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Effective Server Management

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What is server management?

The server is the central part of hosting a website. Managing the server is essential for smooth business operation. Server management is complex because it requires high technical knowledge. Both the hardware & server-side software have to be well-configured and checked on functionality. It refers to maintaining servers to operate at peak performance. You have to ensure the servers are secure & healthy. It entails a wide range of processes, from server monitoring to optimizing. The system admin are in charge of managing the server. Some of their duties include:

- User management & access control.
- Server configuration.
- Server-side software installation & updates.
- Monitoring CPU, RAM, and network.
- Creating backups & restoring files.
- Configure security settings like firewalls

The upkeep of servers ensures that your web applications are running smoothly. Maintaining the infrastructure also protects the data & internal systems. As your business scales, you may need to add new servers. The admin may have to configure (or reconfigure) multiple servers. Managing a server allows flexibility & scalability. It lets you adapt to changes quickly.

Components of Server Management

Hardware Components

- **The central processing unit (CPU):** Overusing the CPU can lead to various problems. A CPU running close to 100% utilization overtaxes the device, leaves no capacity for extra tasks, and slows down the server. Admin typically upgrade the chip, add more CPUs, or stop unnecessary programs to handle an overused CPU.
- **Random-access memory (RAM):** RAM is a server's working memory that operates faster than a hard drive. The more RAM a server has, the better its potential performance. Admin must monitor RAM usage and determine when the system requires more running memory.
- **Hard drive:** The hard drive acts as a server's permanent storage for programs, data, and backups. Performance can take a hit when a hard drive works at maximum capacity, so admin must add drives or delete unnecessary data when disks fill up.
- Network Port: Network ports act as communication endpoints. Servers are connected to a port with a range of speeds set by the host. Check if you have enough network adaptors & connections for the server.
- **CPU temperature:** The server can heat up very quickly if it's not managed correctly. You require cooling fans to ensure the physical servers at your data centre don't overheat**.**

Services Components

- **Web Application Firewall:** A WAF or web application firewall helps protect web applications by filtering and monitoring HTTP traffic between a web application and the Internet. It typically protects web applications from attacks such as cross-site forgery, cross-site-scripting (XSS), file inclusion, and SQL injection, among others.

- **Server Load Balancing (SLB)**: It is a technology that distributes high traffic sites among several servers using a network-based hardware or software-defined appliance. And when load balancing

across multiple geo locations, the intelligent distribution of traffic is referred to as global server load balancing (GSLB).

Common Types of Servers

You may encounter servers in a wide variety of forms that each serve specific functions but there are some common types of servers that you will most likely be involved with managing. Understanding what each server does will help you ensure they're operating properly.

- **File Transfer Protocol (FTP):** It refers to a group of rules that govern how computers transfer files from one system to another over the internet. Businesses use FTP to send files between computers, while websites use FTP for the uploading and downloading of files from their website's servers.
- **Application servers**: An application server is a type of server designed to install, operate and host applications and associated services for end users, IT services and organizations. It facilitates the hosting and delivery of high-end consumer or business applications, which are used by multiple and simultaneously connected local or remote users.
- **Web servers:** A web server is a computer that runs websites. It's a computer program that distributes web pages as they are requisitioned. The basic objective of the web server is to store, process and deliver web pages to the users. This intercommunication is done using Hypertext Transfer Protocol (HTTP).
- **Database Servers**: A database server runs a database management system and provides database services to clients. The server manages data access and retrieval and completes clients' requests.
- **Virtual servers**: A virtual server re-creates the functionality of a dedicated physical server. It exists transparently to users as a partitioned space inside a physical server. Virtualizing servers makes it easy to reallocate resources and adapt to dynamic workloads.
- **File server:** A file server stores data files for multiple users. They allow for faster data retrieval and saving or writing files to a computer. This is a basic type of server used commonly by organizations where lots of users need access to files that are more conveniently and safely stored on a server than a personal computer.
- **Mail server:** A mail server stores and delivers mail for clients through email service platforms. Because mail servers are set up to continually connect to a network, individual users can access their email without running any systems through their own devices.

