



ENTERPRISE LINUX SERVER. **IBM z/VM VIRTUALISATION.**

IBM z/VM offers an ideal platform for consolidating Windows, UNIX and Linux workloads on a single System z server by providing a virtualisation environment.

- ***Virtualise processor, memory and I/O resources increasing asset utilisation and reducing system costs.***
- ***Dynamically adjust server capability to meet changing work-load demands.***
- ***Over 40 years of continuous innovation in virtualisation, refined to support modern business requirements.***
- ***Highest level of virtualisation security.***
- ***Massively scalable, highly agile.***
- ***Consolidate your server environment, simplify your architecture, and simplify management and control.***

Complexity can work its way into your IT infrastructure. Potential culprits include introduction of new applications and unanticipated growth. You add a server each time you have a new demand, a new application. With each new server, additional floor space, power, cooling, network interfaces, data storage and administrative staff may be required. The answer is consolidation and virtualisation.

New technologies have emerged that allow organisations to consolidate multiple operating systems and software stacks on a single platform, and allocate the platform to meet specific business and application requirements in a more dynamic fashion. The latest IBM advances in virtualisation may offer even more possibilities than you've heard about before.

The IBM System z family of servers is a proven server consolidation platform that helps you control costs while improving overall performance, availability and energy efficiency. With these servers and IBM z/VM virtualisation technologies, capabilities and offerings, your business can consolidate applications and servers, virtualise system resources, and provide a more flexible, dynamic IT infrastructure. IBM z/VM offers a secure virtualisation environment, built on the advanced RAS features and leadership performance of the IBM System z platform.

With System z virtualisation, customers can easily create many virtual machines consisting of virtualised processors, communications, memory, networking, and I/O resources. Virtualisation technology may help lower your total cost of ownership when deploying new enterprise application workloads.

Building Successful Virtual Enterprises

With IBM z/VM you can grow horizontally and vertically on the same System z server dynamically, to help achieve improvements in efficiency and flexibility, and control costs with virtualisation and server consolidation.

Put the power of the System z environment combining partitioning and IBM z/VM virtualisation technology to work for you. It will help you realise the benefits of workload isolation and resource sharing, including:

- Reliability, availability and serviceability of System z.
- Flexibility to create as many as 30 LPARs on the z10 EC.
- Ability to virtualise each LPAR into hundreds or more virtual machines.
- Ability to virtualise processor, communication, memory, storage, I/O and networking resources.
- Help with maximizing resources to achieve high system utilisation.
- Advanced dynamic resource allocation.
- High-speed communications among LPARs and guests with IBM HiperSockets.

Processor Virtualisation

- IBM z/VM provides multi-image support and can run hundreds to thousands of Linux guests simultaneously.
- IBM z/VM exploits large N-way processor architectures. Coupled with IBM z/VM's ability to run multiple Linux guests, this allows more resources to be devoted to Linux-based applications on a single system.
- Multiple Shared Processor Pools allows for automatic non-disruptive balancing of processing power between partitions assigned to shared pools resulting in increased throughput. It also provides the ability to cap the processor core resources used by a group of partitions to potentially reduce processor-based software licensing costs.
- A Linux virtual machine may define and use up to 64 virtual processors, regardless of the number of real processors in the hardware configuration.
- Linux on System z provides a new function that can automatically start and stop virtual processors based on virtual processor utilisation and workload characteristics.

Memory Virtualisation

IBM z/VM provides the capability to over-commit real storage, where each partition only uses memory as it needs it. The unused memory is then ceded back for IBM z/VM to allocate to other partitions that need it. This very efficient use of memory means that you need less real memory to support your partitions.

As memory is not dedicated to a Linux guest, this allows whole guest instances to be paged out when not active.

I/O Virtualisation

IBM z/VM exploits expanded storage and networking on behalf of Linux guests automatically and transparently.

- Dynamic I/O reconfiguration support in IBM z/VM allows real devices to be added to or removed from the configuration without disturbing Linux guests.
- IBM z/VM supports very high-performance networking among Linux guests.
- Virtual Switch eliminates the need for a router to connect virtual servers to physical LAN segments.
- VDISK support is Data-in-Memory technology which simulates a disk device using real memory. This helps achieve memory speeds on disk I/O operations. And VDISKs can be shared securely among virtual machines, providing shared data access capabilities.
- Linux with IBM z/VM provides support for shared file structures. By creating a read-only root file structure, the basic Linux system code can be shared among many virtual Linux servers, which helps with Linux standardisation. This environment makes maintenance much simpler – it becomes possible to roll out a new version of Linux by updating the master copy of the shared root instead of updating each system that uses it. The benefits of a shared file structure are reduced disk space, simplified maintenance, simplified systems management, and extremely efficient resource sharing.

RAS

- Support for processor sparing in IBM z/VM allows additional processor capacity to be brought online as needed.
- IBM z/VM simplifies the ability to provide standby systems for immediate backup of failing applications.

Security

- Can create multiple IBM z/VM on one physical server to create different environments.
- Highest security classification for general purpose servers.
- System z LPAR technology is EAL 5 certified, while z/VM is ESL4+ certified.
- Optional RACF.
- Optional DirMaint.
- Integrated LDAP.

The future runs on System z

For further information, please send an e-mail to:
dco@uk.ibm.com quoting z/VM as the subject.

For more information:

ibm.com/systems/z

ibm.com/vm

ibm.com/systems/z/os/linux/