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SPT101

How AWS helps F1TV increase fan engagement

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Amazon Web Services

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Head of Digital Technology
Formula 1

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Today’s session

AWS Sports solution areas

Brief overview of the F1 and AWS collaboration

Introduction to F1 Digital and F1TV

Automating live closed captions

Training Amazon Transcribe to understand F1

Bringing it all together for the fans

Q&A

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AWS Sports solution areas



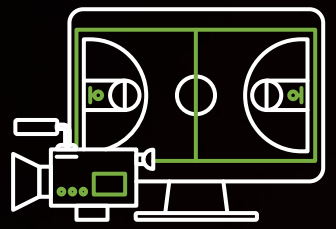
Fan engagement



Smart Venues



IT transformation



Next-gen broadcast



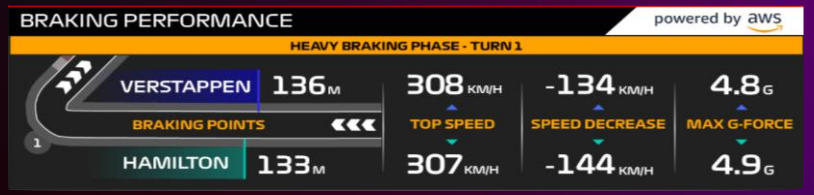
Performance analytics

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https://aws.amazon.com/sports/

Brief overview of the F1 and AWS collaboration

- Began in 2018, extended to 2027
- Unlocking the potential of data
- Engaging and delighting fans
- Transformation through innovation







Global Partner of FORMULA 1



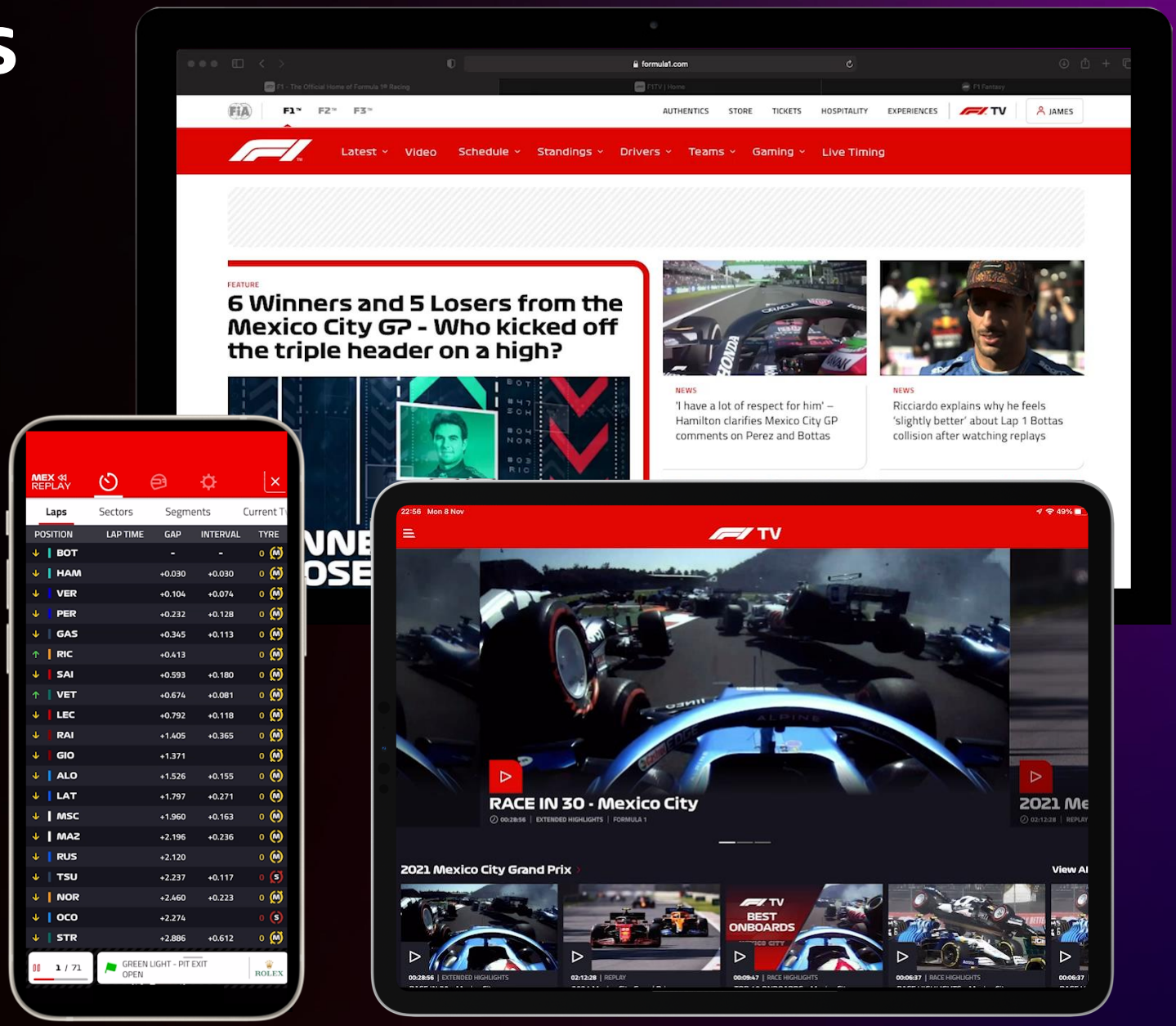
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Introduction to F1 Digital and F1 TV

