

Cost analysis

Azure vs AWS

To allow the tournaments to be played from different devices in different locations, we need to host the application. To do this you can use different types of cloud services. In this document, we will quickly explain the two cloud services we have looked at Azure and AWS. And we have a cost analysis based on the requirements that we need to make the application run smoothly. Keep in mind that this is an analysis and is not set in stone so it could still change but will probably stay around that amount.

Requirements

Since we want the application to handle many users and still perform well, we have set the requirements to handle 100,000 current users and handle 1.5 million requests per minute to the system.

In either AWS or Azure, we will use different services needed to make the tournaments playable.

Services that we will use:

- Kubernetes (To host the application (interface, and functionalities)
- 3 MySQL databases (To store the data, split up in different accounts for tournaments, users, and complaints) 32 GB data, with 5GB backup.
- Storage account (Blob Storage, to store images (profile pictures))

Below we have a small explanation about both the platforms, this is to give more details about the services before we compare them. This does contain technical terms and details, what it comes down to is that both platforms can handle what we need to create the tournament application, they have different strengths and implementations and if you want to learn or read more details you can research based on the explanation given for both services below.

Azure

Microsoft Azure is a cloud platform offering a variety of services like computing power, storage, and databases. It supports a range of operating systems, databases, tools, programming languages and frameworks. Azure is known for its seamless integration with other Microsoft products.

AWS:

Amazon Web Services (AWS) is Amazon's cloud platform, providing a wide array of services including computing power, storage options, and database services. AWS is recognized for its scalability, security, and extensive service offerings. It's known for its strong integration with the Amazon ecosystem.

In the next part we will compare the costs for both applications and also state our preference for one service. Afterwards we can discuss and come to a final decision for which cloud platform to use.

Pricing

AWS

Pricing Models

Pay as you go — lets you consume the services you need at any given time. Services are billed by the hour or second of actual use, with no upfront payments. This provides a lot of flexibility but is the most expensive pricing model.

Reserved Instances — These offer significant discounts for making a one-year or three-year commitment to a specific instance type.

Pricing for each service

To calculate the pricing, we used the [My Estimate - AWS Pricing Calculator](#).

Service	Pay as you go (1 month)	Reserved Instances (1 year)	Reserved Instances (3 years)
Kubernetes (Amazon EKS)	73,-	NA	NA
MySQL database (3x)	1,638.12	Upfront: 5,634,- Monthly: 618,-	Upfront:21,427,- Monthly: 148,-
Storage account	0,-	0,-	0,-
Total each month	1,711.12	1,160.50	816.20

Azure

Pricing Models

Pay as you go—like Amazon on-demand, services are billed per second based on actual usage, with no long-term commitments or upfront costs. Suitable for workloads and startups that may experience fluctuating demand

Reserved Instances - for predictable workloads, Azure offers reserved instances by committing to a One- or three-year term. This can benefit with significant cost savings. Suitable for workload with consistent resource requirements.

Spot Instances - it allows users to take advantage of unused capacity at a lower cost. It can also benefit in cost savings; however, the instances can be prevented if the capacity is needed elsewhere. Suitable for workload that tolerates interruptions.

Azure Hybrid Benefit - allows to use existing licenses and pay a lower rate for Azure services

*Only with on-premises license for Windows Server or SQL Server

Pricing for each service

To calculate the pricing, we used the [Azure - Pricing calculator](#)

Service	Pay as you go (1 month)	Reserved Instances (1 year)	Reserved Instances (3 years)	Spot Instances
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Storage Account	22.19\$	839.67\$	675.83\$	X
Azure Kubernetes Service (AKS)	135.85\$	110.08\$	96.89\$	X
Azure MySQL Database	125.41\$	75.41\$	50.52\$	X
App Service	13.14\$	X	X	X
Total each month	296.59\$	1,050.50\$	848.57\$	X

*All the provided prices are per Month

*Azure Kubernetes Service has the option for a saving plan (1 year – 25% discount; 3 years – 46% discount)

*App Service – possible Free Tier

Our recommendation

We recommend using Azure, not only due to potential cost savings in certain scenarios but also because our team is familiar with the platform. This familiarity means that the implementation process will be smoother and faster, ensuring efficiency and ease of use. Azure Services provide all the necessary features to meet the requirements of this project effectively.

It also has a better collaboration with the products that we want to work with, and it has a large community with tutorials.