<Project Name>

Application System Architecture

Version <xx>

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| --- | --- | --- | --- |
| **Action** | **Name, Designation** | | **Date** |
| Prepared by: |  | Apps Vendor PM |  |
| With inputs from: |  | FM SPOC |  |
| Approved by: |  | Apps PM and TC (if Applicable) |  |

REVISION HISTORY

| **Version** | **Effective Date**  **(dd-mm-yy)** | Summary of Changes | **Author** |
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Annexes

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| **Annex A: Application Sizing** |  |
| **Annex B: Network Access Control List (Firewall) Matrix & Interfaces Matrix**  **Annex C: Non-Compliance**  **Annex D: Infrastructure Setup Forms**  **Annex D1 – Dn : Setup Forms for respective infrastructure service** |  |
|  |  |
|  |  |

# INTRODUCTION

## Purpose

The Application Architecture document describes high level design for application components and key operational activities. It is recommended that this document is timely updated to reflect both architectural and operational changes.

The purpose of the document is to describe components that make up the application. In addition, it also describes how the components work together to provide the required application services.

## Audience

The target audience is as follows:

1. Application Project Managers
2. Technical Consultants
3. Facility Management

## References

The key references are as follows:

1. E.g. Document 1
2. E.g. Document 2

# Project details

<Describe high-level application overview and include quality of service requirements in the table below >



|  |  |
| --- | --- |
| Project Code |  |
| Project Owner |  |
| ITB Project Manager |  |
| System Classification (e.g. Restricted, Confidential, etc) |  |
| User Information (e.g. teachers, HQ users and etc) |  |
| Estimated maximum concurrent users |  |
| Peak Periods (if any) |  |
| Others |  |

# Development architecture

<Provide details on how the development of the application is done. Give details on software and hardware used for development, tools such as IDE, and software configurations and versioning control and quality control. >

# Application sizing

<Use the appropriate template in Annex A. As the template is the same as the tender copy, Application vendor can extract the template from the tender proposal>

## Production

## UAT

## QA

# Application architecture

## Server-side Application Architecture

**<** Describe the various components in the system and how they work together to deliver the application services. The components could be client systems (PC application, browsers, PDA, etc), network appliances, load balancers, firewall, security systems, application or middleware servers (J2EE Application Servers, report servers, scheduling servers, calendar server, messaging server, etc), and the data servers (RDMS, ldap servers, network file servers.,etc). Provide a network diagram to show how these components are connected to each other, see sample diagram below>



## Client-side Application Architecture

<Explain the client-side components are used in the application. The components could be client software applications, smart card readers, printers, scanners, browsers, etc>

## Client and Server-Side Interaction

<Identify key business process of the applications (at least 2) and use Sequence Diagram to describe how the client-side and server-side components work with each other. Use realistic scenarios to explain the data and control flow in each of the components>

1. Authentication & Authorisation (E.g.)



1. Standalone Batch Job (E.g)



1. Generate Report (E.g.)

# Network access control list

<Please refer to Annex B for setup forms>

# Non compliance

# infrastructure services setup

## E.g. Oracle (Refer to Annex D1)

## Standalone Applications

## Others …

# Operations Architecture

## Application Monitoring Activities

##### <State whether special monitoring activities are required. State NIL if there are no application monitoring activities>

## Backup Operations

<State whether special backup operations is required. State NIL if there is no special requirement>

## Logging & Error Handling

##### <For each service include details on logging and error handling to enable troubleshooting e.g. specify different levels of logging (info, warning) and what diagnostic action to take when error is encountered>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TYPE OF SERVICE | SERVER HOSTNAME | LOGS LOCATION | LOGS ROTATION | LOGGING LEVEL | REMARKS |
| APPLICATION HOSTING (e.g.) | MOEUXAPxx  MOEUXAPxx | ${instanceroot}/logs  ${instanceroot}/logs/xxx | YES | INFO | J2EE Application |
| DATABASE HOSTING  (e.g.) | MOEUXDPxx | /u01/app/prod/standalone/xxx/logs/ | YES | INFO | Standalone Scheduler |

## Data Housekeeping

##### <For each service, provide details on how housekeeping is performed for all log files captured e.g. application logs, report logs and etc.>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Infrastructure Components | Max size per log file(bytes) | Max no of log files  Per configuration | No of log file configuration per log category | Expected diskspace used (MB) |
| Application Server |  |  |  |  |
| Standalone Application |  |  |  |  |
| Others |  |  |  |  |

