USE OF VIRTUAL SERVERS IN THE AVIATION BUSINESS

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The object of the text is to introduce vizualization of IT infrastructure to airline companies and demonstrate the efficient sharing of internal information to ensure safe air traffic. The text contains important hardware and software equipment of servers, virtualization, and their subsequent use in airlines enterprises.

K e y w o r d s: virtualization, virtual server, virtual environments, ESX server, IT infrastructure

1. INTRODUCTION

Today's markets are characterized by globalization, massive development of new technologies, increasing competition and the shift to customer-oriented thinking. Organizations need solutions that are integrated, flexible and adaptable technology and should help reduce risk, improve business performance and ensure maximum return on investment. An efficient and effective solution for achieving these objectives is the use of communications solutions - build modern infrastructure.

The airline has a modern infrastructure that is essential for improving the dissemination and sharing of internal information. For quality control managers, to use such systems to produce relevant information required for process management, also important are quality methods and powerful means that properly process information for the preparation of decisions.

The paper is aimed to draw attention to different airline options for more efficient work environment virtualization. Article refers to the effective internal information sharing, management of market demand, saving energy, money and manpower by using virtualization IT infrastructure in the airline, with virtualization of the environment made to the existing IT infrastructure.

Today's markets are characterized by globalization, massive development of new technologies, increasing competition and the shift to customer-oriented thinking. Organizations need solutions that are integrated, flexible and adaptable technology and should help reduce risk, improve business performance and ensure maximum return on investment. An efficient and effective solution for achieving these objectives is the use of communications solutions - build a modern infrastructure that will be stable support converged networks, maintain scalability solutions and ensure ease of administration.

2. HARDWARE OF SERVER

The word server is a shortened version of "server computer" and its precise meaning in the Slovak language is "a computer that controls a computer network and provides services to multiple users simultaneously." Server is a computer that provides services to other computers on the network, most file and print services. Server is also a process (application), which provides services to client applications running on other computers, or on the same computer that runs the server process.

Server is usually the critical element of a broader network functions or applications used for its superior and more powerful hardware and its function is to ensure better function than conventional workstations (clients), for example, is secured against power failure by UPS (Uninterruptible Power Supply) is redundant power supply is located in a locked room, it automatically backs up data on backup media includes disk arrays and the like. Services server, which provides client (a computer program communicates with software on the workstation) model is known as a client - server. Services may be within a single computer or multiple computers through a computer network. A server can be designed based on the current hardware that is used in desktop computers, but mostly it is used specially modified hardware tailored to the needs of the server. Most of the servers are running 24 hours a day, 7 days a week, hence the need of higher life. Today's manufacturers of servers (such as Dell, Intel, Fujitsu Siemens, etc.) using standard

hardware that you yourself test and ensure high reliability and durability. At its servers provide fast service (usually on-site).

Types of servers

Server machine as may be designated for a myriad of types. All depends on what will be the designated server. In providing services, it is possible to distinguish some of the basic types of servers:

File (file server)

- controls access to a file and disk resources on the network
- providing security (access rights) and synchronization (locking files) network

Printer (print server)

- Provides access to network printers
- Programs must operate to create and manage print queues

Application Server

- run applications designed for workstations
- a workstation running so. client applications requiring transmission of data files from / to the server (s)

Communication (communication server)

- provides access to the modem (modem server)
- by fax (fax server)
- telephone lines, connects two or more networks 12

Database (database server)

- provides access to database records, programs running on other computers
- usually requires that the server had a quality and efficient technical equipment
- Today, most frequently used type of database servers are called. SQL Server (SQL = Structured Query Language).
- Oracle
- Microsoft SQL Server
- Sybase
- Adabas D
- mySQL
- PostgreSQL

Storage server (backup server)

- allows you to seamlessly backup all necessary data on all computers in the network, whether it's the servers (most often) or client station.
- the necessary recovery plan (Recovery Plan), which forms the basis for efforts to restore operations of critical parts to a company at a specified time limit

Examples of backup servers can be

- TapeWare and ArcServer for Novell Netware and Windows NT
- Amanda package for Linux Software
- a program working on a computer, which conveys a certain network services (such as DNS (Domain Name Server), FTP server, Web server, mail server) HTTP server (Hyper Text Transfer Protocol)
- Web server is a collection of pages with a specified structure
- HTTP server can read these pages and provide their clients. One HTTP server can use multiple Web servers
- The most common HTTP servers, a bunch of Apache, Microsoft Internet Information Server and Netscape Enterprise Server
- the most popular of them, Apache, is used primarily on Linux and Unix, which is its parent platform

FTP (File Transfer Protocol)

- FTP server task is to provide file
- used primarily in the Internet environment, so in a very heterogeneous environment
- Has built-in features to ensure that the FTP server and its contents will be identical for all clients. In a heterogeneous environment is defined by a standard protocol (except for HTTP and FTP), allowing to transfer files between such different systems such as Unix and Apple Macintosh.

