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# kickstart 无人值守安装

linux kickstart

[toc]

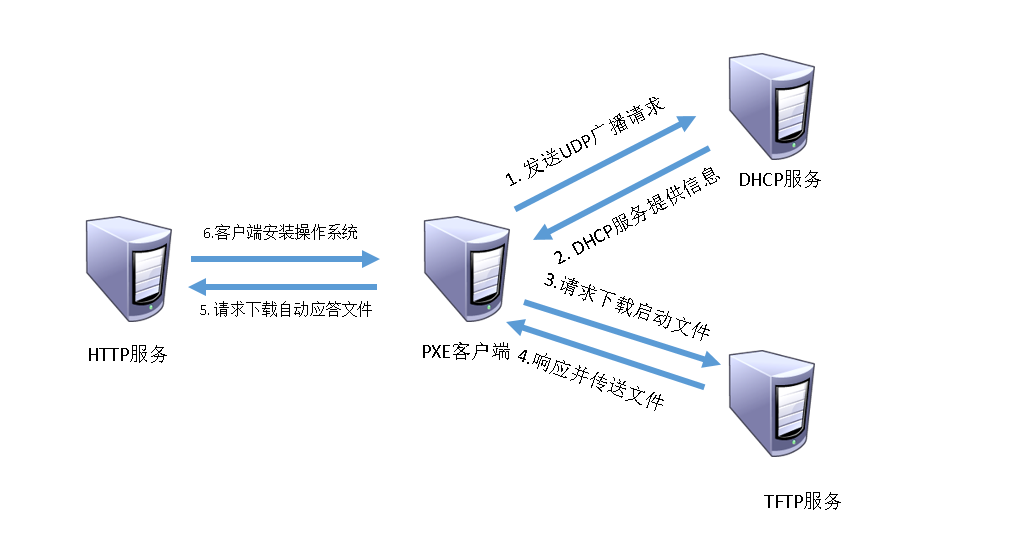
Redhat系主要有两种方式安装系统Kickstart和Cobbler。

* Kickstart是一种无人值守的安装方式。它的工作原理是在安装过程中记录人工干预填写的各种参数，并生成一个名为ks.cfg的文件。如果在自动安装过程中出现要填写参数的情况，安装程序首先会去查找ks.cfg文件，如果找到合适的参数，就采用所找到的参数；如果没有找到合适的参数，便会弹出对话框让安装者手工填写。所以，如果ks.cfg文件涵盖了安装过程中所有需要填写的参数，那么安装者完全可以只告诉安装程序从何处下载ks.cfg文件，然后就去忙自己的事情。等安装完毕，安装程序会根据ks.cfg中的设置重启/关闭系统，并结束安装。
* Cobbler集中和简化了通过网络安装操作系统需要使用到的DHCP、TFTP和DNS服务的配置。Cobbler不仅有一个命令行界面，还提供了一个Web界面，大大降低了使用者的入门水平。Cobbler内置了一个轻量级配置管理系统，但它也支持和其它配置管理系统集成，如Puppet，暂时不支持SaltStack。

在介绍kickstart之前让我们先介绍下PXE

PXE(pre-boot execution environment) 预启动执行环境，通过网络接口启动计算机，不依赖本地存储设备或本地已安装的操作系统，它的工作模式是client/server工作模式，PXE客户端会调用网际协议IP，用户数据报协议(UDP),动态主机设定(DHCP)，小型文件传输协议(TFTP)等网络协议。

## PXE工作过程



由上图可知，

1. PXE客户端(需要安装系统的机子) 通过PXE BOOTROM（自启动芯片）会以UDP发送一个广播，向本网络中的DHCP服务器索取IP
2. DHCP服务端收到客户端的请求，验证是否来至合法的PXE clinet的请求，验证通过它将给客户端一个响应其中包含为客户端分配的IP地址，PXELINUX启动程序(TFTP)位置以及配置文件所在位置
3. 客户端收到服务端的回应后会再请求传送启动所需文件：**pxelinux.0, pxelinux.cfg/default. vmlinuz, initrd.img**
4. 服务端通过TFTP通讯协议从Boot server下载启动安装程序所必需的文件，然后根据该文件中定义的引导顺序，启动linux安装程序的引导内核
5. 客户端通过pxelinux.cfg/default文件成功引导linux安装内核后，安装程序必须确定通过什么安装介质来安装linux,如果通过网络安培(nfs,ftp,http,),便会初始化网络,并定位安装源位置。此时会读取default文件中指定的自动应答文件ks.cfg所在位置，根据该位置请求下载该文件
6. 从服务端下载完ks.cfg文件后，通过该文件找到os server,并按照文件的配置请求下载安装过程需要的软件包。os server 和客户端建立连接后，将开始传输软件包，客户端将开始安装操作系统。安装完成后将重新引导计算机。

