CapBUG
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Troubleshooting alpha boot
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Installing new snapshot

- Alpha cluster has 3 systems (alpha-\{1,2\})
- alpha-1.p is NFS server
- Upgrade/install alpha-1.p first via serial
- Copy new bsd.rd to /bsd on alpha-1.p.
- Copy install sets to /usr/obj/dist on alpha.p
- Enable nginx on alpha.p with:
  ```
  location /pub/OpenBSD/snapshots/alpha {
    alias /usr/obj/dist;
    autoindex on;
  }
  ```
- On alpha.p: /etc/rc.d/nginx -f start
While booting the new snapshot:

- block 0 of dka0.0.0.3.0 is a valid boot block
- reading 15 blocks from dka0.0.0.3.0
- bootstrap code read in
- base = 200000, image_start = 0, image_bytes = 1e00
- initializing HWRPB at 2000
- initializing page table at 3ff4c000
- initializing machine state
- setting affinity to the primary CPU
- jumping to bootstrap code

halted CPU 0

halt code = 2
kernel stack not valid halt
PC = 2000914
boot failure
Netbooting issues

- alpha-1.p has four NICs (fxp{0,1}, em{0,1})
- em0 is the main NIC. Others are unplugged.
- SRM only sees fxp{0,1}:
  - eia0.0.0.3.1
  - eib0.0.0.4.0
- Needed Theo to plug in fxp0 or fxp1
Set up alpha.p as Netboot Server

- Added to /etc/dhcpd.conf:

  ```
  subnet 192.168.231.0 netmask 255.255.255.0 {
    host alpha-1 {
      always-reply-rfc1048 "true";
      filename "netboot";
      option root-path "/alpha";
      hardware ethernet 00:02:56:00:1C:60;
      fixed-address 192.168.231.177;
    }
  }
  ```

- Added to /etc/ethers:

  ```
  00:02:56:00:1C:60 alpha-1
  ```

- Added to /etc/bootparams:

  ```
  alpha-1 root=192.168.231.77:/alpha
  ```
Set up alpha.p as Netboot Server

- Added to /etc/exports:
  
  /alpha 192.168.231.177

- Processes started:
  
  /etc/rc.d/dhcpd start
  /etc/rc.d/portmap start
  /etc/rc.d/mountd start
  /etc/rc.d/nfsd start
  /etc/rc.d/rarped start
  /etc/rc.d/tftpd start
  /etc/rc.d/bootparamd start

- Copied netboot file to /tftpboot

- Ran: gzip -dc bsd.rd > /alpha/bsd
P00>>>boot eib0
(boot eib0.0.0.4.0 -flags a)

Trying BOOTP boot.

Broadcasting BOOTP Request...
Received BOOTP Packet File Name is: netboot
local inet address: 192.168.231.177
remote inet address: 192.168.231.77
TFTP Read File Name: netboot
netmask = 255.255.255.0
Server is on same subnet as client.
block number= 0 port_number= 27838
Netboot output continued

bootstrap code read in
base = 200000, image_start = 0, image_bytes = dd48
initializing HWRPB at 2000
initializing page table at 3ff4c000
initializing machine state
setting affinity to the primary CPU
jumping to bootstrap code

halted CPU 0

halt code = 2
kernel stack not valid halt
PC = 2001b64
boot failure
Fix Netboot problem

- On a whim, I replaced /tftpboot/netboot with netboot file from 5.1.
- Now I could boot bsd.rd.
- I tried new install again.
- Same problem.
Based on previous experience with netboot, I decided to compare the /boot and /usr/mdec/bootxx files. 

bootxx had changed from Oct 28 snapshot to Dec 4 snapshot.

I netbooted again, ran dhclient fxp0, mounted sd0a and sd0f (/usr) and ran: 
/mnt/usr/sbin/chroot /mnt

I copied the old bootxx file to /usr/obj/dist
I downloaded bootxx from alpha.p:
ftp http://192.168.231.77/.../bootxx
And copied the file to /usr/mdec.

Then I ran:
/usr/mdec/installboot -v /boot \\n/usr/mdec/bootxx /dev/rsd0c

Then I rebooted and the system came up.
Questions?
Who's ready for poutine?

I have one