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Ola Enterprises cloud migration report

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Coursework Assessment 2

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# Introduction

Ola enterprise is recognized as a front-runner among auditing service providers operating in the African region specialize in auditing and risk management. In addition to this, they have recently grown their operations in Germany and the United Kingdom. Currently, audit information pertaining to consumers and other relevant data is stored manually. As a result of the company's continued expansion and the regulatory obligations that arise from consumers and administrations, the management intends to seek out a more efficient alternative capable of meeting all of these requirements.

* Current Environment Analysis  
  Currently, the client stores a physical version of audit records in a storage unit for long-term record retention in addition to using an existing ERP system to store business customer information for accounting purposes. In the event of a data request for a former client, the staff must comb through a series of documents to obtain the pertinent copy. Following is existing computing environment available at Ola enterprises.  
     
  **\*** 300 desktops\laptops based on Windows 7 & Windows 10   
  **\*** 3 HPE ProLiant servers for Windows Server 2012 and domain control  
  **\*** 350 Tally Prime ERP license  
  **\*** 1 Cisco 2921 series network hub  
  **\*** 3 Netgear 24 port ethernet switch  
  **\*** 8 D-Link DSR-250N Routers  
  **\*** 350 Norton 360 Advanced antivirus license
* Requirement   
  The company's initial requirement is for a solution that delivered substantial properties in addition to the existing ERP functionality from the software that the company had been using for ERP in the past. Furthermore, in order to comply with the regulatory requirements for the storage of data relating to British and other European clients, it should implement cloud computing technology. The proposed solution must also incorporate the digital migration of existing client data stored in physical and electronic format, and it must be accessible upon client request. In addition, the customer desires to make use of the available workstations and network components that it already possesses and is not particularly interested in acquiring any new hardware.

# Available Solutions

## 2.1 Option 1 migration using Amazon Web Service with cost.

Based on an in-depth analysis of the design requirement and the existing application environment, we have identified the following cloud solutions, which have been provided by Arun Consultancy in partnership with Amazon Web Services (AWS) (Amazon Web Service Calculator, 2019).

**\*** AWS Identity and Access Management. [**Free**]  
**\*** AWS Elastic Compute Cloud (3 instances, 150 GB each, 8GB RAM each, 2 Core CPU) with 85% average usage. [**210$ per month**]  
**\*** AWS Simple Storage Service (London location 15GB per day) [**0.36$ per month**]  
**\*** AWS Load Balancer. [**43.82$ per month**]  
**\*** AWS Rout53. [**46.62$ per month**]

**\*** AWS Directory Service (Simple AD). [**109.50$ per month**] **\*** Dynamo Database (Storage 100GB). [**362.37$ per month**]  
**\*** AWS App Stream 2.0(300 Users). [**1800.70$** **per month**] **\*** Proposeda new web-based ERP application. [**40000$ one time cost**]

**\*** Annual Maintenance Contract for proposed ERP application and all the AWS cloud services. [**15000$ per year**]

## 2.2 Option 2 migration using Microsoft Azure services with cost

We have discovered yet another potential solution to migrate the currently deployed ERP system to the cloud by implementing the following services offered by Microsoft Azure. The below services have been evaluated to be provided all across the migration process (Microsoft Azure (2019).

**\*** Azure Active Directory (300 Users). [**350$** **per month**]  
**\*** Azure Virtual Machine (3.5 GB RAM, 135 GB SDD, 2 Cores). [**90$** **per month**]

**\*** Azure Blob (512GB Storage, 200 Write per day, 50 Read operation per day). [**313$** **per month**]

**\*** Azure Load Balancer (Region Africa, 1TB network traffic, 10 firewall rules). [**59.75$ per month**]   
**\*** Tally Cloud (300 Users) [**20$** per month]  
\* Annual Maintenance Contract for all the Azure cloud services. [10000$ per year]

## 2.3 Selection Procedure

Based on numerous discussions with the client's business team, the client has opted for the first solution presented by Arun Solutions in collaboration with Amazon Web Services. Below are the important variables evaluated while selecting the most suitable solution for cloud migration.

