Migrating FishTank to AWS Cloud

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# Introduction

FishTank Ltd has decided to move its business to the Cloud. Our goal is to ensure a seamless transition with minimal downtime, leveraging AWS services to optimize costs and improve operational efficiency. This documentation will outline the process of moving to the Cloud seamlessly, detailing the services they will need along with a detailed design diagram. The cost of services and roles will be accounted for in a cost breakdown.

# Detailed design diagram

A diagram of a computer system

Description automatically generated

# Diagram Explanation

First you will have to use AWS migration services to migrate all information from your servers to the cloud. To migrate databases, use AWS database migration services for a smooth transaction.

**AWS:** As requested, your business will be migrated to the AWS cloud platform to enhance scalability, security, and performance.

**VPC:** We will create a Virtual Private Cloud (VPC) to serve as a fence around your resources, help to isolate, keep resources secure and allow controlled access to the internet.

**Subnets:** Within your VPC, you will have subnets – both public and private. A subnet is a range of IP addresses within a network (VPC), it is used to make networking more efficient.

* **Public Subnet:** A public subnet has a direct route to the internet, therefore is needed for the web servers. A public subnet will have to be connected to a route table and internet gateway to access the internet (discussed below)
* **Private Subnet:** A private subnet doesn’t have direct access to the internet. It will also require a NAT device to route to the internet. This is needed for resources you keep private e.g. databases and application servers.

**Compute Services**

* **EC2 Instances in public subnet:** An EC2 instance is a virtual server. It can be used to deploy and manage the web servers.
* **EC2 instance in private subnet:** EC2 instances will be launched in the private subnet to host application servers securely.

**Management & Governance Services**

* **Autoscaling:** Autoscaling will be enabled to monitor application performance and automatically adjust resources to meet demand. This ensures optimal customer service by scaling to accommodate up to 5000 concurrent users, with safeguards against DDOS attacks.

**Networking Services**

* **Internet Gateway and NAT Gateway:** To connect the public subnet, you need an internet gateway and connect it to your VPC.
* **Route table:** A route table will be configured to direct traffic from the public subnet to the internet.
* **Load balancer:** A load balancer will be implemented to distribute incoming traffic across multiple servers, ensuring high availability and reliability.

**Increase Availability**

* **Availability zones:** Have at least two availability zones to shorten the distance between the cloud and the end user to ensure lower latency and a backup in case one zone goes down. There will be a public and private subnet in each availability zone.

**Database Service**

* **Launch relational database (RDS) -** RDS will be launched within private subnet as it is for your information only. A read replica will be created in a different availability zone for quick disaster recovery and backup.

**Storage Service**

* **FSx for Windows File Server:** FSx for Windows File Server will be utilized to provide fully managed shared storage built on Windows Server, facilitating a smooth migration process.

**Security Services**

* **Security Group:** Security groups will be configured for each component, acting as virtual firewalls to control inbound and outbound traffic.
* **IAM Service:** IAM (Identity and Access Management) services will be used to create user profiles, defining permissions and access controls to enhance security.

This strategic plan ensures a robust, secure, and scalable AWS cloud infrastructure for your business, optimizing performance and ensuring high availability.

# Migration Cost

|  |  |  |
| --- | --- | --- |
| **Service** | **Monthly Cost** | **Yearly Cost** |
| AWS Application Migration Service | $ 19.81 | $ 237.72 |
| AWS Database Migration Service | $ 2,337.37 | $ 28,048.44 |
| VPC | $ 1,168.00 | $ 14,016.00 |
| Web Server and SQL EC2 instances | $ 760.09 | $ 9,121.08 |
| Application Server and SQL Server EC2 | $ 1,148.97 | $ 13,787.64 |
| Amazon RDS for SQL server | $ 4,590.56 | $ 55,086.72 |
| Amazon FSx for Windows File Server | $ 586.06 | $ 7,032.72 |
| Total Service Cost |  | $ 127,330.32 |

**Service Breakdown Costs**

**Role Breakdown Costs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **Rate/day** | **Days needed** | **Cost Breakdown (USD)** |
| Business Analyst | £ 400.00 | 15 | $ 7,620.00 |
| Solution Architect | £ 1,000.00 | 20 | $ 25,400.00 |
| Server Migration Engineer | £ 650.00 | 20 | $ 16,510.00 |
| Database Migration Engineer | £ 750.00 | 7 | $ 6,667.50 |
| First/Second Line Cloud Support | £ 250.00 | 30 | $ 9,525.00 |
| Third Line Cloud Support | £ 350.00 | 15 | $ 6,667.50 |
| Total Role Cost |  |  | $ 72,390.00 |

Based on the current exchange rate (obtained on June 23, 2024), here's the conversion:

**Total cost of migration:** **$199,720.32**

# Appendix

Pricing export: <https://calculator.aws/#/estimate?id=ed9d4cb164cfe29a00a23ad61f93c71c8f1f73f8>