这里有个问题，在第2步和第5步初始化2次网络了，这是由于PXE获取的是安装用的内核以及安装程序等，而安装程序要获取的是安装系统所需的二进制包以及配置文件。因此PXE模块和安装程序是相对独立的，PXE的网络配置并不能传递给安装程序，从而进行两次获取IP地址过程，但IP地址在DHCP的租期内是一样的。

## 服务端环境准备

系统环境：CentOS release 6.7 (Final) 2.6.32-573.el6.x86\_64 ip 10.0.0.151

这里注意下selinux，防火墙一定要关闭不然会出错的

简单介绍下DHCP,TFTP：

* DHCP（Dynamic Host Configuration Protocol，动态主机配置协议）通常被应用在大型的局域网络环境中，主要作用是集中的管理、分配IP地址，使网络环境中的主机动态的获得IP地址、网关地址、DNS服务器地址等信息，并能够提升地址的使用率。端口号67，**安装系统时开启，安装后关闭**
* TFTP（Trivial File Transfer Protocol,简单文件传输协议）是TCP/IP协议族中的一个用来在客户机与服务器之间进行简单文件传输的协议，提供不复杂、开销不大的文件传输服务。端口号为69。

安装DHCP,TFTP, HTTP服务

1.$ yum install dhcp tftp-server httpd -y

2.$ cat /etc/dhcp/dhcpd.conf

3.subnet 10.0.0.0 netmask 255.255.255.0 {

4. range 10.0.0.100 10.0.0.200; # 可分配起始IP-结束IP

5. option subnet-mask 255.255.255.0; #netmask

6. default-lease-time 21600; #默认租用期限

7. max-lease-time 43200; #最大IP租用期限

8. next-server 10.0.0.151; #TFTP服务器IP

9. filename "/pxelinux.0"; # TFTP根目录下载pxelinux.0文件位置

10.}

11.#如果多块网卡可以指定网卡,如果是一块就不需要修改

12.$ cat /etc/sysconfig/dhcpd

13.DHCPDARGS=eth0

14.$ cat /etc/xinetd.d/tftp

15.service tftp

16.{

17. socket\_**type** = dgram

18. protocol = udp

19. **wait** = yes

20. user = root

21. server = /usr/sbin/in.tftpd

22. server\_args = -s /var/lib/tftpboot #请注意这个地方以后会用到

23. **disable** = no #仅修改这里就可以

24. per\_**source** = 11

25. cps = 100 2

26. flags = IPv4

27.}

28.$ sed -i "277i ServerName 127.0.0.1:80" /etc/httpd/conf/httpd.conf

29.$ mount /dev/sr0 /var/www/html/CentOS-6.7/

30.$ /etc/init.d/dhcpd start

31.$ /etc/init.d/xinetd start

32.$ /etc/init.d/httpd start

好吧让我们来看看效果如果出现下面画面证明配置成功啦



## 配置支持PXE的启动程序 syslinux

syslinux是一个功能强大的引导加载程序，而且兼容各种介质。SYSLINUX是一个小型的Linux操作系统，它的目的是简化首次安装Linux的时间，并建立修护或其它特殊用途的启动盘。如果没有找到pxelinux.0这个文件,可以安装一下。

1.$ yum -y install syslinux

2.# 复制启动菜单程序文件

3.$ cp -a /var/www/html/CentOS-6.7/isolinux/\* /var/lib/tftpboot/

4.$ cp /usr/share/syslinux/pxelinux.0 /var/lib/tftpboot/

5.$ ls /var/lib/tftpboot/

6.boot.cat grub.conf isolinux.bin memtest pxelinux.cfg TRANS.TBL vmlinuz

7.boot.msg initrd.img isolinux.cfg pxelinux.0 splash.jpg vesamenu.c32

8.# 新建一个pxelinux.cfg目录，存放客户端的配置文件

9.$ mkdir -p /var/lib/tftpboot/pxelinux.cfg

10.cp /var/www/html/CentOS-6.7/isolinux/isolinux.cfg /var/lib/tftpboot/pxelinux.cfg/default

### 创建ks.cfg文件

kickstart是为了避免安装操作系统的过程中的交互操作，只要定义好一个kickstar自动应答配置文件ks.cfg，并让安装程序知道该配置文件的位置，就可以在安装中读取配置文件来安装系统。

生成kickstaart配置文件的三种方法：

1. 每安装好一台Centos机器，Centos安装程序都会创建一个kickstart配置文件，记录你的真实安装配置。如果你希望实现和某系统类似的安装，可以基于该系统的kickstart配置文件来生成你自己的kickstart配置文件。（生成的文件名字叫anaconda-ks.cfg位于/root/anaconda-ks.cfg）
2. Centos提供了一个图形化的kickstart配置工具。在任何一个安装好的Linux系统上运行该工具，就可以很容易地创建你自己的kickstart配置文件。kickstart配置工具命令为redhat-config-kickstart（RHEL3）或system-config-kickstart（RHEL4，RHEL5）.网上有很多用CentOS桌面版生成ks文件的文章，如果有现成的系统就没什么可说。但没有现成的，也没有必要去用桌面版，命令行也很简单。
3. 阅读kickstart配置文件的手册。用任何一个文本编辑器都可以创建你自己的kickstart配置文件。