### Fulfillment of migration requirement

Initially, the customer only has three main requirements for cloud migration: comply with regulatory compliance regarding data storage for British and European clients; avoid the necessity to buy any new hardware post migration; and integrate the client's existing data in its physical form into the new cloud system. In the first recommended solution, all criteria are met, but the second alternative fails to meet the third requirement offered by Microsoft Azure.

### Project Cost, Service availability & Infrastructure Support

The first proposed option is more economically suitable for the client with consideration of meeting all three primary requirements. Moreover, the amazon team is responsible for managing the cloud infrastructure such as OS patching, implementing security patches on the servers etc. Also, AWS is offering 100% service uptime for their products used in this migration project.

### Security

The advantages of the first approach include the elimination of the need for a local installation of the new application, role-based multi-factor authentication for accessing client data, and the prohibition of post-migration customer accounting information being stored locally on employee devices. Employees will have access to, and be able to make changes to, customer documents stored in the cloud application.

# Cloud Migration

Following is a summary of the various procedures involved in migrating to the cloud, including an analysis of the current infrastructure, an outline of the data to be migrated, the migration procedure, a breakdown of the project's stakeholders, and a testing approach for the pre and post-implementation validation of a new system.

## 3.1 Scope and Deliverables

This section illustrates the key migration objective and comprehensive list of deliverables that the project will outline. This cloud migration project will be divided into four stages: analysis, migration & development, evaluation and user education.  
  
There are three primary targets of the migration project:

* Migrate the existing application to other environment using cloud technologies.
* Offered proposal should legally comply with GDPR regulations related to data storage European and British clients.
* The existing physical client audit records numbering in the 500,000+ must be migrated to the cloud.  
    
  Following is a high-level project scope outlining the above project requirements.

|  |  |  |
| --- | --- | --- |
| Business Objective | Deliverable | Positive Result Indicator |
| To migrate existing  application to Cloud | Use services offered by Amazon to migrate the current ERP application to AWS cloud environment. | Application should be running from cloud environment with without any issues. |
| Legal compliance with GDPR | Application services will be running European region and cloud service provider Amazon is fully GDPR compliant. | Post external compliance team evaluates an application, it must comply with all regulatory requirements. |
| Aggregation of previous data | An old enterprise resource planning (ERP) tool has been replaced with a new web-based application offered by a consulting company. Moreover, it will have a special ability to enable users to retrieve historical and current customer records for a period of up to seven years. | A new application must pass all the user and integration testing performed by business team. In addition, previous physical data must be readily available. |

## 3.2 Migration process flow

The migration process can be divided into two distinct stages, which are known as the **pre-implementation** stage and the **implementation** stage, respectively.

In the pre-implementation project timeframe, this is mostly connected to the compilation of requirements, the analysis of those requirements, the discussion of viable solutions with the client, the estimation of costs, and the final authorization from the client to begin migration activities.

Diagram

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Drawing Tool: Miro.com (n.d.)

This phase of the migration schedule is illustrated by the construction of the new cloud infrastructure and the creation of various profiles and roles in the cloud for the database and cloud administrator, the migration of data, the testing of the system, and the development of a new ERP application.

Diagram

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Drawing Tool: Miro.com (n.d.)

The figure below depicts a phase-based **work breakdown structure** for describing various deliverables at each step of a project's life cycle.