Proxy

- Its role is to act against other servers on behalf of its clients,
- increased security of communication - proxy server "masks" the activity of the client, the

client, no one has become aware of a proxy server
- better control in the event that all clients accessing the external network only through a proxy server
- reduce the burden on transmission lines with cache (cache)
- reduce the burden of frequently used servers (cache)
- Novell Border Manager for Novell NetWare, Microsoft Proxy Server for Windows NT to Linux and Squid.

Mail server (mail server)
- One of the most desired features of today's networks is the transmission of electronic mail
- e-mail you can send any message, such as text, picture and sound recording program
- At present, the commonly used three basic protocols to transmit e-mail:
- SMTP (Simple Mail Transfer Protocol) - the protocol used to send messages and their delivery to user mailboxes
- POP (Post Office Protocol) - versions of POP2 and POP3
- IMAP (Internet Message Access Protocol) - in versions IMAP3 and IMAP4
- POP3 and IMAP are used for reading messages from user accounts

DNS server (Domain Name Server)
- DNS service allows client computers on the network and register DNS names translate descriptive
- DNS server hosts the DNS distributed database records and the records used to generate answers to questions sent by DNS client computers DNS issues such as the names of web servers or computers on the network or the Internet.

DHCP server (Dynamic Host Configuration Protocol)
- After the installation, administrators can manage IP addresses and related information from a single location
- avoid conflicts of IP addresses, as does the allocation of previously allocated IP addresses
- reducing the time needed to configure a computer prekonfiguráciu DHCP server option, which rent for the allocation of IP addresses also provide additional configuration values
- through the recovery process - rent - Update IP addresses provides customers with mobile or portable computers, which frequently change their location

Dedicated server (dedicated server)
- server serves only for network management
- can be used as a workstation

Non-dedicated server (non-reserved server)
- server that can serve well for network management as well as workstation
- not recommended for larger networks

Server virtualization

Virtualization allows you to run multiple "virtual" servers on a single physical machine, which allows for sharing the physical resources of the machine. Virtual servers are behaving on the network like any other physical server and is ideal for hosting the current low-end server applications, test installations, and backup servers. Each virtual server has its own operating system that runs on a so-called hypervisor and provides virtual hardware, which seems to be given as a real operating system. All virtual servers are isolated from each other, so one can not affect another. Selection of the operating system is completely up to the operator, since they are supported by all modern operating systems based on Linux and Microsoft Windows. Because they are isolated, virtual servers can run side by side as Windows 2008 Server and Debian Linux.

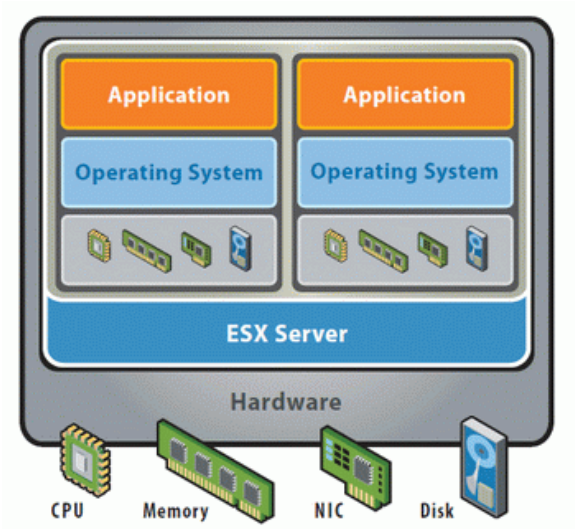

Fig. 1 ESX server

The figure illustrates the ESX server - hypervisor running on physical hardware. In an hypervisor virtual servers to run its own operating system.

Why is virtualization?

