KVM安装

概述

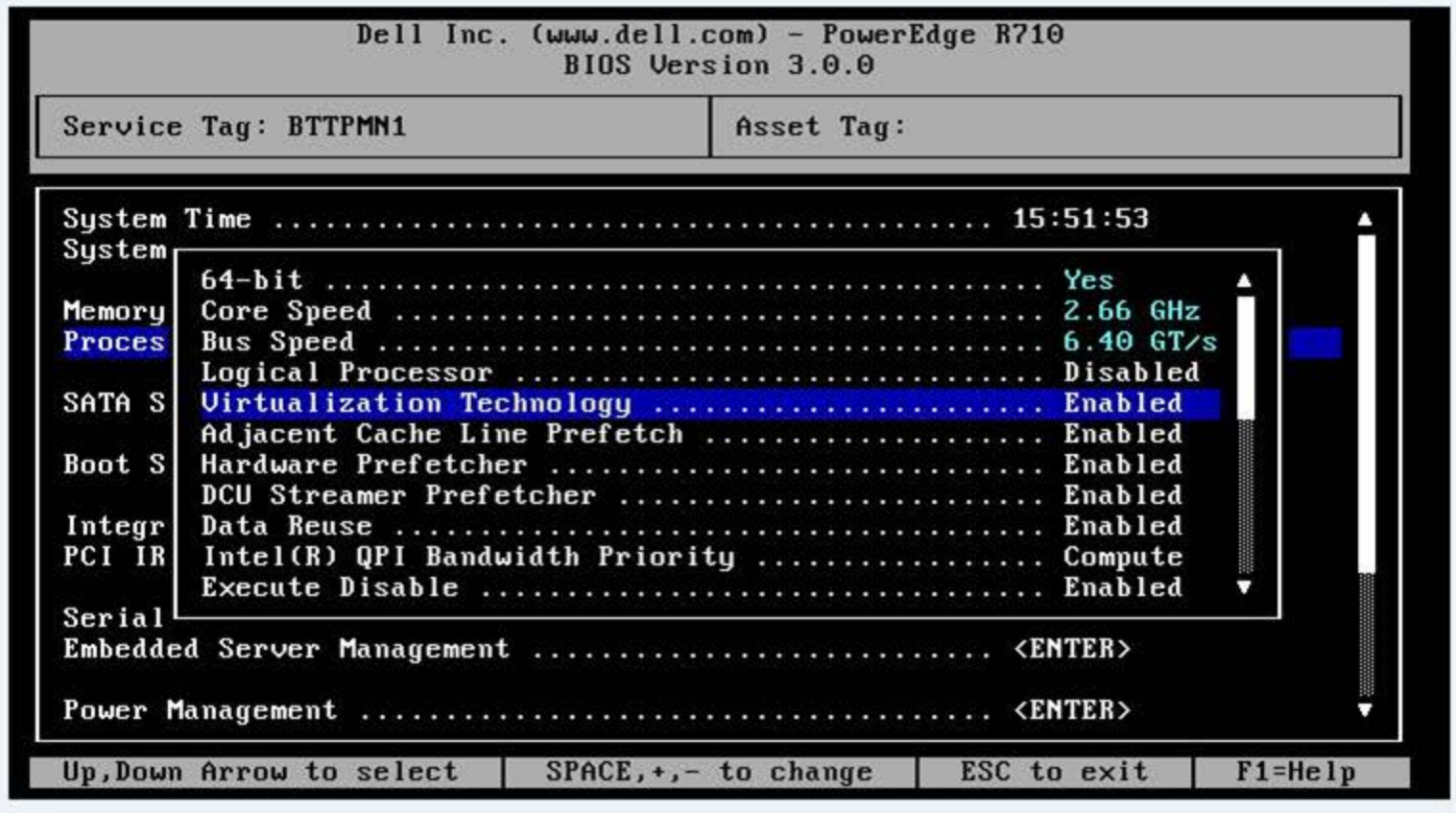
- 环境准备
- KVM安装
- KVM远程管理

环境准备

- 生产环境硬件配置
- 实验环境准备

生产环境硬件配置

- CPU必须支持虚拟化技术，在BIOS设置为启动
- 目前，多数服务器基础桌面计算机均处理启用状态



准备好自己的Test Bed

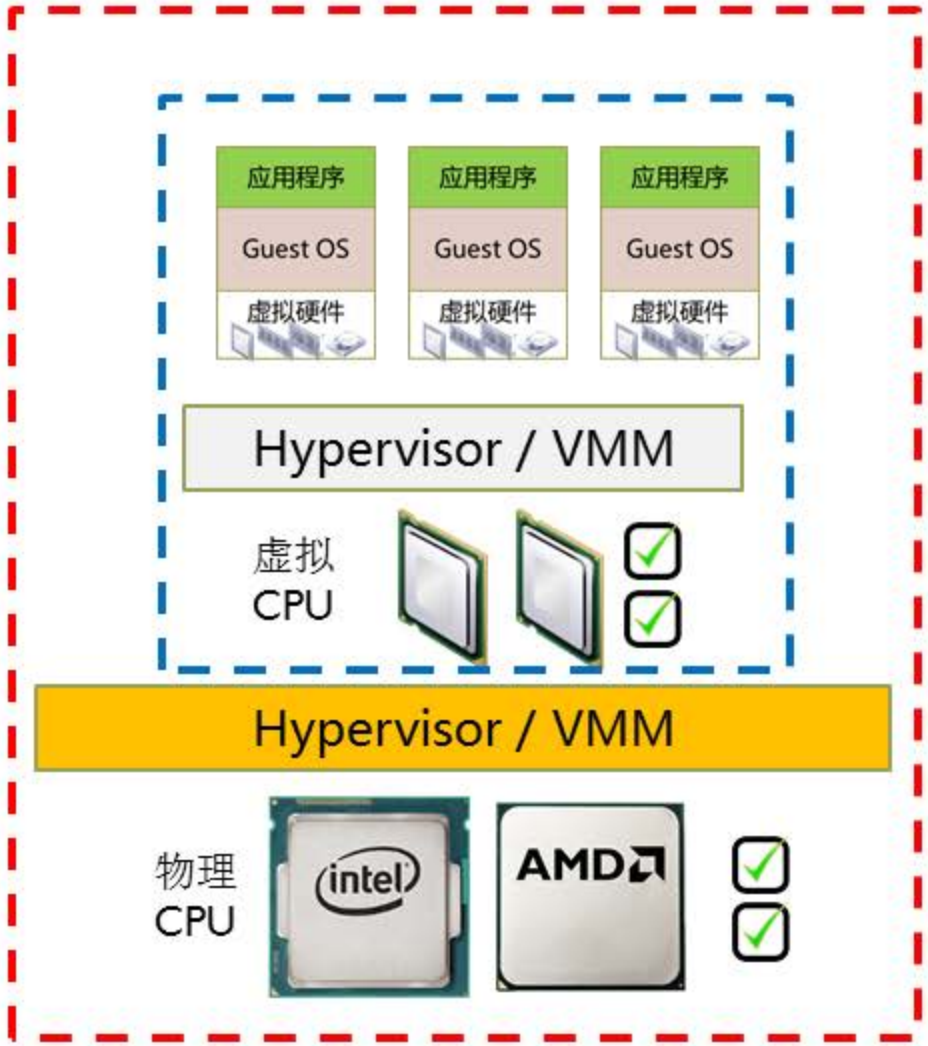
- Test Bed、试验床、试验平台

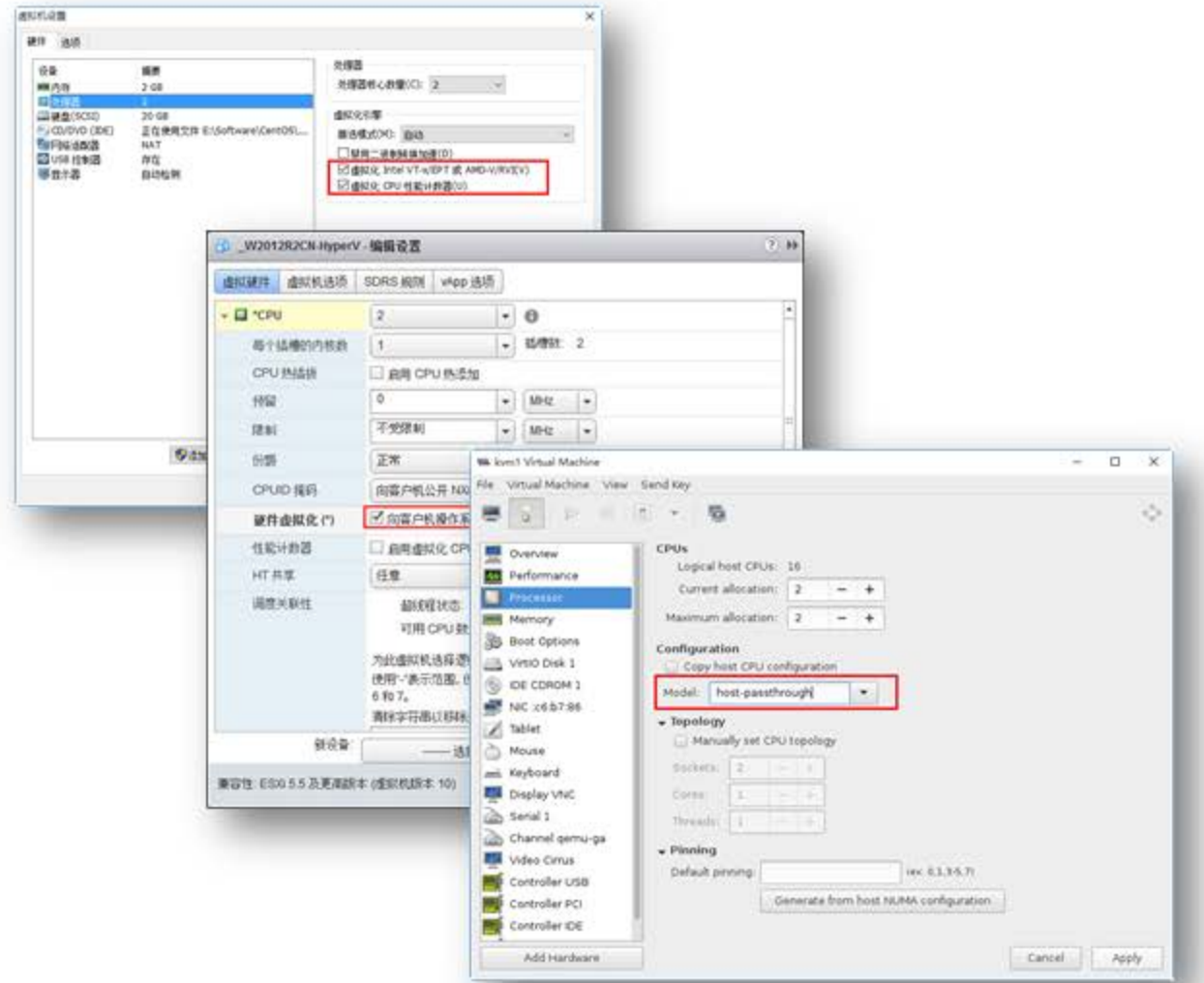
