Varsity Sports – Backend Platform Replacement

Provider Candidates Shortlist

Prepared by: Hsuan-Jun Lin

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Related Task: #34 Collect Pricing Data

https://tree.taiga.io/project/jaskirat-007-varsity-sports/task/34

Introduction:

The Varsity Sports platform currently runs on Microsoft Azure. Since our project involves Web, iOS, and Android applications, we need a backend solution that is cost-effective, scalable, and developer-friendly. This document provides a shortlist of five cloud providers as potential Azure alternatives, with a summary of their advantages, limitations, pricing, and suitability for our project scale.

Provider Candidates:

- Amazon Web Services (AWS)
- Google Cloud Platform (GCP)
- DigitalOcean (App Platform)
- Render
- Oracle Cloud Infrastructure (OCI)

Pricing Data:

Based on project scope (Web + iOS + Android app, livestream + VOD, user auth, real-time chat),

the backend must support:

Compute: At least 2–3 app/API services (2 vCPU, 4 GB RAM each).

Database: Relational DB (PostgreSQL/MySQL) for user, schedule, subscription data.

Realtime / NoSQL: DynamoDB/Firestore/Redis for chat, live stats, sessions.

Storage: ~100 GB (video + app assets). Must scale up for VOD.

Traffic: ~2–5 TB/month outbound (API + video streams).

Livestream: Low-latency, scalable, with global CDN.

Other: Authentication, push notifications, CI/CD integration.

Amazon Web Services (AWS)
Compute (2–3 small instances): RDS db.t3.medium ~$33/mo + 1–2 t3.small EC2 or Lambda ~$20–40/mo ***Storage (~100GB):*** S3 $0.023/GB → ~$2.30; RDS 20 GB free → extra ~$1–2 ***Traffic (~2 TB outbound):*** CloudFront ~$0.085/GB → ~$170; IVS livestream ~$400 (20 hrs × 100 viewers) ***Free Tier / Credits:*** 12 month Free Tier (RDS micro, 20 GB, 750 hrs) + DynamoDB Always Free; AWS Educate credits available ***Est. Monthly Cost:*** **~$600–650 (mainly from livestream traffic)**
Google Cloud Platform (GCP)
Compute (2–3 small instances): Compute Engine e2-medium ~$25/mo × 2 = ~$50; Cloud SQL small ~$30 ***Storage (~100GB):*** Cloud Storage $0.020/GB → ~$2 ***Traffic (~2 TB outbound):*** CDN $0.08/GB → ~$160; Transcoder ~$240 (20 hrs demo)

Free Tier / Credits:
$300 credits (90 days); Firebase free tier

Est. Monthly Cost:
~$480–500

DigitalOcean

Compute (2–3 small instances):
2 Droplets (2 vCPU, 4 GB) ~$24 × 2 = $48; Managed DB ~$15

Storage (~100GB):
Spaces $5 (250 GB + 1 TB traffic incl.); extra 100 GB $10

Traffic (~2 TB outbound):
4 TB traffic included → free at this scale

Free Tier / Credits:
$200 credits (60 days)

Est. Monthly Cost:
~$63

Render

Compute (2–3 small instances):
2 Web Services (2 CPU, 4 GB) ~$25 × 2 = $50; DB ~$7

Storage (~100GB):
Free DB 256 MB; paid ~$7 for small 1 GB; storage limited

Traffic (~2 TB outbound):
Bandwidth included; excess metered (~$0.10/GB) → ~$100–150

Free Tier / Credits:
Free tier (750 hrs small service + free DB)

Est. Monthly Cost:
~$160–200

Oracle Cloud Infrastructure (OCI)

Compute (2–3 small instances):
2 Always Free VMs (1 OCPU, 1 GB); upgrade to 2 vCPU, 4 GB ~$20–25 each → ~$50

Storage (~100GB):
Always Free: 20 GB DB + 10 GB Object Storage; extra ~$2

Traffic (~2 TB outbound):
10 TB outbound free → $0 at this scale

Free Tier / Credits:
Always Free tier + $300 credits (30 days)

Est. Monthly Cost:
~$50–55

Insights:

AWS: By far the most feature-complete for livestream, but costs climb quickly because of IVS + CloudFront traffic. Good for production-ready sports streaming.

GCP: Slightly cheaper than AWS for the same workload; Firebase helps on mobile integration.

DigitalOcean: Extremely cost-efficient at small scale; perfect for pilot/demo, but lacks built-in media streaming.

Render: Simple to use; costs higher than DigitalOcean once traffic scales, but great for team velocity.

OCI: Most budget-friendly; very generous free outbound traffic (10 TB), ideal for student projects if IVS-equivalent services aren't mandatory.

Primary Choice - AWS:
Because Varsity Sports **must handle livestream broadcast + global delivery + VOD**, AWS is the only provider with a fully integrated ecosystem:

- **IVS** (low-latency livestream)
- **CloudFront** (global CDN)
- **S3 + MediaConvert** (VOD storage + transcoding)
- **RDS + DynamoDB + ElastiCache** (app + real-time data)

↪ Cost is higher, but it aligns with production-scale sports streaming requirements.

Secondary Option – GCP (Firebase + Cloud SQL + Transcoder):

- Strong if mobile experience is top priority and livestream is lighter.

• Would need third-party streaming provider for full feature parity with AWS IVS.
Budget Prototype – DigitalOcean: • For Capstone/demo stage, DigitalOcean is the cheapest viable option. • But livestream would need integration with **Mux, Vimeo, or AWS IVS** (hybrid approach).