Fuse ESB Cluster Testing and Validation

Javeline Framework

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Revision History:

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| --- | --- | --- |
| Date | Author | What |
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# Test Goals

Testing is split into two components. First, test that Fuse ESB can be deployed, clustered and provisioned. Additionally, insure that failover is successful, that nodes can be added and removed and that controlled deployments of profiles can be reasonably managed. Second, insure that JBPM functions correctly in this environment. That transactional integrity is maintained and that the underlying database maintains its integrity.

This document covers framework specific cluster testing and validation.

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| --- | --- |
| **Goal #** | **Goal Description** |
| 1 | Test Fuse ESB deployment and configuration procedures for clustering |
| 2 | Test Fuse ESB cluster reliability under a number of different failure modes |
| 3 | Test dynamic node creation for Fuse ESB |
| 4 | Test for weakness in proposed topology |
| 5 | Test inter cluster features (multiple clusters interconnected). |
| 6 | Test fuse ESB load balanced cluster |

Table 1 Test Goals

# Test Plan

## Goal 1: Test Fuse ESB deployment and configuration procedures for clustering

Insure that the release version of Fuse ESB can be deployed and clustered on Windows under various deployment scenarios. Retire risk when determining how to seamlessly handle client connections when a server fails and has to be switched over. Finally, insure that domain assets can be provisioned across the cluster and that updates to those assets can also be managed reliably.

### Test cases

|  |  |
| --- | --- |
| **Test Case** | **Description** |
| ESBC-1 | Test procedure verify preconditions is correct. If and precondition is not met, define procedure to meet those prerequisites. |
| ESBC-2 | Test conversion of fuse instance to fabric instance on master server |
| ESBC-3 | Test creation of slave instance on remote machine |
| ESBC-4 | Test creation and connection to shared database by both fuse instances. |
| ESBC-5 | Test that clustered Fuse ESB works |

Table 2 Test cases for deployment and configuration of a cluster

### Test Procedure

Windows has different mechanism for creating and joining nodes in the cluster when they reside on different machines. In Windows, the various nodes have to be manually installed, then are joined with the master. From there provisioning can take place from the master.

#### ESBC-1

There are a number of preconditions that have to be met for a successful cluster deployment. Those conditions also depend on the operating system being deployed into and the database being connected to.

Preconditions Linux

|  |  |
| --- | --- |
| Item | Precondition |
| 1 | Must run java 1.7.0 |
| 2 | Must have firewall configured to allow fabric to communicate across nodes (proper ports open). |
| 3 | Must be able to connect to the target database. |
|  |  |
|  |  |

Precondition validation

Preconditions Windows 2008 R2 x64

|  |  |
| --- | --- |
| Item | Precondition |
| 1 | Must run java 1.7.0 |
| 2 | Must have firewall configured to allow fabric to communicate across nodes. |
| 3 | Must be able to connect to the target database. |

ESBC-2

ESBC-3

ESBC-4

ESBC-5

#### Windows Test Procedure

|  |  |
| --- | --- |
| **Step** | **Description** |
| 1 | Create two windows 2008 R2 X64 server instances running at least a single CPU core, 6GB RAM, 80 GB hard drive. |
| 2 | Install java 1.7.0 update 31 on each machine. Insure that the JAVA\_HOME environment variable is set. |
| 3 | Install Fuse ESB 7.0.2 update 71 on Server 1 |
| 4 | Configure database connectivity on fuse instance |
| 5 | Install Fuse ESB 7.0.2 update 71 on Server 2 |
| 6 | Configure database connectivity on server 2 instance |
| 7 | Start server 1 Instance and convert to master fabric instance. |
| 8 | Start server2 instance and convert to slave instance. Join to master instance on server 1. |
| 9 | Deploy test Profile on master instance. Insure that slave box synch’s to it. |
| 10 | Run cluster validation tests from the client |

Table 4 Test Procedure, Cluster setup and configuration on Windows OS

# Goal 2: Test Fuse ESB cluster reliability under a number of different failure modes

## Test cases

|  |  |
| --- | --- |
| **Test Case** | **Description** |
| ESBC-20 | Test sunny day scenario – user connects to master, runs web service and returns. |
| ESBC-21 | Test master fails, slave becomes master |
| ESBC-22 | Test old master is re-started and becomes slave to new master. |
| ESBC-23 | Test proxy automatically switches when master is shutdown. |
| ESBC-24 | Test web service is fired, before web service returns master fails and slave becomes master. |

Table 5 Test Cases, cluster reliability tests

# Goal 3: Test dynamic node creation for Fuse ESB

|  |  |
| --- | --- |
| **Test Case** | **Description** |
| ESBC-60 | Test creation of slave on same box from the master. |
| ESBC-61 | Test Creation of slave on remote box. |
| ESBC-62 | Test creation of slave on remote box where remote box does not exist. |
| ESBC-63 | Test creation of slave on remote box where remote is killed during creation of slave. |

Table 7 Test cases: dynamic node creation for Fuse ESB

# Goal 4: Test for weakness in proposed topology

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| --- | --- |
| Test Case | Description |
| FUSEC-120 | Deploy master, from master deploy and provision a single slave. |
| FUSEC-121 | Deploy master, from master deploy and provision two slaves. |
| FUSEC-122 | Permutation test failover with two slaves. |
| FUSEC-123 | Security testing |

# Goal 5: Test multiple cluster connectivity and reliability

|  |  |
| --- | --- |
| Test Case | Description |
|  | TBD |

# Physical Architecture

Based on the test cases identified in the preceding sections the minimal physical architecture must be defined as



# Test Environment

|  |  |  |
| --- | --- | --- |
| Item | Item | Description |
| 1 | Test Client | Remote application that accesses clustered fuseesb instances |
| 2 | Proxy | Detects and routes traffic to master server. |
| 3 | Server 1 | Contains the master instance of the first esb instance and the slave instance of the second esb instance |
| 4 | Server 2 | Contains the master instance of the second esb instance and the slave instance of the first esb instance. |
| 5 | Server 3 | Shared Database Instance |

# Software

# Appendix

## References

## Tech Notes