- “嵌套”式实验环境
  - 在虚拟机中再做虚拟化

- VMware 嵌套虚拟化
  - 产品：Workstation、Player、ESXi
  - 支持：ESXi 、Hyper-V、KVM、Xen

- KVM嵌套虚拟化
  - 支持：ESXi 、Hyper-V、KVM、Xen

嵌套虚拟化的关键

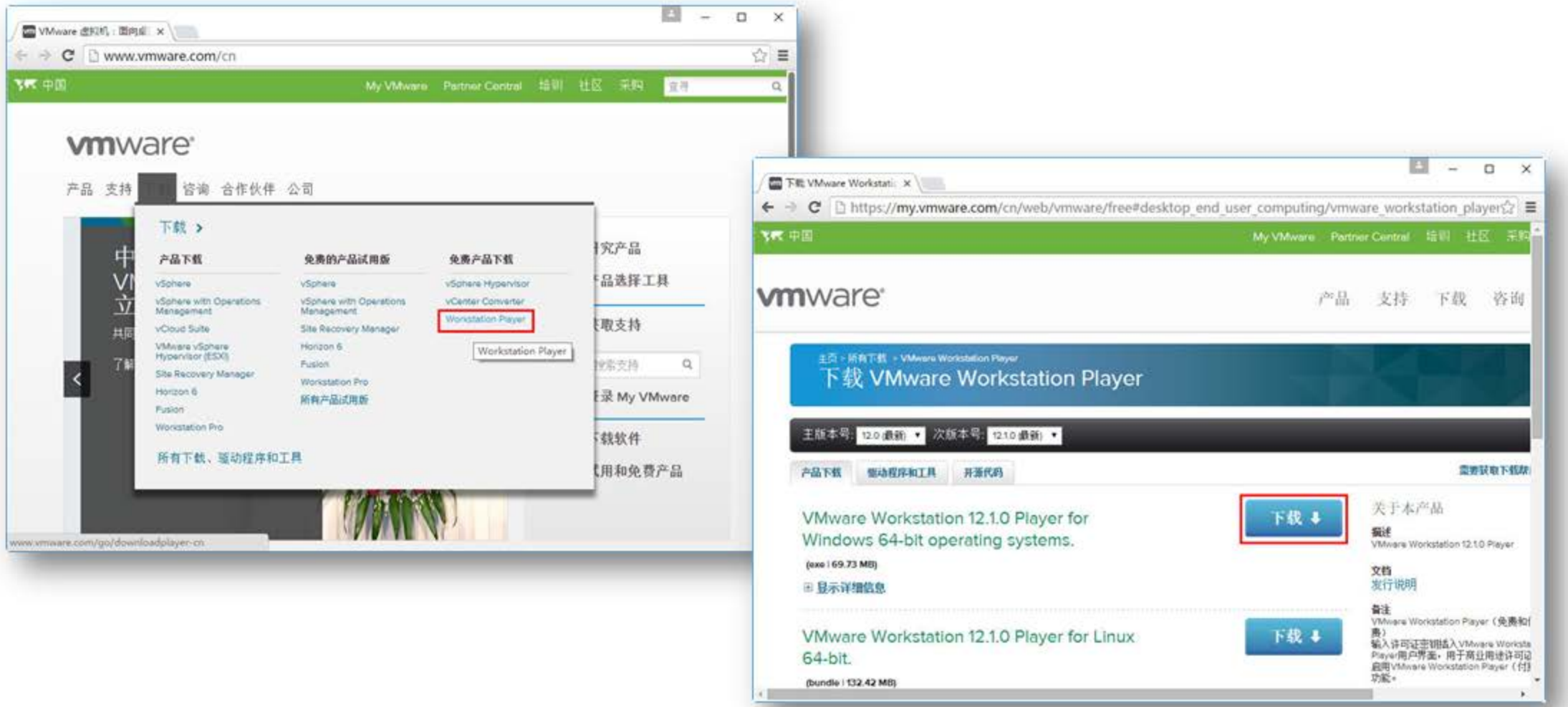




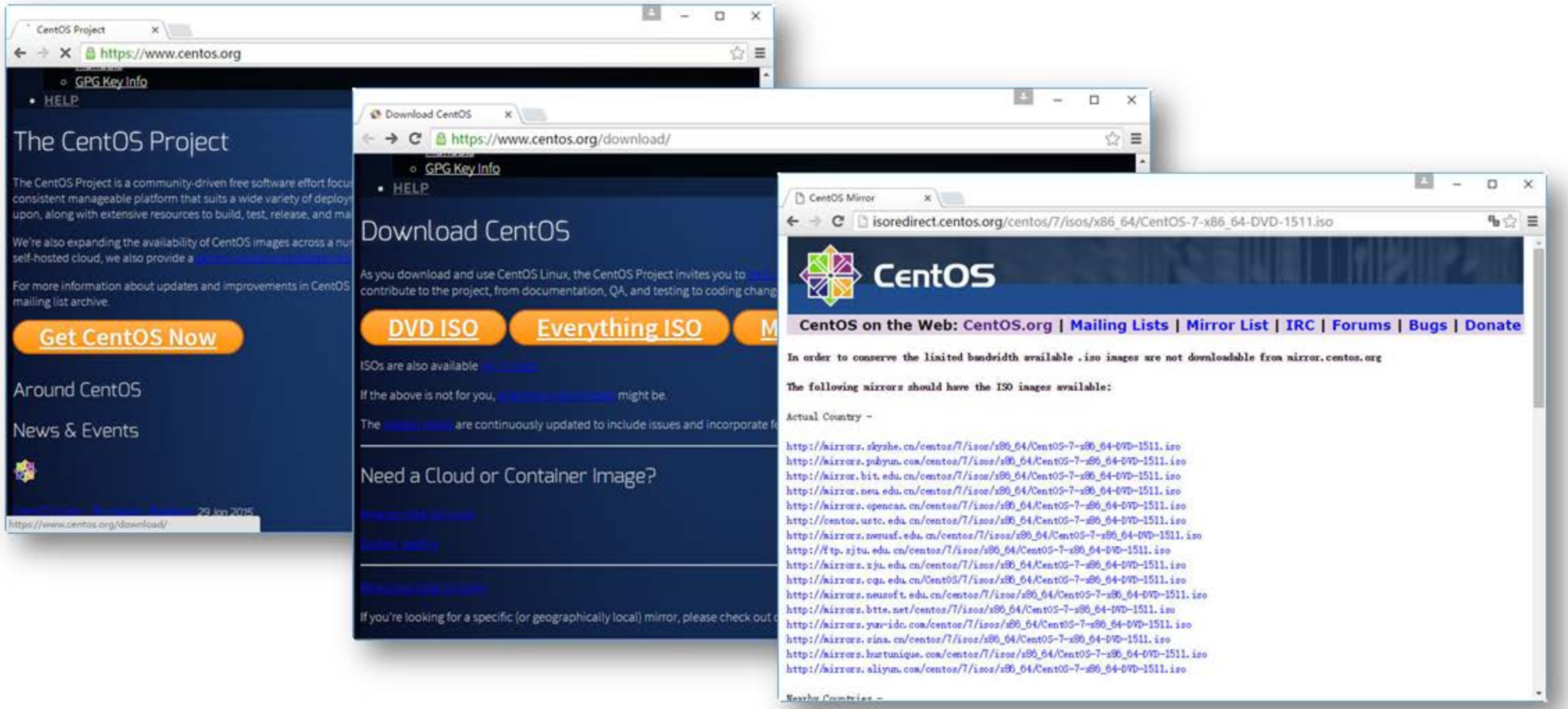
实验环境准备

- “嵌套”式实验环境
  - VMware Workstation Player或VMware Workstation
  - 创建虚拟机，在此虚拟机上安装KVM
- 示例
  - 软件：
    - VMware Workstation Palyer:　12.1.1-3770994
    - KVM: CentOS-7-x86_64-DVD-1511.iso
  - 硬件：
    - CPU i7-4810MQ CPU @ 2.80GHz，2801 Mhz，4 个内核，8 个逻辑处理器
    - 内存：8GB
    - 硬盘：一个SanDisk 128G的SSD硬盘，一个1TB的机械硬盘