官网文档 [CentOS6](https://access.redhat.com/knowledge/docs/en-US/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/s1-kickstart2-options.html)

ks.cfg 文件组成大致分为3段

* 命令段:键盘类型，语言，安装方式等系统的配置，有必选项和可选项，如果缺少某项必选项，安装时会中断并提示用户选择此项的选项
* 软件包段

1.%packages

2.@groupname：指定安装的包组

3.**package**\_name：指定安装的包

4.-**package**\_name：指定不安装的包

* 脚本段(可选)

1.%pre:安装系统前执行的命令或脚本(由于只依赖于启动镜像，支持的命令很少)

2.%post:安装系统后执行的命令或脚本(基本支持所有命令)

编写ks文件

1.#首先生成一个密码用于装机后的启动

2.$ grub-crypt # 生成的字符串一定要保存好

3.$ mkdir /var/www/html/ks\_config

4.$ cat /var/www/html/ks\_config/CentOS-6.7-ks.cfg

5.install

6.url --url="http://10.0.0.151/CentOS-6.7/"

7.text

8.lang en\_US.UTF-8

9.keyboard us

10.zerombr

11.bootloader --location=mbr --driveorder=sda --append="crashkernel=auto rhgb quiet"

12.network --bootproto=dhcp --device=eth0 --onboot=yes --noipv6 --hostname=CentOS6

13.timezone --utc Asia/Shanghai

14.authconfig --enableshadow --passalgo=sha512

15.rootpw --iscrypted $6$X20eRtuZhkHznTb4$dK0BJByOSAWSDD8jccLVFz0CscijS9ldMWwpoCw/ZEjYw2BTQYGWlgKsn945fFTjRC658UXjuocwJbAjVI5D6/

16.clearpart --all --initlabel

17.part /boot --fstype=ext4 --asprimary --size=200

18.part swap --size=1024

19.part / --fstype=ext4 --grow --asprimary --size=200

20.firstboot --disable

21.selinux --disabled

22.firewall --disabled

23.logging --level=info

24.reboot

25.%packages

26.@base

27.@compat-libraries

28.@debugging

29.@development

30.tree

31.nmap

32.sysstat

33.lrzsz

34.dos2unix

35.telnet

36.%post

37.wget -O /tmp/optimization.sh http://10.0.0.151/ks\_config/optimization.sh &>/dev/null

38./bin/sh /tmp/optimization.sh

39.%end

### 优化脚本

1.#上面会用到

2.$ cat /var/www/html/ks\_config/optimization.sh

3.#!/bin/bash

4.. /etc/init.d/**functions**

5.Ip=10.0.0.151

6.Port=80

7.ConfigDir=ks\_config

8.# Judge Http server is ok?

9.PortNum=`nmap $Ip -p $Port 2>/dev/null|grep open|wc -l`

10.[ $PortNum -lt 1 ] && {

11. **echo** "Http server is bad!"

12. **exit** 1

13.}

14.# Defined result function

15.**function** **Msg**(){

16. **if** [ $? -eq 0 ];**then**

17. action "$1" /bin/true

18. **else**

19. action "$1" /bin/false

20. **fi**

21.}

22.# Defined IP function

23.**function** **ConfigIP**(){

24. Suffix=`ifconfig eth0|awk -F "[ .]+" 'NR==2 {print $6}'`

25. cat >/etc/sysconfig/network-scripts/ifcfg-eth0 <<-END

26. DEVICE=eth0

27. TYPE=Ethernet

28. ONBOOT=yes

29. NM\_CONTROLLED=yes

30. BOOTPROTO=none

31. IPADDR=10.0.0.$Suffix

32. PREFIX=24

33. GATEWAY=10.0.0.2

34. DNS1=10.0.0.2

35. DEFROUTE=yes

36. IPV4\_FAILURE\_FATAL=yes

37. IPV6INIT=no

38. NAME="System eth0"

39. END

40. Msg "config eth0"

41.}

42.# Defined Yum source Functions

43.**function** **yum**(){

44. YumDir=/etc/yum.repos.d

45. [ -f "$YumDir/CentOS-Base.repo" ] && cp $YumDir/CentOS-Base.repo{,.ori}

46. wget -O $YumDir/CentOS-Base.repo http://$Ip:$Port/$ConfigDir/CentOS-Base.repo &>/dev/null &&\

47. wget -O $YumDir/epel.repo http://$Ip:$Port/$ConfigDir/epel.repo &>/dev/null &&\

