NETINT VIRTUAL SYMPOSIUM

Building Your Own Live Streaming Cloud

Denser / Leaner / Greener

NETINT

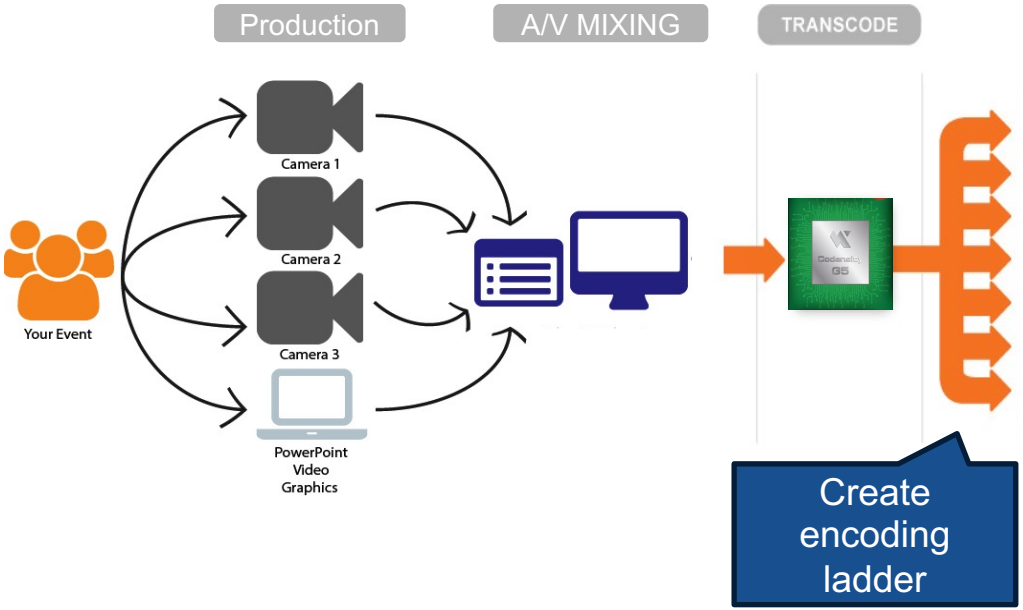
Presentation: Software Options for Transcoding and Packaging

Jan Ozer, Senior Director, Video Technology Marketing
jan.ozer@netint.com

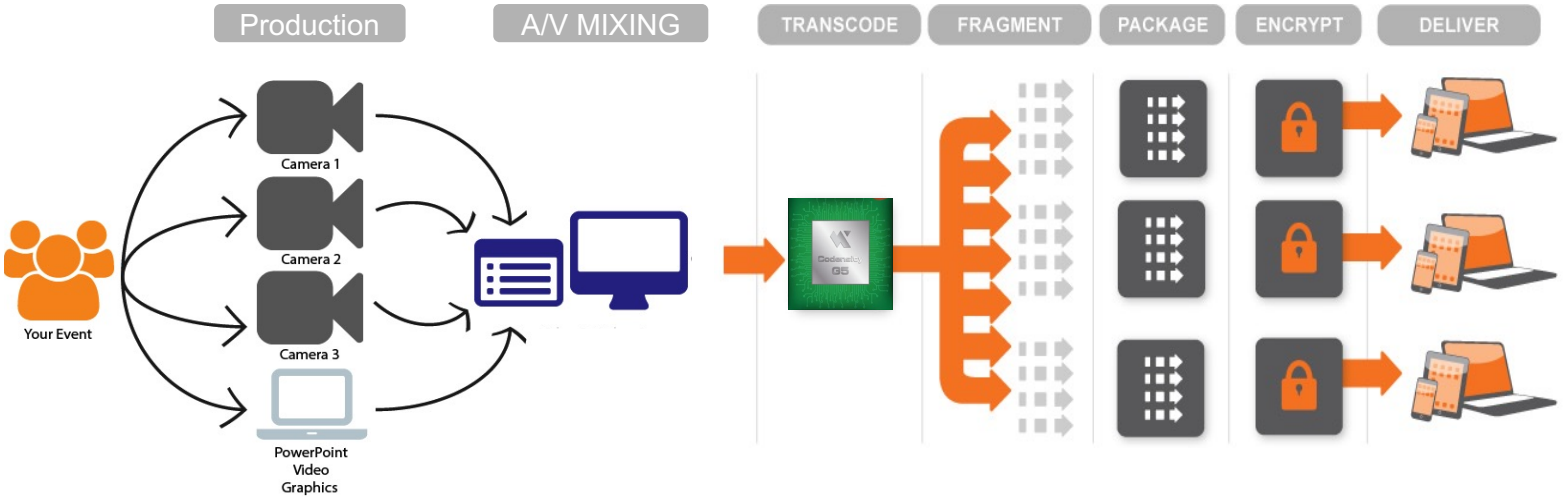
Agenda

- What are transcoding and packaging
- What are the high-level options
- Considerations for choosing between them