Most data centers in the world working as a model of the operating system on a physical server. This fact means that 90% of the server uses 10 to 20% of their output. These servers but still need cooling and electrical power, causing considerable financial cost to operate. Commonly available modern server hardware can operate simultaneously to several tens of virtual servers (depending on the complexity of applications that are operated), and thus increase their use of performance up to 80 to 90%. This means savings in the cost of electricity, cooling, and the human resources as it is far easier to maintain a powerful physical hardware performance less than twenty. Virtualized solutions to reduce the so-called. total installation costs (TCO - Total Cost of Ownership) for the project through the better use of the physical hardware and its ease of maintenance.

Use of virtual servers in the aviation business

Virtualization is the process or the sharing of technology in computer science, in which is replaced by means of physical layer software. This means physically there, but the system is transparently defined. In practice this means that through virtualization, multiple operating systems can be run simultaneously on a single hardware. It is usually supported by multiple operating systems on one host system that can run various operating systems. Managing these systems is therefore much easier both in terms of time and costs, and provides space to imporoving the IT infrastructure administrators, but also train current users.

Concepts such as data center virtualization and virtual server are becoming widely used in practice. Many of the companies to exercise these options in order to make IT infrastructure, except they are not airline companies. Deployment of advanced technology and virtual environments brings in smaller and medium-sized companies, major opportunities for using technology to increase security and resilience of IT systems (particularly in emergency situations), much less time for recovery systems as well as considerable energy savings. Virtual infrastructure is increasingly in demand not only in the manufacturing sector, but also got into teaching. The aviation industry is in training places great emphasis, because employers need the best and most qualified employees. One way to save the mission and the child is a virtual training on virtual servers. Various training courses can be trained in-house.

3. THE BENEFITS OF VIRTUAL SERVERS

Probably everyone who works with computers and technology services using client / server knows that the end computer to get data on the server via remote access or to run applications that is not installed on your PC. The entire network must have an administrator. For the IT administrators who are responsible for flawless operation of the system. Administrators know how difficult it is to care for and maintain operation of the network, hardware and physical work, so that downtime for maintenance of physical facilities were the least. Such a network has its advantages and disadvantages. Virtualization technology provides us with more favorable opportunities for IT infrastructure, it is less difficult to manage, which is appreciated not only administrators and users, but also in financial terms, the transition

from physical servers to virtual effective step.

Some benefits for administrators:

• upgrade of applications is easier, because instead of being transferred to upgrade dozens or even hundreds of separate servers, the upgrade converts one or more ESX servers and the longer we can effectively upgrade the virtual
• virus protection makes the server, so this provides protection for a given server by the host ESX server
• the administrator can easily configure the system policy of the company
• separation from the physical hardware provides the ability to easily transfer system to another physical device without having to make changes in its configuration
• Live migration allows you to "ride over" transfer system running on a different physical system operated without loss of service
• rapid deployment systems - deployment and launch of new systems in a virtualized environment is much faster and easier
• Automatic management of installed systems - using virtualization can automatically deploy and run, respectively. interfere and stop systems as needed
• Portability of data - data disk virtualized systems can be easily transferred between different physical systems, respectively. virtualization platform
• transparent network services - virtualization allows, under certain circumstances, transfer systems between physical systems, without the necessary reconfiguration of network settings
• mobility - especially when using VDI - brings virtualization mobility, thanks to which the user can safely work with your desktop and your files or folders from anywhere where internet access is functional
• A single interface can save you time. The idea of creating a simplified virtual data center can be regarded as an important step in the evolution of the unification of virtualization platforms. In practice, this means the distribution system by adding new servers, which is more flexible and easier, as well as the reconfiguration and change its intended use of each server based on current needs. It is not yet significant, how many physical units were within a specific platform used. The number and purpose of use can be dynamically changed.
• Common data centers that use servers with lots of separate components communicate with different interfaces to be interconnected. Any disorder requires a lot of time to remove, as it should be carefully distinguished interactions between components. Again, the apparent quality of the architecture used. The vision for the future is so bright - clarify and simplify server management. It might be helpful to use a single type of input-output interface and unified IT infrastructure for data communication.

4. CONCLUSION

Virtualization simplifies management of enterprise systems and delivers visible savings in time, hardware, and especially in finance, so I recommend using the airline. The use of this technology in the airline and the creation of a virtual data center would benefit from this technology not only administrative departments, such as. personnel, payroll, accounting, but also production, essentially all of which are aviation-related. This would require substantial financial reserves needed to finance intensive information systems, which are necessary for aviation companies to ensure safe air traffic.

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