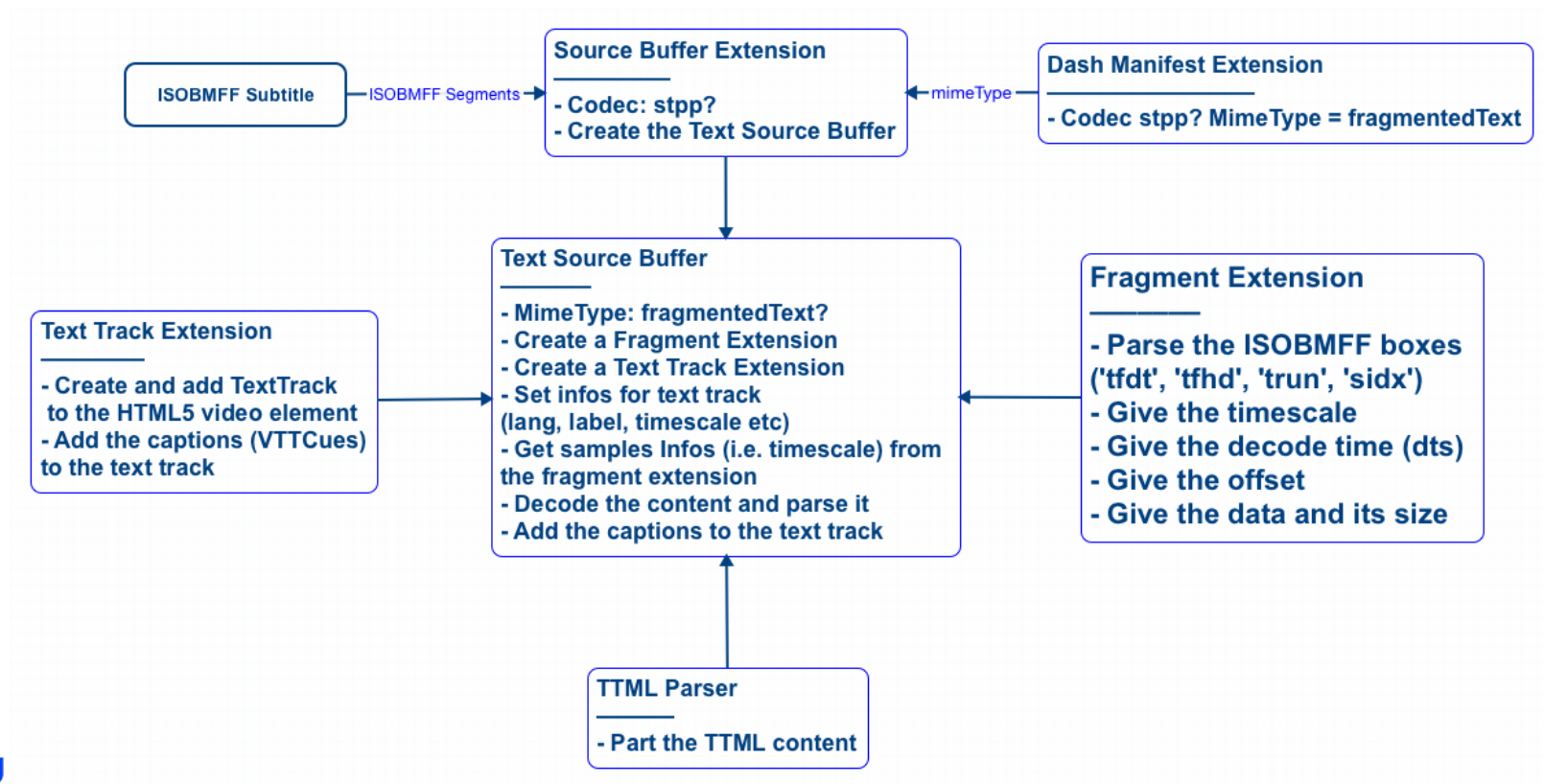
“What if I want my caption to be white with a green background?”

“What if I want my caption to avoid a certain area of my video?”