48. Msg "YUM source"

49.}

50.# Defined Hide the system version number Functions

51.**function** **HideVersion**(){

52. [ -f "/etc/issue" ] && >/etc/issue

53. Msg "Hide issue"

54. [ -f "/etc/issue.net" ] && > /etc/issue.net

55. Msg "Hide issue.net"

56.}

57.# Defined OPEN FILES Functions

58.**function** **openfiles**(){

59. [ -f "/etc/security/limits.conf" ] && {

60. **echo** '\* - nofile 65535' >> /etc/security/limits.conf

61. Msg "open files"

62. }

63.}

64.# Defined Kernel parameters Functions

65.**function** **kernel**(){

66. KernelDir=/etc

67. [ -f "$KernelDir/sysctl.conf" ] && /bin/mv $KernelDir/sysctl.conf{,.ori}

68. wget -O $KernelDir/sysctl.conf http://$Ip:$Port/$ConfigDir/sysctl.conf &>/dev/null

69. Msg "Kernel config"

70.}

71.# Defined System Startup Services Functions

72.**function** **boot**(){

73. **for** oldboy **in** `chkconfig --list|grep "3:on"|awk '{print $1}'|grep -vE "crond|network|rsyslog|sshd|sysstat"`

74. **do**

75. chkconfig $oldboy off

76. **done**

77. Msg "BOOT config"

78.}

79.# Defined Time Synchronization Functions

80.**function** **Time**(){

81. **echo** "#time sync by zhangyao at $(date +%F)" >>/var/spool/cron/root

82. **echo** '\*/5 \* \* \* \* /usr/sbin/ntpdate time.nist.gov &>/dev/null' >>/var/spool/cron/root

83. Msg "Time Synchronization"

84.}

85.# Defined main Functions

86.**function** **main**(){

87. ConfigIP

88. yum

89. HideVersion

90. openfiles

91. kernel

92. boot

93. Time

94.}

95.main

上面有三个文件CentOS-Base.repo、epel.repo、sysctl.conf 把这三个文件上传到与optimization.sh

### 编辑default配置文件

1.# 最精简配置

2.$ vim /var/lib/tftpboot/pxelinux.cfg/default

3.default ks

4.prompt 0

5.label ks

6. kernel vmlinuz

7. append initrd=initrd.img ks=http://10.0.0.151/ks\_config/CentOS-6.7-ks.cfg # 告诉安装程序ks.cfg文件在哪里

8.# append initrd=initrd.img ks=http://10.0.0.151/ks\_config/CentOS-6.7-ks.cfg ksdevice=eth0

9.# 多了一个参数是为了指定网卡（用于多块多卡的时候）

然后随便开个机就开始安装咯

## 知识扩展

PXE配置文件default

由于多个客户端可以从一个PXE服务器引导，PXE引导映像使用了一个复杂的配置文件搜索方式来查找针对客户机的配置文件。如果客户机的网卡的MAC地址为8F：3H：AA：6B：CC：5D，对应的IP地址为10.0.0.195，那么客户机首先尝试以MAC地址为文件名匹配的配置文件，如果不存在就以IP地址来查找。根据上述环境针对这台主机要查找的以一个配置文件就是 /tftpboot/pxelinux.cfg/01-8F：3H：AA：6B：CC：5D。如果该文件不存在，就会根据IP地址来查找配置文件了，这个算法更复杂些，PXE映像查找会根据IP地址16进制命名的客户机配置文件。例如：10.0.0.195对应的16进制的形式为C0A801C3。（可以通过syslinux软件包提供的gethostip命令将10进制的IP转换为16进制）

如果C0A801C3文件不存在，就尝试查找C0A801C文件，如果C0A801C也不存在，那么就尝试C0A801文件，依次类推，直到查找C文件，如果C也不存在的话，那么最后尝试default文件。

总体来说，pxelinux搜索的文件的顺序是：

/tftpboot/pxelinux.cfg/01-88-99-aa-bb-cc-dd

/tftpboot/pxelinux.cfg/C0A801C3

/tftpboot/pxelinux.cfg/C0A801C

/tftpboot/pxelinux.cfg/C0A801

/tftpboot/pxelinux.cfg/C0A80

/tftpboot/pxelinux.cfg/C0A8

/tftpboot/pxelinux.cfg/C0A

/tftpboot/pxelinux.cfg/C0

/tftpboot/pxelinux.cfg/C

/tftpboot/pxelinux.cfg/default

[张耀kickstart无人值守安装](http://www.zyops.com/autoinstall-kickstart)

