ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Servermanagement

General Description

Server management includes the provision and operation of servers at ETH.

In addition to the familiar physical servers we also offer virtual servers using VMware ESX. Barring valid technical reasons, we recommend the use of virtual servers.

Applications are supervised and maintained by application managers.

Below a description of the ETH Zurich virtual infrastructure functions and benefits.
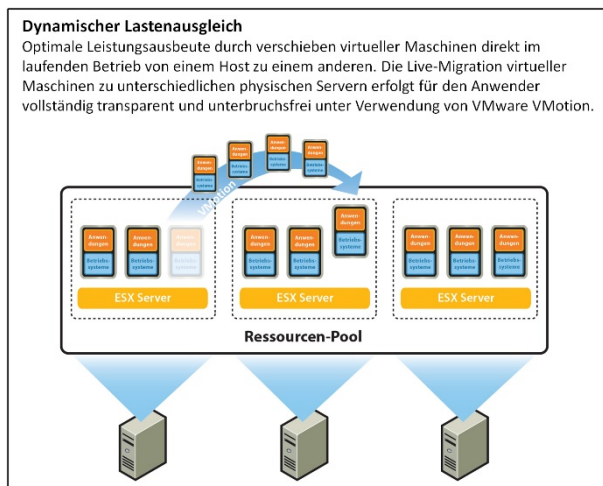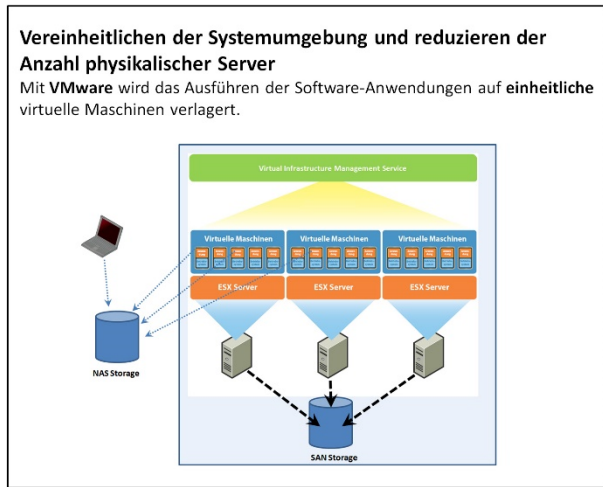
VMware Infrastruktur

The amount of physical servers can be reduced by virtualization on fewer, albeit higher scalable and reliable enterprise-class servers.

Up to 250 virtual servers (VM's) can be operated on one physical server thereby substantially improving the latter's efficiency.

Virtual servers offer the following benefits:
- continuous and consistent life cycle supervision of operating system and hardware by a professional team (see graphic "VMware Overview")
- very high reliability ensured by redundant infrastructure and use of UPS (Uninterruptible Power Supply) (see chart "VMware availability)
- high performance ensured by dynamic load balancing in an uninterrupted, continuous operation (see chart " VMware Dynamically Allocate System Resources").
- large virtual hardware flexibility thanks to rapid upgrade possibilities of (effective maximum depends on the operating system): description-vmware
- implementation of the efficient Snapshot method minimizes the risk incurred with software configuration changes
- reduction of infrastructure costs, since no separate air conditioned server room nor UPS is needed and server hardware is continuously renewed by the server management team.

Informatikdienste

Principle of operation

Vereinheitlichen der Systemumgebung und reduzieren der Anzahl physikalischer Server
Mit **VMware** wird das Ausführen der Software-Anwendungen auf **einheitliche** virtuelle Maschinen verlagert.

Hohe Verfügbarkeit der virtuellen Maschinen
Bei einem Serverausfall werden die betroffenen virtuellen Maschinen **automatisch** auf anderen Produktionsservern mit freien Kapazitäten gestartet.

Dynamischer Lastenausgleich
Optimale Leistungsausbeute durch verschieben virtueller Maschinen direkt im laufenden Betrieb von einem Host zu einem anderen. Die Live-Migration virtueller Maschinen zu unterschiedlichen physischen Servern erfolgt für den Anwender vollständig transparent und unterbruchsfrei unter Verwendung von VMware VMotion.

Support

You can subscribe to the esx_info@ethz.ch (guide), which ensures a reliable information flow e.g., system innovations or planned maintenance.

