Bare-Metal Restore

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Bare-Metal restore is the ability for the backup application to restore an entire server to a previous state directly from backup media. To be truly a Bare-Metal a backup application must restore a block level disk image directly from backup media without requiring that the O/S or backup application be installed first. Any easy way to identify if a backup application supports a real bare-metal restore process is to determine if it reads data at the file level or at the file system or raw disk block level. Usually this can be determined by reading the feature list or documentation without ever even attempting a test bare-metal restore with real hardware and the vendor's application.

	Traditional Server Restore Process
1	Repair or Replace Failed Hardware if Necessary
2	Re-Install the Operating System
3	Reboot
4	Apply Service Packs or Patches
5	Reboot
6	Re-Install the Backup Application or Agent
7	Patch backup Application to latest release so restore works
8	Reboot
9	Initiate Restore Using Backup Application
10	Reboot

Compare the traditional restore process above to the bare-metal restore process below. If a vendor advertises a bare-metal restore process and it has anymore than 4 steps than they are being a little over zealous with their marketing lingo.

	Bare-Metal Server Restore Process
1	Repair or Replace Failed Hardware if Necessary

2	Boot into Disaster Recovery Media e.g. CD-ROM or PXE boot
3	Initiate Restore in backup Application
4	Reboot

This is not the definition many backup software vendors use. Many vendors call their process "bare-metal" when it is not. For example some applications like IBM Tivoli require a multi-step "bare-metal" restore process that first involves the automated deployment of a base O/S image to the target server containing the O/S and the backup application to be completed as a first step of the "bare-metal" restore process.

Bare-Metal Restore Usually Has Limitations

Bare-Metal restore processes differ from application to application and Bare-Metal restore is always more of an art than a science. Some applications have limited support for restoring a backup image to different hardware for example restore one server to another that has a completely different CPU, storage, and NIC driver. There are always limitations with these kind of features. One thing to particularly watch out for is the support for different types of storage configurations. For example, while R1Soft performs bare-metal restores of LVM and software RAID configurations on Linux servers it is probably the only application that does this. Some applications advertise Linux bare-metal restore support however only basic partition table type storage configurations are supported, or they may have excellent features like converting from a ext3 to a reiserfs file system during restore but it does not work on LVM or MD devices.Backup Window Critical Path