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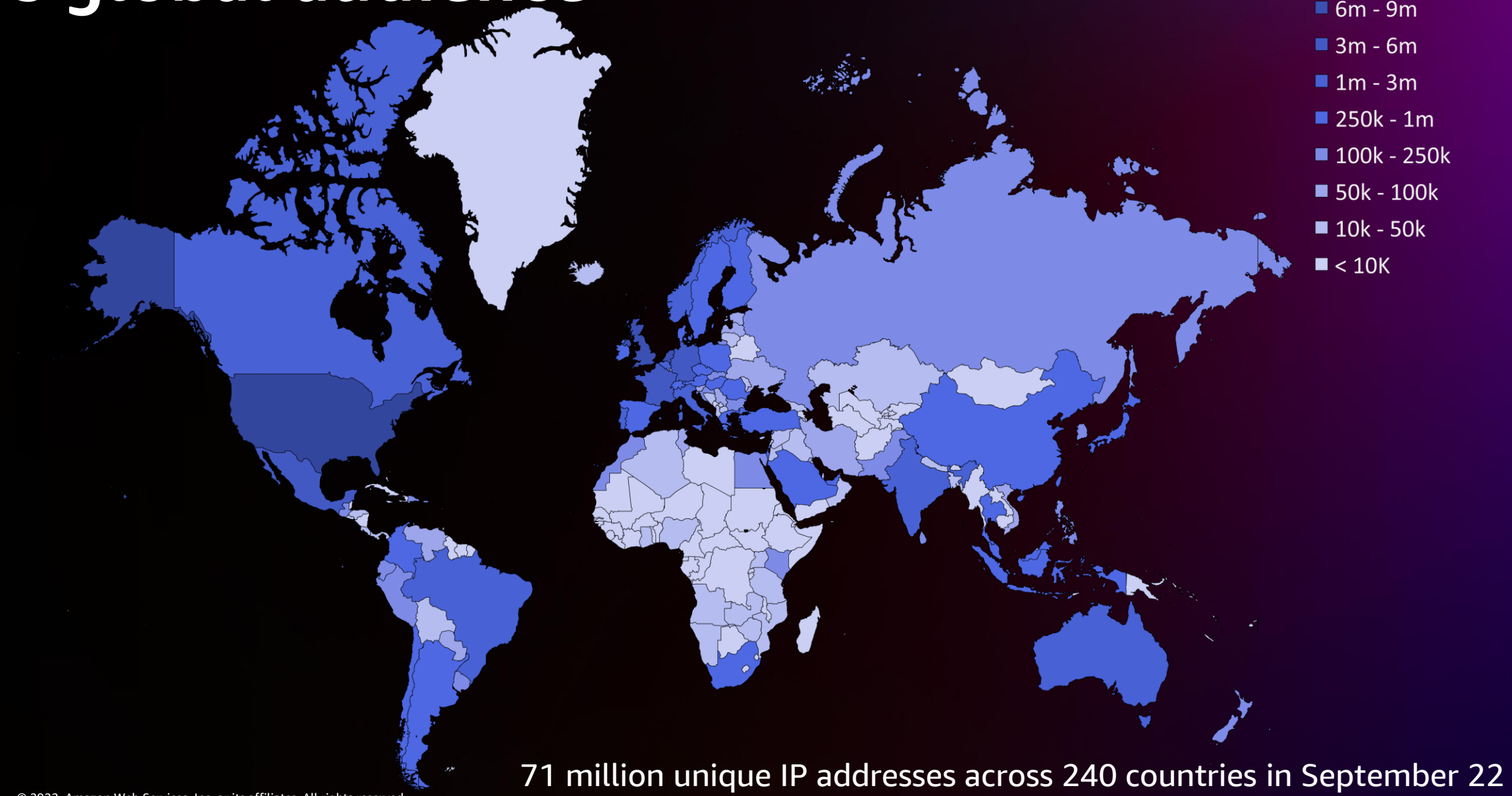
F1’s digital products

- **Formula 1**
  - Web, iOS, Android
- **F1TV**
  - Web, iOS, tvOS, Android, Google TV, Fire Tablet, Fire TV
  - 118 F1TV Access Territories
  - 85 F1TV Pro Territories
  - 6 languages
- **F1 Live Timing**
  - Web, iOS, Android
- **F1 Fantasy**
  - Web
- **F1 Race Guide**
  - iOS, Android



