**DOCUMENT INFORMATION**

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| **INEC DISASTER RECOVERY PLATFORM PROVISIONING** | | |
| **Prepared by: MI Team** | **Date: 04 May, 2011** | **Document History: 1.0** |
| Updated by: MI Team | Date: 22 May, 2012 | Ver 1.1 |

**Background**

The INEC project is basically a cold DR site for backup of INEC data using the cloud storage. The project requirement entails a total of 11 servers (10 servers with 10TB storage space provisioned on each and a management server which serves as the client’s access to the infrastructure).

The Management server shares all LUNs with the 10 servers. Also, INEC uses this server to transfer DR data to the underlying storage. Hence storage on all 10 servers is mounted as read-only, whereas they are mounted with read/write access on the management server. This way, a single point of I/O is maintained per time preventing data corruption.

Based on data collection from INEC, the ten servers form a virtual mimic of INEC’s primary servers identified for DR. Hence, if any of the servers at the primary site fails, the secondary server here in Galaxy is made available and acts in the failed machine’s stead as a primary server. This involves unmounting the server’s shared volume on the Management server and allowing read-write access to the volume on the secondary server here in Galaxy.

Also, INEC/Galaxy mutually understands that data transfer is INEC’s responsibility while Galaxy provides the platform.

**Design**

**Approach**

In order to fulfil the above and other SLA’s Galaxy engaged in the following configurations based on EMC storage, the Virtual Infrastructure and Cent OS installed on the VM’s.

**Technical Configuration**

|  |  |  |
| --- | --- | --- |
| S/N. | Task | Note |
| 1. | Create Datastore to contain virtual machines | INEC-SRV datastore of 500GB |
| 2. | Create virtual machine template based on specification below | The Virtual machine vmdk was created on an IDE controller, to leave enough SCSI controllers to map all LUNs especially on the Management Server (INEC-MGT-SRV) which ‘sees’ all 56 LUNs. |
| 3. | Deploy all 11 VMs from template | Note that the management server has a different config. |
| 4 | IP addressing and network configurations | As in IP addressing/Naming convention below |
| 5. | Map all LUNs to Virtual machines | As in LUN Mapping below |
|  |  |  |
|  |  |  |

1. **Virtual Machine Specification (for all 10 servers except the INEC-MGT-SRV):**

RAM size: 4GB

No. of processor: 2

Operating system: CentOS 5.5

Hard disk space: 20GB

Note: The management server, INEC-MGT-SRV has 8GB RAM, 4 processors and also runs CentOS 5.5

1. IP Addressing/Naming convention.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N. | Name | IP Address | Subnet Mask | Gateway |
| 1. | INEC-SRV-01 | 10.10.7.135 | 255.255.255.0 | 10.10.7.1 |
| 2. | INEC-SRV-02 | 10.10.7.136 |
| 3. | INEC-SRV-03 | 10.10.7.137 |
| 4. | INEC-SRV-04 | 10.10.7.138 |
| 5. | INEC-SRV-05 | 10.10.7.139 |
| 6. | INEC-SRV-06 | 10.10.7.140 |
| 7. | INEC-SRV-07 | 10.10.7.141 |
| 8. | INEC-SRV-08 | 10.10.7.142 |
| 9. | INEC-SRV-09 | 10.10.7.143 |
| 10. | INEC-SRV-10 | 10.10.7.144 |
| 11. | INEC-MGT-SRV | 10.10.7.145 |

1. **Lun Mapping**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # | LUN ID | SCSI Controller | SHARED TO | |
| 1. | 1. | 0.0 | INEC-SRV-01 | INEC-MGT-SRV |
| 2. | 2. | 0.1 |
| 3. | 3. | 0.2 |
| 4. | 4. | 0.3 |
| 5. | 5. | 0.4 |
| 6. | 6. | 0.5 |
| 7. | 7. | 0.6 | INEC-SRV-02 | INEC-MGT-SRV |
| 8. | 8. | 0.8 |
| 9. | 9. | 0.9 |
| 10. | 10. | 0.10 |
| 11. | 11. | 0.11 |
| 12. | 12. | 0.12 |
| 13. | 13. | 0.13 | INEC-SRV-03 | INEC-MGT-SRV |
| 14. | 14. | 0.14 |
| 15. | 15. | 0.15 |
| 16. | 16. | 1.0 |
| 17. | 17. | 1.1 |
| 18. | 18. | 1.2 |
| 19. | 19. | 1.3 | INEC-SRV-04 | INEC-MGT-SRV |
| 20. | 20. | 1.4 |
| 21. | 21. | 1.5 |
| 22. | 22. | 1.6 |
| 23. | 23. | 1.8 |
| 24. | 24. | 1.9 |
| 25. | 25. | 1.10 | INEC-SRV-05 | INEC-MGT-SRV |
| 26. | 26. | 1.11 |
| 27. | 27. | 1.12 |
| 28. | 28. | 1.13 |
| 29. | 29. | 1.14 |
| 30. | 30. | 1.15 |
| 31. | 31. | 2.0 | INEC-SRV-06 | INEC-MGT-SRV |
| 32. | 32. | 2.1 |
| 33. | 33. | 2.2 |
| 34. | 34. | 2.3 |
| 35. | 35. | 2.4 |
| 36. | 36. | 2.5 |
| 37. | 37. | 2.6 | INEC-SRV-07 | INEC-MGT-SRV |
| 38. | 38. | 2.8 |
| 39. | 39. | 2.9 |
| 40. | 40. | 2.10 |
| 41. | 41. | 2.11 |
| 42. | 42. | 2.12 |
| 43. | 43. | 2.13 | INEC-SRV-08 | INEC-MGT-SRV |
| 44. | 44. | 2.14 |
| 45. | 45. | 2.15 |
| 46. | 46. | 3.0 |
| 47. | 47. | 3.1 |
| 48. | 48. | 3.2 |
| 49. | 49. | 3.3 | INEC-SRV-09 | INEC-MGT-SRV |
| 50. | 50. | 3.4 |
| 51. | 51. | 3.5 |
| 52. | 52. | 3.6 |
| 53. | 53. | 3.8 |
| 54. | 54. | 3.9 |
| 55. | 55. | 3.10 | INEC-SRV-10 | INEC-MGT-SRV |
| 56. | 56. | 3.11 |

**Virtual Machine Configuration**All 11 servers run Cent OS with Linux Volume Manager (LVM) deployed for volume management and aggregation of a total of 56 LUNs of 1.8TB capacity each. Volume groups of 6 LUNs each are presented to each server. The management server however mounts these volume groups of 6 LUNs each on separate mount points – making a total of 10 mount points on the management server.

On the 10 DR servers, Galaxy presents the volumes as mount\_x where x represents server1 to 10. Storage on all servers is mounted as Linux ext3 file systems.