- For new servers please fill out [application for a virtual server](#).

- For change requests and incidents please contact our [ticket system](#).

Terms and conditions

The [BOT](#) provisions apply for the use of this service.

Specifications

Virtual hardware specifications
We can deliver following virtual hardware in 1 to 3 days.
- CPU: up to 16 CPU
- Memory: up to 32 GB
- NIC: up to 2
- Disks: up to 500 GB

Biger hardware open request. See also /id/services/list/servermanagement/description-vmware/index_EN

Supported operating systems
Windows
- Windows Server 2016 (64-bit)
- Windows Server 2012 R2 (64-bit)
- Windows Server 2008 R2 (64-bit)

RedHat Enterprise Linux
- Red Hat Enterprise Linux 7 (64-bit)

Other versions and operating systems on request.

Typs of servers
We distinguish between standard servers and specialized servers.

Definition standard server

Server management responsibilities
- Virtual hardware (vCPU, memory, disk, network)
- Integration to customer VPZ
- First-time installation of supported operating system
- Purchase of operating system license (for supported OS), unless a valid license already exists

Optional
- automatic operating system update for supportet OS without user intervention (WSUS, RedHat Sattelite)
- Additional software components, belonging to or delivered in addition to operating system and for which an automated update is possible
- Optional creation of **temporary** virtual machine snapshots (example: test of new patches)

Customer responsibilities
- Installation and maintenance of software components, which do not meet the above-mentioned criteria for automatable updates
- Configuration and operation of applications
- User information and instruction

- Appointment of a Server Management contacts
- Assignment and maintenance of the group(s) rights for vCenter
- Licensing of software components
- Backup of data and OS
- Install and maintain the "VMware Tools" for self installed servers
- Maintenance of the "VMware Tools" for self managed servers

Definition specialized servers
- all physical servers
- all virtual servers on which automated update processes are either impossible or not permissible (e.g. database server, dependence on other servers, etc.)
- virtual servers with non-supported operating systems (see above)
- all servers installed and operated by the customers themselves

Responsibility for specialized servers

Responsibilities for specialized servers must be individually gauged and mutually defined (individual SLA).

VMware Tools
VMware tools are necessary for a reliable and efficient server operation and basically consists of the following tasks and functions (interaction between host and virtual server, optimized drivers for network and display, memory management and time synchronization).
- VMware tools **must** be installed and **upated**.
- VMware tools **must** always be activated.

Fees

Fees a standard server will be counted according the used resources of vCPU in GHz, memory in GB and Storage in GB (VMware vCenter Chargeback).

vCPU and memory will be counted dynamically and charged according the following term:

fees / year [CHF] = [vCPU usage (GHz) * 143.00 (CHF/GHz] + [memory consumed (GB) * 14.00 (CHF/GB)] + [vCPU usage (number) * 50.00 (CHF)] +[storage allocated (GB) * 0.25 (CHF/GB)]

The financial year runs from October 1 to September 30 of the following year.

Fees for specialized servers

Fees for specialized servers are determined individually, based on additional requirements for support (individual SLA).

Client responsibilities (standard and specialized servers)
Software licenses are to be obtained and administered by the customer:
- Applications
- Utilities
- License for not supportet OS

Managing a virtual server

Console access
With physical servers access to hardware and local console is possible.

Since physical access to virtual servers is not possible, access is via a virtual console (see "Tools for accessing virtual console"), with the following key features:

- Prerequisite: Client provide a "Active Directory Group" in the D-Domaine of ETH (d.ethz.ch)
- Console (allows access to BIOS and operating system, similar to a physical server console)
- Power on/off (e.g. corresponding to a hardware reset as with physical servers in the case of operating system no longer responding correctly)
- Temporary integration of local resources (CD, floppy)
- Tools for accessing virtual console
  - WEB client: https://visrv.ethz.ch
    - The vSphere Web Client requires the Adobe Flash Player version 11.5.0 or later to be installed with the appropriate plug-in for your browser.
  - For Windows systems the VMware Infrastructure Client is available.
- Please contact us, if you have problems with the consol.

Access to operating system of the virtual Server
For maintenance and configuration of the OS and applications we recommend to access the server (physical and virtual) as usual, with either Remote Desktop or ssh .

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