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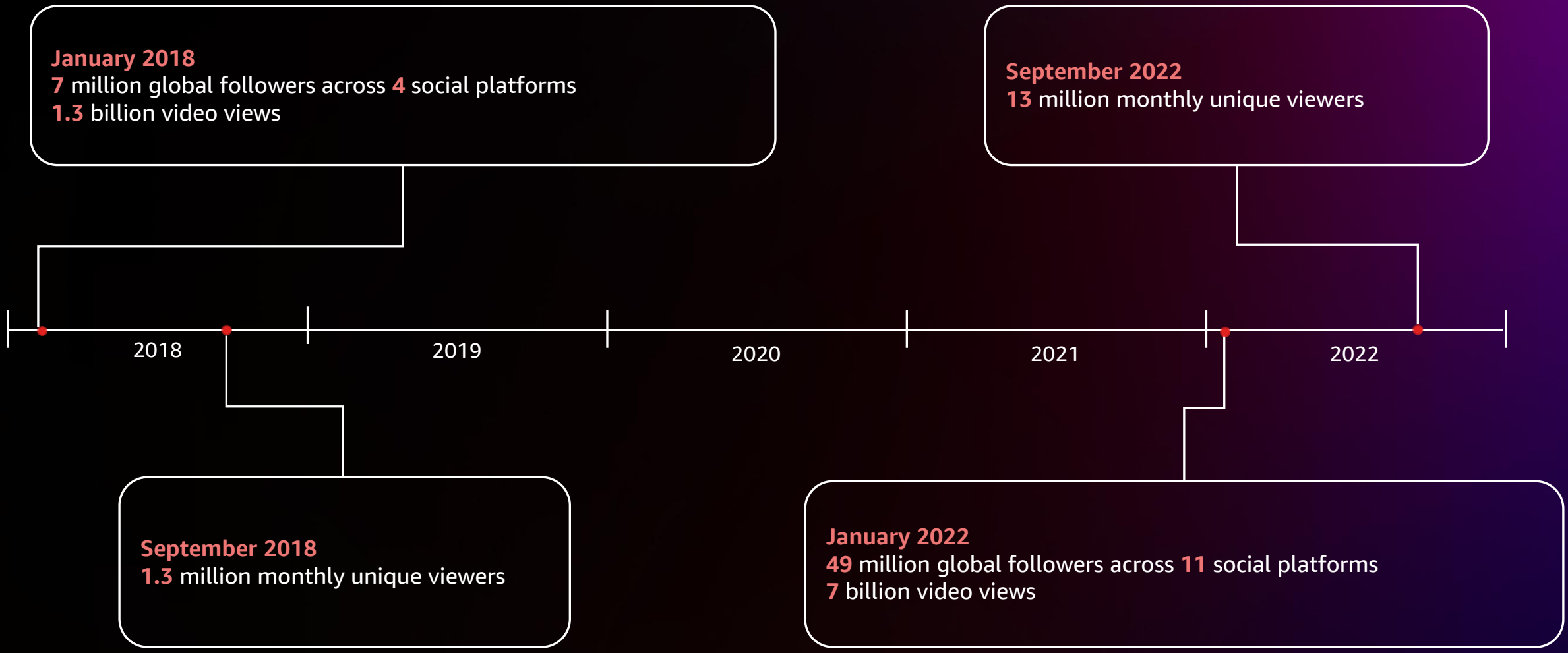
F1’s global audience



71 million unique IP addresses across 240 countries in September 22

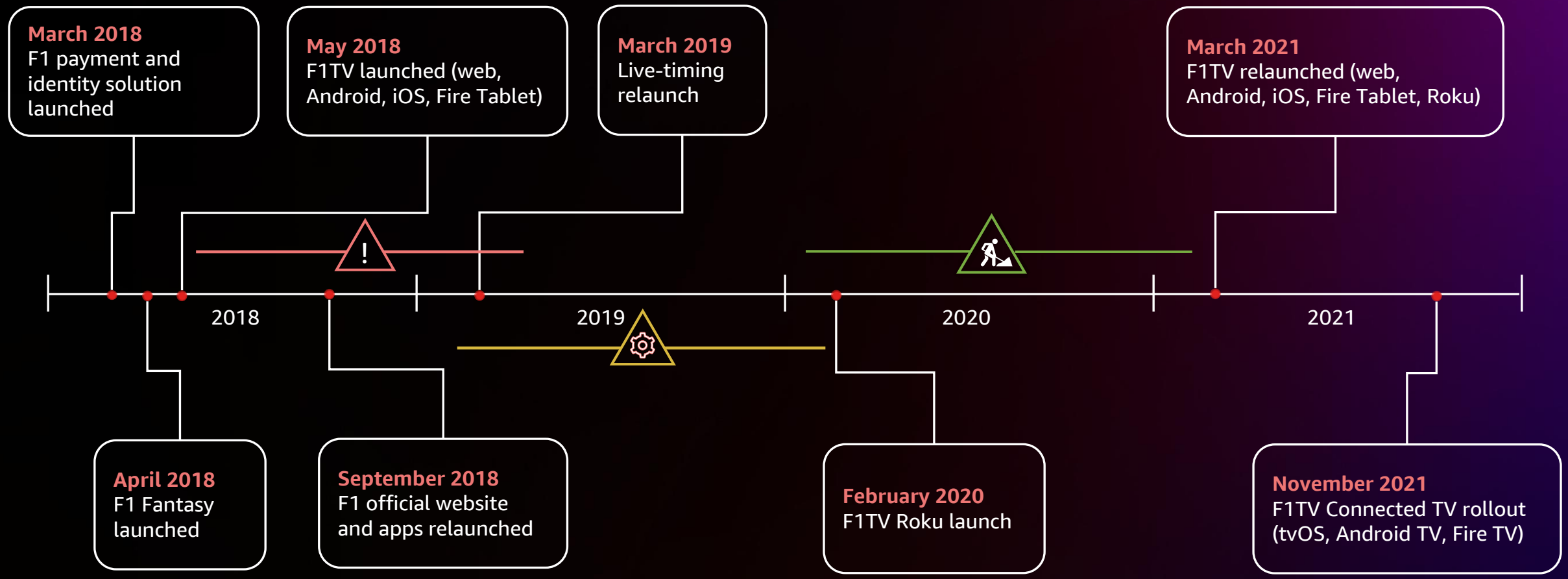
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F1’s fan engagement growth



