



SSM Middleware Product Portal Proposal

**Suruhanjaya Syarikat Malaysia
Companies Commission of Malaysia
(SSM)**

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Mesiniaga

Table of Contents

Chapter 1	Overview.....	3
1.1	Introduction.....	3
1.2	Definition of Terms Used.....	4
Chapter 2	Problem Statement	5
Chapter 3	Proposed Solution	5
3.1	SSM Middleware Product Portal.....	5
3.2	New Modules and Functional Improvements	7
3.2.1	Modules & features improvements	7
Chapter 4	Implementation Approach.....	11
4.1	Implementation Overview	11
4.2	Implementation Project Organization Chart.....	12
Chapter 5	Scope of Work.....	13
5.1	Project Management	13
5.2	Application Development	13
5.3	Infrastructure Preparation	15
5.4	Database Preparation	17
5.5	Integration Preparation	17
5.6	Training.....	18
Chapter 6	Financial Consideration	19
6.1	SSM Middleware Product Portal Financial Consideration	19
6.2	SSM Middleware Product Portal Delivery & Billing Milestones	19
Chapter 7	Assumptions and Exclusions.....	20

Chapter 1 Overview

1.1 Introduction

The current SSM Middleware System (hereafter referred to as Middleware or “the system”) is a system that provides enterprise application integration for data exchange between SSM's core databases and various subsystems within SSM as well as with external agencies. It provides a common platform for communication between software applications by implementing standard and structured services to be consumed by potential service requestors whose respective systems could be built on various different platforms and developed in different programming languages. Agencies who wish to obtain corporate and business information from SSM will have to subscribe to SSM Middleware services.

The current SSM Middleware System has a Middleware portal to manage agency profile, manage service catalogs, manage service subscription, manage price configuration, perform home publishing and home subscription, and generate reports. It is meant to be used for SSM internal purpose in managing the services and subscribers. This incredible feat was made possible with the use of a Java Enterprise platform.

However, the current Middleware Portal was not made available for agencies/ agent for self-registration and self-service subscriptions. It also does not enable registered user to do online purchase of SSM's Products.

In the interest of pursuing a longer and better business partnership with SSM, we submit this proposal on evolving Middleware into a true enterprise system. Through an **estimated 6-months** project, the SSM Middleware System will be significantly enhanced to overcome the limitations that it currently faces.

This proposal will explain the reasons for the enhancement, the approach that we take, the scope of work, and the financial investment for SSM consideration. Mesiniaga has proven to be a reliable partner in supporting the systems that we have delivered to SSM. We hope you take into consideration our track record with you and agree with the benefits of our proposal.

1.2 Definition of Terms Used

The following table shows the definition of the terms used in this chapter:

Terms	Definition
SSM	Suruhanjaya Syarikat Malaysia Companies Commission of Malaysia
MB	Mesiniaga Berhad
Middleware	SSM Middleware is a system that provides enterprise application integration for data exchange between SSM's core databases and various subsystems within SSM as well as with external agencies. It provides a common platform for communication between software applications by implementing standard and structured services to be consumed by potential service requestors whose respective systems could be built on various different platforms and developed in different languages. Agencies who wish to obtain corporate and business information from SSM will have to subscribe to SSM Middleware services.

Table 1: Definition of Terms Used Table

Chapter 2 Problem Statement

As previously mentioned in Chapter 1, the current Middleware Portal was not made available for public user, agencies/ agent for self-registration and self-services subscriptions. It also does not enable registered user to do online purchase of SSM's Products.

Chapter 3 Proposed Solution

Our proposed solution consists of 2 parts which are:

- i. SSM Middleware Product Portal
- ii. New Modules & Functional Improvements

Our proposal is outlined as such because we believe that these are enhancements that we believe to have a higher level of urgency, and that we have enough information for making a viable proposal.

3.1 SSM Middleware Product Portal

The first part of our proposal is the building of SSM Middleware Product Portal for external parties to do self-registration, self-subscription and online purchasing.



The platform used will be the **Java Enterprise Platform (Java EE)**. The platform provides API and runtime environment for developing and running **large-scale, multi-tiered, scalable, reliable, and secure network applications**. Meanwhile, Java is **object-oriented** and is **not specific** to any processor or particular operating system.

