Design Test Environment For e-Commerce System

# Introduction

Design a test environment for the product with integration test and system test.

# Test Environment Details

A product is an e-commercial application system, supposed to run on all available web browsers and operation systems that support these web browsers.

The system supports My-SQL, MS SQL, DB2, Oracle as its database and operates as primary and back up database servers.

Authentication used in system support LDAP, local account, can be integrated to NIS and Active Directory.

## Test Environment Requirements

* Work product: e-commercial application system
* Multi-user environments: IE/Firefox/Chrome (Window), Firefox (Linux)
* Multi databases: My-SQL, MS SQL, DB2, Oracle
* Testing level to be applied: intergratetion test and system test
* Authenticate used in system: LDAP, local account, intergrated to NIS and Active Directory

## Test Environment Setup

* Hardware and software

|  |  |  |
| --- | --- | --- |
| **Resource** | **Configuration** | **Installed OS, software** |
| Web server | - Processor: Dual Core- 1.3 GHz· - RAM: 2Gb MB - HDD: 40 GB - Network adapter 100Mb Ethernet | - Windows Server 2008 - IIS 7 - MS SQL - MySQL - DB2 - Oracle - Active Directory |
| NIS server | - Processor: Dual Core- 1.3 GHz· - RAM: 2Gb MB - HDD: 40 GB - Network adapter 100Mb Ethernet | - Linux - NIS server |
| Test PC client 1 | - Processor: Dual Core- 1.3 GHz· - RAM: 2Gb MB - HDD: 40 GB - Network adapter 100Mb Ethernet | - Windows 7 - IE - Chrome - Firefox - QTP - Load runner |
| Test PC client 2 | - Processor: Dual Core- 1.3 GHz· - RAM: 2Gb MB - HDD: 40 GB - Network adapter 100Mb Ethernet | - Linux - Firefox - NIS client |

* Productivity and support tools

|  |  |  |  |
| --- | --- | --- | --- |
| **Tool's purpose** | **Tool name** | **Vendor or In-house** | **Version** |
| Bug tracker | Microsoft Excel | Microsoft | 2010 |
| Test report | Microsoft Word, Excel | Microsoft | 2010 |
| Functional Automation Test | Quick Test Pro | Mercury | v11 |
| Performance Test | Load Runner | Mercury | v11.5 |

* Test Environment Configurations

|  |  |  |
| --- | --- | --- |
| **Configuration Name** | **Description** | **Implemented in Physical Configuration** |
| Server Side | - Deploy Window Server 2008 - Install Active Directory - Install IIS 7 - Install MS SQL 5 - Install MySQL 5.1 - Install DB2 10.1 - Install Oracle 10.2 - Configure NIS server for Windows | - Refer to guide line for install Window Server 2008 with IIS and Active Directory  - Refer to guide line to integrate the NIS in Active Directory - Domain name: example.com - MS SQL 5:  \* Database name: mssql\_database  User name: root   Password: pass  \* Backup database name: bkmssql\_database  User name: root  Password: pass - MySQL 5.1:  \* Database name: mysql\_database  User name: root  Password: pass  \* Backup database name: bkmysql\_database  User name: root  Password: pass - DB2:  \* Database name: db2\_database  User name: root  Password: pass  \* Backup database name: bkdb2\_database  User name: root  Password: pass - Oracle 10.2:  \* Database name: oracle\_database  User name: root  Password: pass  \* Backup database name: bkoracle\_database  User name: root  Password: pass |
| NIS server side | - Deploy Linux  - Setup NIS server  - Create NIS user | - Refer to guide line for setup NIS  - NIS domain: example.com |
| Automation and performance test machine | - Deploy Win 7 - Install Quick Test Pro 11 - Install Load Runner 11.5 | - Refer to guide line for install Window 7, QTP and Load Runner |
| Client Side 1 | - Deploy Win 7 - Install IE/Firefox/Chrome - Join domain: example.com | - Refer to guide line for install Window 7 and browsers: IE/Firefox/Chrome |
| Client Side 2 | - Deploy Linux - Install Firefox - Configure NIS client - Login to NIS server using NIS user | - Refer to configuration guide document |

# Test Data Details

## For intergrattion and system test, we should copy production data to test.The approach for copying production data to test data includes:

## Set up production jobs to copy the data to test environment.

## All PII (Personally Identifiable Information) is modified along with other sensitive data. The PII is replaced with logically correct, but non-personal data.

## Remove data that is irrelevant to the test.

# Backup

Setup a job to back up data from primary databse to backup database overnight

# Training

## Training Identified

Training identified is listed in the table below:

|  |  |
| --- | --- |
| Type of Process | Tool |
| Automation | Quick Test Pro |
| Performance | Load Runner |

## Training Materials and Approach

Training is delivered via:

* Self-studies

Material references:

1. Install IIS 7 on Window Server 2008

<https://www.iis.net/learn/install/installing-iis-7/installing-iis-7-and-above-on-windows-server-2008-or-windows-server-2008-r2>

1. Install ASP.NET

<https://msdn.microsoft.com/en-us/library/bb763178.aspx>

1. Install MS SQL

<https://www.pluralsight.com/blog/it-ops/install-mysql-on-iis7>

Once install MS SQL database, we can create a backup database by using script in ASP.Net, one example script is as below topic:

<http://www.dotnetfunda.com/articles/show/489/backup-and-restore-database-in-aspnet>

1. Install MySQL on Window

<https://support.rackspace.com/how-to/install-mysql-on-windows-server-2008-r2-and-2012/>

Backup

<http://www.thegeekstuff.com/2008/09/backup-and-restore-mysql-database-using-mysqldump/>

1. Install DB2 on Window

<http://www.ibm.com/support/knowledgecenter/SSEPGG_10.1.0/com.ibm.db2.luw.qb.server.doc/doc/t0008099.html>

Backup

<http://www.ibm.com/support/knowledgecenter/SSEPGG_9.7.0/com.ibm.db2.luw.admin.ha.doc/doc/t0021095.html>

1. Install Oracle on Window

<https://docs.oracle.com/cd/B19306_01/install.102/b14317/install.htm#NTDBX227>

Backup

<https://campus.barracuda.com/product/backup/article/BBS/OracleRMANBackupWin/>

1. Install Active Directory on Window server to enable authenticate using LDAP and local account

<http://www.rebeladmin.com/2011/03/step-by-step-guide-to-setup-active-directory-windows-server-2008/>

1. Intergrate to NIS

How to set up NIS:  
<http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO_:_Ch30_:_Configuring_NIS#.WGHX3h-g9qU>

To integrate Windows Server with NIS server, plese follow:  
<http://colleago.com/install-nis-server-for-windows/>

# Roles and Responsibilities

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 |

The table below defines the checklist to ensure that the test environment is right installed and configured

|  |  |  |  |
| --- | --- | --- | --- |
| **Environment Items Setting** | **Pass** | **Description** | **Remark** |
| Hardware |  | Are the needed equipments available? | If not, supply time |
| Sofware |  | Are the needed applications specified? | if not, list the needed application |
| Environment data |  | Are standard test data sets available? |  |

# Appendix

None