Digital Futures Data Engineering Academy
Case Study part 2

Technical Design

FishTank Ltd

After receiving some good advice from their trusted partners. FishTank Ltd have decided to move their business to the Cloud. They feel very confident in your ability to migrate their entire business to the cloud and so there will focus the next few weeks on getting their first production workload running on AWS with your help.

Requirement

We require a detailed design and firm costs to migrate our critical line-of-business application PETRA to the Amazon Web Services cloud. PETRA is constantly used during a working week by over 5,000 users across the UK. Fishtank Ltd own an aging but working IT estate and manage this with a dedicated team of 3 full-time employeers ensuring that systems are available and maintained.

We want the document to have the following structure.
PAGE 1 - Title Page
PAGE 2 - Detailed design diagram
PAGE 3 - Single page to describe thoughts behind the design
PAGE 4 - Single page summary of pricing
APPENDIX - Export of pricing from https://calculator.aws/

A note on pricing: I would like to know exactly what I'm paying for. On the Pricing summary page I would like to understand what the ANNUAL AWS costs would be for PETRA as well the cost of any support from yourselves. I then want a Total cost covering both cloud and your support costs.

PETRA details

Attached to this document is a table covering the full list of servers that run PETRA alongside servers and services that are deemed as dependencies of the system.
PETRA is a Customer Relationship Manager (CRM) application based on Microsoft's COTS Dynamics CRM platform but heavily customised to provide the functionality that Fishtank Ltd need. PETRA is used extensively by the Sales, HR and Fulfilment departments. Without PETRA these departments would not be able to fulfil orders for advertisements.

At a high-level PETRA is a standard three-layer-application comprising of Web, Application and database. The platform runs on Microsoft Windows Server (currently 2008) and the database is Microsoft SQL Server 2012, both of which are out of extended support with Microsoft.

The dependencies of PETRA include DNS and Active Directory and the current firewall rules are listed below.

Port	Source	Destination	Comment
HTTPS	WebServers	Internet	Webservers use HTTPS to the internet
9000	WebServers	AppServers	PETRAweb talks to PETRAapp over port 9000
unknown	AppServers	Database	
3389	Webservers	Internet	RDP port, for administrators use
3389	AppServers	Internet	RDP port, for administrators use
3389	Database	Internet	RDP port, for administrators use
All	All servers	Active Directory	All servers need access to the companies Active Directory server on all ports.

Output

Your document will explain how you will migrate the PETRA application to the AWS cloud for Fishtank Ltd.

Your document will detail the process for migrating PETRA to the AWS Cloud. The full PETRA asset list is attached as an appendix to this document.

Your document will have a schematic diagram and detailed pricing.

We will base the award of the contract to migrate the entire Fishtank Ltd business based on the pricing we receive in this document. The pricing should include cloud costs that can be ascertained via the AWS Pricing Calculator price list. We will also share a table of day rates for certain job roles that we will agree to. Any day rate outside of this table will not be allowed.

Many thanks for your efforts and good luck.

Appendix A

PETRA ASSET LIST

Asset Tag	Type	Description	Operating System	Environment	CPU	Memory	Storage	Application name
S001	Server	Domain Controller	Windows Server 2012	PROD	2	4GB	30GB	Infrastructure
N001	Firewall	Firewall	Cisco	PROD	N/A	N/A	N/A	N/A
SAN01	SAN	Shared Storage	HP MSA	PROD	N/A	N/A	4TB	N/A
S002	Server	Web Server 1	Windows Server 2008	PROD	2	4GB	30GB	Web Server
S003	Server	Web Server 2	Windows Server 2008	PROD	2	4GB	30GB	Web Server
S004	Server	Web Server 3	Windows Server 2008	PROD	2	4GB	30GB	Web Server
S005	Server	Web Server 4	Windows Server 2008	PROD	2	4GB	30GB	Web Server
S006	Server	PETRA App Server 1	Windows Server	PROD	4	8GB	100GB	Application Server
S007	Server	PETRA App Server 2	Windows Server	PROD	4	8GB	100GB	Application Server
S008	Server	PETRA App Server 3	Windows Server	PROD	4	8GB	100GB	Application Server
S009	Server	PETRA App Server 4	Windows Server	PROD	4	8GB	100GB	Application Server
N002	Switch	Network Switch	Cisco	PROD	N/A	N/A	N/A	N/A
N003	Switch	Network Switch	Cisco	PROD	N/A	N/A	N/A	N/A
S010	Server	Print Server	Windows Server 2012	PROD	2	4GB	30GB	Infrastructure
S011	Server	Print Server	Windows Server 2012	PROD	2	4GB	30GB	Infrastructure
S012	Server	Database	MS SQL Server 2012	PROD	8	16GB	1TB	Database
S013	Server	Database	MS SQL Server 2012	PROD	8	16GB	1TB	Database

Appendix B

GENERAL ROLE RATES (per day)

Role	Rate
Business Analyst	£400
Cloud Consultant	£2000
Solution Architect	£1000
Server Migration Engineer	£650
Database Migration Engineer	£750
First/Second line Cloud support	£250
Third line Cloud support	£350