What this means to SSM is this: Robust **Enterprise grade** application platform and **freedom** from proprietary platform runtime. SSM Middleware Product Portal will be able to run virtually on any server or on any operating system (OS).

With the aforesaid traits, Object-oriented programming (OOP) would also allow us to expose certain functions for public consumption (or for other 3rd party systems).

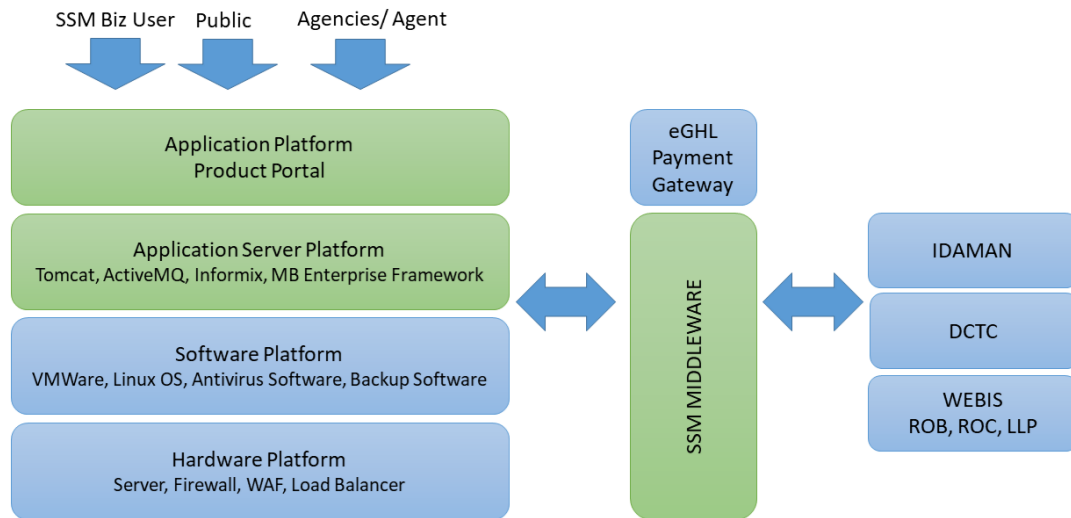


Figure 1: Tiered Architecture of the SSM Middleware Product Portal

The design would better position SSM Middleware Product Portal to meet the following objectives:

- More stable in handling high volumes of requests (or transactions).
- Lower operational overhead and more efficient resource utilization.
- Reactive platform to support future enhancement/changes for growth.

The Java Enterprise platform will also provide SSM Middleware Product Portal with features as follows:

- Object oriented, code visibility and modularity in basis to support future changes or functions.
- A much-needed version control with rollback capability and multi-track check-in feature.
- Tiered architecture for robustness, scalability and security.
- Horizontally and vertically scalable platform based on open technology stack.
- Future-proof platform as SSM moves from a proprietary environment.

3.2 New Modules and Functional Improvements

The second part of our proposal is the development of new modules for SSM Middleware Product Portal and the implementation of functional improvements.

3.2.1 Modules & features improvements

No	Module	Description/ Functions
1	User Registration	<ol style="list-style-type: none"> 1. Self-Registration for individual user with two-factor authentication (2FA) via email. 2. Self-Registration with SSM Approval process for company/ agent/ agency. 3. Email notification for approval, rejection, termination or cancellation of registration.
2	Login Page	<ol style="list-style-type: none"> 1. The system will provide an interface for user to key in their username and password to gain access to the system. 2. Login page will be added with Recaptcha service to distinguish between human and automated access to the system. Please refer to https://www.google.com/recaptcha/about/ on the pricing structure for Recaptcha service. Charges for Google Cloud Recaptcha service resources used shall be the full responsibility of SSM. 3. Forgot Password link will be provided for user to recover their password. Temporary password will be provided via email to the user based on their registered email. User can then change their password via the User Profile page.
3	User Profile Page	<ol style="list-style-type: none"> 1. My Profile – for current user to do the following: <ol style="list-style-type: none"> a. Edit personal details b. Change email address c. Change password 2. My Transaction – to show list of purchased payments by current user. This list will only provide up to 3 months details from current date.
4	Portlet Content Management	<ol style="list-style-type: none"> 1. Portal Contents (i.e. images/ video) shall be provided by SSM. 2. Portal write-up shall be provided by SSM. 3. MB will develop the Portal Structure upon confirmation and approval of the Portal Design from SSM. <p>Note: There will be no workflow for the content management process.</p>