Annex A: Application Sizing

Java Platform

| **S/No** | **Services** | **\*\*(Y/ N)** | **Server Specifications** | **USABLE Cores** | **USABLE Memory (e.g. heap size)** | **USABLE HD Space** | **Others** | **Quantity** | **Sizing Justifications** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Service Registry |  | NA | NA | NA | NA |  | NA | NA |
| 2 | Enterprise Service Bus |  | NA | NA | NA | NA |  | NA | NA |
| 3 | Directory Services |  | NA | NA | NA | NA |  | NA | NA |
| 4 | Web Hosting Service (Java) |  | UltraSPARC T2 Processor (1.2 GHz) |  |  |  |  |  |  |
| 5 | Application Hosting Service (Java) |  | UltraSPARC T2 Processor (1.2 GHz) |  |  |  |  |  |  |
| 6 | Database Hosting Service (Oracle) |  | UltraSPARC IV+ dual-core Processor (1.8GHz) |  |  |  |  |  |  |
| 7 | Business Intelligence Service | | | | | | | | |
| 7.1 | Web Server |  | UltraSPARC T2 Processor (1.2 GHz) |  |  |  |  |  |  |
| 7.2 | Apps Server |  | UltraSPARC T2 Processor (1.2 GHz) |  |  |  |  |  |  |
| 7.2 | SAS WebDav Server |  | UltraSPARC T2 Processor (1.2 GHz) |  |  |  |  |  |  |
| 7.3 | SAS Business Intelligence Server |  | UltraSPARC IV+ dual-core Processor (1.8GHz) |  |  |  |  |  |  |
| 7.4 | SAS Data Integration Server |  | UltraSPARC IV+ (1.8GHz) |  |  |  |  |  |  |
| 7.5 | SAS OLAP Server |  | UltraSPARC IV+ (1.8GHz) |  |  |  |  |  |  |
| 7.6 | SAS Enterprise Miner Server |  | SPARC64VI dual-core processor (2.1GHz) |  |  |  |  |  |  |
| 7.7 | SAS Metadata Server |  | UltraSPARC IV+ dual-core Processor (1.8GHz) |  |  |  |  |  |  |
| 8 | Business Rule Management Service |  | UltraSPARC IV+ dual-core Processor (1.8GHz) |  |  |  |  |  |  |
| 9 | SMTP Service |  | State frequency and number of emails requirements | NA | NA | NA |  | NA |  |
| 10 | Job Scheduling |  | State frequency and number of scheduled jobs requirements | NA | NA | NA |  | NA |  |
| 11 | SFTP Service |  | State disk space requirement for SFTP | NA | NA |  |  | NA |  |
| 12 | Load Testing Service |  | Refer to **tender specs** for Load Runner Controller and Generators specifications. State additional load test requirements if the current specifications are not able to meet application load test requirements. | NA | NA | NA |  | NA |  |
| **New Components** | | | | | | | | | |
| 1 |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |

**Microsoft.NET Platform**

| **S/No** | **Services** | **\*\*(Y/ N)** | **Server Specifications** | **USABLE Cores** | **USABLE Memory (e.g. heap size)** | **USABLE HD Space** | **Others** | **Quantity** | **Sizing Justifications** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Service Registry |  | NA | NA | NA | NA |  | NA | NA |
| 2 | Enterprise Service Bus |  | NA | NA | NA | NA |  | NA | NA |
| 3 | Directory Services |  | NA | NA | NA | NA |  | NA | NA |
| 4 | Web/ Application Hosting Service (Microsoft.NET) |  | Intel 2.5GHz Xeon Quad Core Processor |  |  |  |  |  |  |
| 5 | Database Hosting Service (Microsoft SQL Server) |  | Intel 2.5GHz Xeon Quad Core Processor |  |  |  |  |  |  |
| 6 | SMTP Service |  | State frequency and number of emails requirements | NA | NA | NA |  | NA |  |
| 7 | Job Scheduling |  | State frequency and number of scheduled jobs requirements | NA | NA | NA |  | NA |  |
| 8 | SFTP Service |  | State disk space requirement for SFTP | NA | NA |  |  | NA |  |
| 9 | Load Testing Service |  | Refer to **tender specs** for Load Runner Controller and Generators specifications. State additional load test requirements if the current specifications are not able to meet application load test requirements. | NA | NA | NA |  | NA |  |
| **New Components** | | | | | | | | | |
| 1 |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |

Annex B : Network Access Control List (sample – use Form ITB 144)

|  |  |  |  |  |  |  |  |  |  |  |  |
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|  | | | | | | | | | | | |
| **S/N** | **Source1** | | **Destination1** | | **Service** | | **Action** | **Time - Frame** | **Name of Application** | **Remarks / Purpose (e.g. Project)** | **\* For FM Use Only\* Firewall Affected** |
|  | **Hostname2** | **(IP Address) / Network** | **Hostname2** | **(IP Address) / Network** | **Service Name** | **Port3 (TCP/UDP)** | **(Permit/Deny)** | **Permanent (P)/ Duration4** |  |  |
| **examples ONLY - PLEASE DELETE before submission** | | | | | | | | | | | |
| Eg1 | Moehqap07 | 10.152.32.45 | Hercules | 166.121.2.8 | SMTP | TCP 25 | P | P | Autosys | To send mail traffic to mail relay server | NOC1 |
| Eg2 |  | 10.156.46.0 / 255.255.255.0 | Test Web | 166.121.2.15 | HTTP | TCP 80 | P | 01/03/03-30/04/04 | IES | For testing of project YYY web server | MOEHQ |
| Eg3 | Moehqap03 | 10.152.35.67 | Moeuxp08 | 166.121.6.5 | Ldap | TCP 389 | P | P | MyEdumail | For ldap query for YYY project (Note: Specify 2 separate rules for request on both direction, see Eg3 & Eg4) | NOC2 |
| Eg4 | Moeuxp08 | 166.121.6.5 | Moehqap03 | 10.152.35.67 | Ldap | TCP 389 | P | P | MyEdumail | For ldap query for YYY project (Note: Specify 2 separate rules for request on both direction, see Eg3 & Eg4) | NOC2 |
|  |  |  |  |  |  |  |  |  |  |  |  |
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Annex C : Non-Compliance

##### <Please indicate the technical service datasheet, clause No , description and reason for non-compliance>

|  |  |  |  |
| --- | --- | --- | --- |
| S/No | Technical Service Datasheet | Clause Ref & Description | Reason for deviation |
| 1 | e.g. Java Web/Application Hosting | Standard Usage Guidelines: Clause 4 Encrypt database user identification and password used in the source codes.  The embedding of user identification and password in source codes should be avoided as it involves re-deployment upon change of password. The preferred method is to use MOE Registry Service. | COTS application |
| 2 | e.g. Oracle |  |  |
| 3 | MS.NET Hosting |  |  |
| 4 | MS.SQL Hosting |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
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Annex D : Infrastructure Setup Forms

|  |  |  |
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| Form Number | Short Description | Service |
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Annex D1 : Oracle Setup (Sample)