%23%20kickstart%20%u65E0%u4EBA%u503C%u5B88%u5B89%u88C5%0A@%28linux%29%5Bkickstart%5D%0A%0A%5Btoc%5D%0ARedhat%u7CFB%u4E3B%u8981%u6709%u4E24%u79CD%u65B9%u5F0F%u5B89%u88C5%u7CFB%u7EDFKickstart%u548CCobbler%u3002%0A%0A-%20Kickstart%u662F%u4E00%u79CD%u65E0%u4EBA%u503C%u5B88%u7684%u5B89%u88C5%u65B9%u5F0F%u3002%u5B83%u7684%u5DE5%u4F5C%u539F%u7406%u662F%u5728%u5B89%u88C5%u8FC7%u7A0B%u4E2D%u8BB0%u5F55%u4EBA%u5DE5%u5E72%u9884%u586B%u5199%u7684%u5404%u79CD%u53C2%u6570%uFF0C%u5E76%u751F%u6210%u4E00%u4E2A%u540D%u4E3Aks.cfg%u7684%u6587%u4EF6%u3002%u5982%u679C%u5728%u81EA%u52A8%u5B89%u88C5%u8FC7%u7A0B%u4E2D%u51FA%u73B0%u8981%u586B%u5199%u53C2%u6570%u7684%u60C5%u51B5%uFF0C%u5B89%u88C5%u7A0B%u5E8F%u9996%u5148%u4F1A%u53BB%u67E5%u627Eks.cfg%u6587%u4EF6%uFF0C%u5982%u679C%u627E%u5230%u5408%u9002%u7684%u53C2%u6570%uFF0C%u5C31%u91C7%u7528%u6240%u627E%u5230%u7684%u53C2%u6570%uFF1B%u5982%u679C%u6CA1%u6709%u627E%u5230%u5408%u9002%u7684%u53C2%u6570%uFF0C%u4FBF%u4F1A%u5F39%u51FA%u5BF9%u8BDD%u6846%u8BA9%u5B89%u88C5%u8005%u624B%u5DE5%u586B%u5199%u3002%u6240%u4EE5%uFF0C%u5982%u679Cks.cfg%u6587%u4EF6%u6DB5%u76D6%u4E86%u5B89%u88C5%u8FC7%u7A0B%u4E2D%u6240%u6709%u9700%u8981%u586B%u5199%u7684%u53C2%u6570%uFF0C%u90A3%u4E48%u5B89%u88C5%u8005%u5B8C%u5168%u53EF%u4EE5%u53EA%u544A%u8BC9%u5B89%u88C5%u7A0B%u5E8F%u4ECE%u4F55%u5904%u4E0B%u8F7Dks.cfg%u6587%u4EF6%uFF0C%u7136%u540E%u5C31%u53BB%u5FD9%u81EA%u5DF1%u7684%u4E8B%u60C5%u3002%u7B49%u5B89%u88C5%u5B8C%u6BD5%uFF0C%u5B89%u88C5%u7A0B%u5E8F%u4F1A%u6839%u636Eks.cfg%u4E2D%u7684%u8BBE%u7F6E%u91CD%u542F/%u5173%u95ED%u7CFB%u7EDF%uFF0C%u5E76%u7ED3%u675F%u5B89%u88C5%u3002%0A%0A-%20Cobbler%u96C6%u4E2D%u548C%u7B80%u5316%u4E86%u901A%u8FC7%u7F51%u7EDC%u5B89%u88C5%u64CD%u4F5C%u7CFB%u7EDF%u9700%u8981%u4F7F%u7528%u5230%u7684DHCP%u3001TFTP%u548CDNS%u670D%u52A1%u7684%u914D%u7F6E%u3002Cobbler%u4E0D%u4EC5%u6709%u4E00%u4E2A%u547D%u4EE4%u884C%u754C%u9762%uFF0C%u8FD8%u63D0%u4F9B%u4E86%u4E00%u4E2AWeb%u754C%u9762%uFF0C%u5927%u5927%u964D%u4F4E%u4E86%u4F7F%u7528%u8005%u7684%u5165%u95E8%u6C34%u5E73%u3002Cobbler%u5185%u7F6E%u4E86%u4E00%u4E2A%u8F7B%u91CF%u7EA7%u914D%u7F6E%u7BA1%u7406%u7CFB%u7EDF%uFF0C%u4F46%u5B83%u4E5F%u652F%u6301%u548C%u5176%u5B83%u914D%u7F6E%u7BA1%u7406%u7CFB%u7EDF%u96C6%u6210%uFF0C%u5982Puppet%uFF0C%u6682%u65F6%u4E0D%u652F%u6301SaltStack%u3002%0A%0A%0A%u5728%u4ECB%u7ECDkickstart%u4E4B%u524D%u8BA9%u6211%u4EEC%u5148%u4ECB%u7ECD%u4E0BPXE%0APXE%28pre-boot%20execution%20environment%29%20%u9884%u542F%u52A8%u6267%u884C%u73AF%u5883%uFF0C%u901A%u8FC7%u7F51%u7EDC%u63A5%u53E3%u542F%