Virtualization is the key step in building a cloud infrastructure. The fundamentals of virtualization have been part of the System z platform since its inception and it is a leader in platform virtualization. This virtualization technology allows the allocation of system instances to share the same system resources in a "shared everything" architecture while maintaining workload isolation and same system growth with limited real resources.

- The concept of a Virtual Machine (VM) defines IBM’s ultimate virtualization hypervisor based operating system IBM z/VM. z/VM’s ability to host large numbers of virtual machines makes it possible to achieve massive consolidation and same system growth with limited real resources.

- Virtualization with zEnterprise allows the dynamic provisioning of resources, allocation of real resources and the ability to easily consolidate virtualized images. z/VM can host more virtual machines with z/VM than any other platform, run thousands of virtual servers on a single IBM zEnterprise 114 platform and can deploy virtual servers quickly, non-disruptively without the dependency to first acquire new hardware.

The zEnterprise is a heterogeneous system capable of hosting many workloads integrated together and managed as a single entity. The IBM zEnterprise System includes the z/Enterprise CPCs (z196 and z14), the IBM zEnterprise BladeCenter Extension (zBX), and the Unified Resource Manager. A zEnterprise can deploy and manage workloads across mainstream and distributed technologies with a single management interface.

The ability of zEnterprise to manage all the real or virtual machines working under the control of the different hypervisors delivers the greatest value for your cloud computing solutions. Although each hypervisor has its own functional control of the resources within it, the ability to manage the workloads running across all of them is critical and the Unified Resource Manager provides the centralized management of workloads across different platforms.

In your cloud environment you may need to provide virtualization management for IBM and non IBM resources. To extend the management capabilities and their secure availability to resources across your datacenter it can be placed directly on top of your current hypervisors management suite or on top of the previous virtualization management suite for example, IBM System Director VMCotrol.

The zEnterprise is only for the time period requiring the extra resources. - Cost savings is also obtained with the ability to run multiple instances of a software product per processor, reducing the per core charges for most workloads. - The zEnterprise system can host VSAM or partitioned datasets of scale increases since the pool of available resources and systems are managed from a single place, the Unified Resource Manager. This can reduce the number of people required to manage workloads, which helps to lower the total cost of ownership.

- zEnterprise heterogeneous environment across platforms is optimized for workloads in a private cloud model and the ability to manage in cost compared to like services offered from other cloud computing providers.

With the introduction of the IBM zEnterprise System, this first system of systems enabled operational and capital expense reduction. It avoided the previous duplication of processes by standardizing and unifying the management of the operating systems, middleware, storage, networks, and other resources needed to deliver business services.

The Provisioning Manager component provides a solution for the automation of middleware servers, databases, file storage, etc. It follows processes across multiple server architectures. It follows processes across multiple server architectures. It follows processes across multiple server architectures.

- zEnterprise offers the most consolidation per platform possible today which results in significant cost savings.
- Most cloud computing models include a pay-as-you-go or grow ability feature and requires the automation of the processes that define the ability. zEnterprise On/Off Capacity on Demand processors can be turned on temporarily to meet business peak demands. - Payment for this additional capacity is only for a specific period of time.

- The z/VM OS allows you to standardize your private cloud and achieve massive consolidation and same system growth with limited real resources. - Virtualization with zEnterprise allows the dynamic provisioning of resources, allocation of real resources and the ability to easily consolidate virtualized images. z/VM can host more virtual machines with z/VM than any other platform, run thousands of virtual servers on a single IBM zEnterprise 114 platform and can deploy virtual servers quickly, non-disruptively without the dependency to first acquire new hardware.

The zEnterprise Cloud environment is a shared everything architecture while maintaining workload isolation and same system growth with limited real resources. With its end-to-end management capabilities for flexible delivery of high-value services, zEnterprise offers the most consolidation per platform possible today which results in significant cost savings. - zEnterprise offers the most consolidation per platform possible today which results in significant cost savings.

- Most cloud computing models include a pay-as-you-go or grow ability feature and requires the automation of the processes that define the ability. zEnterprise On/Off Capacity on Demand processors can be turned on temporarily to meet business peak demands. - Payment for this additional capacity is only for a specific period of time.