

CentOS: Poor man's SAN with CentOS and gPXE Andreas Rogge <a.rogge@solvention.de>

Overview



- Usual boot devices
- Supporting a new boot device
- Booting from iSCSI
- Installing CentOS on an iSCSI LUN
- Conclusion



Available boot methods

- Local and removable storage
 - Harddrive
 - Floppy
- CD / DVD
- USB
- SAN with HBA
- PXE
- *iSCSI* without HBA?

A closer look



- Booting is just loading code
- Operating systems expect storage
- Device support is emulation
 - CD/DVD emulates a harddrive or a floppy
 - USB emulates a harddrive
 - HBA emulates a harddrive
- We have to emulate a harddrive somehow



Support a new boot-device

- We need to extend the firmware somehow
- gPXE already supports booting iSCSI and every common NIC
- Can be burned into the NIC's ROM
- Can be chainloaded using normal PXE



Chainload gPXE using PXE

- gPXE is available as PXE Image
- Image can include drivers for all NICs
- Chainloading is simple and NIC independent
- gPXE configured by DHCP options

/etc/dhcpd.conf: option space gpxe; option gpxe.bus-id code 177 = string; if not exists gpxe.bus-id { # just chainload gPXE filename "/gpxe.pxe"; } else {

- # options for gPXE
- }



Boot from iSCSI using gPXE

- Manually using the sanboot command
- Providing an iSCSI root-path through DHCP
 - this is documented in RFC 4173 as jscsi:<server>:<protocol>:<port>:<lun>:<target>"
- Connects to the LUN and emulates a standard BIOS device (harddrive)
- The operating system can be loaded with its native bootloader



Installing CentOS

- Support for iSCSI in the OS is still required
- CentOS supports iSCSI out of the box
 - iSCSI boot support is integrated
 - Anaconda has advanced storage configuration"
- Standard installation without hacking around
- The only extra step is configuring DHCP to provide the correct root-path

Conclusion



- You don't need a HBA to boot from SAN
- iSCSI in CentOS just works out of the box
- The only 3rd-party product involved is gPXE
- A short budget doesn't mean you have to fall back to local storage



Questions?



Thank you!