5	Product Catalogue	<p>Administrator will be able to perform these functions:</p> <ol style="list-style-type: none"> 1. Management of Product Catalogue based on existing services in SSM Middleware. 2. Management of Product Pricing based on agency and service/catalogue.
6	Dashboard	<ol style="list-style-type: none"> 1. Based on Predefined Roles as below: <ul style="list-style-type: none"> • Public User accessing SSM Middleware Product Portal shall not have a personal dashboard. • Registered user/ agencies/ agent will be able to see report or transaction belong to them only. • SSM Officer will be able to see ALL reports and transactions. 2. Predefined Search Criteria as follows: <ul style="list-style-type: none"> • Date Time From - mandatory • Date Time To - mandatory • Type: ROC/ ROB/ LLP 3. Predefined Excel/ PDF output format. 4. Search result shall have pagination features and sortable features. 5. Maximum of 3 static charts with no drill down features. <p>Note:</p> <ul style="list-style-type: none"> • SSM Middleware Product Portal Transaction data is near real time. • SSM Middleware Transaction Data will be excluded of current date data due to huge volume of data.
7	Search	<ol style="list-style-type: none"> 1. Predefined Search Criteria in which at least one number need to be filled in. <ul style="list-style-type: none"> • Company/ Business Registration Number (enable multiple entity: use comma as separator. Maximum of 5 entities per search). 2. Search function with auto-suggestion mechanism to find relevant results. 3. Search capability including exact search, wild card starting with and wild card containing. 4. Search result shall have pagination features and sortable features. 5. Search result to display the product details as CTC or Non CTC, or Certificates.

8	Add to Cart	<p>Shopping Cart features:</p> <ol style="list-style-type: none"> 1. Add new product to cart 2. Delete all/ multiple of selected products from cart 3. Cart Listing – List of selected item with details as below: <ul style="list-style-type: none"> • Entity Number • Document Description • Price (RM) • Discount (RM) • Total Price (RM) • Action (Delete) 4. Checkout selected product(s).
9	Online Payment	<ol style="list-style-type: none"> 1. Payment Method of Credit Card/ Debit Card or Online Banking via eGHL. 2. Enable user to download, view and save payment receipt on product purchased. 3. Integration with eGHL: Communication and commercial arrangement with the bank/eGHL will be the full responsibility of SSM. 4. Online product purchase payment will only be made available for B2C transaction only. It does not cater for Prepaid or Postpaid billing method. 5. Payment for B2B method which related to API/ Services usage by agency/ agent is out of the scope of this proposal. 6. Email notification of payment status to the user and Administrator.
10	Download	<ol style="list-style-type: none"> 1. Only paid items will be able to be downloaded. 2. Enable to download multiple times for the same item. 3. Items can only be downloaded maximum of 7 days from date of purchase.
11	Integration	<ol style="list-style-type: none"> 1. Certification Authority (CA)/ DigiCert <ul style="list-style-type: none"> • Details requirement will be further refined during requirement study. • Commercial arrangement of the services by DigiCert will be the full responsibility of SSM. 2. Integration with SSM Middleware via SOAP or REST interfaces.
12	SSO	<ol style="list-style-type: none"> 1. Integration with SSM Identity Access Management (IAM) using SAML. 2. Integrate with the SSM IAM directory for all external users and SSM Directory (Active Directory) for all internal SSM users.

13	FAQ	<ol style="list-style-type: none"> 1. FAQs content shall be maintained by SSM. 2. System will provide maintenance screen for SSM's Officer to key-in the FAQs in the portal. 3. Attachment for FAQs shall only be in PDF format or link to YouTube. <p>Note: There will be no workflow for the FAQs management process.</p>
14	User Manual	<ol style="list-style-type: none"> 1. User Manual content shall be maintained by SSM. 2. System will provide maintenance screen for SSM's Officer to upload the User Manual in the SSM Middleware Product Portal. <p>Note: There will be no workflow for the User Manual management process.</p>
15	Standard Features	<ol style="list-style-type: none"> 1. Audit Trail <ul style="list-style-type: none"> • Audit Trail shall log after the following occurs: <ul style="list-style-type: none"> - Internal / external user successfully logs in • Audit Trail details will be further refined during the requirement study. 2. Transaction History <ul style="list-style-type: none"> • Transaction History shall log after the following occurs: <ul style="list-style-type: none"> - Internal / external user successfully logs in • Transaction History details will be further refined during the requirement study. 3. Meaningful error and warning messages and user is required to correct errors before proceeding with their application process. 4. Provide field, page and form level validation. 5. The System's language and documentation(s) will be in English only.

