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Introduction

This document describes an issue recognized with SAP HANA Scale-Out solutions with EMC VNC storage attached which leads to an extended startup time of the Linux servers running the SAP HANA application.

Requirements

Cisco recommends that you have a basic understanding of the preboot execution environment (PXE) for a diskless environment and the standard Linux init boot process.

Components Used

The information in this document is based on these software and hardware versions:

- SAP HANA Scale-Out solution with EMC VNX 5400 storage.
- UCS C460-M4 and/or UCS B460-M4 servers
- SUSE Linux Enterprise System 11.3

The information in this document was created from the devices in a specific lab environment. All of the devices in this document started with a cleared (default) configuration following the solution specific Cisco internal installation guidelines. If your solution is live, make sure that you understand the potential impact of any command.

Background Information

The SAP HANA Scale-Out solutions are configured with two management servers to enable the solution for the Preboot eXecution Environment (PXE) for diskless boot of the servers using a network interface. The second management server exists for fault-tolerance reasons to avoid the situation the servers cannot boot any longer in case of the first management server is not available.

Note: Once the HANA server is up and running the management servers can be rebooted without influencing the HANA servers.

The management server acts as DHCP and tftp server.

The EMC VNX storage acts as NFS server in this solution providing the nfsroot file system for each server.

The boot process runs through the following steps:

1. The HANA server powers up including hardware self-checks.
2. It sends a DHCP request via network interface eth0 (vlan 127) to the management server.
3. The management server provides the Server IP address and the tftp server IP address.
4. In the next step it serves out the kernel and initrd from the tftpboot directory that is build at installation time.
5. The HANA server loads the kernel and initrd from the tftpserver including all necessary drivers available in initrd.
6. Once loaded the HANA server mounts the nfsroot volume via network interface eth0 (vlan 127).
7. Finally, the HANA server runs through the default Linux init process to complete the startup.

Problem

During the PXE boot process of the UCS servers the Linux init process stops for approximately 8 minutes when the network interfaces are activated. Afterwards the startup process continues without any further issues.

When the HANA server runs through the default Linux init process it reads the network configuration files as well and re-activates the network interfaces. The reason is the boot option "onboot" is set to "yes" by default. This means the HANA server sends an additional DHCP request to the management server and lose the file handler for the nfsroot volume at the same time which stops the init process to continue.

There are no error messages visible on the console, but when you enter the boot options "debug initcall_debug" you will notice the NFS server stops responding for approximately 8 minutes sending "nfs: server 192.168.127.11 not responding, still trying" when reviewing the boot log information.

Solution

Change the configuration file `/etc/sysconfig/network/ifcfg-eth0` and add the option "ONBOOT='no'".

This is an example of the ifcfg-eth0 file:

Related Information

SUSE Documentation: "[PXE Booting NFS or iSCSI Roots for a Diskless Environment](#)"

SUSE Documentation: "[SLES Administration - The Linux Boot Process](#)"