

FISHTANK LTD. PROPOSAL 2:

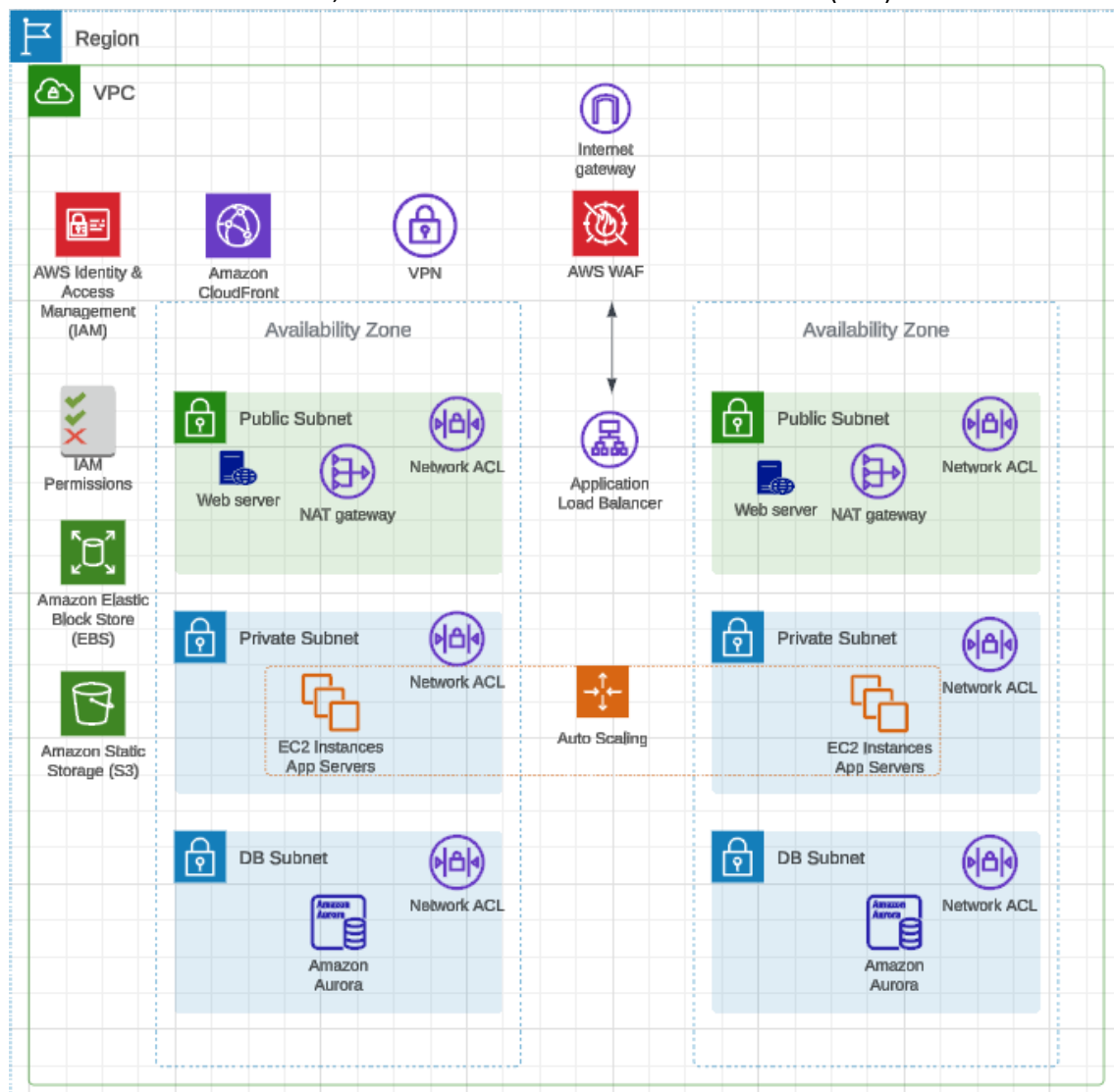
Introduction:

FishTank Ltd. have devised migration of PETRA, their vital line-of-business programme to Cloud on Amazon Web Services. We have decided a well-constructed migration framework which outlines the procedure to migrate PETRA's infrastructure, replicating its many valuable assets into the AWS cloud environment, along with all the cost expenditures in place to accomplish this. This migration guarantees minimal disturbance to your business operations in your Sales, Build and Fulfilment departments, and ensures all of PETRA's infrastructure, including all vital servers and dependencies (DNS, Directory, and Security) will be migrated to AWS Cloud successfully.

Migration Framework:

Key areas of focus include Server computation (Web servers, Application servers, and Database servers), Network and Storage facilitations to control traffic flow, secure connectivity and implement effective backups. Along with this Security measures are guaranteed, utilising Network Access Control Lists (NACLs), Identity and Access Management (IAM) for secure controls regarding accessibility.