What is Transcoding and Packaging



What is Transcoding and Packaging



Containers
HLS
DASH
CMAF

Manifest
files
Captions

High-Level Options

- Multimedia frameworks
  - GPAC (speaking)
  - Other options: FFmpeg, GStreamer
- Streaming Media Servers
  - Wowza Streaming Engine (speaking)
  - Other options: Ant Media Server, Nimble Streamer, Red Five Server
- Other
  - Norsk (speaking)
  - Other options:

Choosing Between Them

- Performance
- Functionality
- Cost
- User Interface (usability)

Performance

- Don’t assume identical performance particularly with high-volume transcodes

	Input	Output	Codec	FFmpeg	FFmpeg -Low Delay	Gstreamer	Gstreamer - Low Delay
1	1080p30 - 5 Ladders	1080p30 @ 5Mbps	AVC → AVC	Instances: 23 CPU Usage: 22.0 Enc Latency: 47.5 Dec Latency: 49.9 Power: 353.15	Instances: 13 CPU Usage: 10.5 Enc Latency: 5.2 Dec Latency: 34.7 Power: 306.6	Instances: 28 CPU Usage: 8.7 Enc Latency: Dec Latency: 195.0 Power: 284.4	Instances: 27 CPU Usage: 7.1 Enc Latency: Dec Latency: 171.5 Power: 288.7
2		1080p30 @ 3.5Mbps					
3		720p30 @ 2Mbps					
4		540p30 @ 1Mbps					
5		360p30 @ 600kbps					
6	1080p30 - 4 Ladders	1080p30 @ 3.5Mbps	AVC → HEVC	Instances: 24 CPU Usage: 16.9 Enc Latency: 55.6 Dec Latency: 33.7 Power: 343.6	Instances: 17 CPU Usage: 10.9 Enc Latency: 6.6 Dec Latency: 34.1 Power: 312.7	Instances: 28 CPU Usage: 6.2 Enc Latency: Dec Latency: 195.1 Power: 280.7	Instances: 27 CPU Usage: 6.3 Enc Latency: Dec Latency: 182.5 Power: 282.5
7		1080p30 @ 1.8Mbps					
8		720p30 @ 1Mbps					
9		360p @ 500kbps					

Performance

- Don’t assume identical performance particularly with high-volume transcodes

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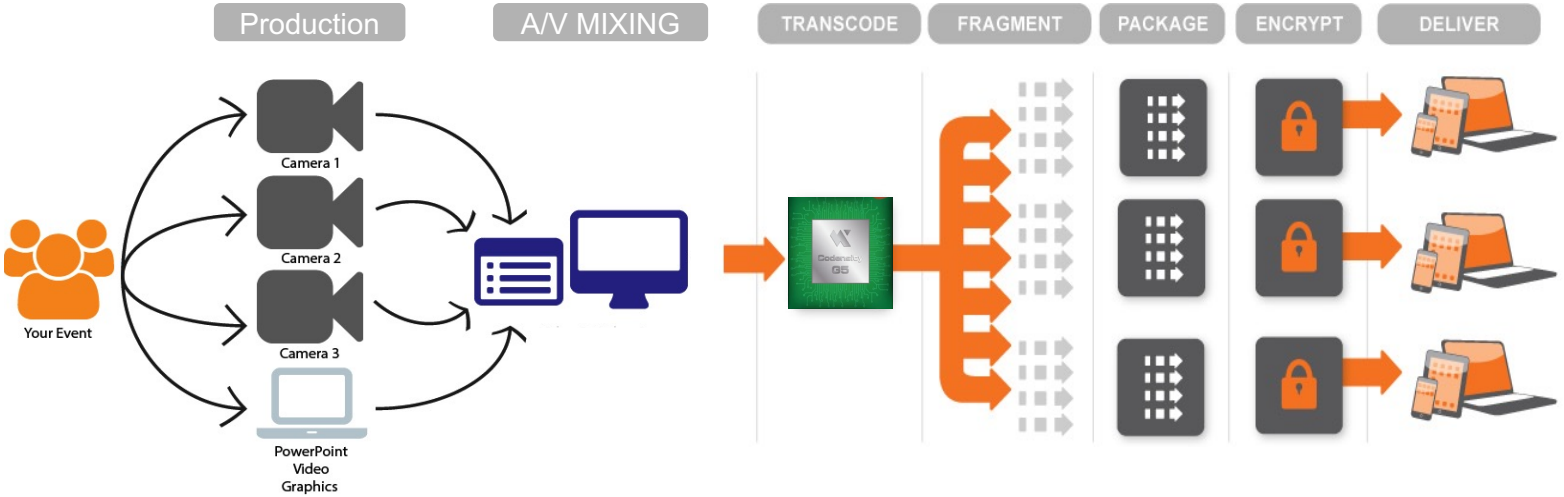
Test in target configuration with all candidates

