Case Study: How Flight Built a Cloud-native Living World Thanks to Azure

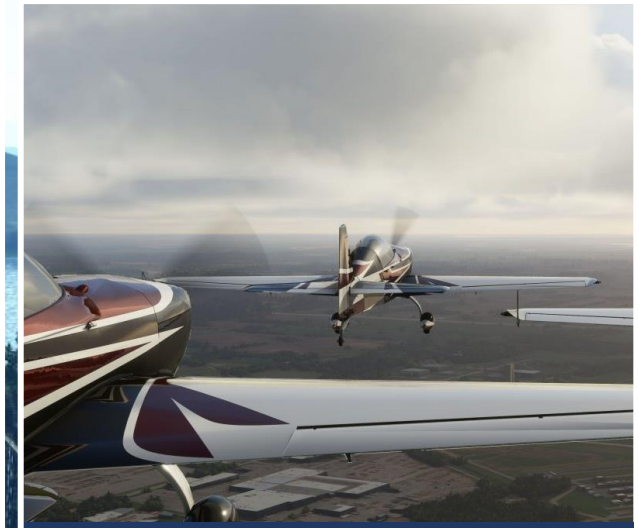
GAME STACK LIVE 2021 | MARTIAL BOSSARD, EXECUTIVE PRODUCER X AURELIEN PITERS, AUDIO DIRECTOR

Dream: Create the most realistic next-gen Flight Simulator

True topography

Air model & weather

Visual fidelity & VFR



Multiplayer

Real-time air traffic, navigation data, and smooth skies

Plan: Design a virtual world at Earth-scale

Build: Using Azure technologies as the backbone.

Recreate the world

Collect real-time data

Distribute the data

Unified world for multi

Services (account management, store, analytics, TTS, and even project management)