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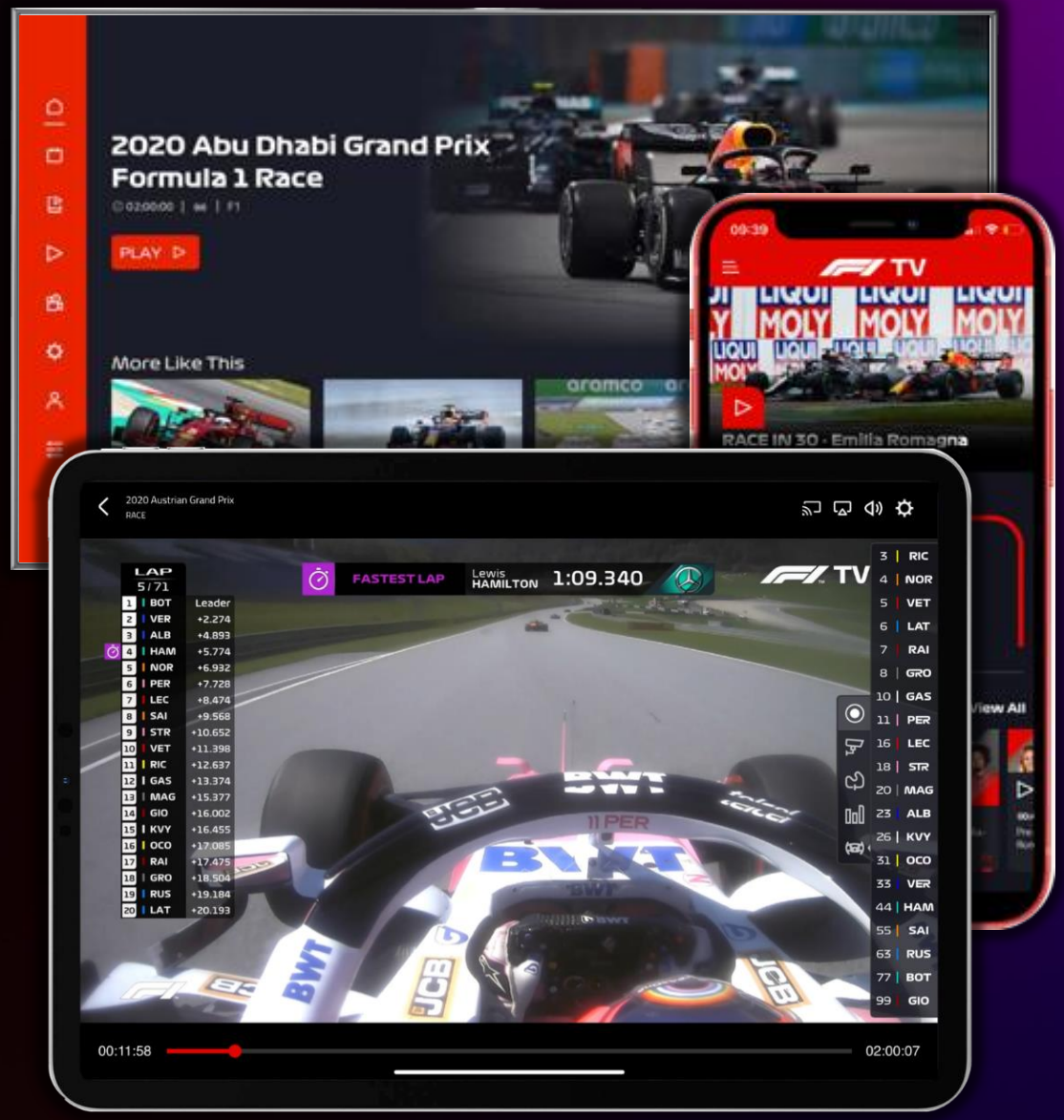
F1’s digital journey