VMware Workstation Player 下载安装



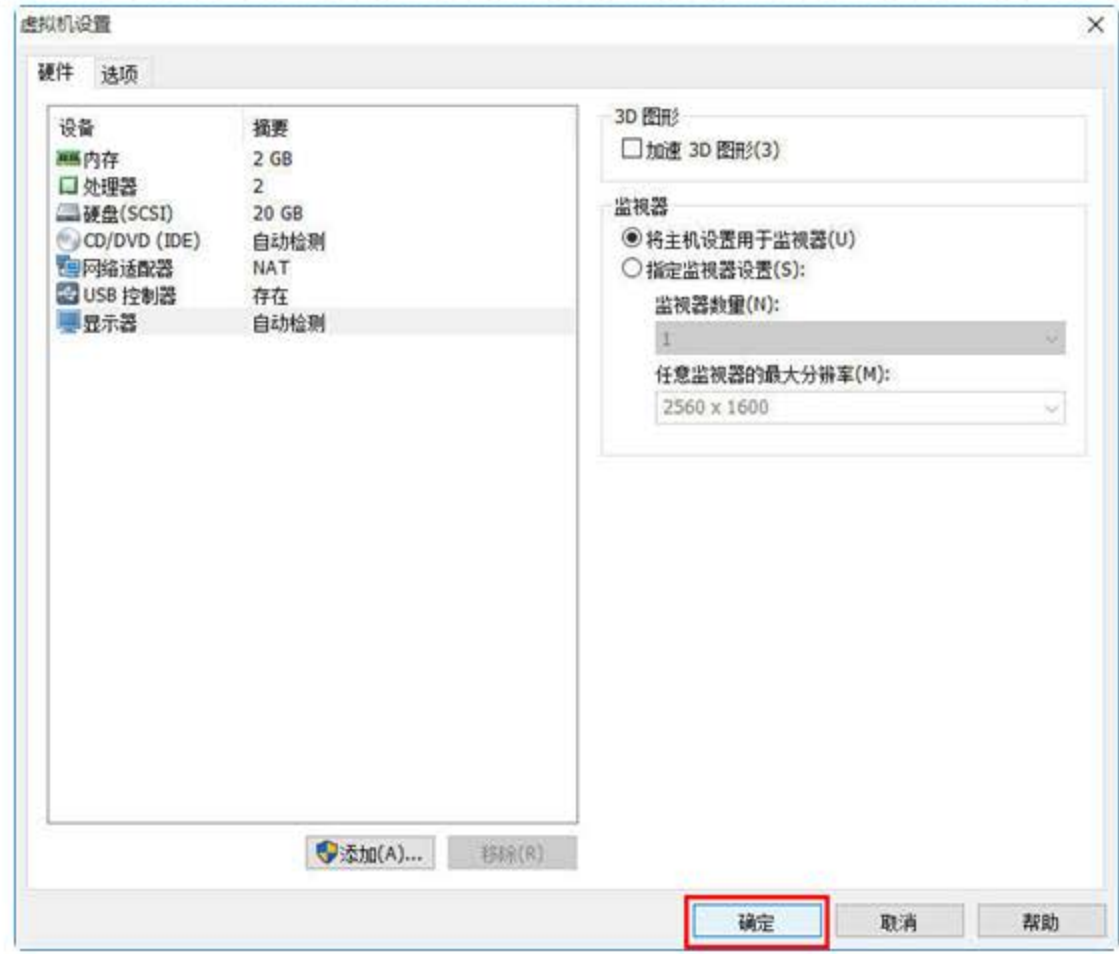
CentOS 7 安装ISO文件下载



KVM安装

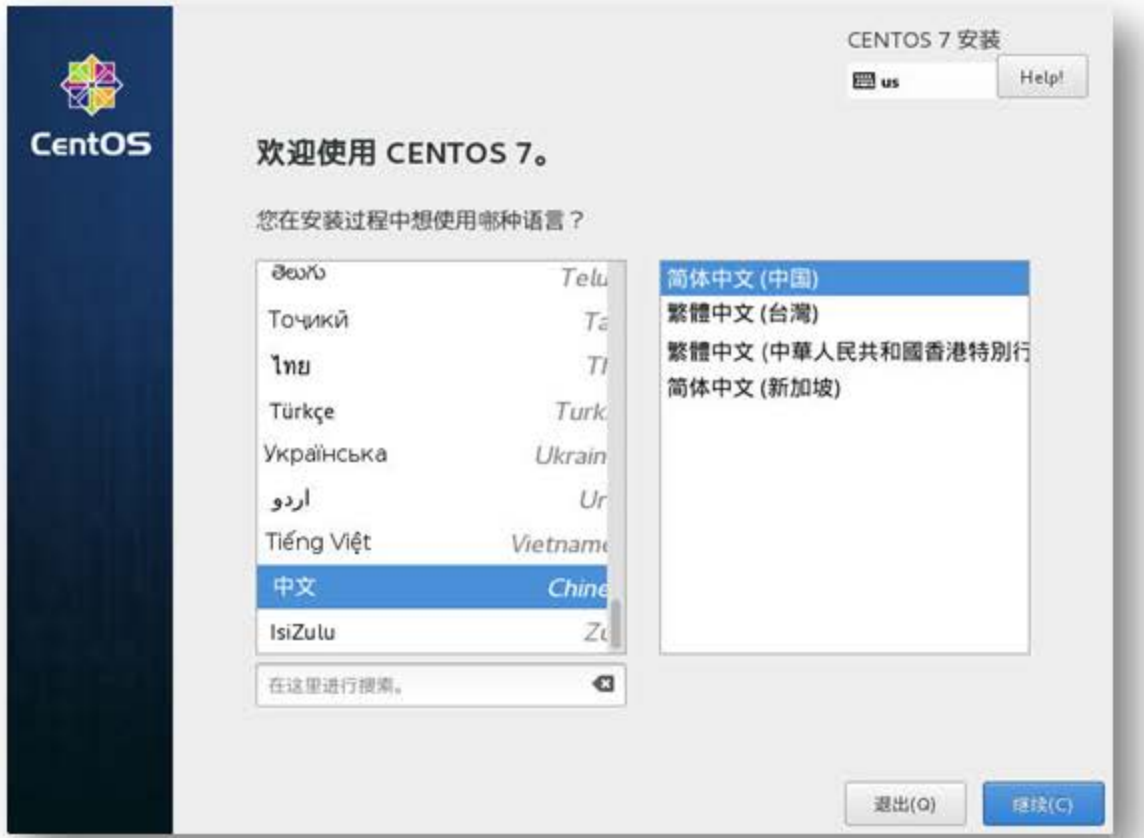
- “模板”虚拟机的创建
- CentOS 操作系统安装
- 启用网络连接
- 额外的软件包
- 修改虚拟化引擎的配置
- 复制第一台KVM虚拟机

“模板”虚拟机的创建



注意：在嵌套实验环境，KVM服务器一定要有一个USB控制器。

CentOS 操作系统安装



启用网络连接

```
CentOS Linux 7 (Core)
Kernel 3.10.0-327.el7.x86_64 on an x86_64

localhost login: root
Password:
[root@localhost ~]# ifconfig
eno16777736: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        ether 00:0c:29:cb:09:89  txqueuelen 1000  (Ethernet)
        RX packets 8  bytes 480 (480.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 0  (Local Loopback)
        RX packets 128  bytes 11136 (10.8 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 128  bytes 11136 (10.8 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.122.1  netmask 255.255.255.0  broadcast 192.168.122.255
        ether 52:54:00:8d:c0:c2  txqueuelen 0  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[root@localhost ~]#
```

```
TYPE=Ethernet
BOOTPROTO=dhcp
DEFROUTE=yes
PEERDNS=yes
PEERROUTES=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_PEERDNS=yes
IPV6_PEERROUTES=yes
IPV6_FAILURE_FATAL=no
NAME=eno16777736
UUID=51ca47f2-49c8-47af-a26c-f82d4ea6a120
DEVICE=eno16777736
ONBOOT=yes
~
~
~
```

额外的软件包

- 上述安装过程中，安装的软件包

  @base

  @core

  @virtualization-hypervisor

  @virtualization-platform

  @virtualization-tools

- 实验环境中，增加以下软件包

  @virtualization-client

  @gnome-desktop

使用本地光盘作为软件仓库

```
# cd /etc/yum.repos.d/
# vi CentOS-Local.repo
[localcdrom]
name=CentOS-$releasever - Local CDROM
baseurl=file:///mnt/cdrom/
gpgcheck=0

# yum -y group install virtualization-client
# yum -y group install gnome-desktop
```

