Accelerate with Cloud Computing

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Accelerated Value Program

AVP Expert Call Series

Agenda on the Cloud

- Cloud Overview

- Types of IBM Cloud Infrastructure offerings

- Why use the Cloud?
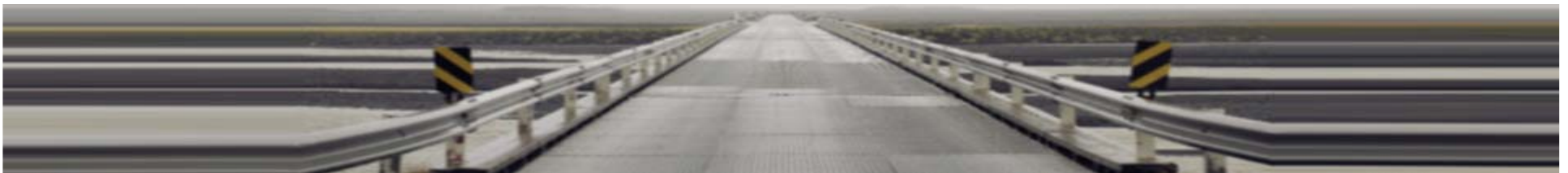
- What can AVP do for you?

Cloud Overview

What is a Cloud?

- The Cloud is a pooled set of hardware resources used to dynamically allocate virtual machines

- A hypervisor is software that runs on the hardware to load and manage one or many virtual machines

- The virtual machine represents the entire software stack starting from the OS to the installed applications

- The entire state of the virtual machine can be captured into virtual image files that can be transferred between servers in a Cloud

What are the types of Cloud based services?

Software as a Service	**Platform as a Service**	**Infrastructure as a Service**

Software as a Service

- Renting software from a service provider rather than buy, build, and host the software yourself

- Software on demand provides highest flexibility in cost and low maintenance

- Examples include:

  - Google Apps

  - Office Live

  - Lotus Live

Platform as a Service

- Development platform for building and hosting custom application

- Consumer manages the web application but not the middleware platform

- Examples include:

  - Salesforce.com

  - Facebook

  - IBM Smart Business

Infrastructure as a Service

- Cloud infrastructure is at the lowest service level

- Hardware resources are leased (CPU, RAM, Disk)

- Consumer manages OS and entire software stack

- Examples include:

  - Amazon Web Services

  - IBM Smart Business Development & Test
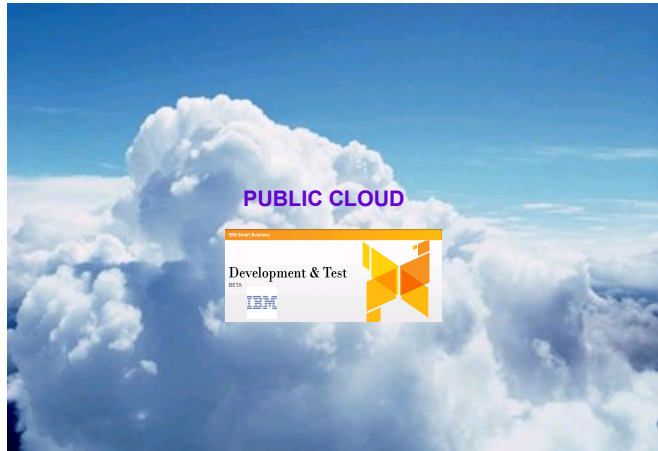
What are the types of Cloud infrastructure?

Public Cloud

- Hosted solution on 3rd party hardware and hypervisor

- Remotely accessible by both IBM and customer

- Allows for variable utility rate style charging model

- IBM Smart Business Development and Test Cloud (IBM DevTest Cloud) provides such a service

- (Not discussed) Amazon Web Services with IBM middleware images

Private Cloud

- Customer provide own hardware and hypervisors

- More secure and allows for more control over environment

- Must be skilled in managing hypervisors and virtual machines

- IBM CloudBurst is a pre-packaged out-of-the-box private cloud infrastructure

- (Additional) WebSphere CloudBurst Appliance (WCA) provides additional capabilities to manage large clusters of WebSphere Application Servers

PUBLIC CLOUD

Development & Test
BETA

PRIVATE CLOUD

IBM CloudBurst

PRIVATE CLOUD
+

WebSphere CloudBurst Appliance

Types of IBM Cloud Infrastructure offerings

Public Cloud: IBM Development and Test Cloud

- IBM hosted public cloud in IBM datacenter provided and supported by GTS

- Self service Web portal to configure and setup virtual machines

- Pricing model similar to Amazon Elastic Cloud Computing (EC2) utility based (hourly, network traffic, storage consumed)