u52A8%u8BA1%u7B97%u673A%uFF0C%u4E0D%u4F9D%u8D56%u672C%u5730%u5B58%u50A8%u8BBE%u5907%u6216%u672C%u5730%u5DF2%u5B89%u88C5%u7684%u64CD%u4F5C%u7CFB%u7EDF%uFF0C%u5B83%u7684%u5DE5%u4F5C%u6A21%u5F0F%u662Fclient/server%u5DE5%u4F5C%u6A21%u5F0F%uFF0CPXE%u5BA2%u6237%u7AEF%u4F1A%u8C03%u7528%u7F51%u9645%u534F%u8BAEIP%uFF0C%u7528%u6237%u6570%u636E%u62A5%u534F%u8BAE%28UDP%29%2C%u52A8%u6001%u4E3B%u673A%u8BBE%u5B9A%28DHCP%29%uFF0C%u5C0F%u578B%u6587%u4EF6%u4F20%u8F93%u534F%u8BAE%28TFTP%29%u7B49%u7F51%u7EDC%u534F%u8BAE%u3002%0A%0A%23%23%20PXE%u5DE5%u4F5C%u8FC7%u7A0B%0A%21%5BAlt%20text%5D%28./1449894379569.png%29%0A%0A%u7531%u4E0A%u56FE%u53EF%u77E5%uFF0C%0A1.%20PXE%u5BA2%u6237%u7AEF%28%u9700%u8981%u5B89%u88C5%u7CFB%u7EDF%u7684%u673A%u5B50%29%20%u901A%u8FC7PXE%20BOOTROM%uFF08%u81EA%u542F%u52A8%u82AF%u7247%uFF09%u4F1A%u4EE5UDP%u53D1%u9001%u4E00%u4E2A%u5E7F%u64AD%uFF0C%u5411%u672C%u7F51%u7EDC%u4E2D%u7684DHCP%u670D%u52A1%u5668%u7D22%u53D6IP%0A2.%20DHCP%u670D%u52A1%u7AEF%u6536%u5230%u5BA2%u6237%u7AEF%u7684%u8BF7%u6C42%uFF0C%u9A8C%u8BC1%u662F%u5426%u6765%u81F3%u5408%u6CD5%u7684PXE%20clinet%u7684%u8BF7%u6C42%uFF0C%u9A8C%u8BC1%u901A%u8FC7%u5B83%u5C06%u7ED9%u5BA2%u6237%u7AEF%u4E00%u4E2A%u54CD%u5E94%u5176%u4E2D%u5305%u542B%u4E3A%u5BA2%u6237%u7AEF%u5206%u914D%u7684IP%u5730%u5740%uFF0CPXELINUX%u542F%u52A8%u7A0B%u5E8F%28TFTP%29%u4F4D%u7F6E%u4EE5%u53CA%u914D%u7F6E%u6587%u4EF6%u6240%u5728%u4F4D%u7F6E%0A3.%20%u5BA2%u6237%u7AEF%u6536%u5230%u670D%u52A1%u7AEF%u7684%u56DE%u5E94%u540E%u4F1A%u518D%u8BF7%u6C42%u4F20%u9001%u542F%u52A8%u6240%u9700%u6587%u4EF6%uFF1A\*\*pxelinux.0%2C%20pxelinux.cfg/default.%20vmlinuz%2C%20initrd.img\*\*%0A4.%20%u670D%u52A1%u7AEF%u901A%u8FC7TFTP%u901A%u8BAF%u534F%u8BAE%u4ECEBoot%20server%u4E0B%u8F7D%u542F%u52A8%u5B89%u88C5%u7A0B%u5E8F%u6240%u5FC5%u9700%u7684%u6587%u4EF6%uFF0C%u7136%u540E%u6839%u636E%u8BE5%u6587%u4EF6%u4E2D%u5B9A%u4E49%u7684%u5F15%u5BFC%u987A%u5E8F%uFF0C%u542F%u52A8linux%u5B89%u88C5%u7A0B%u5E8F%u7684%u5F15%u5BFC%u5185%u6838%0A5.%20%u5BA2%u6237%u7AEF%u901A%u8FC7pxelinux.cfg/default%u6587%u4EF6%u6210%u529F%u5F15%u5BFClinux%u5B89%u88C5%u5185%u6838%u540E%uFF0C%u5B89%u88C5%u7A0B%u5E8F%u5FC5%u987B%u786E%u5B9A%u901A%u8FC7%u4EC0%u4E48%u5B89%u88C5%u4ECB%u8D28%u6765%u5B89%u88C5linux%2C%u5982%u679C%u901A%u8FC7%u7F51%u7EDC%u5B89%u57F9%28nfs%2Cftp%2Chttp%2C%29%2C%u4FBF%u4F1A%u521D%u59CB%u5316%u7F51%u7EDC%2C%u5E76%u5B9A%u4F4D%u5B89%u88C5%u6E90%u4F4D%u7F6E%u3002%u6B64%u65F6%u4F1A%u8BFB%u53D6default%u6587%u4EF6%u4E2D%u6307%u5B9A%u7684%u81EA%u52A8%u5E94%u7B54%u6587%u4EF6ks.cfg%u6240%u5728%u4F4D%u7F6E%uFF0C%u6839%u636E%u8BE5%u4F4D%u7F6E%u8BF7%u6C42%u4E0B%u8F7D%u8BE5%u6587%u4EF6%0A6.