**Klosters Modular Server & ESXi Cluster**

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**Audience:**

Currently this document is primarily for use by the Systems Administrator for APEagers. It may be useful as a guide for the maintenance of this system by any other staff involved. It is assumed that the user of this guide understands the use of the Intel Modular Server system, understands the basics of VMWare installations and operation and understands the basics of networking including vlans.

**Preamble:**

This document describes the layout of the Intel MultiFlex Modular Server setup at Klosters as their primary server. The document details the configuration settings made to the defaults to bring the system up to a useable state.

This document DOES NOT describe the virtual machines created upon the ESX cluster. This document DOES NOT describe how to connect this machine to the network as this is assumed from the information provided.

**Topics of Discussion:**

1. Klosters MultiFlex Setup

a. Chassis Management

b. Blade Summary

c. Storage

d. Network

2. vCentre 4.1 Setup

3. ESXi 4.1 Hosts Setup

**Topics of Discussion:**

**1. Klosters MultiFlex Setup**

**1.a Chassis Management**

The chassis management module allows access to control the features of the MultiFlex. This module has two network adapters, one internal (MultiFlex facing) and external (Network Facing). Only the the external adapter is configurable and has been set to be accessible by the entire APEagers WAN.

CMM Properties:

**HostName klo-modular**

IP Address 172.17.104.5

Netmask 255.255.252.0

Gateway 172.17.107.254

NameServers 172.17.104.234

172.17.104.235

Access to the CMM is granted to the following configured users.

Access:

**Name Password**

issadmin SecLvl 1

spearce ########

msadmin ########

klosters ########

Note that the user "klosters" is not an administrator of the MultiFlex Chassis, but has the rights to administer the BSCMs and SCMs.

**1.b Blade Summary**

The MultiFlex has six (6) slots for the addition of blade server compute modules (BSCM). Currently there are five (5) modules in the Kloster MultiFlex setup.

Blades:

**Number Host**

1 klo-esx1

2 klo-esx2

3 klo-esx3

4 klo-ts1

5 klo-vc

6 (unused)

**1.c Storage**

The storage available to the MultiFlex is the internal drives which are attached to the two (2) storage control modules (SCMs). The SCMs provide redundancy to the availability of these drives to the blades. This model of the MultiFlex has fourteen (14) drive slots for HDDs, which are all populated (at this time) with 135GB drives.

The storage is configured into pools in the following way:

**Pool Name Expected Usage Discs Size(GB)**

Pool1 Blade OSes 6 815

KloSAN VM Storage 8 1088

The Pools are configured into Virtual Drive

**Drive Name Expected Usage RAID Size Host Drive**

(Storage in Pool 1)

klo-esx1 Host drive for esx1 10 10GB klo-esx1 0

klo-esx2 Host drive for esx2 10 10GB klo-esx1 0

klo-esx3 Host drive for esx3 10 10GB klo-esx1 0

klo-vc Host drive for Old VC 10 50GB (not assigned)

vm\_ISO Storage Pool for ISO's?? 5 60GB ALL ESX 2

klo-vc\_4.1 Host drive for New VC 10 30GB klo-vc 0

klo ts1 Host drive for TS1 10 30GB klo-ts1 0

klo ts1 pf Data drive for TS1?? 10 10GB klo-ts1 1

klo\_mx1\_os Guest OS drive for MX1 5 55GB ALL ESX 3

klo\_mx1\_log Guest Log drive for MX1 10 96GB ALL ESX 4

(Storage in KloSAN)

klo esx Storage Pool for VM Guests 50 815GB ALL ESX 1

**1.d Network**

The two switch modules (SWMs) provide the ability for redundant network pathing for each of the blades. This is the intention of having both modules and hence they are essentially setup identically. Note however the additional setup on Switch 1 to cater for the Juniper - Ext 4 is set to Vlan 9.

Switch 1 (Layer2 - VLAN)

Properties:

vlan id 9 "DMZ Network"

vlan id 666 "External Network"

Membership:

vlan 9 tagged on

ext2 and server n.1 (where n is the esx blade number)

vlan 9 untagged on Ext 4

Interface Settings:

Ext 1 on vlan 666

Server n.2 on Vlan 666 (where n is a esx blade number)

Ext 4 ov vlan 9

All other on Vlan 1

Switch 2 (Layer2 - VLAN)

Properties:

vlan id 9 "DMZ Network"

vlan id 666 "External Network"

Membership:

vlan 9 tagged on

ext2 and server n.1 (where n is the esx blade number)

Interface Settings:

Ext 1 on VLan 666

Server n.2 on Vlan 666 (where n is a esx blade number)

All other on Vlan 1

**2. vCentre 4.1 Setup:**

The virtual centre for the Klosters ESXi host was configured on a physical host. BSCM 5 of the MultiFlex was used for this purpose.

Configuration Details

**Option Value**

Op Sys Windows Server 2008

HostName klo-vc (no domain)

IP Address 172.17.104.80

Netmask 255.255.252.0

GW Address 172.17.104.254

NameServer 172.17.104.234

AdminPwd SecLvl 2

ISSAdmin User Yes

Other Users msadmin

shaneadmin

tonyadmin

ryanadmin

vranger

vCentre 4.1 was installed on this machine to facilitate the coordination of the ESXi hosts.

License Key: JJ42K-0DL5H-J8V3C-091KP-1JPJ0

License Type: vCentre Server 4 Essentials

License Key: NM022-4GJ0H-18K3W-0R2K0-CH4K4

License Type: ESXi 4.1 Hosts (x3) Essentials

**3. ESXi 4.1 Host Setup**

Each ESXi is configured in the identical manner. This is necessary from a VMWare point of view so that VM's can be easily transported from machine to machine (vMotion). From an identification point of view, it simply eases the setup and aesthetics of the system.

Configuration Details (where {n} is the host number)

**Option Value**

HostName klo-esx{n}.ape.local

IP Address 172.17.104.8{n}

NetMask 255.255.252.0

GW Address 172.17.104.254

NameServers 172.17.104.234

172.17.104.235

root Pwd SecLvl 1

Using vSphere via the vCentre, the following options were configured on each of the hosts. Again these options were identical across all ESX hosts.

Storage:

**Identification Device**

KLO\_MX1\_LOG eui.2243000155441738:1

KLO\_MX1\_OS eui.22c60001554d4b1f:1

KLO\_VMFS eui.22b4000155e3e4aa:1

VM\_ISO eui.227e0001556f4edc:1

Network:

**Switch Name Port Groups VLan Adapters**

vSwitch0 VM Kernel n/a vmnic0 (primary)

VM Network 0 vmnic2 (standby)

Klosters DMZ 9

vSwitch1 Klosters External 666 vmnic1 (primary)

vmnic3 (standby)

Note: VM Kernel was configured for vMotion

Note: physical patching is required for Redundant pathing.