- **Print server:** A print server connects remotely to local computers to print through a network. These servers give businesses the ability to use a single printer to serve an entire department. Some printers even come with their own built-in server ready to join a network once they're installed in an office area.
- **Domain name system (DNS) server:** These servers transform readable computer domain names into computer language IP addresses. The DNS server takes search data from a user and finds the requested address to deliver to the client device.
- **Gaming server:** Large gaming networks use servers to connect users from around the world. These servers host multi-player online games.
- **Monitoring and management server:** Monitoring and management servers function in several capacities. First, they record and track digital transactions and receive user requests. Others simply monitor and don't actively participate in user operations. Monitoring servers are responsive to network administrators who survey network health to check for threats or bugs in the system.
- **Proxy servers:** A proxy server is a system or router that provides a gateway between users and the internet. Therefore, it helps prevent cyber attackers from entering a private network. It is a server, referred to as an "intermediary" because it goes between end-users and the web pages they visit online.

How do servers work?

Servers work in several ways to connect users to different data functions. They house large amounts of data for organizations and make it accessible to users through internal networks or via the internet. They respond to user requests to retrieve appropriate files from stored or interconnected data sources. They also work in tandem with an operating system to better listen to and respond to user requests.

IT professionals can increase the functionality of a server by installing software that creates additional roles such a responding to website requests from an internet browser. Servers can also act as safeguards to verify the identity of users before allowing access to a network.

Key Features of Server Management Tools

Not all server management tools are created equal – here are some key features of server management tools to consider when searching for solutions:

- **Coverage:** You should start by identifying what servers and applications your organization will be using. Then make sure the tools you're considering are capable of covering all the types of servers and applications in your stack.
- **User Interface:** Basic server administration tasks can be accomplished via the terminal. However, the terminal may not be capable of handling more complex functionality. Some server management tools come with an intuitive user interface with visualization capabilities to make advanced tasks more feasible.
- **Alerting:** The ability to set performance or other thresholds that can generate alerts is essential. Consider what different alerting routes will be most important for your organization, such as email, SMS or other messaging applications like Slack
- **Support:** Server management can be complicated, so having professional support provided by the vendor is often critical to success.

Necessity of Server Management in today's era

Regardless of the size of your enterprise, the health of your IT infrastructure, including both hardware and software components, is vital to maintaining a competitive edge in a hyper-competitive global market. At the centre of your IT system are your servers which require continual management and maintenance to ensure their longevity and ongoing efficiency.

Scalability, server downtime, and system-wide security updating and monitoring are just a few examples of the routine checks and balances within server management. These are crucial job functions of your system admin that, if not correctly performed, will significantly increase the risk of systemic failure. In the digital age, excessive downtime or security breaches will cost you time, money, and will negatively impact your brand's trustworthiness.

Today IT server management is a necessary requirement. Effective server management practices ensure that your IT systems function at their maximum potential. They provide you assurance of server security,

up-time, and prompt resolutions in case of any issue. Thus, effective server management can help you address all server performance inefficiencies. But the most important thing to consider is to opt for professional server management services. Leaving the job to inexperienced management can bring down the server and can cause immense damage to your business. Therefore, always rely on a trustworthy Server Management Company. The server management specialists from these companies are experienced and can handle issues before they affect your clients. Moreover, they also guide you on preventative steps to keep viruses, malware, and other security breaches at bay.

Common server issues and their effects on operations

- **Lack of Visibility and Control:** The first problem is that server management teams don't have overall and complete visibility over sever management solutions that are deployed across all their physical, virtual and cloud server infrastructures. They don't know how (or if) their servers are managed uniformly

- Across computing environments (on-prem., private cloud, public cloud, etc.)
- Across geographically dispersed data centres, and
- Across wide-ranging server roles (database, apps, web, etc.).

Exacerbated by this limited visibility is a similar lack of centralized control. Without this control, it is very difficult for teams to deploy new server management solutions, or update existing solutions. Because of this, newer versions of various solutions – those that provide better functionality or fix vulnerabilities – are often slow to be deployed, if they are at all. Without the ability to quickly make changes, organizations can become locked into their existing server management solutions, and can't easily switch to newer, best-of-breed options from other vendors. In fact, the entire life-cycle of configuring, deploying, registering, upgrading, troubleshooting, ensuring compliance, and decommissioning of server management solutions can be overwhelming, cumbersome and painful.