通过kickstart来简单安装

192.168.1.11/kvm7.txt

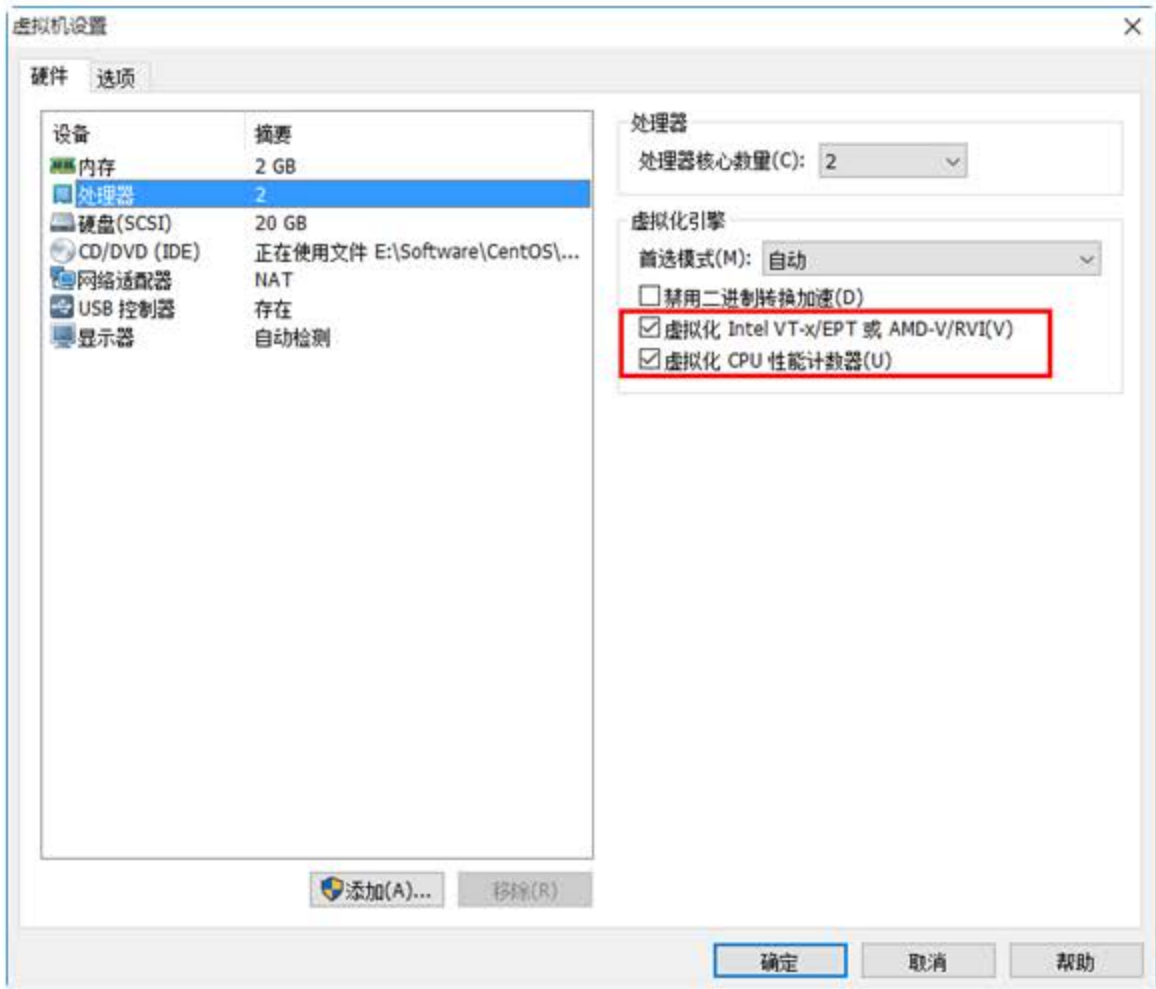
```
# Kickstart file for KVM
# 作者：tom_chen@126.com
# 17:35 2016/3/8  通过CentOS-7-x86_64-DVD-1511.iso

#version=RHEL7
# System authorization information
auth --enableshadow --passalgo=sha512

# Use CDROM installation media
install
cdrom
text
# Run the Setup Agent on first boot
firstboot --enable
ignoredisk --only-use=vda
# Keyboard layouts
keyboard us
# System language
lang en_US.UTF-8

# Network information
network  --bootproto=dhcp --device=eth0 --onboot=yes --noipv6
firewall --disabled
# Root password
rootpw 123456
# System timezone
timezone Asia/Shanghai --isUtc
# System bootloader configuration
```