Chapter 4 Implementation Approach

4.1 Implementation Overview

The project is estimated to be completed in 6 months with the following key milestones:

- a. Foundation readiness
- b. Requirements mapping
- c. Development and unit testing
- d. User Acceptance Test (UAT)
- e. Final Acceptance Test (FAT)
- f. Infrastructure and databases readiness
- g. Load/stress tests
- h. Penetration tests which would be the full responsibility of SSM
- i. Final simulation test runs
- j. Go Live

ID	TASK NAME	M1				M3				M3				M4				M5				M6			
		W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21	W22	W23	W24
1	Project Kickoff																								
2	User Requirement Study & System Design																								
3	Development																								
4	Quality Assurance and SIT																								
5	UAT & FAT																								
6	Deployment																								
7	Live																								

Figure 2: High level Timeline

4.2 Implementation Project Organization Chart

The following diagrams are the proposed project organization for this project. The organization charts shall be revised accordingly during project planning to reflect a more accurate project team member. The presence of Mesiniaga Project Team members at SSM Premises shall be on a necessary needs basis.

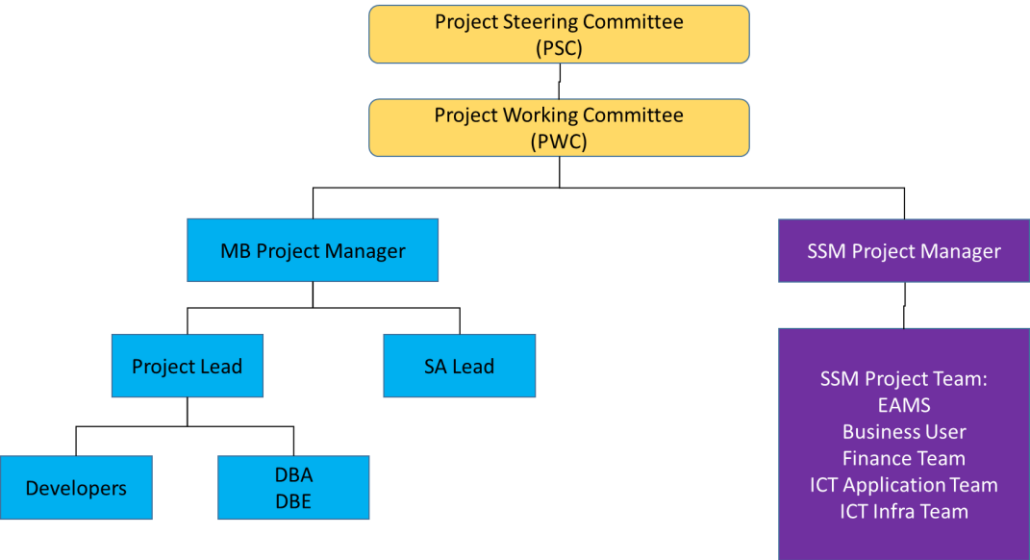


Figure 3: Project Organization Chart

Chapter 5 Scope of Work

The scope of work for this project encompasses the following work areas:

- i. Project Management
- ii. Application development
- iii. Infrastructure setup
- iv. Database preparation
- v. Integration preparation
- vi. Training
- vii. Post Implementation support

5.1 Project Management

Mesiniaga will appoint a project manager to undertake the overall responsibility of executing and closing the project within agreed timeframes and budget.