- **Agents as Culprits:** Much of the difficulty can be traced to the fact that many server management solutions require agents to be installed on every server. This requires time-consuming coordination with server owners for each agent to be installed (or modified), which slows the entire deployment process considerably. It may also necessitate server reboots, which are likely to affect application performance and cause interruptions or downtime. The resulting experience for business users is frustrating at best. For instance, it's not unusual for users to wait weeks to get a new application or have a new server commissioned. While the IT teams responsible for deploying security, backup, monitoring and other solutions complete their tasks, users are waiting, possibly with their own business projects on hold. Instantaneous service is the new normal in our everyday lives. On mobile devices and with cloud-based services users are not willing to accept poor service in their work lives. If IT organizations are perceived to operate too slowly, rightly or wrongly, IT teams can then be perceived as barriers to business innovation, rather than enablers.

- **Cloud Complexities and Web Scale:** Cloud-based infrastructure is disrupting Enterprise IT processes that were adequate even just a few years ago. As more organizations embrace the cloud, IT teams face two issues:

  - Cloud infrastructure adds another layer of complexity. The server management software deployed to on-premises physical or virtual machines are not necessarily the right ones for workloads in the public cloud. This means a new – often parallel – solutions and processes need to be learned and adopted.

  - Cloud-scale and web-speed operations require new, faster ways to do things. The way server management solutions are provisioned on-premises often can't scale to meet the magnitude and speed required for public infrastructure. Traditional approaches are often too slow, too cumbersome and too prone to manual error.

How to implement an Effective Server Management?

Server Management helps in minimizing and hopefully eliminating server slowdowns and downtime and build secure server environments. Server management helps in ensuring that the servers can continuously meet organizational needs as it evolves. A practical server management strategy must include the following critical steps:-

Regular Monitoring Is Critical.

Regular server monitoring helps to track and analyze various metrics to determine your server's performance. Often the stakeholders tend to notice any server anomaly only when it becomes evident and fatal. Regularly monitoring the server is critical to ensure that the minor glitches are not accumulating, leading to more overwhelming issues. Monitoring helps establish that the server is delivering peak performance at any given time. It provides an opportunity to identify and prevent any glitches before it begins to affect real-time performance. You need to monitor your server round the clock consistently. Besides preventing issues timely, it also allows you to examine the IT infrastructure and plan appropriately for future expansions.

Keep The System Up-To-Date.

You should patch and update the server timely. Patches help address a specific bug, improve server stability, and fix security vulnerability. You are staying on top of updates as frequently as possible support preventative maintenance. It helps in keeping the server stable and safe from malware and other threats. Updating helps to iron out security issues. Hackers can become aware of any vulnerability in specific software. Old software versions become gateways for hackers to enter your network. Making use of lower-grade material and technology can make your server slow and inefficient. But you are deploying state-of-art facilities and updating with the latest technology to keep pace with changing needs. It will help you keep the server relevant to the current operating ecosystem and ensure that it runs smoothly.

Hire Professionals

Often companies do not have an in-house server management team for maintaining and monitoring server administration tasks round the clock. Incorporating an in-house team can be expensive. Hence, instead of compromising with server management needs, companies can choose to outsource. Outsourcing gives access to experienced and qualified professionals, and unlocks various benefits like get 24/7 server support, optimize server security, and improve server scalability. It will help you keep your server running effortlessly and at its best.

Custom Server Setup

Servers vary, and for different business requirements, servers need to have dedicated capabilities. Based on the functional aspects which the server must fulfil, you need to configure the server. Server managers review your business hosting and server requirements for determining its settings and specifications to fit rightly into your business needs. When initially setting up the server, ensure that the server managers follow industry best practices for server configuration. It will help ensure that the server delivers optimal performance during its lifetime and is safe from various vulnerabilities and threat vectors. Any configuration error or software conflict can impact the entire server and its implementation. Outsourced service helps to timely software updates to prevent downtime.

Up-Time Assurance

Businesses significantly depend on uptime. It helps ensure that the company is functional and customers do not face any issues in accessing your services. Consider the up-time assurance of your server. A server that fails to guarantee up-time and is unreliable can cost business revenue and loyal customers. Outsourced server management service providers can provide your server with maximum uptime guarantee up-time. It can be achieved through 24/7 server monitoring

Conclusion

A server handles web hosting, applications & data storage. It is the backbone of your IT infrastructure. The types of servers may vary, such as Linux or Windows servers. However, these are few essential tips to optimize your server round the clock and ensure its maximums availability and performance. It will help establish business continuity and help you drive growth and productivity. A maintained server ensures high performance, scaling & security. There are many server management tools & services available. You can use them to make managing tasks easier. A server control panel is one of the best ways to manage your server. It automates many server-related tasks.