- Additional cost depending on IBM product licenses:

  - Customer buys or brings own IBM product licenses to use in existing images

  - Customer rents on a utility basis for IBM product licenses to use in existing images

  - Free pre-release software trials (non-production use)

  - Free for eligible ISV/SI development use only

- Pre-defined images containing many of the popular IBM software
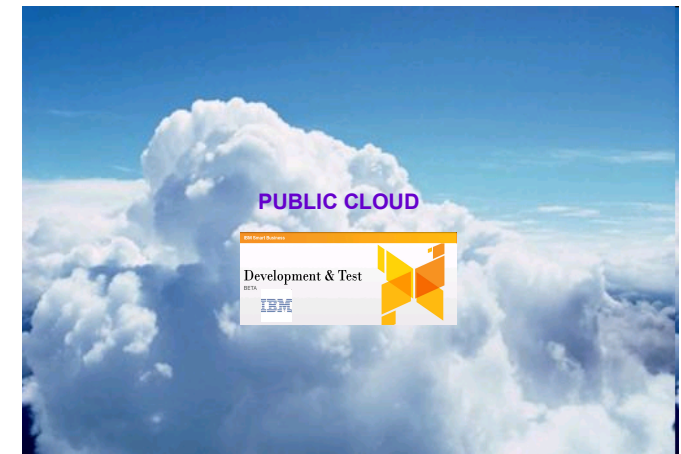
IBM Development and Test Cloud – Instance Creation

- Access online web portal interface via ibm.com site:

    - http://www-935.ibm.com/services/us/igs/cloud-development

- Generate private ssh key for login to a cloud instance

- Create an instance by selecting an image from one of the following catalogs:

    - Cloud Offering Catalog – Public catalog containing popular pre-defined VMs

    - Private Asset Catalog – Private assets containing VMs that you create

- Select the instance compute resources: Bronze (32/64-bit), Silver(32/64-bit), Gold(32/64-bit)

- Optional persistent storage independent from VM such as for DB: Small, Medium, Large

- Select an IP address or default system generated IP

- Additional parameters may be needed by software installed on the particular VM

- System is deployed and accessible via IP address and ssh key defined during instance creation

IBM Development and Test Cloud – References

- Information about the service and pricing options

    - http://www-935.ibm.com/services/us/igs/cloud-development/

- Good video describing the value of an enterprise cloud solution

    - http://www.youtube.com/watch?v=jnx_Erfn_K4

- Paypal demo showing instance creation via the web portal

    - http://www.youtube.com/watch?v=ZeIK0al2uvs

- Get started guide on DeveloperWorks

    - http://www.ibm.com/developerworks/cloud/library/cl-cloudstart.html

Private Cloud: IBM CloudBurst

- Complete IBM BladeCenter based hardware/software solution that provides an out-of-the-box private cloud infrastructure

- Includes initial on-premises training and setup by GTS

- Web 2.0 portal allows self-service administration and deployment of VMWare or KVM based images into the private cloud (uses Tivoli Service Automation Manager under the covers)

- Service Catalog provides a single repository for all cloud services where users can find and request the services they need

- Flexible pricing options for base, medium, and large cloud configurations

PRIVATE CLOUD

IBM CloudBurst

IBM CloudBurst – Requesting a new project

- Prerequisite: Assumes GTS preconfigured IBM CloudBurst and have predefined VMWare or KVM images

- Access IBM CloudBurst via default URL:

  - http://10.160.0.101/cloud/

- Initial dashboard shows new, active, completed, and failed projects

- Request new project link shows available resources (cpu, ram, disk, days avail)

- Select the reservation date based on available resources

- Choose from images that you previously created via VMWare or KVM

- Allocate resources for an instance and choose the quantity of VMs for the project

- Submit project request and e-mail is sent to admin for approval

- Admin can approve the project request which provisions the VMs for the defined duration

- Requester can access project listing details to show IP address of VMs available

IBM CloudBurst – References

- Primary product page

  - http://www-01.ibm.com/software/tivoli/products/cloudburst

- Information Center

  - http://publib.boulder.ibm.com/infocenter/tivihelp/v10r1/index.jsp?topic=/com.ibm.cb.doc_1.2/cloudburst_welcome.html

- Technical demo showing project request via web portal

  - http://www.youtube.com/watch?v=rcKt5gV5PN4

Private Cloud + WebSphere CloudBurst Appliance (WCA)