Recreate the world

Azure Bing Map

Azure Compute

Azure Compute

Azure Compute

Azure Compute

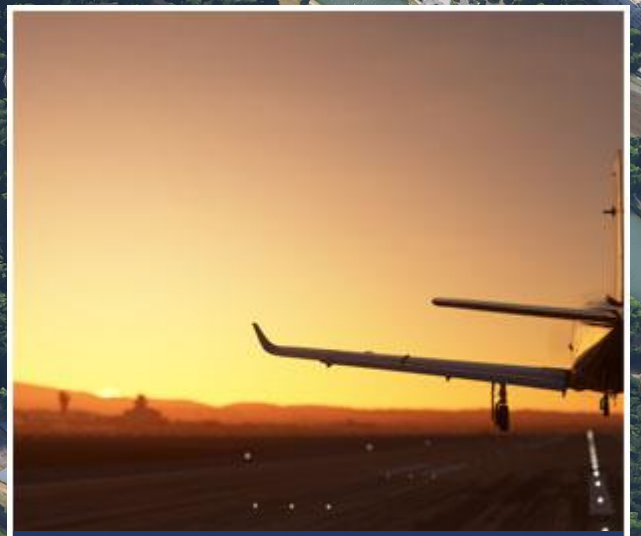
Azure Compute

Azure Compute

Ingest real-time data

Weather

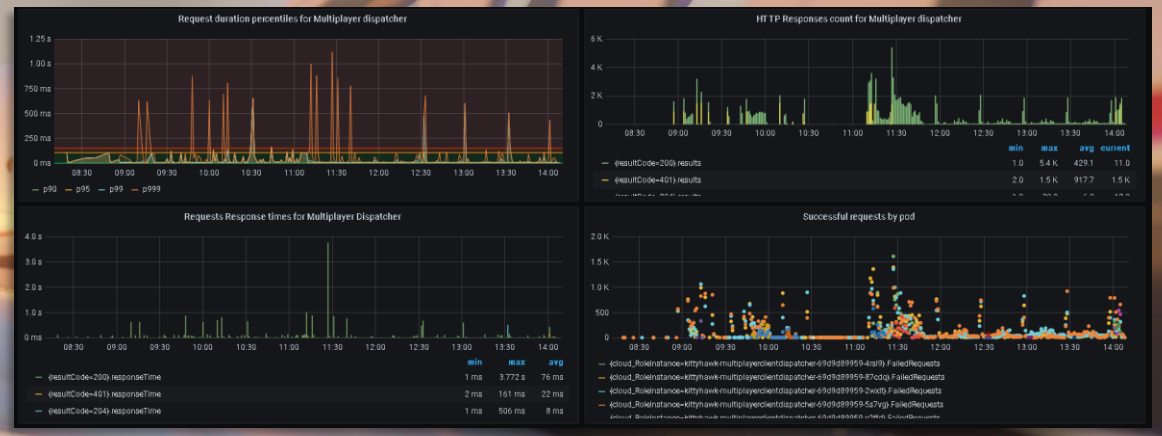