Diagram

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* Requirement & AnalysisIn this phase, the client and consulting firm will be working to examine and negotiate the migration requirement.
* PreparationThe second process demonstrates the need for a cloud partner to brainstorm the client requirement, the creation of a feasible migration solution, the cost estimation, the project plan, the final discussions with the client, and the approval to continue to the subsequent phase.
* ExecutionIn the subsequent phase, this entails the establishment of a new cloud infrastructure, the creation of users and roles, and the commencement of the migration of data in database and paper form to the cloud environment using a migration script. During the period when data is migration, the team will also begin development of a new ERP application.
* ControlIn this phase, the quality assurance and client business team will perform multiple control validation such as unit, integration, and user acceptance testing in testing environment. Post completion of successful testing, the new application will be release for limited number of users from client side to validate actual application. In case of no issue observe, the application will release for all the users in Ola enterprises.
* ClosureDuring this phase, the consultant team will coordinate a series of meetings with the customer to demonstrate the new application functionality, hand over the application and infrastructure documentation and transfer ownership of the cloud infrastructure to the designated individual.

## 3.3 Project Stakeholders Role and Responsibilities

Below is the list of key internal and external project stakeholders involving in this project.

**Internal Stakeholder:**

|  |  |  |
| --- | --- | --- |
| Project Team Roles and Responsibilities (Arun Consultancy Services) | Staff Name | Contact Information |
| Project Manager:  Principal point of contact throughout the duration of the project to facilitate, administer, and drive the implementation to completion. Specifications for all required alterations specifications for more Summaries of Tasks, including requests and supporting documentation. | Vidit T. | Vidit.T.@acs.co.uk |
| Consultant:  Specialize cloud architect for data migration and AWS service configuration. | Vidya T. | [Vidya.T.@acs.co.uk](mailto:Vidya.T.@acs.co.uk) |
| Developer:  A technical resource who will be working from client side in UK office and developing a new web-based application. He will also coordinate with client and consultancy firm. | Nagesh M. | Nagesh.m.@acs.co.uk |
| Trainer:  Responsible for internal QA testing and user education for a new application, scheduling on-site or remote training session with company employees. | Sushma P. | Sushma.p.@acs.co.uk |

**External Stakeholders:**

|  |  |  |
| --- | --- | --- |
| Client Team Roles and Responsibilities (Ola Enterprises) | Staff Name | Contact Information |
| Project Sponsor & Customer Project Manager:  Supervise and manages the project's team as a whole to ensure that the project's objectives, critical success factors, timeline, milestones, and outcomes are met. Promotes the introduction of the application to external customers and internal members such as employees, shareholders etc. | Kolawole, Folayemi | [Kolawole.Folayemi@OlaJ.com](mailto:Kolawole.Folayemi@OlaJ.com) |
| Subject Matter Expert (Legal & Accounting):   A consultant who works for a client company to help the project team understand about the client's business and accounting needs and check the validity of the application as a whole. | Damilola, Peter | Damilola.Peter@OlaJ.com |
| IT Officer:  A client technical resource who will be responsible for ownership handover of cloud infrastructure, managing configuration, access providing and perform periodic security audit to inspect any unauthorize access from within company or consultancy firm. | Adetola, Adetoro | Adetola.Adetoro@OlaJ.com |
| Trainer:  A client resource who coordinates with the consultant coach to provide initial and continuous training for Ola enterprises' employees. | Bolaji, Lawal | Bolaji.Lawal@OlaJ.com |

## 3.4 Testing Approach and Plan

Multiple testing approach such as unit and functional tests will be carried out in compliance with a test case that was prepared by the consultant and developer working for Ola enterprises. The software for tracking issues, such as Jira, will be used to log any problems that arise. A comparison side-by-side with the existing ERP application will be used to determine the overall quality of the product.  
  