- WCA manages the deployment of WAS within the private cloud

- Customer buys and installs WCA similar to DataPower appliance

- WCA dispenses patterns containing HyperVisor Edition products

- WebSphere HyperVisor Edition (WS HVE) – Virtual Image OVF

  - WebSphere Application Server ND v6.1 or v7.0

  - Supported OS: SuSE or RedHat

  - Supported hypervisors: VMWare ESX, PowerVM, or zVM

  - Price options: Buy new license or upgrade WAS ND license

- WebSphere Process Server HVE v6.2 & v7, DB2 Enterprise v9.7 (trial), WebSphere Portal v6.1.5 (beta), more HVE to come!

- Intelligent Management Pack enables WebSphere Virtual Enterprise function within the cloud

PRIVATE CLOUD
+
WebSphere CloudBurst Appliance

WCA – Deployment pattern creation

- Prerequisite: Assumes WCA preconfigured and hypervisors (VMWare, PowerVM, zVM) already added to a Cloud Group

- Access WCA via default URL:

    - https://myCloudBurst_hostname

- Choose a pre-defined pattern, clone/modify an existing pattern, or create a new pattern

- Drag and drop pattern elements: Dmgr, JobMgr, AdminAgent, Custom Node, IHS, Standalone Node, etc…

- Modify each pattern element properties: CPU, RAM, passwords, etc…

- Add any custom script packages that need to run on each pattern element

- Deploy the pattern by selecting the Cloud Group containing available hypervisors that can run VMs

- WCA will determine which hypervisors with available resources best match pattern for deployment

- View the virtual system details for IP address and quick links to WAS Admin Console, VNC, or ssh terminal

WCA – References

- Primary product page

  - http://www-01.ibm.com/software/webservers/cloudburst

- Information Center

  - http://publib.boulder.ibm.com/infocenter/wscloudb/v2r0/index.jsp

- IBM Education Assistant with self guided videos

  - http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp?topic=/com.ibm.iea.cloudburstappliance/plugin_coverpage.html

- Customize with WCA series on DeveloperWorks

  - http://www.ibm.com/developerworks/websphere/techjournal/0907_amrhein/0907_amrhein.html
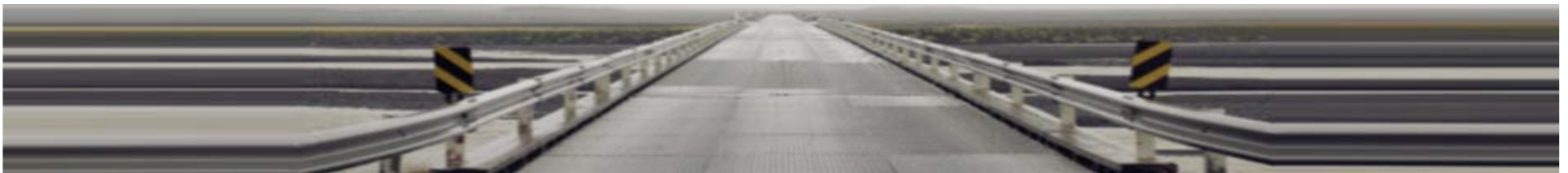
Why use the cloud

Customer problems

- Management of large heterogeneous environment is growing more difficult to manage

- IT costs are skyrocketing along with energy consumption

- Difficult to expand new environments to meet the growing demand by users

- Inefficient use of hardware resources results in lower productivity

- Single points of failure with no catastrophe plan

- Unable or unwilling to make configuration changes for fear of losing environment
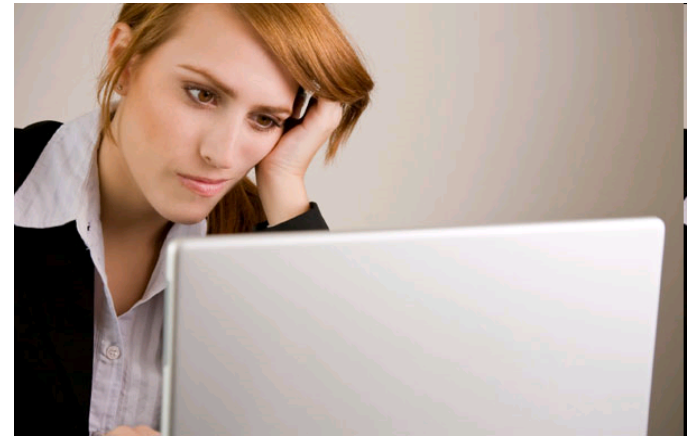
Cloud to the rescue