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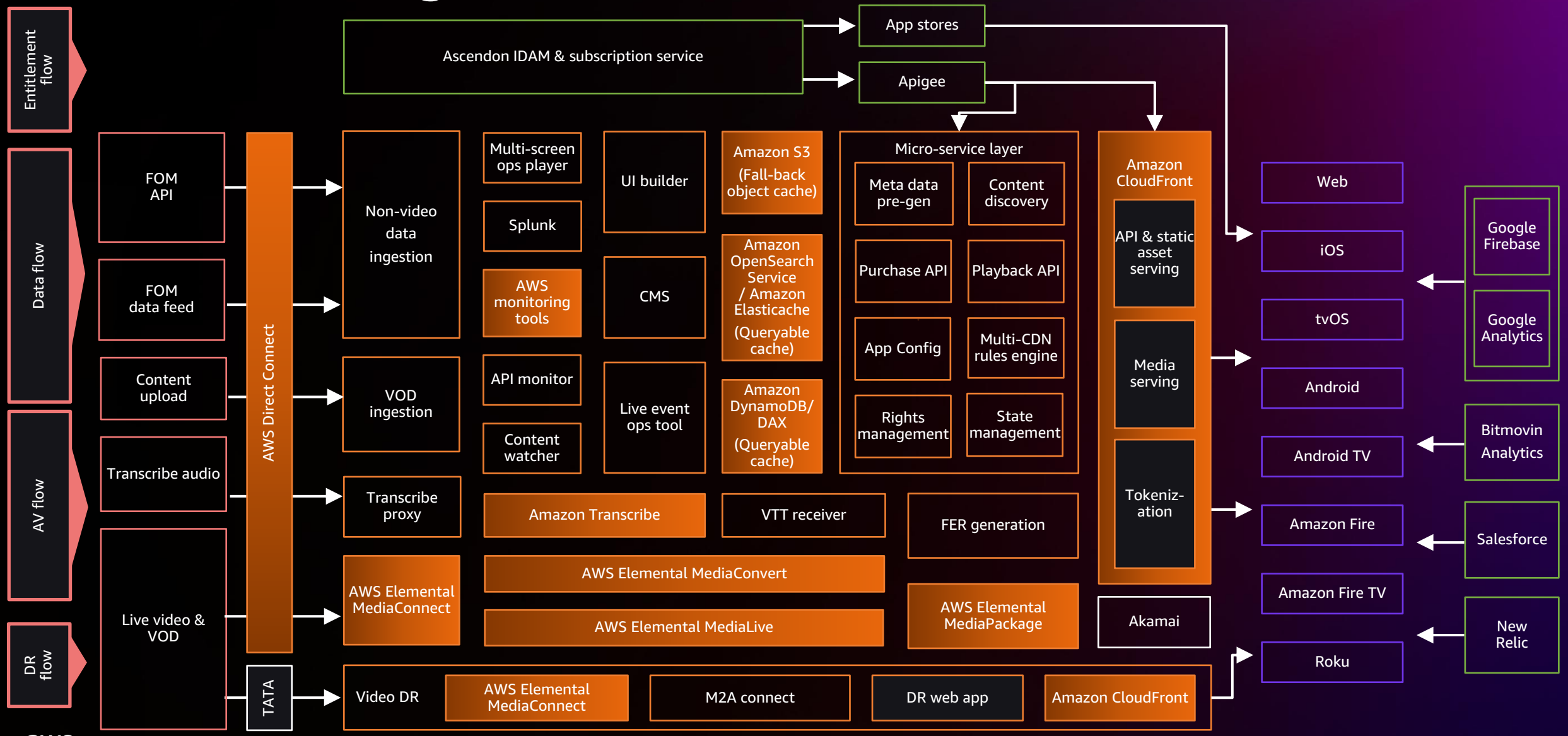
The F1TV rebuild

- Initially prioritized stability and quality over accelerated feature delivery
  - Engineered for scale
  - Streaming high-quality video with above-average QoS metrics
  - Modern UX/UI with more exclusive content and live programming