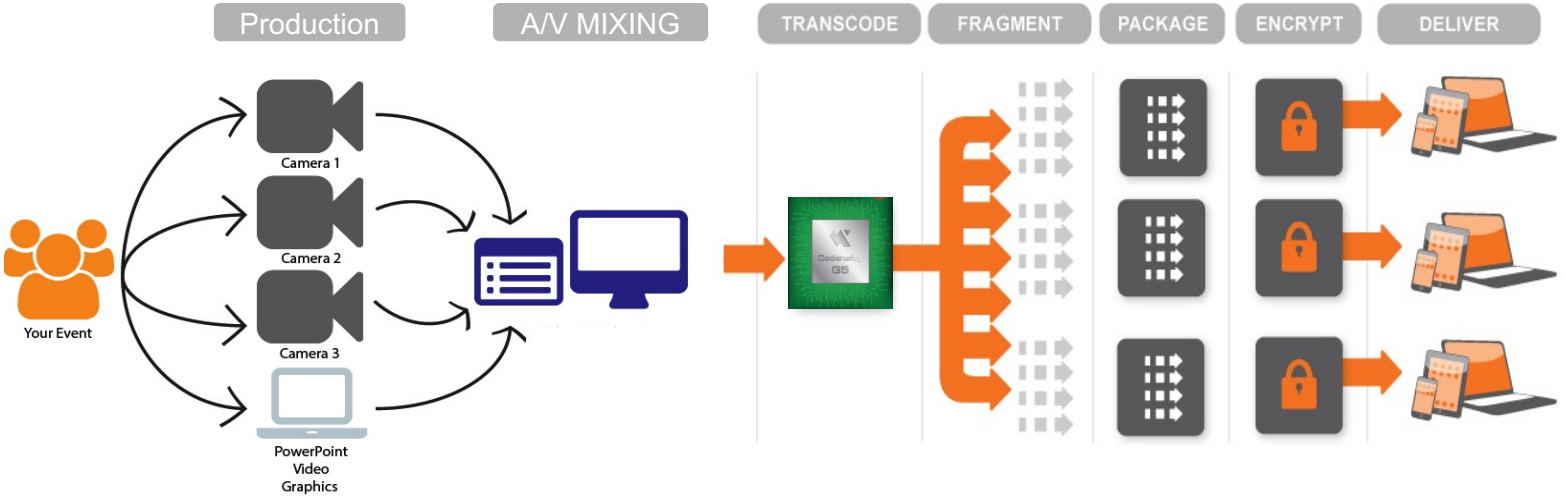
Functionality

- Multimedia frameworks
- Streaming media servers



Functionality

- Norsk (potentially other)

