

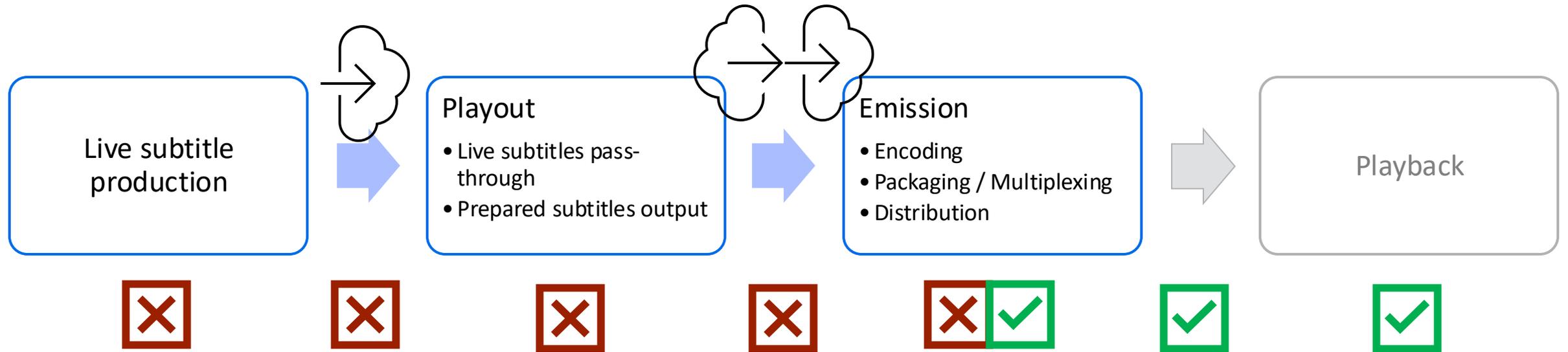
# Real time Subtitle and Caption Contribution over IP

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# Scope / Problem space

Live subtitle contribution and streaming to encoder



# Wish list

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Modern subtitle format (not Teletext or 608/708!) such as IMSC Text, EBU-TT/EBU-TT-D

Known techniques for transforming:

- prepared  $\Rightarrow$  stream and
- live (stream)  $\Rightarrow$  VOD

Unlimited number of subtitle streams (e.g. for real time translation subtitles)

IP-based, and suitable for going into/out of cloud services, securely

1<sup>st</sup> class peer to audio and video

Off the shelf products that are easy to integrate

# Questions

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## **Is late binding the solution we all want?**

- Current Teletext/608 solutions are “early binding” and ensure that the subtitles go with the A/V but the wrapper (e.g. MPEG2 Transport Stream, SDI) imposes data rate constraints

## **Are there existing solutions out there that meet these needs?**

- Playout automation that sends EBU-TT(-D) or IMSC Text streams?
- Encoders that receive those streams and output distribution subtitles?

## **Do we have the standards we need, or are there gaps?**

- SMPTE 2110-43 good where 2110 is used, but not for going in/out of cloud
- SRT good for going in/out of cloud but what payload format (DVB TTML in TS?)

# Discuss!

# Payload format?

**Optimum binding point:**

**Encoder?**

**Packager?**

**Player?**

# Existing standards and solutions?

# What next?

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