ATOL: Virtualization

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Advanced Topics of Linux Administration

Introduction to virtualization

- ► Advantages
    - ► Security
    - ► Better utilization of computers (power, CPU, rack space)
    - ► Higher availability of services
    - ► Low-cost solution
- ► Disadvantages
    - ► Performance issues
    - ► Virtualization on Linux is new technology
    - ► Very difficult to solve issues

Full-virtualization

- ▶ No modification are needed in guest OS
- ▶ Total abstraction of underlying physical system
- ▶ HW support: Intel VT (CPU flag vmx), AMD SVM (svm)
- ▶ PAE ???
- ▶ Pentium II-IV, Celeron, Xeon
- ▶ Duron, Athlon

Paravirtualization

- ▶ Requires user modification of guest OS (eg. linux-image-xen)
- ▶ Provides near native performance (¡5% ??)

Virtualized Resources

- Virtual CPUs (vcpu)
- Virtual disks (/dev/xvda)
- Virtual network interfaces (VNIC), identification by MAC addresses
- Identification of guests using
  - domain name (domain-name) - user given
  - identity (domain-id) - unique, non-persistent
  - UUID - persistent, assigned at first installation

Lab: Installation

- Goals:
  - Create a virtual machine on your computer using kickstart
  - Setup network connection through your 'real' machine
  - Using a LVM snapshots create a new virtual machine from existing one

Lab: Prepare a paper

- ▶ Themes:
  - ▶ Compare VMWare, Xen, KVM, . . .
- ▶ Format:
  - ▶ Short presentation (15–20 minutes; 5-7 slides)
  - ▶ Paper containing comparision (500 words)