%20%u4ECE%u670D%u52A1%u7AEF%u4E0B%u8F7D%u5B8Cks.cfg%u6587%u4EF6%u540E%uFF0C%u901A%u8FC7%u8BE5%u6587%u4EF6%u627E%u5230os%20server%2C%u5E76%u6309%u7167%u6587%u4EF6%u7684%u914D%u7F6E%u8BF7%u6C42%u4E0B%u8F7D%u5B89%u88C5%u8FC7%u7A0B%u9700%u8981%u7684%u8F6F%u4EF6%u5305%u3002os%20server%20%u548C%u5BA2%u6237%u7AEF%u5EFA%u7ACB%u8FDE%u63A5%u540E%uFF0C%u5C06%u5F00%u59CB%u4F20%u8F93%u8F6F%u4EF6%u5305%uFF0C%u5BA2%u6237%u7AEF%u5C06%u5F00%u59CB%u5B89%u88C5%u64CD%u4F5C%u7CFB%u7EDF%u3002%u5B89%u88C5%u5B8C%u6210%u540E%u5C06%u91CD%u65B0%u5F15%u5BFC%u8BA1%u7B97%u673A%u3002%0A%20%20%0A%3E%20%u8FD9%u91CC%u6709%u4E2A%u95EE%u9898%uFF0C%u5728%u7B2C2%u6B65%u548C%u7B2C5%u6B65%u521D%u59CB%u53162%u6B21%u7F51%u7EDC%u4E86%uFF0C%u8FD9%u662F%u7531%u4E8EPXE%u83B7%u53D6%u7684%u662F%u5B89%u88C5%u7528%u7684%u5185%u6838%u4EE5%u53CA%u5B89%u88C5%u7A0B%u5E8F%u7B49%uFF0C%u800C%u5B89%u88C5%u7A0B%u5E8F%u8981%u83B7%u53D6%u7684%u662F%u5B89%u88C5%u7CFB%u7EDF%u6240%u9700%u7684%u4E8C%u8FDB%u5236%u5305%u4EE5%u53CA%u914D%u7F6E%u6587%u4EF6%u3002%u56E0%u6B64PXE%u6A21%u5757%u548C%u5B89%u88C5%u7A0B%u5E8F%u662F%u76F8%u5BF9%u72EC%u7ACB%u7684%uFF0CPXE%u7684%u7F51%u7EDC%u914D%u7F6E%u5E76%u4E0D%u80FD%u4F20%u9012%u7ED9%u5B89%u88C5%u7A0B%u5E8F%uFF0C%u4ECE%u800C%u8FDB%u884C%u4E24%u6B21%u83B7%u53D6IP%u5730%u5740%u8FC7%u7A0B%uFF0C%u4F46IP%u5730%u5740%u5728DHCP%u7684%u79DF%u671F%u5185%u662F%u4E00%u6837%u7684%u3002%0A%0A%0A%0A%23%23%20%u670D%u52A1%u7AEF%u73AF%u5883%u51C6%u5907%0A%u7CFB%u7EDF%u73AF%u5883%uFF1ACentOS%20release%206.7%20%28Final%29%202.6.32-573.el6.x86\_64%20ip%2010.0.0.151%0A%u8FD9%u91CC%u6CE8%u610F%u4E0Bselinux%uFF0C%u9632%u706B%u5899%u4E00%u5B9A%u8981%u5173%u95ED%u4E0D%u7136%u4F1A%u51FA%u9519%u7684%0A%u7B80%u5355%u4ECB%u7ECD%u4E0BDHCP%2CTFTP%uFF1A%0A-%20DHCP%uFF08Dynamic%20Host%20Configuration%20Protocol%uFF0C%u52A8%u6001%u4E3B%u673A%u914D%u7F6E%u534F%u8BAE%uFF09%u901A%u5E38%u88AB%u5E94%u7528%u5728%u5927%u578B%u7684%u5C40%u57DF%u7F51%u7EDC%u73AF%u5883%u4E2D%uFF0C%u4E3B%u8981%u4F5C%u7528%u662F%u96C6%u4E2D%u7684%u7BA1%u7406%u3001%u5206%u914DIP%u5730%u5740%uFF0C%u4F7F%u7F51%u7EDC%u73AF%u5883%u4E2D%u7684%u4E3B%u673A%u52A8%u6001%u7684%u83B7%u5F97IP%u5730%u5740%u3001%u7F51%u5173%u5730%u5740%u3001DNS%u670D%u52A1%u5668%u5730%u5740%u7B49%u4FE1%u606F%uFF0C%u5E76%u80FD%u591F%u63D0%u5347%u5730%u5740%u7684%u4F7F%u7528%u7387%u3002%u7AEF%u53E3%u53F767%uFF0C\*\*%u5B89%u88C5%u7CFB%u7EDF%u65F6%u5F00%u542F%uFF0C%u5B89%u88C5%u540E%u5173%u95ED