The following table describe the testing approach with estimated dates.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test type** | **Test description** | **Dates** | **Location** | **Tester(s)** | **Issue resolution** |
| Unit | Program level testing e.g., elements within a page – form submission/accounting format in database. | Ongoing from March to Nov 23 | Arun Consultancy Service | Sushma P. | Nagesh M |
| Functional | Complete testing of user flows and back-end processes, such as those involved in upload audit information | Ongoing from Apr to Dec 23. | Arun Consultancy Service | Sushma P. | Nagesh M, Vidya T |
| Integration and complete system test | Mid Dec 23 | Arun Consultancy Service | Sushma P. | Nagesh M, Vidya T |
| UAT  (Extensive user flow testing by Ola Enterprises) | The console, navigational setups, profiles, and work areas | On site 13/10 – 24/10/23 | Ola Enterprises (UK Branch) | Client Trainer | Nagesh M, Vidya T |
| Browse historic data in physical form. | On site 13/10 – 24/10/23 | Client Trainer | Nagesh M, Vidya T |
| Support (Incident) procedure. | 08/12 – 12/12 | Ola Enterprises (UK Branch) | Client IT Officer | Vidya T. Vidit T. |
| The full system, inclusive of all user interface pages. | Jan 24 | Ola Enterprises, Head office | Client Trainer/ Regular Employees | Nagesh M, Vidya T |
| Functional Validation - page format, pass accounting entry related country accounting standard rules etc. | 03/02 to the 20/02, 2024 | Ola Enterprises, Head office | Subject Matter Expert (Legal & Accounting) | Nagesh M, Vidya T, Vidit T. |
| Pilot Cut over tests | Validate the live environment, employee authentication and authorization. | Cut over est. 03/03/24 | Ola Enterprises, Head office | Client IT Officer /Client Trainer/ Regular Employees | Nagesh M, Vidya T, Vidit T. |
| Complete Cut over tests | Login, perform regular task, access reports, monitor system health | Cut over est. 30/03/24 | Ola Enterprises, All offices. | Client IT Officer /Client Trainer/ Regular Employees | Nagesh M, Vidya T, Vidit T. |

# Detailed Migration Plan

The below chart illustrates estimated detail information related to implementation phase lifecycle.

Table

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Tool Used: Smartsheet

The detailed Gantt chart of this plan is embedded below. Please note the embedded document is only accessible when this document is opened in Microsoft word.



## 4.1 Allocation of Resources to the task

The following table details cost breakdown of $40,000 migration project, broken down by task and assigned resources during the various stages of the project.

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Resource | Time % (Ratio) | Budget% (Ratio) |
| Requirement analysis | Consultant & Developer | 10.56 | 5 |
| Create Proposal, estimation & Project plan | Project Manager | 1.12 |
| Proposal Discussion and getting approval. | Project Manager | 1.88 |
| Creation of cloud infrastructure & Service account | Consultant | 1.92 | 20 |
| Integration of cloud environment to existing infrastructure | Consultant | 0.78 |
| Migrate electronic and other type of data to the cloud | Consultant | 3.94 |
| Create New ERP application | Developer | 19.26 | 25 |
| Testing & other validation | Trainer | 13.20 | 10 |
| Training to Client Trainer | Trainer | 7.02 |
| Deployment | Consultant & Developer | 1.26 | 30 |
| Pilot Cutover & Support | Consultant | 4.46 |
| Complete Cutover | Consultant | 0.67 |
| Handover & Closer | Trainer | 4.70 | 10 |

## 4.2 Downtime Agreement & Maintenance Activity

In case the client opts for post warranty product support from Arun Consultancy, the team will be responsible for application availability to the client's users (PandaDoc, n.d.). The project team guarantees a service uptime of 98% for the application for the duration of the contract. Arun consultancy's shared Jira platform is used to report and track the development of reported incidents. The project team is accountable for providing an adequate resolution within the below time window based on incident severity. The problem can be categorized into the following types:

Table

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Furthermore, the team is also responsible for annual maintenance activity such as disaster recovery exercise, security certificate renewal, server & OS patching etc. In the event of a disaster recovery exercise, the application will run for one day from a single server (either London or Frankfurt AWS Location) to simulate a node failure from a single geolocation. Once the team receives an appropriate clearance from the client manager, the project team will perform the activity with the client's IT team to complete the task.

## 4.3 Project Risk.

The following is a list of potential risks that have been discovered during the course of the project's duration in its various phases. These risks can be broken down into two distinct groups: the internal risk and the external risk. An internal risk refers to all the risks related to identified during project analysis, execution, control and closure phase identified by Arun consultancy.   
  