This architectural design illustrates PETRA's move to AWS and highlights a thorough framework intended to support PETRA's wide range of resources and needs. To guarantee PETRA's migration is in a safe and secure environment, we utilise Amazon's Virtual Private Cloud (VPC) environment.



This infrastructure is divided into public, private and database subnets, each of which perform specific migration of PETRA's web and application servers, with two availability zones highlighted.

1. **Public Subnet:**
Within the Public Subnet, the current on-premises web servers (S002 to S005) will be replicated as EC2 instances in the AWS VPC's public subnet of each availability zone during the migration process. When launching EC2 instances, the appropriate Window Server version along with the Window Server AMI is selected to ensure compatibility. These EC2 instances serve PETRA application to users via the internet (through route in the internet gateway) manage incoming HTTP requests and grant access to the frontend interface of the application. The Elastic load balancer will send traffic to the replicated web servers which divides incoming traffic across the four web servers in the public subnet, and ensures high availability and fault tolerance throughout the migration.
2. **Private Subnet:**
Migration of the application servers (S006 to S009) to EC2 instances. The instances in the private subnets have no route to the internet directly. But a strategic deployment of NAT gateways allows resources inside the private subnet to have outbound internet connectivity. This guarantees smooth operation and access to external resources like software updates and API requests.
3. **Database Subnet:**
The database servers (S012 to S013) will be moved to the Database Subnet managed by database services like Amazon Aurora. Amazon Aurora is a high-performance relational database engine compatible with PostgreSQL and MySQL. PETRA may achieve high throughput and low latency for database transactions by utilising Aurora within the database subnet, which enables quick application and query response times.
4. **Networking and Security:**
Web Application Firewalls (WAF), with AWS Identity and Access Management (IAM) are ensured, providing tight security by imposing access controls and protection against unauthorised access. Amazon Elastic Block Store (EBS) guarantees data resilience, persistence, with dependable and scalable block storage. When combined, these elements provide a strong and expandable infrastructure that is customised to meet PETRA's requirements, allowing for a smooth transition to the AWS cloud while preserving security, dependability, and efficiency.
5. **Availability Zone:**
Use of multiple availability zones in the AWS architecture ensures PETRA's infrastructure has security, resilience, with optimised performance and durability. This creates a strong foundation for your business endeavours in the chance of failures and secures your migration into AWS cloud.

Expenditures:

Monthly Expenses:

AWS Cloud holds no upfront costs, and using the pay-as-you-go model, you will only pay for the services and resources you have consumed. The monthly expenses and the total estimated costs are equated below according to the services we believe are essential to your successful migration to AWS cloud.

Service	Upfront	Monthly	First 12 months total	Currency
VPN Connection	0	640	7680	USD
S3 Standard	0	2.4	28.8	USD
Data Transfer	0	0	0	USD
Amazon EC2	0	1431.04	17172.48	USD
AWS Firewall Manager	0	0	0	USD
AWS Application Migration Service	0	0	0	USD
Application Load Balancer	0	1571.63	18859.56	USD
Amazon Aurora MySQL-Compatible	0	248.87	2986.44	USD
AWS DRS - Replication	0	516.54	6198.48	USD
AWS Web Application Firewall (WAF)	0	11	132	USD
Amazon Elastic Block Store (EBS)	0	19.65	235.8	USD

Estimated Total for AWS services:

Estimate summary				
Upfront cost	Monthly cost	Total 12 months cost	Currency	
0	4441.13	53293.56	USD	

Role Services:

It is essential during your migration to AWS Cloud that a strong team of consultants are positioned to assist any issues regarding navigating the AWS environment, process migration of the servers into AWS, construct troubleshooting and disaster recovery solutions to name a few.

Role	Details	Rate (£)
Cloud Consultants	Provide expert guidance during security measures in the AWS environment, provide valuable insights into network configurations during architecture design.	2,000
Server and Database Migration Engineer	Migrating and Replication of web, application, and database servers during this migration process.	1,400
Solution Architect	Will be highly essential for procedures such as disaster recovery, optimising performance, and security.	1,000
First-Second line Cloud Support	First line – assistance for basic enquiries, troubleshooting, and answer basic concerns regarding AWS management. Second line – Handle complex technical issues such as performance, more difficult troubleshooting and issues including network connectivity and security.	250
Third-Line cloud support	Will resolve complex troubleshooting, optimisation, and performance issues. They can offer further support in strong disaster recovery resolutions.	350
Total Costs		5000

Conclusion:

This framework is guaranteed to successfully migrate PETRA's infrastructure to AWS Cloud, supported by strong architectural designs and security measures as depicted in the AWS diagram above. It prioritises security, scalability, while optimising cloud computing potential and reducing risks and disasters. This plan thoroughly runs through the cost expenditures, for both the services and the support roles to migrate and maintain AWS cloud data infrastructure, showing a cost-effective scheme adhering to your strict budget.