- Cloud management software is very sophisticated and can manage large deployments

- Hardware is efficiently utilized by persisting unused virtual machines and enabling virtual machines on demand

- The environment can easily scale up to meet new demand

- Catastrophes are mitigated by reloading production virtual machines from saved virtual images

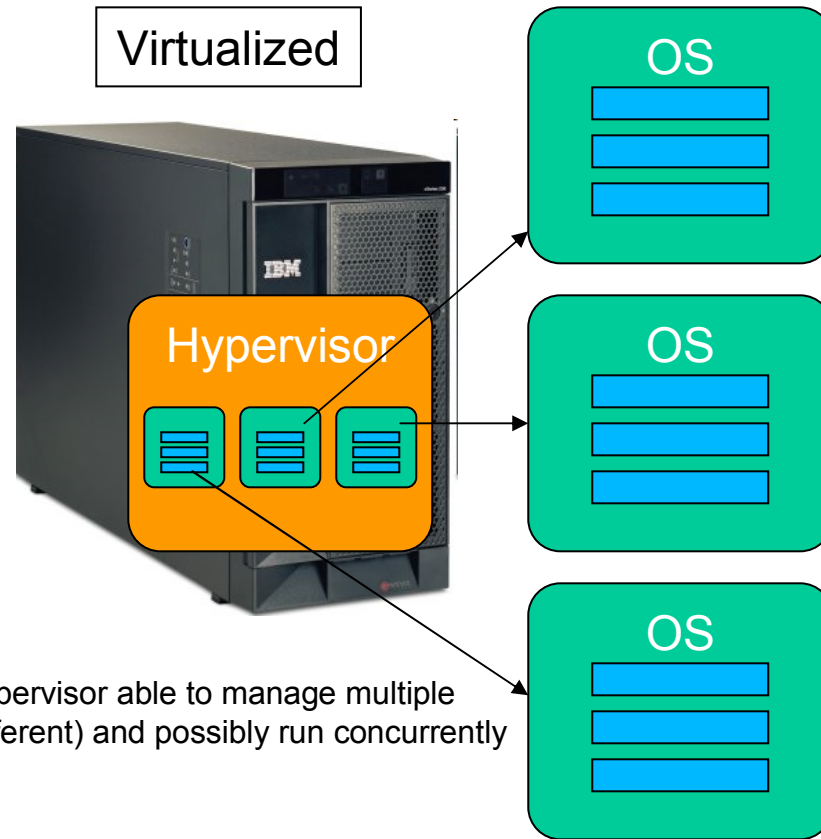- Snapshots are used to capture software configuration which allow for rollbacks if the configuration is corrupted
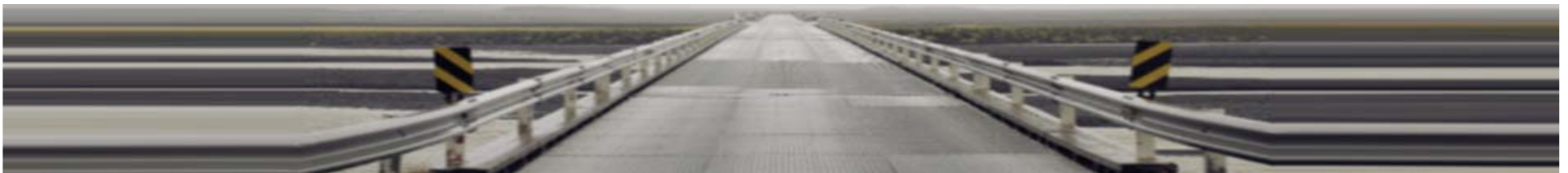
How is this different from a traditional setup?

Traditional

Virtualized

OS

OS

Hypervisor

OS

OS

OS

One OS hardcoded with software stack

One hypervisor able to manage multiple OS (different) and possibly run concurrently