Navigation

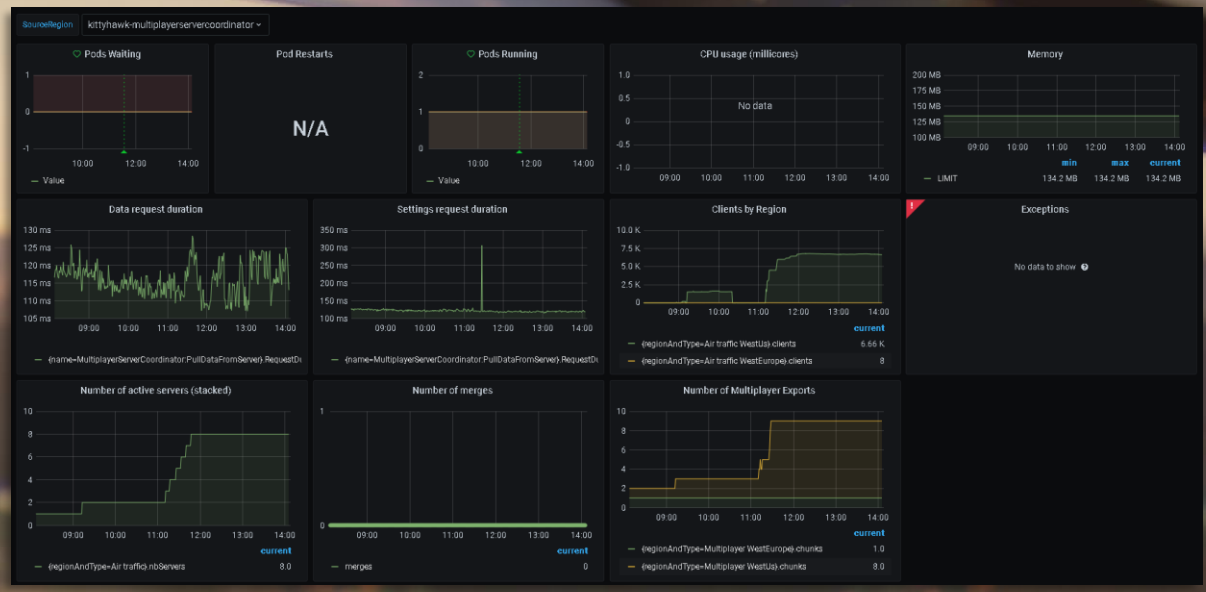


Real-time air traffic

Scalable data distribution

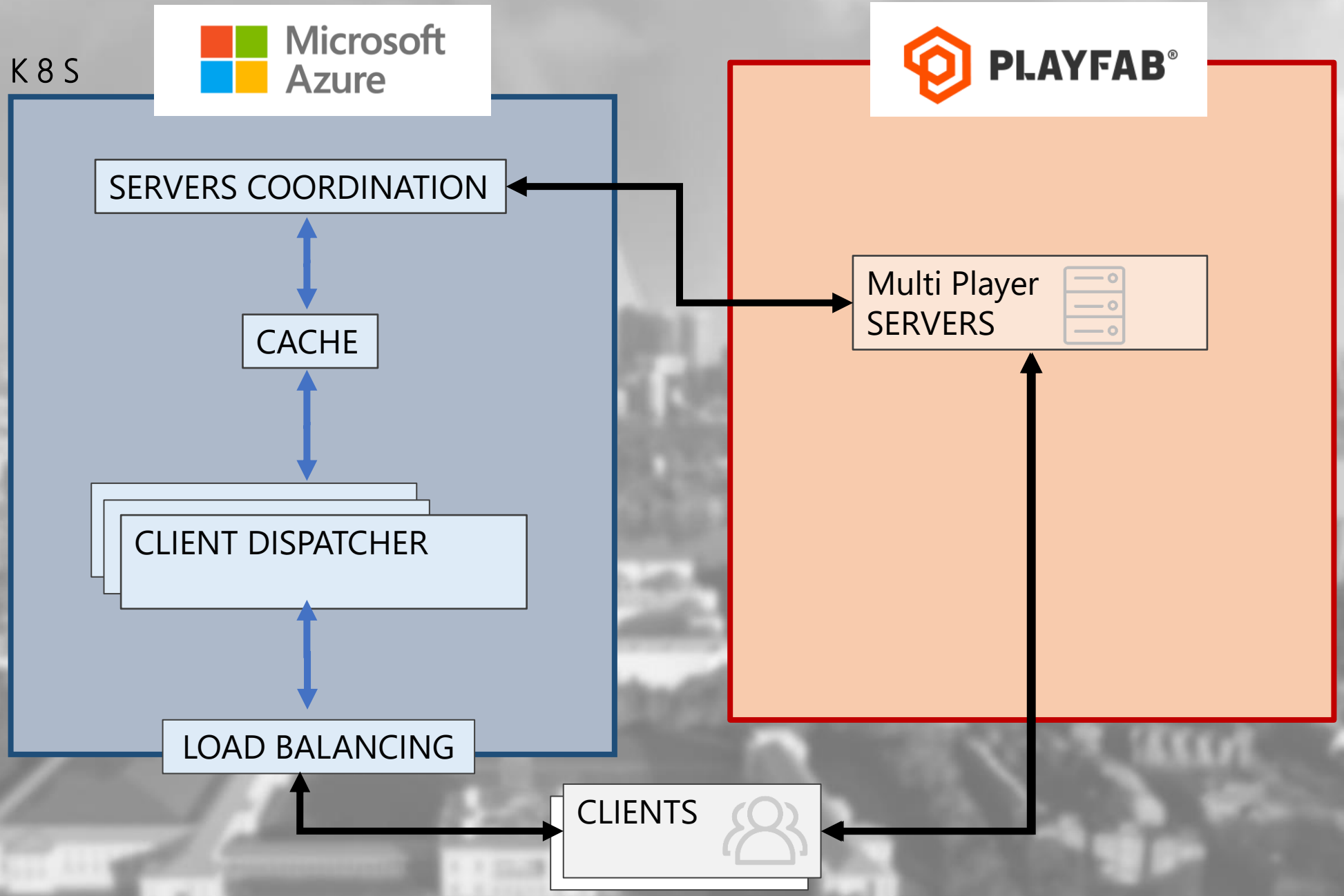
All generated data





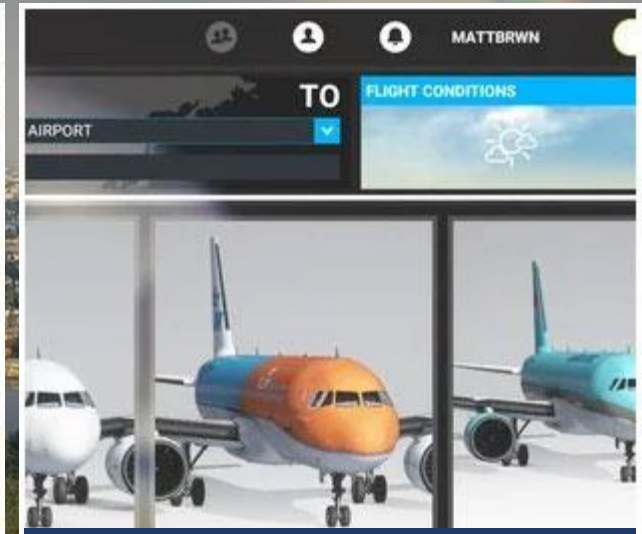
One unified world for multiplayer

- Persistency of the experience
- No visible instance
- Need to dynamically share the planet


K 8 S
Microsoft Azure
PLAYFAB®
SERVERS COORDINATION
CACHE
CLIENT DISPATCHER
LOAD BALANCING
Multi Player SERVERS
CLIENTS