修改虚拟化引擎的配置

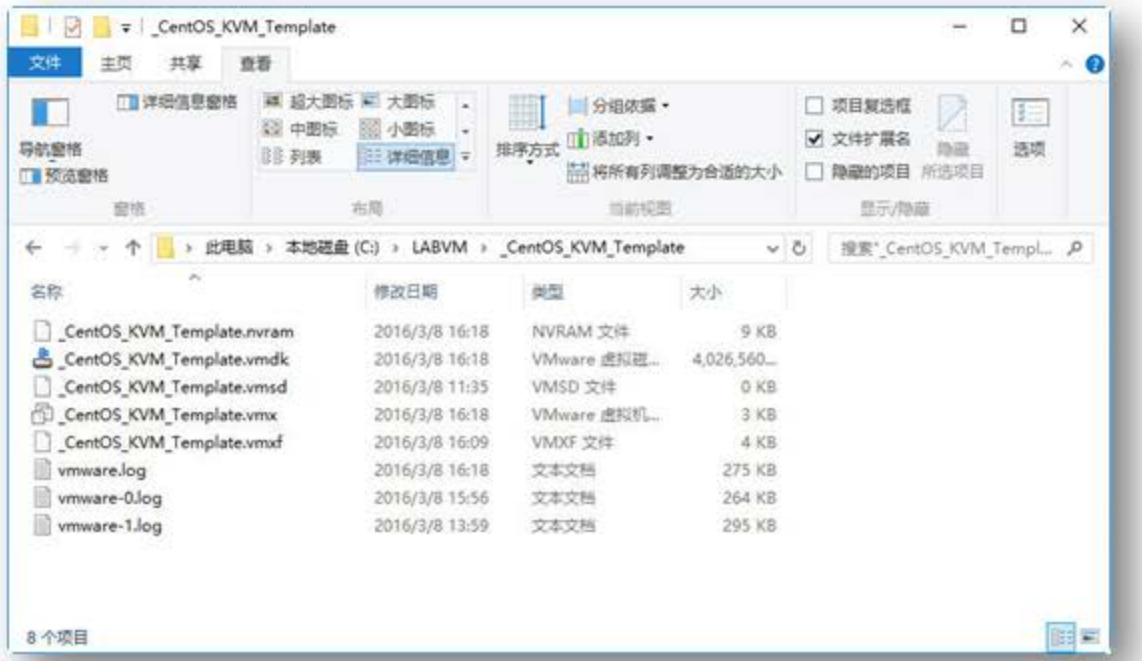


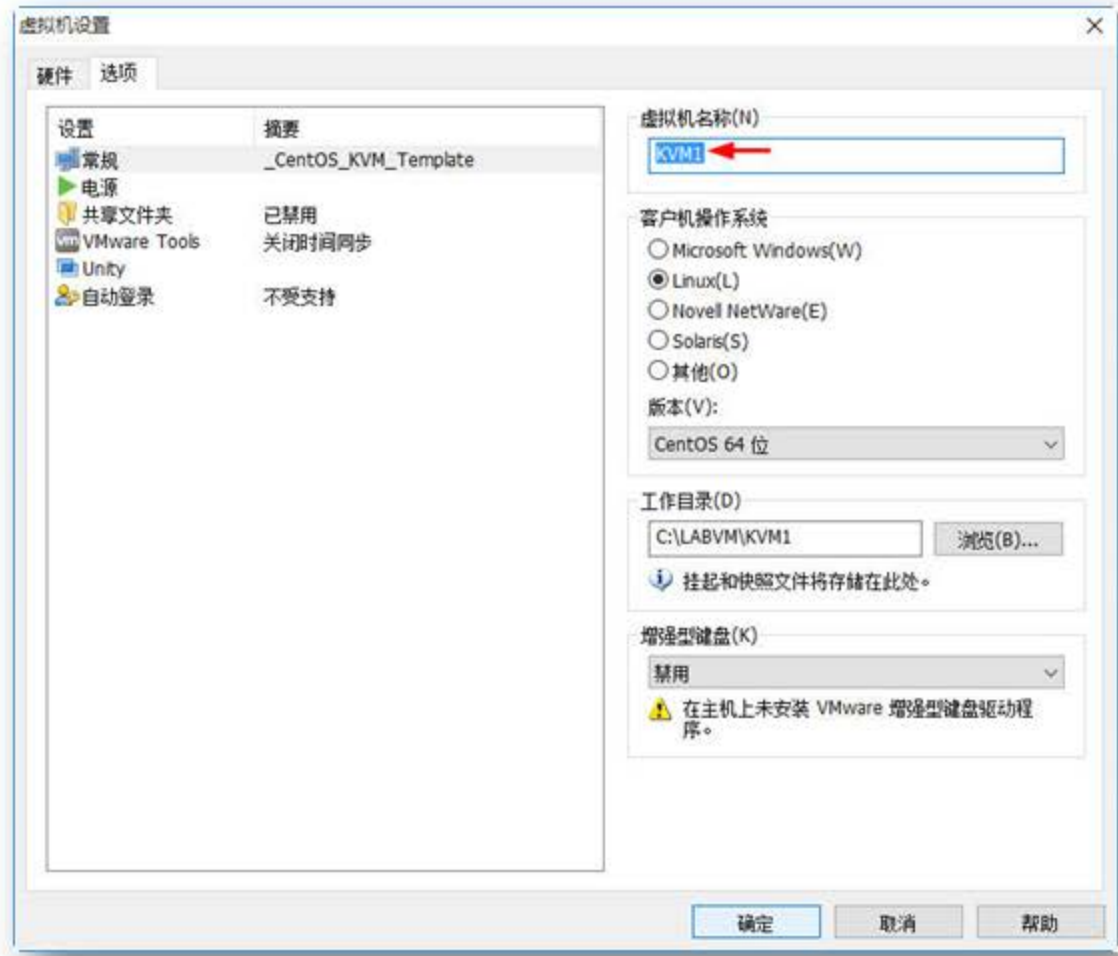
检查CPU特性

```
# grep vmx /proc/cpuinfo

# egrep '^flags.*(vmx|svm)' /proc/cpuinfo
```