Move or Clone

Hypervisor

OS

Hypervisor
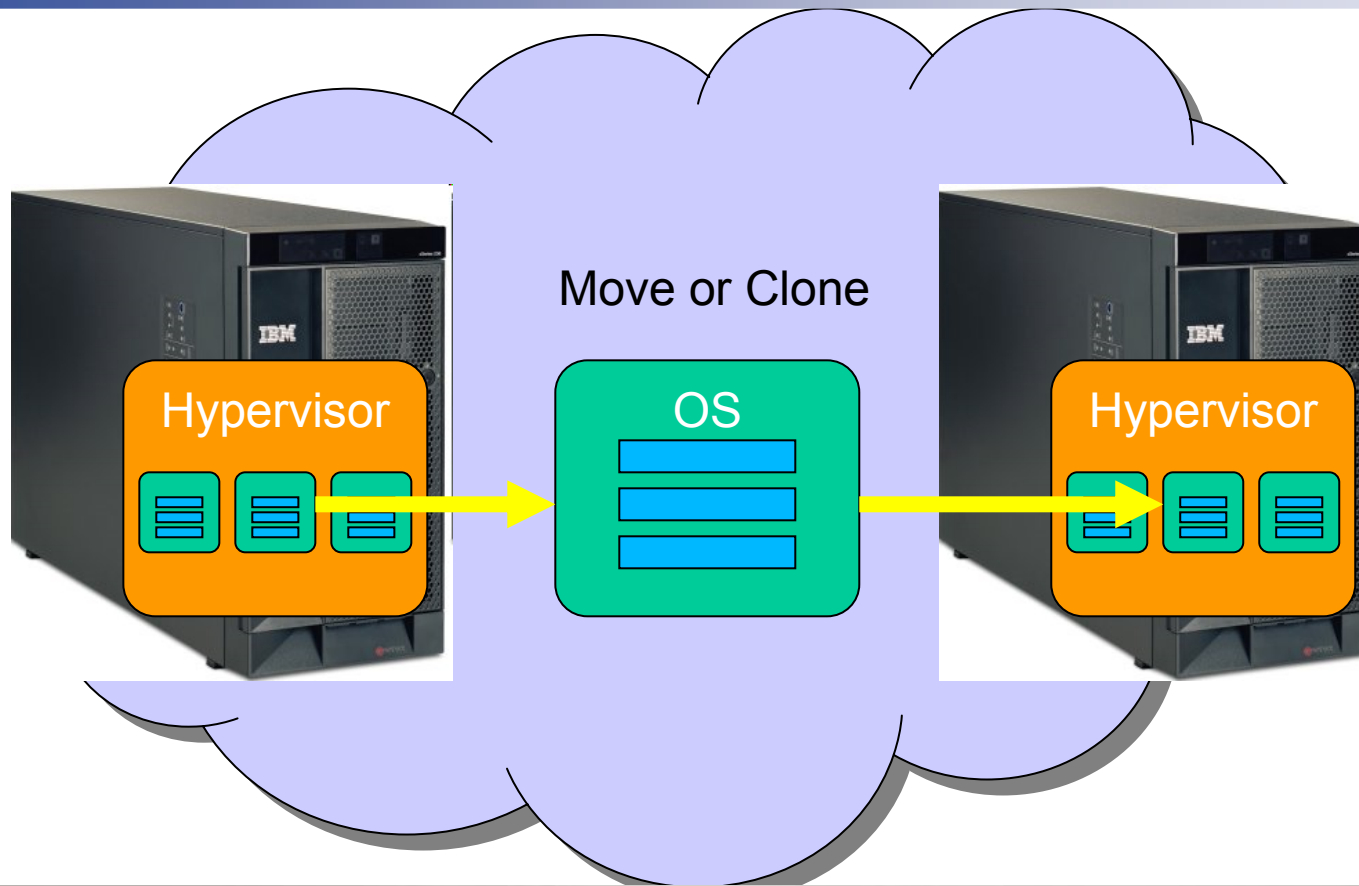
VM snapshots provide insurance against corruption