LiveOps: Azure PlayFab

Accounts management

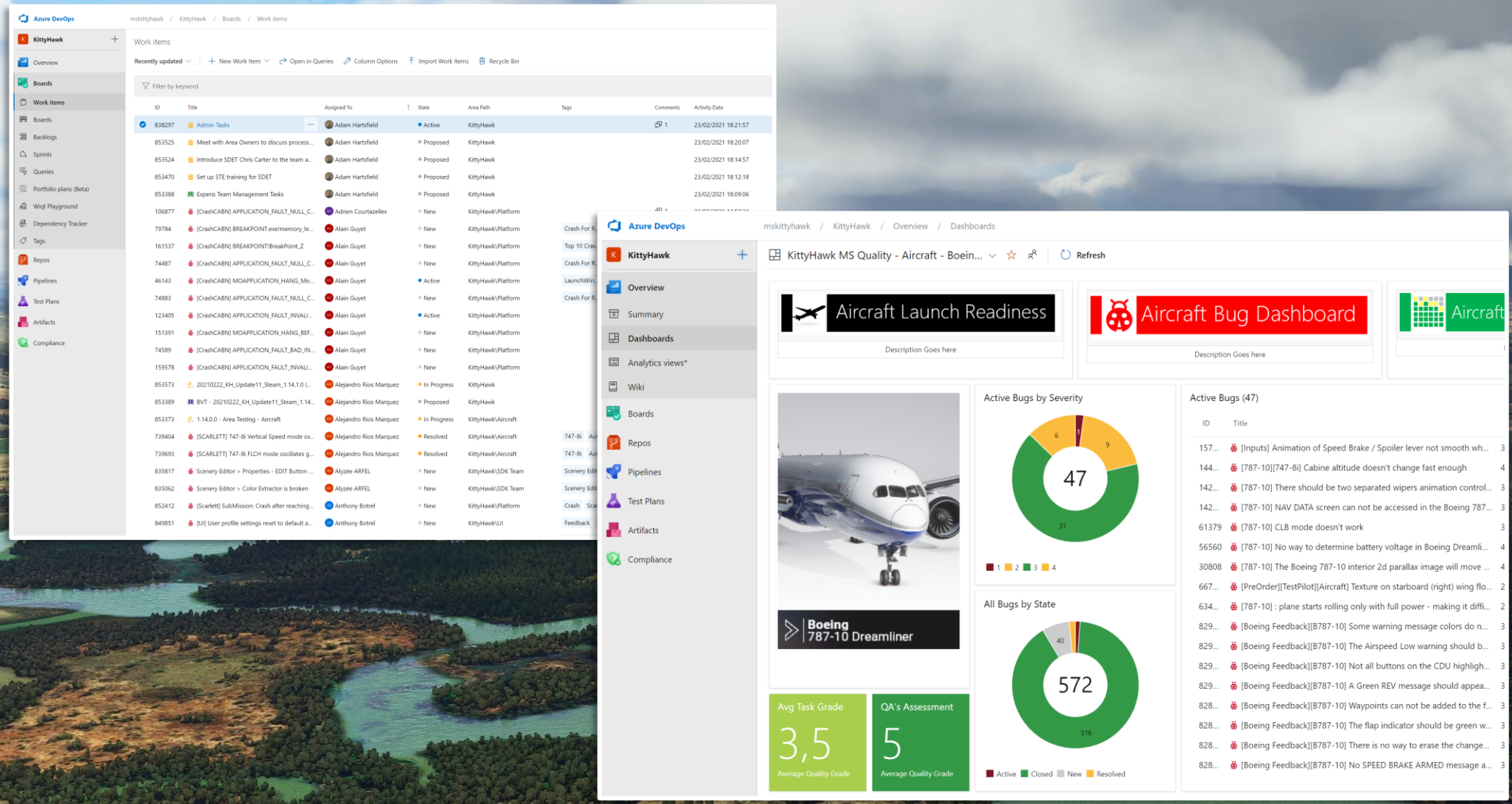


In-game store

Analytics

Multiplayer

Project Management: Azure DevOps

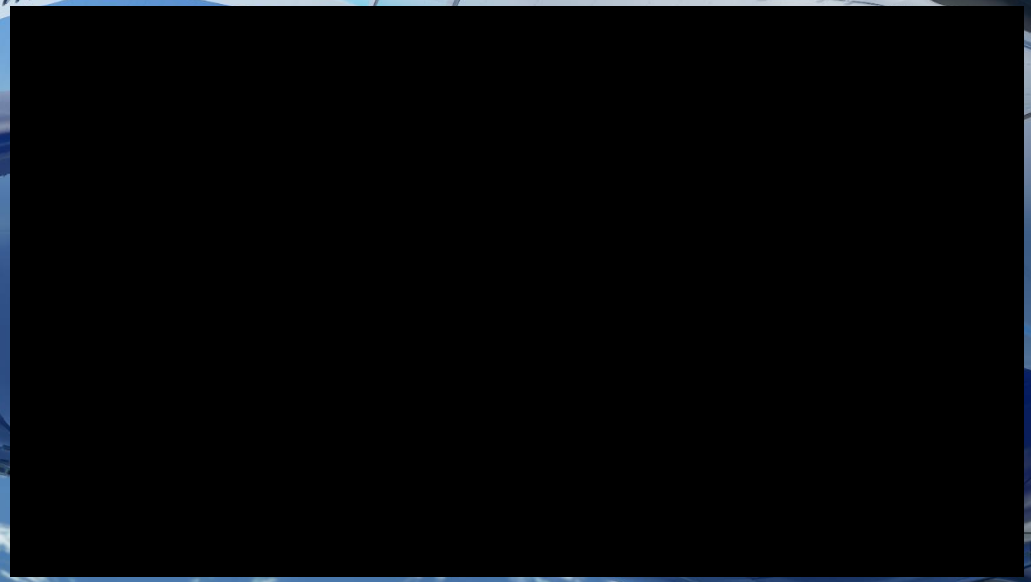


Choice of Azure: Presentation of a use case

Use case: Azure Text-to-Speech for ATC

- ATC or Air Traffic Control
- An air traffic controller is a highly trained specialist working with pilots to ensure the safety and efficiency of the airspace
- Communication between pilots and airport control towers
- ATC is a key feature in flight simulations

Use case: Azure Text-to-Speech for ATC



ATC communication sample

Use case: Azure Text-to-Speech for ATC

Challenges of ATC Communication

- Requires a huge amount of information (50k airports, 3,500 aircraft, multitude of weather conditions, etc.)
- ATC needs to be able to voice anything about a particular airport, airspace, aircraft, standard approaches, and departures
- Different speaker voices needed for ATC

Use case: Azure Text-to-Speech for ATC

Possible approaches

- Recording all the VO
- Concatenating recorded speech
- Concatenating TTS
- Cloud Text-to-Speech

Use case: Azure Text-to-Speech for ATC

Why Azure Text-To-Speech?