复制第一台KVM虚拟机





KVM远程管理

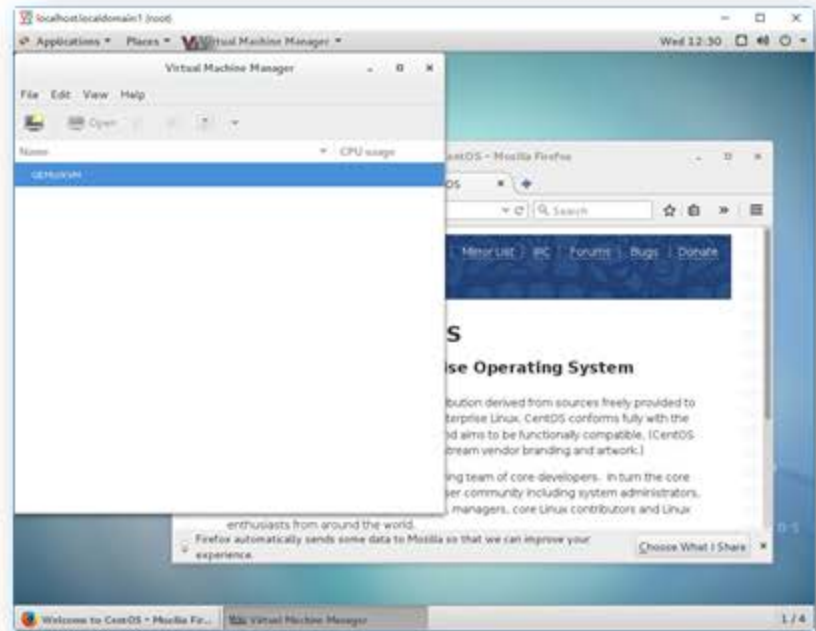
- SSH
- VNC
- X-Windows

VNC

- 在被管理的Linux主机上安装、配置VNC服务器端组件
  - 安装

```
# rpm -ivh tigervnc-server-1.3.1-3.el7.x86_64.rpm \
tigervnc-server-minimal-1.3.1-3.el7.x86_64.rpm \
tigervnc-license-1.3.1-3.el7.noarch.rpm
```

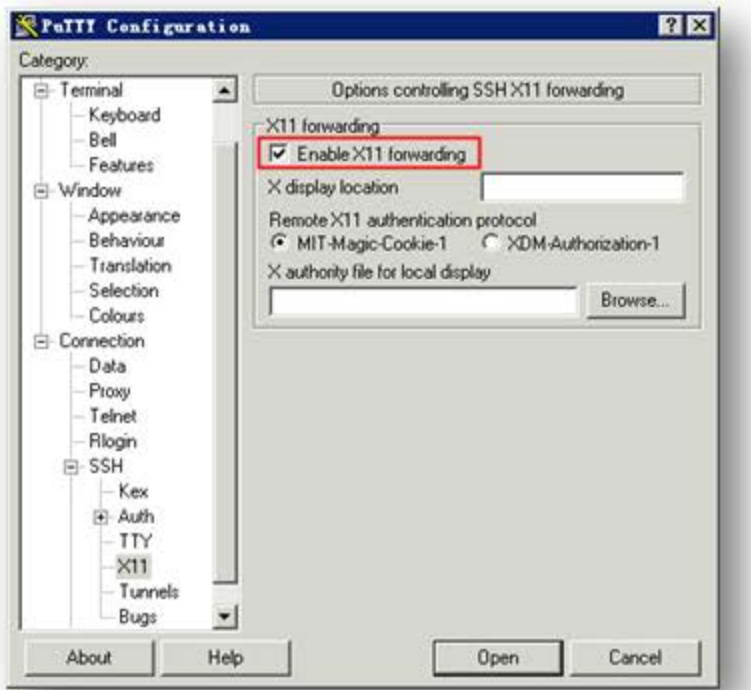
- 通过VNC Viewer连接

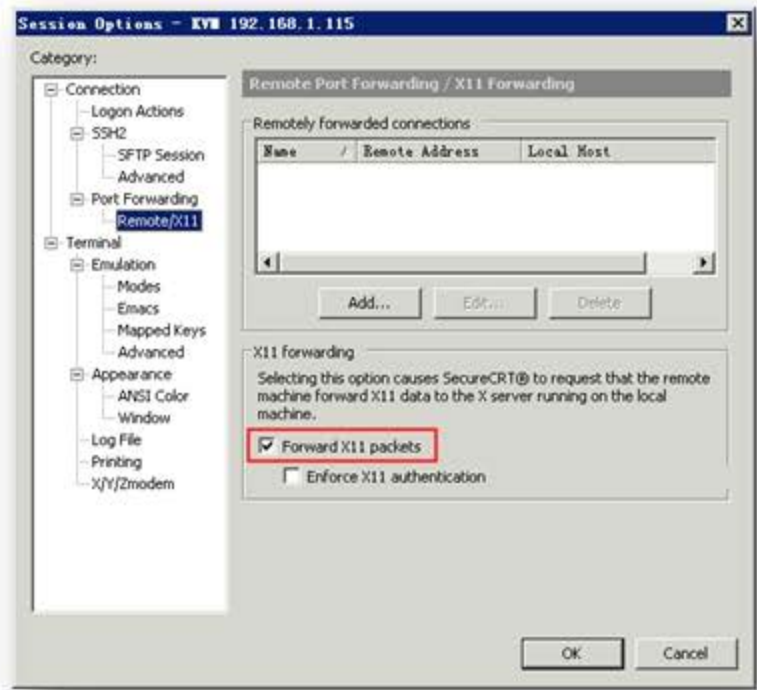


X-Windows

- Xming 是一个Windows平台上免费的X window Server，可以方便地实现在Windows中运行Linux应用程序
- 下载 http://sourceforge.net/projects/xming/

Putty





SecureCRT

总结

- 环境准备
- KVM安装
- KVM远程管理