Snapshot   Modify & break

Rollback to snapshot
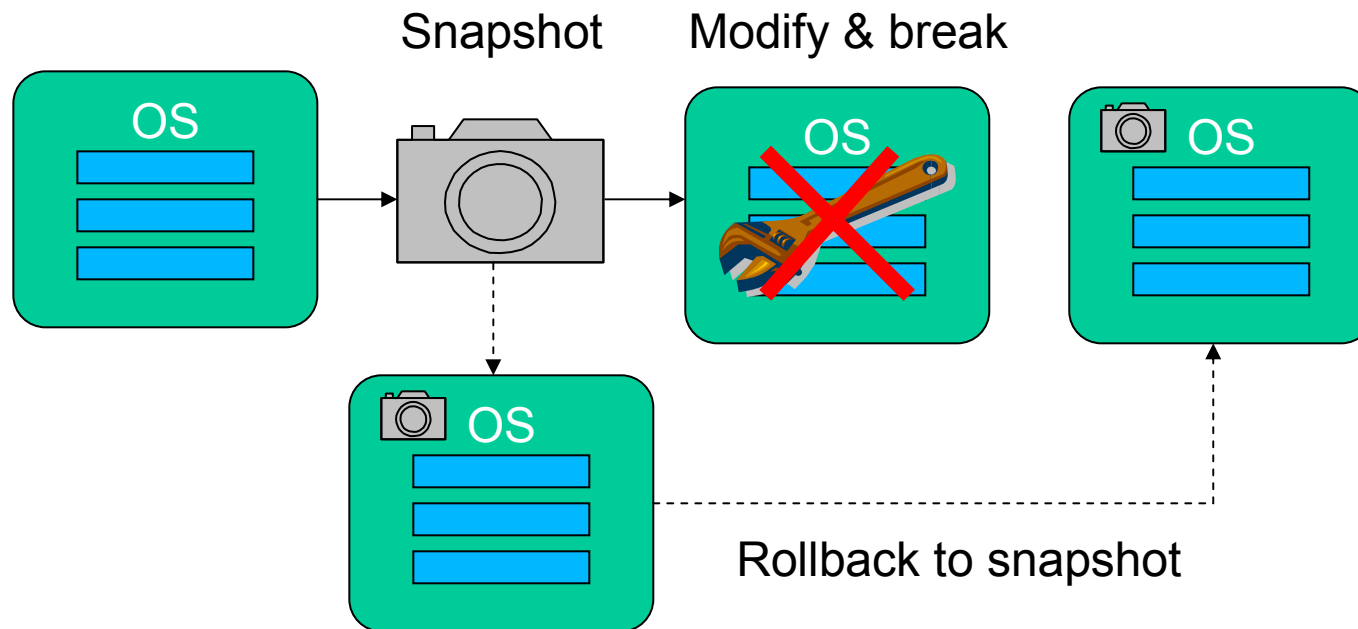
* Useful during development, test, and migration/upgrade

Dispense consistent Virtual Machines into the Cloud with the WebSphere CloudBurst Appliance

OS

WAS HVE

Hypervisor

Dmgr

Hypervisor

Free

Hypervisor

Free

Hypervisor

Node 1
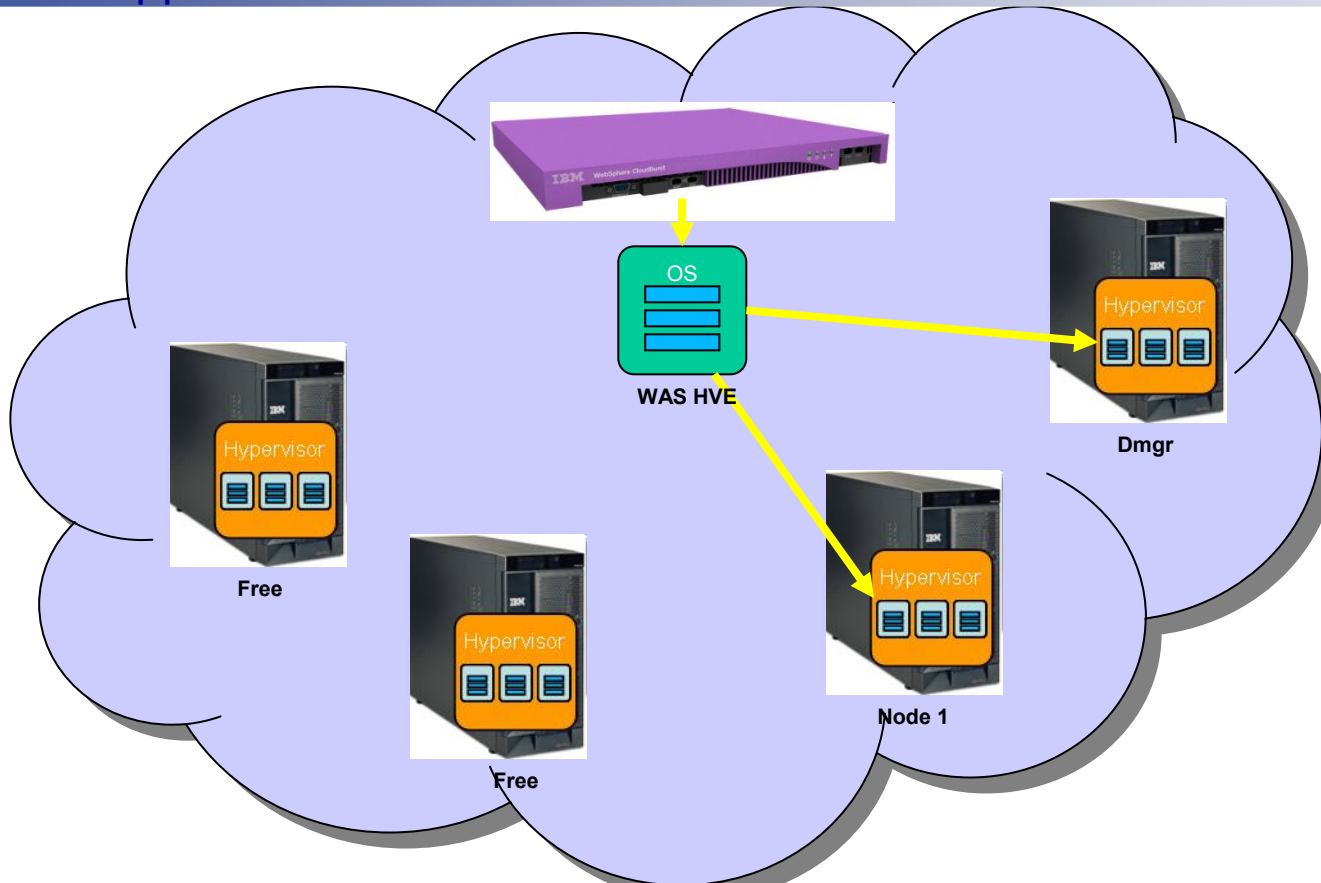
Scale up your environment by adding more capacity into your WAS Cluster