The following will be the deliverables of this work area:

- i. Project Execution Plan (Kick Off Report)
- ii. Project Schedule
- iii. Progress Report or status updates
- iv. Project Review or meeting minutes

5.2 Application Development

Scope of work for application development which will be done by MB will cover features and functions of the following:

- i. Eight (8) types of products identified as follows:
 - a. Company Profile
 - b. Business Profile
 - c. Particular of Company Secretary
 - d. Particular of Directors/ Officers
 - e. Particular of Shareholders
 - f. Personal Involvement

- g. Audit Firm Profile
- h. Document Images
- ii. Two (2) different types of workflow processes that can be configured and changed for user registration forms identified as follows:
 - a. Auto-approval or auto-registration (i.e. no approval) for individual user registration
 - b. Two (2) levels of approval upon submission for company/ agency or agent registration.
 - i. 1st Level Approval by Finance upon success registration fee payment.
 - ii. 2nd Level Approval by Business Owner.
- iii. Views or listings for SSM officers to search for two (2) types of un-approved registration submissions:
 - a. User Registrations – Individual/ Company/ Agency/ Agent
 - b. Company/ Agency/ Agent User Registrations
- iv. Two (2) Finance tools of the following:
 - a. Transaction List
 - b. Generate Custom GAF only for B2C type of transaction.

Note:

 - Refund process is excluded from this proposal's scope of work.
 - SSM Middleware Product Portal Transaction data is near real time.
 - SSM Middleware Transaction Data will be excluded of current date data due to huge volume of data.
- v. Four (4) reports identified as follows:
 - a. Reports of User Registration by Status (Received & Processed)
 - b. Reports of Product Purchased.
 - Search Criteria: Date Time from, Date Time To and Product Type
 - c. Transaction Report (Based on existing Middleware's Transaction Report)
 - d. Summary of Transaction Report by Agency and Type (ROB/ ROC/ LLP)

Note:

 - SSM Middleware Product Portal Transaction data is near real time.
 - SSM Middleware Transaction Data will be excluded of current date data due to huge volume of data.

- vi. Maintenance screens for application administrators to administer the following:
 - a. User Management - Temporary or permanent block/ revoke of access for user (active/ inactive).
 - b. Email templates
 - c. Portal Portlet Contents.
 - a. Maximum of 10 portlets maintenance screens.
 - d. FAQs Maintenance Screen
 - e. User Manual Maintenance Screen
- vii. Integration with the following systems:
 - a. SSM Middleware to CBS ROB, ROC and LLB information retrieval and update.

Note: Please refer to Chapter 3 on the Modules involved for this project.

5.3 Infrastructure Preparation

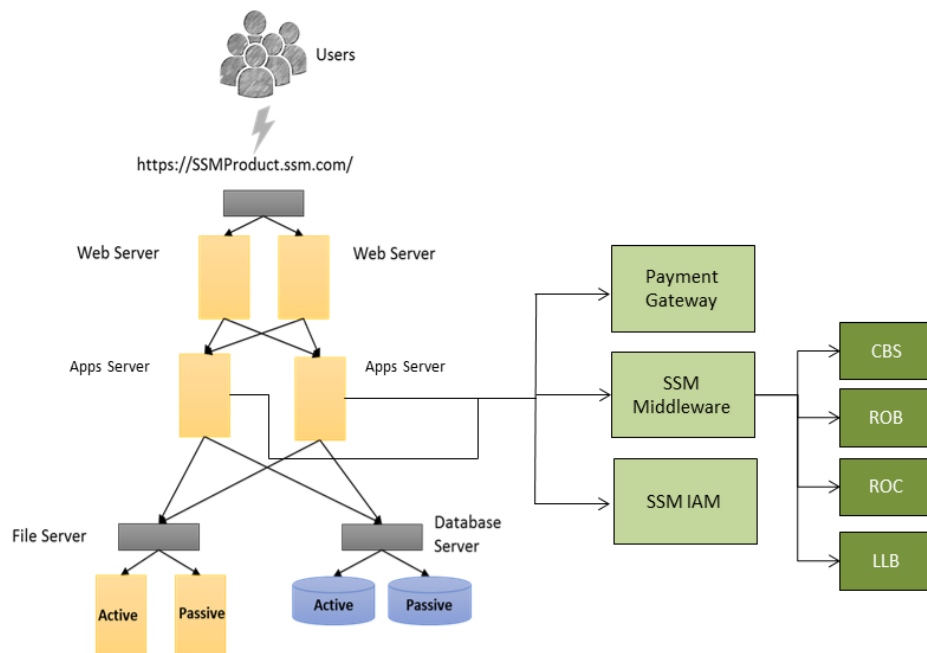


Figure 4: High Level Architecture Diagram

Below are the recommended infrastructure components to support the SSM Middleware Product Portal.