  - Automated closed captions (subtitle) solution
- Followed by
  - Connected TV rollout
  - Dedicated F1 Live channel and commentary team
  - Richer playback features and enhanced UX/UI



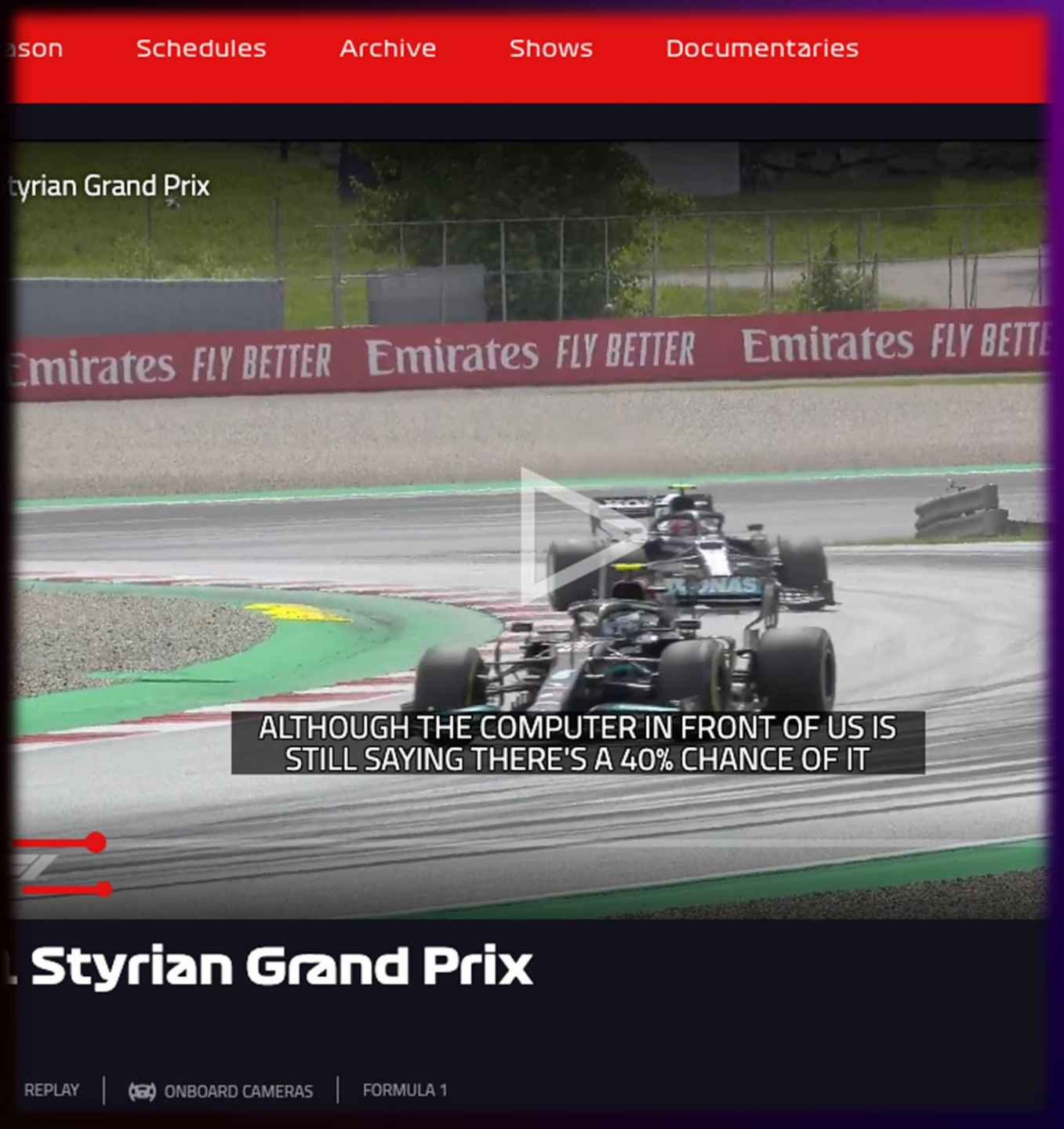
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The F1 TV high level architecture