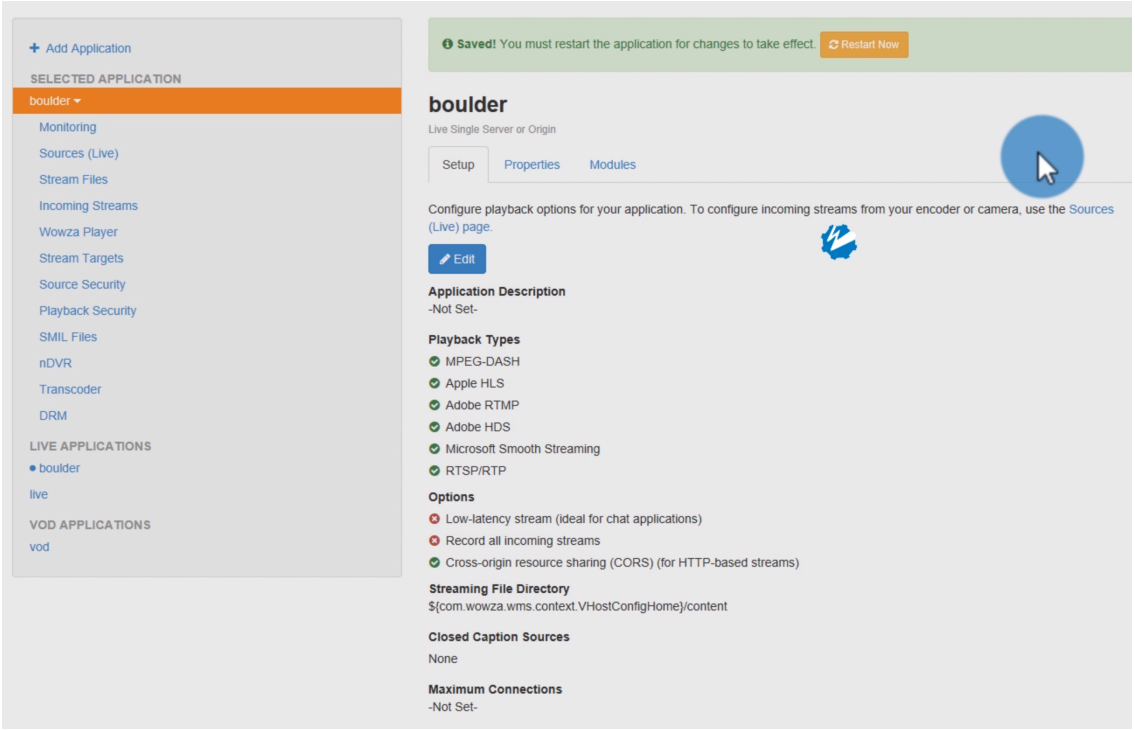


Cost

	Cost
Multimedia frameworks	Open source
Streaming media servers	Limited functionality free mostly licensed
Others (Norsk)	Licensed

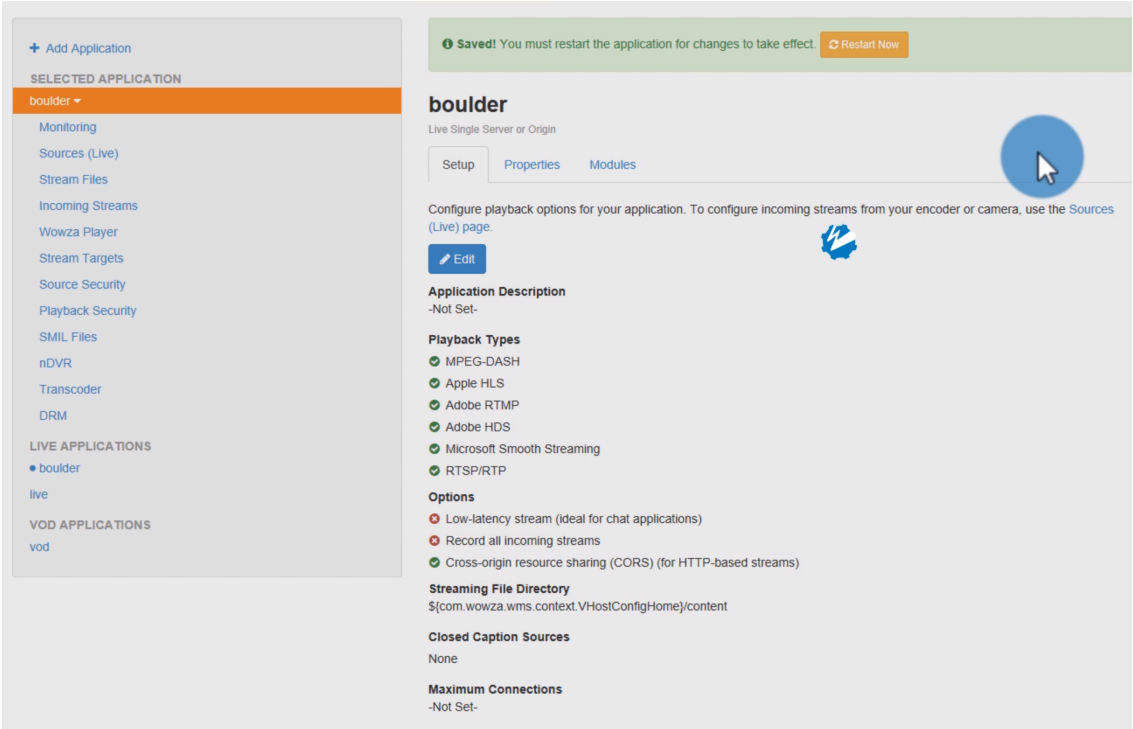
User Interface

Choose ABR Format – UI Wowza Streaming Engine



User Interface

Choose ABR Format – UI Wowza Streaming Engine



DASH Output – GPAC - Scripting

```
$ mp4box -dash 4000 \
  -out gpac_segment/myvideo \
  -segment-name '$RepresentationID$_$Number%03d$' \
  myvideo_1920x1080.mp4 \
  myvideo_1280x720.mp4 \
  myvideo_640x360.mp4 \
  myvideo_320x180.mp4
```

Cost/User Interface

	Cost	User Interface
Multimedia frameworks	Open source	Scripting
Streaming Media servers	Limited functionality free mostly licensed	UI, some scripting or config files
Others (Norsk)	Licensed	“low-code”

Here to Tell You about Their Products

Adrian Roe
Director
id3as

NORSK

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Director
id3as

NORSK

Barry Owen
Chief Solutions Architect
Wowza

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Adrian Roe
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Romain Bouqueau
CEO
Motion Spell

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