\*\*%0A-%20TFTP%uFF08Trivial%20File%20Transfer%20Protocol%2C%u7B80%u5355%u6587%u4EF6%u4F20%u8F93%u534F%u8BAE%uFF09%u662FTCP/IP%u534F%u8BAE%u65CF%u4E2D%u7684%u4E00%u4E2A%u7528%u6765%u5728%u5BA2%u6237%u673A%u4E0E%u670D%u52A1%u5668%u4E4B%u95F4%u8FDB%u884C%u7B80%u5355%u6587%u4EF6%u4F20%u8F93%u7684%u534F%u8BAE%uFF0C%u63D0%u4F9B%u4E0D%u590D%u6742%u3001%u5F00%u9500%u4E0D%u5927%u7684%u6587%u4EF6%u4F20%u8F93%u670D%u52A1%u3002%u7AEF%u53E3%u53F7%u4E3A69%u3002%0A%0A%u5B89%u88C5DHCP%2CTFTP%2C%20HTTP%u670D%u52A1%0A%60%60%60bash%0A%24%20yum%20install%20dhcp%20tftp-server%20httpd%20-y%0A%24%20cat%20/etc/dhcp/dhcpd.conf%0Asubnet%2010.0.0.0%20netmask%20255.255.255.0%20%7B%0A%20%20%20%20%20%20%20%20range%2010.0.0.100%2010.0.0.200%3B%20%23%20%u53EF%u5206%u914D%u8D77%u59CBIP-%u7ED3%u675FIP%0A%20%20%20%20%20%20%20%20option%20subnet-mask%20255.255.255.0%3B%20%23netmask%0A%20%20%20%20%20%20%20%20default-lease-time%2021600%3B%20%23%u9ED8%u8BA4%u79DF%u7528%u671F%u9650%0A%20%20%20%20%20%20%20%20max-lease-time%2043200%3B%20%20%23%u6700%u5927IP%u79DF%u7528%u671F%u9650%0A%20%20%20%20%20%20%20%20next-server%2010.0.0.151%3B%20%23TFTP%u670D%u52A1%u5668IP%0A%20%20%20%20%20%20%20%20filename%20%22/pxelinux.0%22%3B%20%23%20TFTP%u6839%u76EE%u5F55%u4E0B%u8F7Dpxelinux.0%u6587%u4EF6%u4F4D%u7F6E%0A%7D%0A%23%u5982%u679C%u591A%u5757%u7F51%u5361%u53EF%u4EE5%u6307%u5B9A%u7F51%u5361%2C%u5982%u679C%u662F%u4E00%u5757%u5C31%u4E0D%u9700%u8981%u4FEE%u6539%0A%24%20cat%20/etc/sysconfig/dhcpd%0ADHCPDARGS%3Deth0%0A%24%20cat%20/etc/xinetd.d/tftp%0Aservice%20tftp%0A%7B%0A%09socket\_type%09%09%3D%20dgram%0A%09protocol%09%09%3D%20udp%0A%09wait%09%09%09%3D%20yes%0A%09user%09%09%09%3D%20root%0A%09server%09%09%09%3D%20/usr/sbin/in.tftpd%0A%09server\_args%09%09%3D%20-s%20/var/lib/tftpboot%20%23%u8BF7%u6CE8%u610F%u8FD9%u4E2A%u5730%u65B9%u4EE5%u540E%u4F1A%u7528%u5230%0A%09disable%09%09%09%3D%20no%20%20%23%u4EC5%u4FEE%u6539%u8FD9%u91CC%u5C31%u53EF%u4EE5%0A%09per\_source%09%09%3D%2011%0A%09cps%09%09%09%3D%20100%202%0A%09flags%09%09%09%3D%20IPv4%0A%7D%0A%24%20sed%20-i%20%22277i%20ServerName%20127.0.0.1%3A80%22%20/etc/httpd/conf/httpd.conf%0A%24%20mount%20/dev/sr0%20/var/www/html/CentOS-6.7/%0A%24%20/etc/init.d/dhcpd%20start%0A%24%20/etc/init.d/xinetd%20start%0A%24%20/etc/init.d/httpd%20start%0A%60%60%60%0A%u597D%u5427%u8BA9%u6211%u4EEC%u6765%u770B%u770B%u6548%u679C%u5982%u679C%u51FA%u73B0%u4E0B%u9762%u753B%u9762%u8BC1%u660E%u914D%u7F6E%u6210%u529F%u5566%0A%21%5BAlt%20text%5D%28./1449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