Configuring: Can I dual-boot my nodes between Linux and Windows?

There are a number of ways to set up nodes that dual-boot between Linux and Windows. Bright Cluster Manager cannot provision Windows images to compute nodes, so Windows must be installed to the compute nodes in some other way.

Windows pre-installed

If Windows is already installed on the local harddrive, it is possible to switch between Linux and Windows by configuring the PXE menu to boot Windows from the local harddrive and to use the 'pxelabel' setting for nodes to default to either boot the standard Bright option, or the option to boot Windows from the local harddrive.

When a node is booted in Bright, it normally shows the PXE menu where an operator at the console may select an alternative boot option. When there is no activity for 10 seconds, the default option is selected, which is normally to boot into the Bright node-installer. The 'pxelabel' parameter that can be set for nodes, allows an alternative default to be configured for a particular node. This can be used to configure nodes to boot off of their local harddrive into Windows.

While a node is booted in Windows, most of the monitoring and management capabilities in Bright are not available for this node. If the node is equipped with a BMC, it is still possible to perform power management operations on the node (e.g. to powercycle the node after the pxelabel setting has been changed).

The PXE menu is located in /boot/pxelinux.cfg/default of the software image that is configured for a node. For example, for nodes using the 'default-image', the PXE menu is located in: /cm/images/default-image/boot/pxelinux.cfg. Inside this file, the menu options are defined that make up the PXE menu. By default there is already an option called 'localdrive' which, when chosen, will boot a node off of the first harddrive. The definition is:

```
LABEL localdrive
MENU LABEL ^DRIVE     - Boot from first hard drive
KERNEL chain.c32
APPEND hd0
```

If the Windows installation is on a different drive from the first drive, or on a particular partition, the 'APPEND' line can be used to point to the relevant drive and/or partition. For a complete overview of all possible parameters that can be passed to the chain.c32 boot loader, please refer to the SysLinux documentation (http://www.syslinux.org/wiki/index.php/Comboot/chain.c32).

When the first harddrive is being used for Windows, a second harddrive can be used for deploying a Bright Cluster Manager software image. In order to use the second drive for Bright, the disk setup must be set correctly (see the Administrator Manual for more information). It is currently not possible to install Bright to a partition on a drive that is being shared with a Windows installation. In a scenario where just a single drive is available, it is possible to run Bright compute nodes in diskless mode (see the Administrator Manual for details).

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Windows not pre-installed

If Windows has not already been installed on the compute nodes, then the best approach is to use a Windows HPC head node which can be used to provision Windows to compute nodes. The recommended approach is to create two VLANs: a Bright VLAN and a Windows VLAN. The Bright head node is on the Bright VLAN, and the Windows head node is on the Windows VLAN. When a compute node needs to be booted in Linux, the port the node is connected on is to be placed in the Bright VLAN. When a compute node needs to be booted in Windows, the port the node is connected is to be placed in the Windows VLAN. When the node PXE boots, it will get a response from either the Bright or the Windows HPC head node, depending on which VLAN it is on.

Moving nodes between VLANs can be done either by logging into the management interface of the switch, or it can be done through a script that can be created to take care of interacting with the switch. The contents of the script depend on the type of switches that are being used.

Unique solution ID: #1086
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Last update: 2012-12-10 16:09