For external risk, client-side concerns predominate here. In the event that any new risk is identified, it will be documented here as part of the risk registry.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Risk Description** | **Probability** | **Impact** | **Criticality** | **Contingent/Prevention Actions** | **Owner** | **Acceptance   to  proceed** |
| **Configuration Environment setup**  This section is associated with all the possible issues that may occurred during configuration of new cloud environment or integration of cloud environment with existing infrastructure available at client side. | M | 57% | High | In case of an issue, the team will engage a cloud solution expert from Amazon to validate and resolve the issue.  Also, to prevent any integration issue of new cloud setup with the existing environment, the consultant will schedule a series of meetings to understand the network map, firewall rules, network configuration, etc. | Consultant | **No** |
| **Coding Issue** This part addresses all the potential concern that may arise due to bad coding of missing functionality. | L | 63% | Medium | It is mandatory for a developer to follow a modern coding standard while writing code.   The team is also following a review method to validate the code with the project manager and consultant at each phase. | Developer | **No** |
| **Testing Issue** This part emphasizes the possible risks that may occur during the control testing phase. | H | 12% | Medium | Trainer will work with the developer and consultant to configure the testing script, and if any test cases fail, the test results should be shared with the appropriate person. | [Trainer](https://www.stakeholdermap.com/project-dictionary/project-sponsor-meaning.html) | **Yes** |
| **Training/ Handover Issue**  In the case of a complex training plan or inadequate documentation, several problems may emerge during the transition and training phase with the client team. | L | 87% | Medium | The proposed training plan must be approved by both the project manager and the authorized team member from the client side.  In addition, PMP-compliant handover documentation must be developed to ensure that the client team has an adequate understanding of the new application. | [Trainer](https://www.stakeholdermap.com/project-dictionary/project-sponsor-meaning.html)  &  Project Manager | **No** |
| **Other Internal issue**  Multiple other concerns that might have direct or indirect effects on the project include resource attrition, modifications to the project's plan, performance difficulties, and others. | H | 78% | High | The project manager should develop a contingency plan that incorporates all other factors. A reasonable system of project tracking must be implemented to guarantee the successful completion of a project and assess resource productivity. | Project Manager | **No** |
| **External Risks** | | | | | | |
| **Change in Requirement**  The client may request an additional requirement during the implementation phase. | M | 92% | High | The project manager should reevaluate the project plan to accommodate minor changes; if the change is substantial, the project must revisit the project life cycle since it will influence the project's schedule and budget, and the project team must evaluate the project's requirements and risks. | Project Manager | **No** |
| **Funding issues**  The following section describes the challenges associated with budget release from the client's perspective. | M | 86% | High | Cost-related contingency plans must be considered by the client project manager in the event of any incident. | Customer Project Manager | **No** |
| **User issues**  This section outlines the user difficulties that may arise when utilizing the proposed application. | M | 81% | Low | Client and project trainer are responsible for resolving any new application-related concerns. | Client Trainer & Project Trainer | **Yes** |

1. References**:**  
   Amazon Web Service Calculator. (2019). AWS Pricing Calculator. [online] Available at: https://calculator.aws/.

Microsoft Azure (2019). Pricing Calculator | Microsoft Azure. [online] Microsoft.com. Available at: https://azure.microsoft.com/en-us/pricing/calculator/.  
  
Miro.com (n.d.). Project Management Templates. [online] Available at: https://miro.com/templates/project-management/ [Accessed 1 Dec. 2022].

PandaDoc. Service-Level Agreement Template - Get Free Sample. [online] Available at: https://www.pandadoc.com/service-level-agreement-template/ [Accessed 19 Dec. 2022].

Smartsheet. (n.d.). Quick and Simple Online Gantt Chart Software. [online] Available at: https://www.smartsheet.com/online-gantt-chart-software.

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