OS

WAS HVE

Hypervisor

Dmgr

Hypervisor

Node 3

Hypervisor

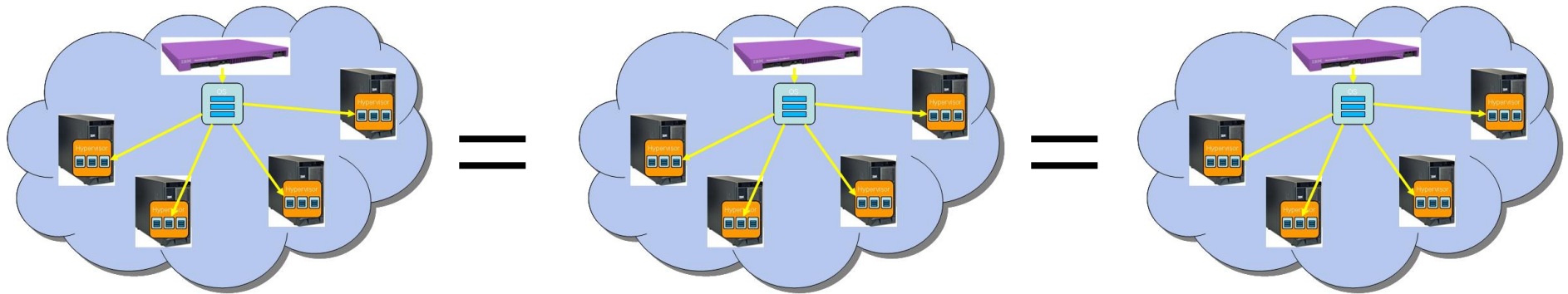WAS Cluster

Hypervisor

Node 1

Node 2
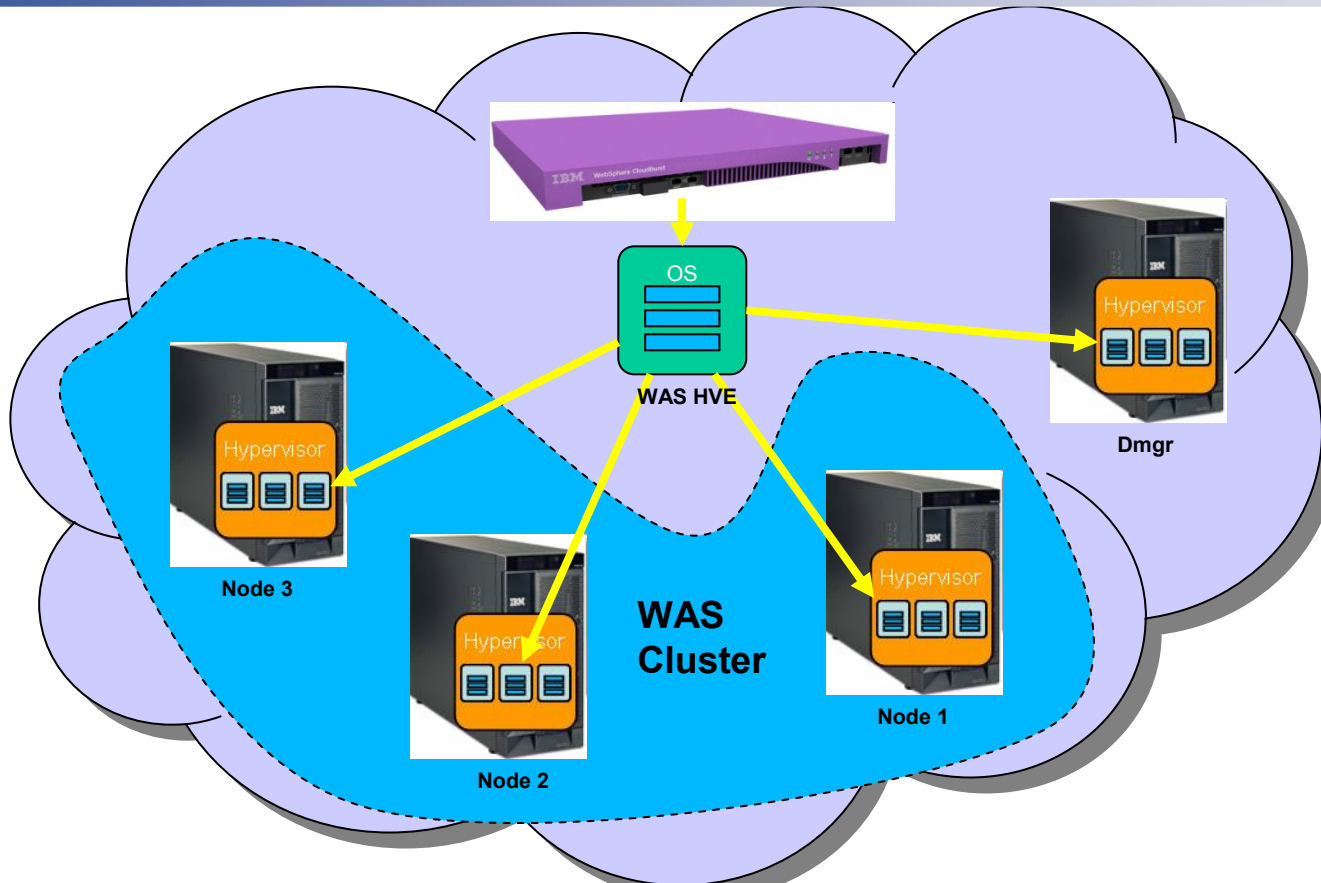
Consistency across all phases of the infrastructure

Dev/Test = Staging = Production
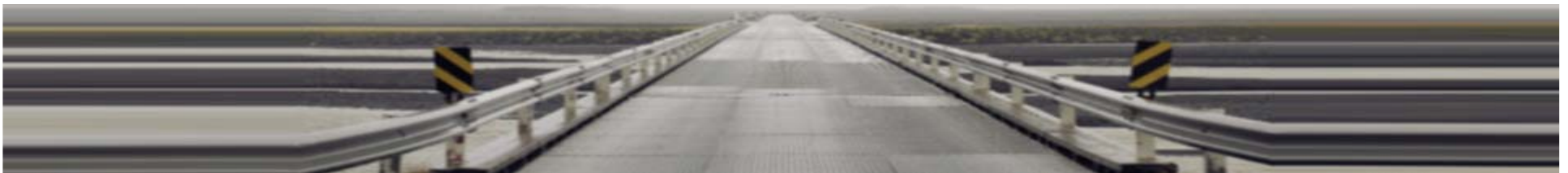
What can AVP do for you?

What can AVP do for you?

- Educate customer on cloud technologies specifically the WebSphere CloudBurst Appliance. Show what is provided and how to use it.

- Assess the existing environments. Learn about the existing software, the topology, deployment strategy, and test cases.

- Provide guidance on a plan to migrate from existing environments to a cloud based environment.

- Support the execution of the plan

- Provide long term support for software running within the cloud environment

Accelerated Value WebSphere CloudBurst Specialist

- Focused set of skills in the WebSphere CloudBurst technology

- Proactively engage the customer to understand Cloud goals and strategy

- Provides technical advice and best practices when planning for Cloud migration

- Helps you understand the different parts and pieces of a Cloud solution to ensure best fit

- Single point of contact to help escalate issues that may span multiple products in your Cloud solution

- Ensures that you have the best possible support for rapid and successful provisioning into the Cloud

Questions?