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Test Environment and Data Requirements   
for Application Gateway

This document elaborate the test environment and data requirements to effectively test Application Gateway

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SUMMARY OF REVISIONS

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TERMS AND ABBREVIATIONS

|  |  |
| --- | --- |
| **Term** | **Description** |
| **Layer 2 Switching** | Layer 2 Switching is hardware based, it uses MAC address to decide either forward the frame from one workstation to another or drop it |
| **VLAN (Virtual Local Area Network)** | VLAN is a logical grouping of network users and resources connected to ports on a switch. The frames broadcasted onto a network are only switched between ports in the same VLAN |
|  |  |

# Introduction

This document will present and describe in details the test bed necessary for testing the application gateway (AG).

## Purpose

Provide the test environment and test data in details to prepare for:

+ Functional testing

+ Integration testing

+ System testing

+ Automation testing for both webpage and command line interface

## Scope

This document describes the test bed for testing below feature list:

+ Switching, VLAN

+ Routing: static routing, dynamic routing with protocol supported: RIPv2, OSPF

+ Network services: DHCP, PORT Forwarding, Virtual server.

+ Firewall: MAC filtering, Packet Filtering, Content Filtering

+ Wi-Fi: support 802.11/a/b/g/n, with WEP, WPA and WPA2

+ Support real-time streaming protocol

+ Management: support syslog, remote syslog and upgrade firmware

## Reference

Test Plan for Application Gateway

# Test Environment Details

This section will details the requirements, setup, limitations and maintenance for test environment required for effective testing of the project

## Test Environment Requirements

For each part of table below is minimum requirement for one testing functional / system. The details of environment setup and configuration present in *2.2 Test Environment Setup*.

|  |  |  |
| --- | --- | --- |
| **Test level** | **Feature to be tested** | **Hardware/software needed** |
| Functional Testing and Integration Testing | Switching | * **Hardware** * AG device: 2 * Workstation: 3 |
| VLAN | * **Hardware**   **- AG device:** |
| Routing | * **Hardware** * Router: 16 * Workstation: 2 * Cisco 800 Series Router: 1 |
| Network services | * **Hardware** * Router: 2 * Workstation: 1 * Web/TFTP server: 2 |
| Firewall | * **Hardware** * Router: 2 * Workstation: 2 * **Software** * Wireshark v2.2.3 |
| Wi-Fi | * **Hardware** * Router: 1 * Workstation (support wireless): 2 |
| Real-time streaming | * **Hardware** * Router: 2 * Workstation: 2 * Media server: 1 |
| Management | * **Hardware** * Router: 2 * Workstation: 2 |
| System Testing and Automation Testing | All features | * **Hardware** * Router: 3 (16 if testing routing RIP) * Workstation: 6 * Workstation (support wireless): 2 * Media server: 2 * Web/TFTP server: 2 * Cisco 800 Series Router: 1 * **Software** * Wireshark v2.2.3 |

**Table 1 - Test Environment Requirements**

## Test Environment Setup

|  |  |  |
| --- | --- | --- |
| **Features** | **Network diagram** | **Note** |
| Switching | Layer 2 Switching |  |
| VLAN |  |  |
| Routing | D:\GoogleDrive\Temp\Routing.jpg | These diagrams can use for integration testing between   * Routing and Switching * Routing and VLAN |
| Network services | D:\GoogleDrive\Temp\DHCP.jpg  D:\GoogleDrive\Temp\Port Forwarding.jpg | These diagrams can use for integration testing between   * DHCP and Switching * DHCP and Routing * Port Forwarding and Routing * Port Forwarding and Switching |
| Firewall | D:\GoogleDrive\Temp\Firewall.jpg | These diagrams can use for integration testing between   * Firewall and DHCP * Firewall and Routing * Firewall and Port Forwarding * Firewall and Management |
| Wi-Fi | D:\GoogleDrive\Temp\Wi-Fi.jpg | These diagrams can use for integration testing between   * Wi-Fi and DHCP * Wi-Fi and Switching |
| Real-time streaming | D:\GoogleDrive\Temp\Streaming.jpg | These diagrams can use for integration testing between   * Real-time streaming and routing * Real-time streaming and Switching * Real-time streaming and Wi-Fi |
| Management | D:\GoogleDrive\Temp\Management.jpg | These diagrams can use for integration testing between   * Management and routing * Management and Switching * Management and Wi-Fi * Management and Firewall |
| All features |  |  |

**Table 2 – Test Environment Setup**

## Test Environment Sharing

<If test environment are shared with other teams or departments, please consider the impacts of sharing test environment and will sharing affect test results.>

## Test Environment Limitations and Mitigations

<This section will identify the limitations of test environment and what are to be done to mitigate these limitations in order to prevent it from affecting test results.>

## Test Environment Maintenance

<Test environment needs to be maintained to ensure it function in tip-top condition. Detailed the maintenance tasks and schedule, as well as roles and responsibilities if such maintenance tasks are perform outside of the software test team.>

# Test Data Details

## Test Data Requirements

<Elaborate the detailed requirements for the test data, for example:

* Type of test data needed
* Range of test data needed
* Validity of test data
* Relationship between different test data
* Etc.>

## Test Data Sharing

<Should test data be shared with other teams within the organization?>

## Test Data Collection/Generation

<Elaborate how test data are collected or created. If test data are collected (meaning real data) should I be washed in order to preserve anonymity of data? If test data are generated, elaborate the creation methodologies and justify the validity of using generated test data.>

## Test Data Limitations and Migitations

<This section will identify the limitations of test data and what are to be done to mitigate these limitations in order to prevent it from affecting test results.>

## Test Data Maintenance

<Test data needs to be maintained to ensure it remains relevant to testing requirements. Detailed the maintenance tasks and schedule, as well as roles and responsibilities if such maintenance tasks are perform outside of the software test team.>

# Backup

<This section will elaborate the backup plan for both test environment and test data. You may consider from the perspective of:

* Justifications of backup
* Backup plan and frequency>

# Training

## Training Identified

<identify the training needed to fulfill the needs of maintaining test environment and data>

Training identified is listed in the table below:

|  |  |
| --- | --- |
| Type of Tool/Process | Tool /Process |
|  |  |
|  |  |
|  |  |

**Table 2: Training identified**

## Training Materials and Approach

<This section will identify how trainings are to be delivered to individual involved. It should be as detailed as having date, time, duration and participants of training or planned training. Samples are given as below:

Training is delivered via:

* Self-studies
* Knowledge sharing among peers
* On the job training
* Classroom style training by internal or external domain experts

Training materials will be kept in relevant locations on shared folders.>

# Roles and Responsibilities

<This section will identify the roles and responsibilities within the test organization, associating it with various tasks to be performed for the maintenance of test environment and data. Samples as below:>

Roles and responsibilities defined as below for various tasks required in managing Test Environment and Test Data:

|  |  |  |
| --- | --- | --- |
| Task | Role | Responsibilities |
| Test Environment Setup & Maintenance | Sysadmin  QA Manager | Plan, setup and maintain test environment with input from users |
| Sysadmin | Help to setup test environment |
| Test Data Collection & Maintenance | QA,QA Manager | Generate test data |

**Table 3: Roles and Responsibilities for acquiring Test Environment and Data**

# Appendix

<Optional – further elaborate, samples or related information can be included in this section.>