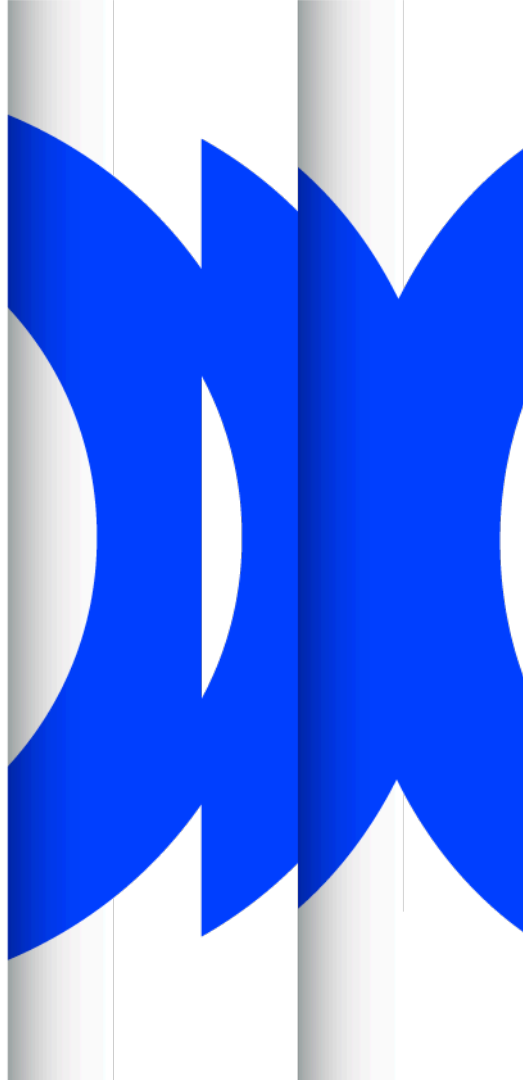
“What if I want my caption to ... ”

Well ... You CANNOT (yet)!

DASH.JS & SUBTITLING



PROCESS & DEVELOPMENT



PROCESS & DEVELOPMENT: A PROPOSITION

So what is the first step?

Statement: EBU-TT-D/TTML properties are very close to CSS properties

Idea:

- Parse the subtitles document and extract the text & properties;
- Transform the properties in CSS, fill data in a div container;
- Append the container to the video.

PROCESS & DEVELOPMENT: IMPLEMENTATION

Workflow:

1. Check validity of content ;
2. Parse the timings as well as the styles and regions IDs;
3. Translate style and region into CSS properties;
4. Append text, breaking lines and CSS style to a div container;

PROCESS & DEVELOPMENT: IMPLEMENTATION

Workflow:

5. Create a VTTCue;
6. Append timing to VTTCue;
7. Embed the div container into the VTTCue onenter;
8. Subtitle displayed through HTML video:

```
▼<video id="videoPlayer" controls="true" preload="auto" src="blob:http%3A//localhost%3A8080/ffe25895-ac01-4567-9eca-33e53bd8b97d">
  ▼#shadow-root (user-agent)
    ▼<div pseudo="-webkit-media-text-track-container" style="font-size: 36px;">
      ▼<div pseudo="-webkit-media-text-track-display" style="position: absolute; unicode-bidi: -webkit-plaintext; direction: ltr; -webkit-writing-mode: horizontal-tb;
        top: 0%; left: 0%; width: 100%; height: auto; text-align: center;">
        <div pseudo="cue">Endspurt!</div>
      </div>
    </div>
```


FINAL FEATURE: DEMO



RESOURCES

- www.w3.org/wiki/TTML/changeProposal005
- <http://www.w3.org/TR/ttaf1-dfxp/>
- <https://tech.ebu.ch/ebu-tt/>
- <http://dashif.org/wp-content/uploads/2015/04/DASH-AVC-264-base-v1.03.pdf>

4.4 Auxiliary components

- <http://smf.cloudapp.net/html5/html/captions.html> - MS Player Framework HTML5
- <http://playerframework.codeplex.com/> - MS Player Framework HTML5
- <http://gpac.wp.mines-telecom.fr/2014/08/23/ebu-ttd-support-in-gpac/>
- <http://gpac.wp.mines-telecom.fr/mp4box/>

QUESTIONS?