- Flexible/Extensible
- Supports ability to create own custom voice models
- Creating a custom voice with only 500 samples
- Custom voice is using machine learning: more samples = better quality (used around 2k lines)

Use case: Azure Text-to-Speech for ATC

In-game demo with custom voice + standard

Use case: Azure Text-to-Speech for ATC

Azure Text-to-Speech: costs & flavors

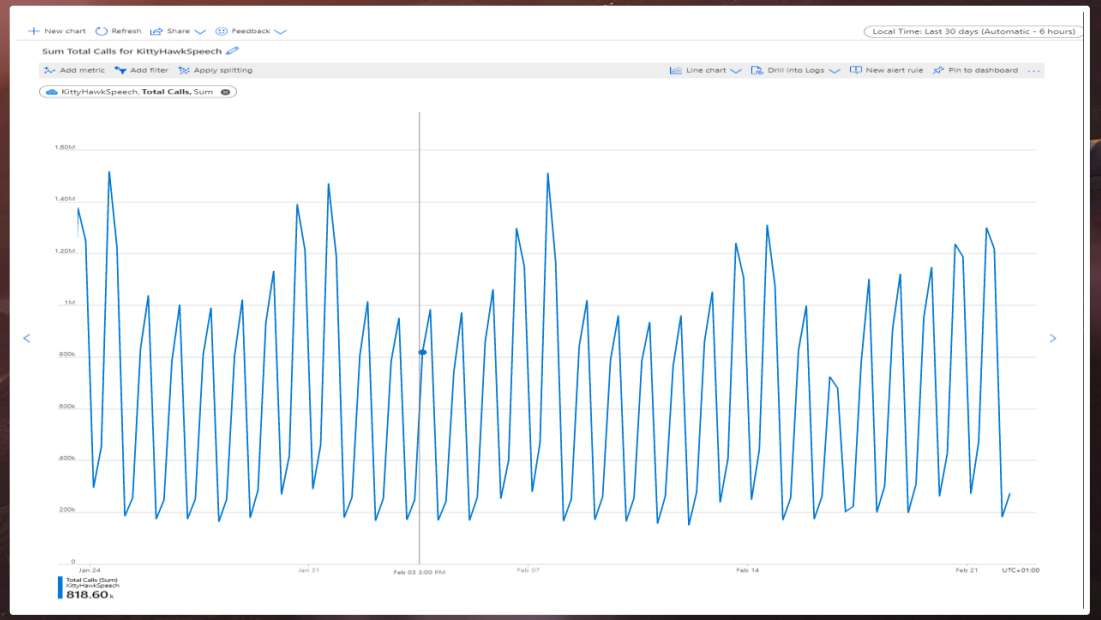
- Used a blend of custom & standard for MSFS
- Standard offers many speakers
- SSML is great to tweak your voice for different flavors (pitch, rate, prosody)!

Text to Speech	Standard	$4 per 1M characters
	Neural	$16 per 1M characters [5] Long audio creation: N/A per 1M characters
	Custom	$6 per 1M characters Endpoint hosting: $0.0537 per model per hour