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Automating live closed captions



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Manual vs. automated live closed captions

Manual

	Closed caption team ($$$$)		Coverage per weekend		Total work hours
EN	3	x	16 hours	=	48 hours
SP	3	x	12 hours	=	36 hours
FR	3	x	10 hours	=	30 hours
					114 hours

VS.

Automated

	Moderation team ($$)		Coverage per weekend		Total work hours
EN	1	x	16 hours	=	16 hours
SP	1.5	x	12 hours	=	18 hours
FR	1.5	x	10 hours	=	15 hours
					49 hours

- Automated closed captions reduce the working hours by 57%
- The resources required for automated closed captions are less specialist (and therefore lower cost)

However, to increase the hours of coverage or introduce an additional commentary source …

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Manual vs. automated live closed captions

Manual

	Closed caption team ($$$$)		Coverage per weekend		Total work hours
EN	3	x	16 hours	=	48 hours
SP	3	x	12 hours	=	36 hours
FR	3	**x**	10 hours	**=**	30 hours
EN2	3	x	20 hours	=	60 hours
					174 hours

VS.

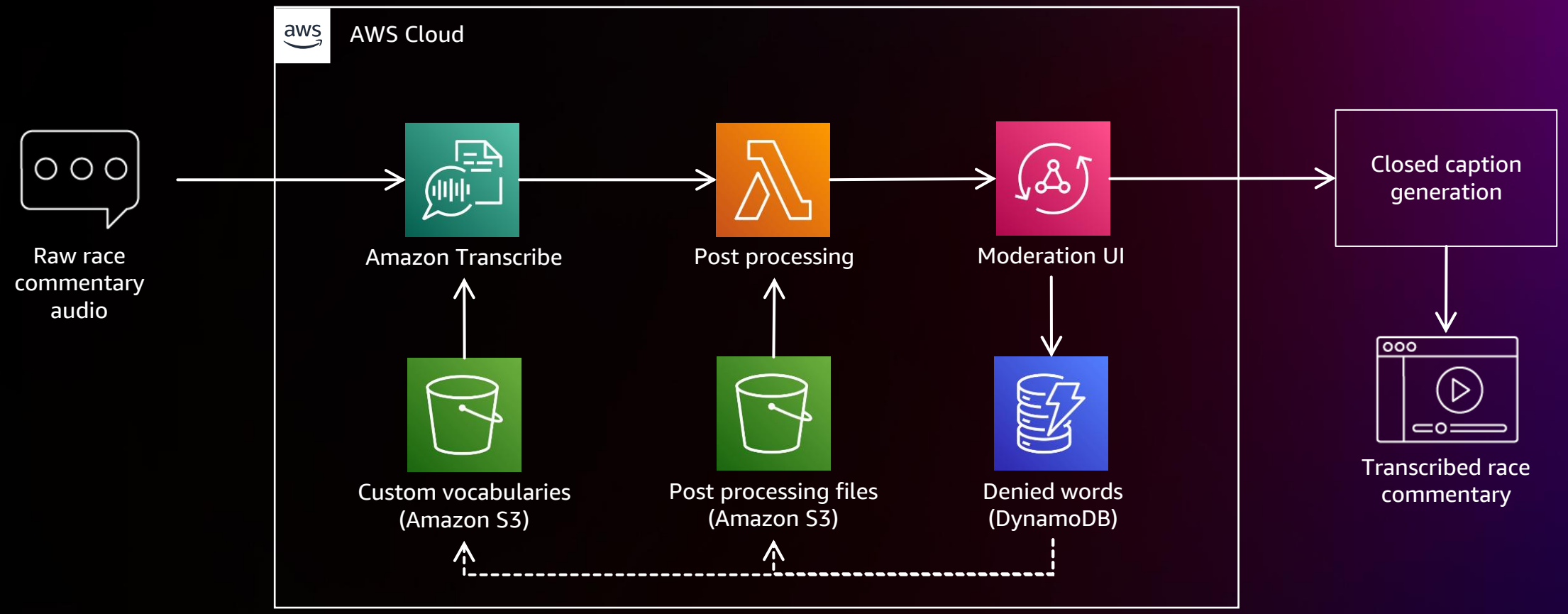
Automated

	Moderation team ($$)		Coverage per weekend		Total work hours
EN	1	x	16 hours	=	16 hours
SP	1.5	x	12 hours	=	18 hours
FR	1.5	**x**	10 hours	**=**	15 hours
EN2	1	x	20 hours	=	20 hours
					69 hours

Increases in coverage or commentary result in less than 25% of the cost increase compared to manual
This allows for sustainable growth of the coverage F1TV offers, which includes closed captions

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Automating live closed captions



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Training Amazon Transcribe to understand F1

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Custom vocabularies for F1 terminology

Phrase	DisplayAs	SoundsLike	IPA
Charles-Leclerc	Charles Leclerc		ʃɑɹləklɛɹ
Charles-Leclerc	Charles Leclerc	shal-luh-klurk	
Lewis-Hamilton	Lewis Hamilton	loo-is-ha-muhl-tn	
Lewis-Hamilton	Lewis Hamilton	loo-uhs-ha-muhl-tn	
Ferrari	Ferrari		fɝɹɑɹɪ
Ferrari	Ferrari	fuh-rehr-ee	
Mercedes	Mercedes	mer-sey-deez	
Mercedes	Mercedes		mɛɹseɪdiz

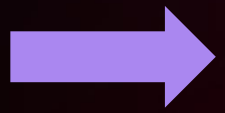
- Multiple entries for different commentators and accents
- Independent custom vocabularies per series and race location
- Changes tracked based on F1-specific evaluation metrics

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Post-processing numbers and persistent issues

Numbers in words
Thirty-one / Treinta y uno / Trente et un
Three / Tres / Trois
1 26 four five eight
Dos mill diecinueve / Deux mille dix-neuf



Numbers in digits
31
3
1:26:458 (lap timing)
2019

Original term	Replacement	Location	Series
CHARLOTTE CLAIRE	CHARLES LECLERC		FORMULA 1
CREATE AN ALBUM	KVYAT AND ALBON		FORMULA 1
SCHWARTZMAN	SHWARTZMAN		FORMULA 2
CURVE A PARABOLIC	CURVA PARABOLICA	Italy	
CIRCUIT THE CATALONIA	CIRCUIT DE CATALUNYA	Spain	
TYPE COMPOUNDS	TYRE COMPOUNDS		

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F1-specific evaluation: Not every mistake has the same importance

We measure accuracy for:



Drivers, engineers, team principals



Teams, sponsors, constructors



Locations, tracks, corners



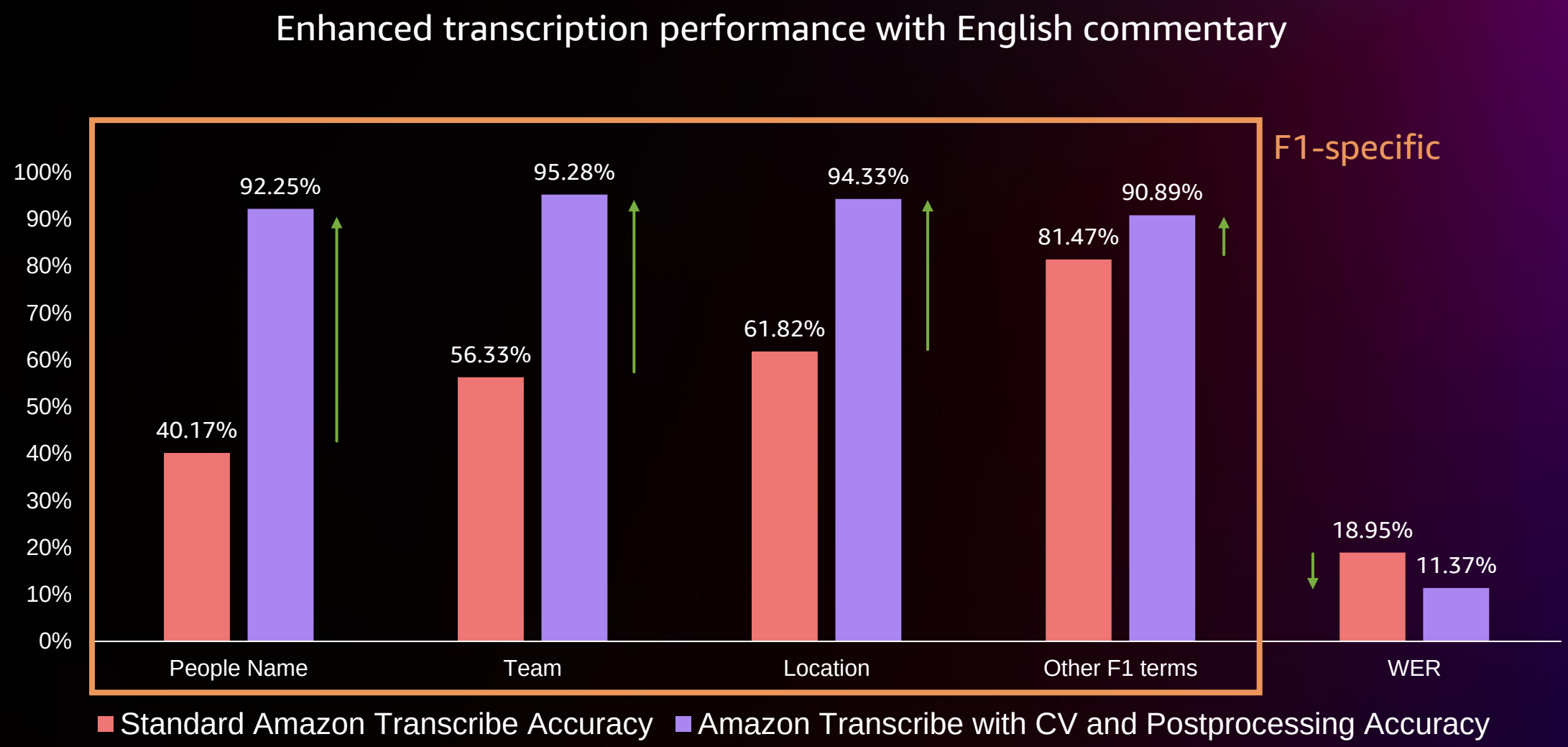
Technical terms

and word error rate (WER) for overall accuracy

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Enhanced transcriptions in numbers

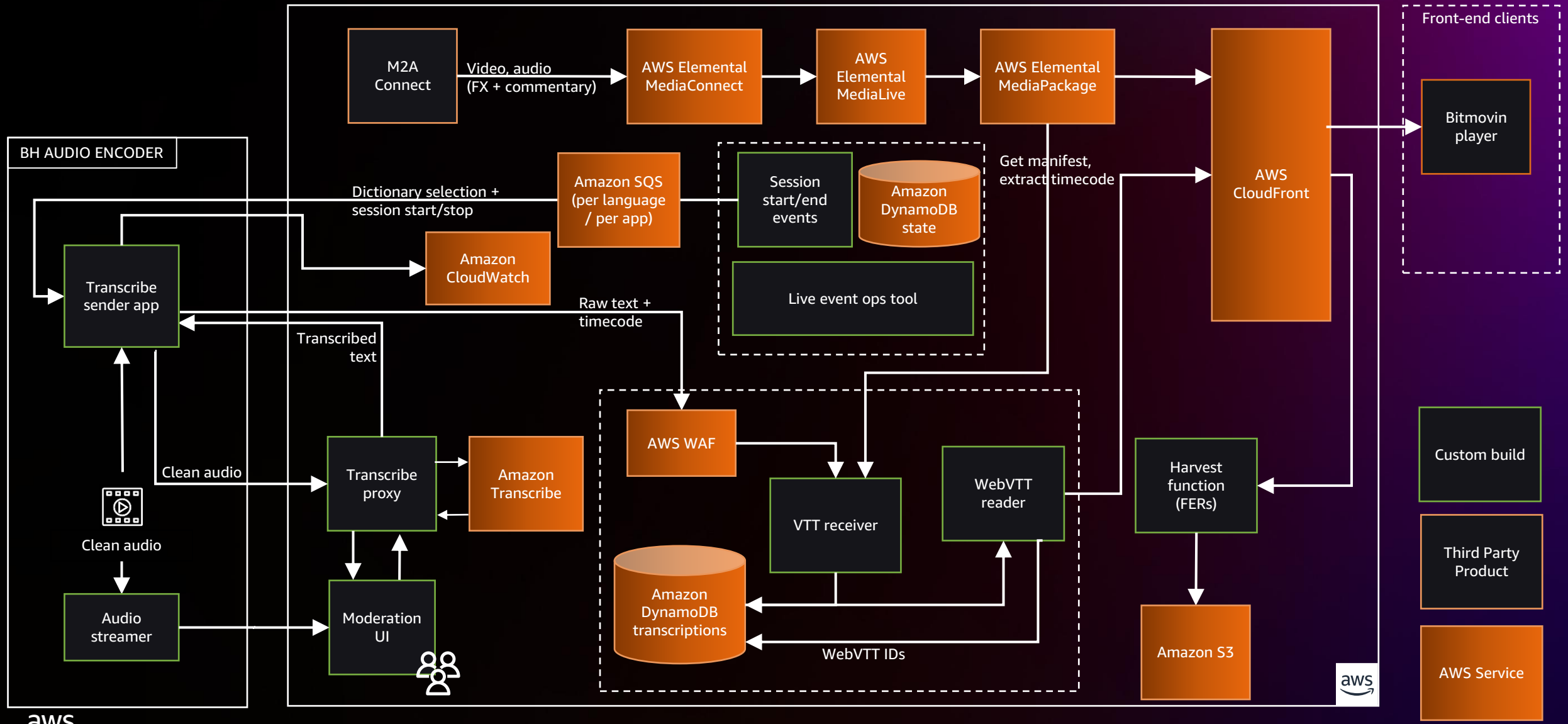


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Bringing it all together for the fans

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Synchronizing closed captions with the action



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Any questions?

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Thank you!

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