No	INFRA ITEM	Quantity
1	<i>Web Server- DMZ [Production]</i> <i>OS: Red Hat Enterprise Linux</i> <i>SW: Apache Web</i> <i>Recommended Spec:</i> <i>vCore: 4</i> <i>vRAM: 8GB</i> <i>HDD-OS: 100GB</i> <i>HDD- 200GB</i>	2 (For HA) Load balanced
2	<i>Application / API Server [Production]</i> <i>OS: Red Hat Enterprise Linux</i> <i>SW: Apache Tomcat / Active MQ</i> <i>Recommended Spec:</i> <i>vCore: 8</i> <i>vRAM: 32GB</i> <i>HDD-OS: 100GB</i> <i>HDD- 200GB</i>	2 (For HA) Load balanced
4	<i>Shared Storage [Production]</i> <i>Recommended Spec:</i> <i>Capacity:1 TB</i>	1 Currently there are 2 clustered file servers with total 1tb Shared Storage. Consider storage replication to DRC
5	<i>Web Server- [Development]</i> <i>OS: Red Hat Enterprise Linux</i> <i>SW: Apache Web</i> <i>Recommended Spec:</i> <i>vCore: 2</i> <i>vRAM: 4GB</i> <i>HDD-OS: 100GB</i> <i>HDD- 200GB</i>	1
6	<i>Application / API Server [Development]</i> <i>OS: Red Hat Enterprise Linux</i> <i>SW: Apache Tomcat / Active MQ</i> <i>Recommended Spec:</i> <i>vCore: 4</i> <i>vRAM: 16GB</i> <i>HDD-OS: 100GB</i> <i>HDD- 200GB</i>	1
7	<i>Web Server- [Staging]</i> <i>OS: Red Hat Enterprise Linux</i> <i>SW: Apache Web</i> <i>Recommended Spec:</i> <i>vCore: 2</i> <i>vRAM: 4GB</i> <i>HDD-OS: 100GB</i> <i>HDD- 200GB</i>	1
8	<i>Application / API Server [Staging]</i> <i>OS: Red Hat Enterprise Linux</i> <i>SW: Apache Tomcat / Active MQ</i> <i>Recommended Spec:</i> <i>vCore: 4</i> <i>vRAM: 16GB</i> <i>HDD-OS: 100GB</i>	1

HDD- 200GB		
10	Web Server- [DRC] OS: Red Hat Enterprise Linux SW: Apache Tomcat Recommended Spec: vCore: 2 vRAM: 4GB HDD-OS: 100GB HDD- 200GB	1 COLD DRC
11	Application /API Server [DRC] OS: Red Hat Enterprise Linux SW: Apache Tomcat Recommended Spec: vCore: 4 vRAM: 16GB HDD-OS: 100GB HDD- 200GB	1 COLD DRC
13	Shared Storage [DR] Recommended Spec: Capacity: 1 TB	1
14	Backup Solution	1 Based on SSM Backup Policy

Important Note:

SSM shall provide all the hardware and software including the OS Installation for all the above including File Server Clustering. Database server(s) will utilize existing SSM's Informix Database which is under SSM responsibilities.

5.4 Database Preparation

Database preparation work for MySQL Database will involve the following:

- Database ETL
- Database backup

5.5 Integration Preparation

Integration preparation work will be the following:

- SSM Middleware

5.6 Training

There will be 2 types of training for 2 different types of audience:

- i. Training for application administrators:
 - a. Only one (1) full-day workshop to be held at customer's computer training room
 - b. All designated application administrators will be expected to attend this one-day training
 - c. Training materials will be prepared by MB.
 - d. Topics to cover will be as follows:
 - How to create user IDs for internal staff
 - How to modify and revoke access rights of internal staff
 - How to suspend external users
 - Get to know available configurations
 - How to change existing configurations
- ii. Training for IT personnel or Transfer-of-Technology (ToT) session:
 - a. Only one (1) full-day workshop to be held at customer's computer training room
 - b. All designated system administrators will be expected to attend this one-day training
 - c. Training materials will be prepared by us
 - d. Topics to cover will be as follows:
 - How to monitor a server's condition
 - How to monitor database's condition
 - How to restart a server
 - How to perform application deployment
 - How to back up data

Chapter 6 Financial Consideration

6.1 SSM Middleware Product Portal Financial Consideration

ITEM DESCRIPTION	PRICE (RM)
SSM Middleware Product Portal Project duration of 6 months 1. Design, develop, install, supply, test and commission fully online SSM Middleware Product Portal as per specified in this proposal.	495,000.00
2. Maintenance & Support (Upon System Go Live – 8 May 2023)	Inclusive
6% SST:	29,700.00
Total:	524,700.00

6.2 SSM Middleware Product Portal Delivery & Billing Milestones

Proposed project delivery and billing milestone is as per table below.