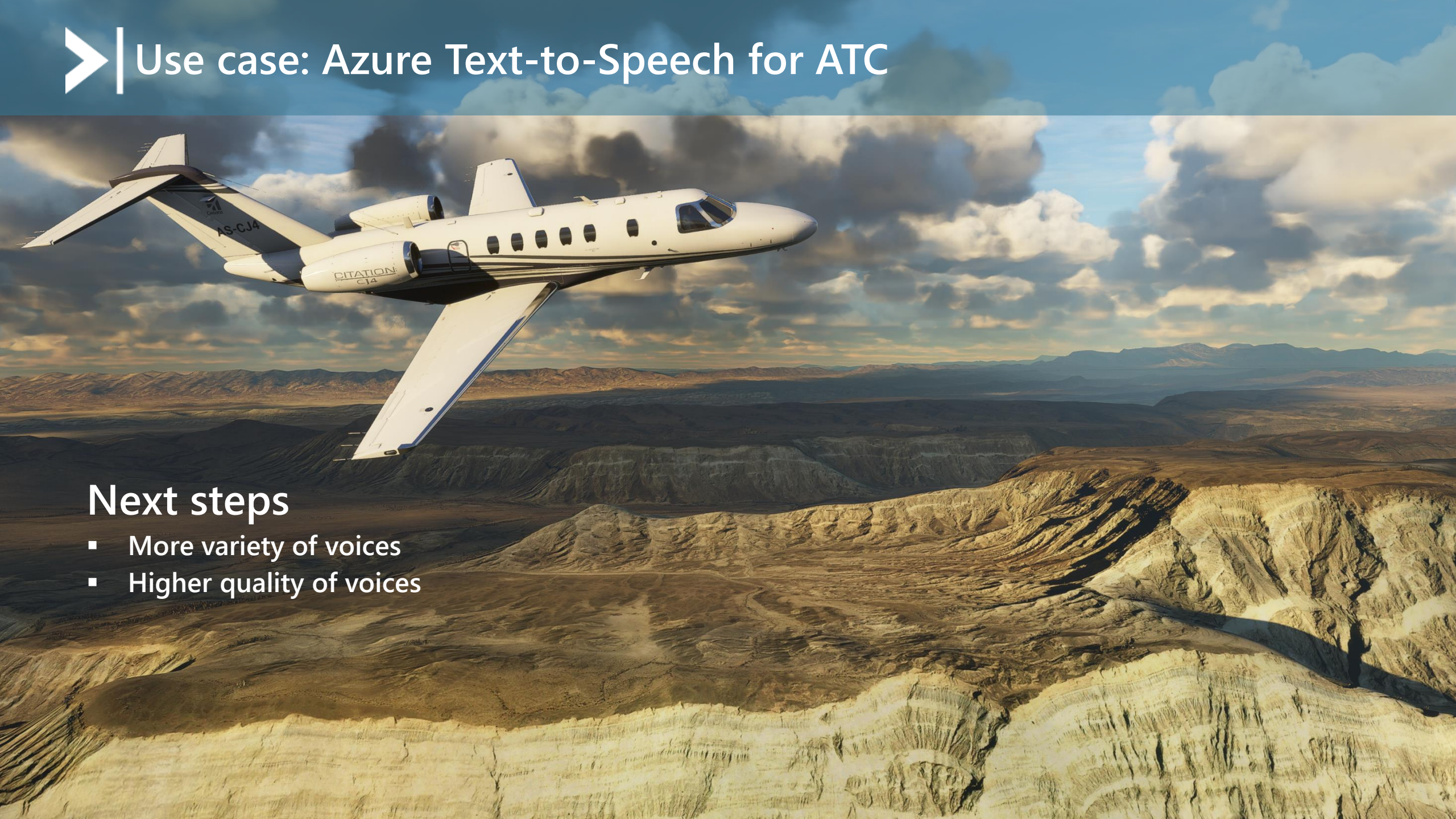
Use case: Azure Text-to-Speech for ATC

Shipping with Azure TTS

- Azure Portal to monitor costs & errors
- Get in touch with Azure for subscription adjustment



Use case: Azure Text-to-Speech for ATC



Next steps

- More variety of voices
- Higher quality of voices

Conclusion

Microsoft
ASOBO STUDIO
THANK YOU FOR YOUR ATTENTION