No	Delivery Milestone	Type of Document	Percentage	Amount (RM)
1	Upon SST Received	None	20%	104,940.00
2	Upon URSS Acceptance & URSS Sign Off	1. URSS Document 2. URSS JCF Sign Off	30%	157,410.00
3	Upon Completion of UAT & UAT Sign Off	1. UAT Test Scripts 2. UAT JCF Sign Off	40%	209,880.00
4	Upon Live Run	1. Upon Deployment to Production	10%	52,470.00

Chapter 7 Assumptions and Exclusions

- 1) This proposal is intended to explore possible support and enhancement option. It is based on information that we have at this time and subjected to changes upon further discussions and analysis.
- 2) This proposal excludes Middleware and Webis enhancement/ replacement solution.
- 3) This proposal also excludes additional features improvement for 5 agencies integration.
- 4) This proposal only quoted professional services of developing new SSM Middleware Product Portal and its enhancement features. It excludes the hardware and software platform licenses, implementation and support services.
- 5) The scope of work defined is based on the requirements in this proposal hereof, a variation order may be raised if any changes is required for the requirements not specified in the Proposal and will be billed accordingly.
- 6) Should changes in scope be made or additional requirements be identified, Mesiniaga reserves the right to revise its resource estimates and where necessary agree on a revised fee with SSM based on the impact of the change.
- 7) The proposed solution supports only web-based environment.
- 8) Performance is influenced by many factors, not all of which are under Mesiniaga's control (e.g., network loading, host performance, etc.). Mesiniaga will tune the system for performance based on best effort basis. However, Mesiniaga makes no guarantees; either expressed or implied, to meet the performance required by SSM.
- 9) SSM is responsible for the periodic backup of the system, application and data files from all server(s) and client workstation(s).
- 10) Any Third Party software needed as part of the solution which is not defined in this proposal is out of the scope of this proposal and to be made available by SSM if necessary.
- 11) All the personnel required for this shall be available throughout the entire duration of customization and testing period. If any key personnel are unavailable, a suitable replacement must be made available. In the event that any of the key personnel or replacement is unavailable and cause the time frame of this to delay, this shall constitute as Scope Variance.
- 12) Mesiniaga will not make any amendments to any integration / extraction that needs to be modified based on the integration / extraction requirements. SSM is to request the respective partners / vendors to attend to those amendments.
- 13) Mesiniaga will not support any of the existing application that needs to be integrated to SSM. Support arrangement will maintain as per original arrangement between SSM and the original vendor.

- 14) Any physical (hard copy) data migration of existing and / or passing of data to SSM Middleware Product Portal is out of the scope of this proposal.
- 15) The document printing is bound to the web browser's printing functionality. In other words, there are no features like paginating, header, footer and categorization.
- 16) This system is built for the following browser specifications:
 - a. Google Chrome v91.0.X.
 - b. SSM Middleware Product Portal will be developed with Responsive web design (RWD) to provide optimal viewing and UI experience across a wide range of devices.
- 17) The application is built and run on the following specifications. Any variation of the above may cause the system to operate incorrectly.
 - a. Application Server: Embedded Tomcat
 - b. Web Server: Apache
 - c. Database Server: Informix
 - d. Programming Language: Java
- 18) Charges for Google Cloud Recaptcha service resources used shall be the full responsibility of SSM.
- 19) Integration with eGHL: Communication and commercial arrangement with the bank/eGHL will be the full responsibility of SSM.
- 20) Online product purchase payment will only be made available for B2C transaction only. It does not cater for Prepaid or Postpaid billing method.
- 21) Payment for B2B method which related to API/ Services usage by agency/ agent is out of the scope of this proposal.
- 22) Commercial arrangement of the services by DigiCert will be the full responsibility of SSM.
- 23) The support coverage will be following the current SSM Middleware Maintenance and Support contract.