OpenStack on z Systems

Overview

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IBM Cloud: Open by Design

At all tiers, IBM is committed to building its cloud on an open cloud architecture

Products and services built on open source and open standards benefit IBM and customers alike
OpenStack Projects

Since the Liberty release of OpenStack

OpenStack Project Navigator: https://www.openstack.org/software/project-navigator/
OpenStack abstracts platform resources

OpenStack provides abstract resources:
- Compute
- Logical Networks
- Block Storage (Volumes)
- Object Storage

OpenStack users
- Manage abstract resources
- Does not need to understand the z platform

OpenStack admin
- Manages OpenStack and how its abstract resources map to the underlying resources on the z platform
- Has to understand the z platform
OpenStack ecosystem on the mainframe

- IBM Cloud Orchestrator
- VMware vRealize Automation
- Customer cloud automation
- Other vendor products
- IBM Cloud Manager w/ OpenStack
- SUSE OpenStack Cloud
- Ubuntu OpenStack
- Roll your own OpenStack
- Other OpenStack vendors
- KVM
- z/VM
- z Systems LinuxONE

(1) ICM has been withdrawn from marketing after ICM 4.3 (OpenStack Kilo)
Integration of resources into OpenStack

Showing just the three main resource types:

**Driver Interface**
- Plug point for drivers
- Defines driver operations
- Consumption oriented, not hardware management oriented

**Drivers**
- Implement driver operations
- Provide impedance match between resources and interface
- Handle resource-specific protocols, APIs, and data formats

**Resources**
- Compute
- Storage
- Network
OpenStack for z/VM - Overview

• Enabled since OpenStack Juno (10/2014) and z/VM 6.3

• OpenStack products:
  • IBM Cloud Manager with OpenStack (ICM) 4.2 (OS Juno) and 4.3 (OS Kilo)
    – ICM has been withdrawn from marketing after ICM 4.3
  • z/VM Cloud Manager Appliance (CMA) (OS Liberty)
  • SUSE OpenStack Cloud 6 (OS Liberty)

• More information:
  • z/VM OpenStack page:
  • z/VM Cloud Manager Appliance page:
  • Blog posts:
Example: SUSE OpenStack Cloud for z/VM

Horizon UI

OpenStack Controller Node (SLES on x86)
- Horizon
- Glance
- Ceilometer
- Keystone
- Neutron
- Nova
- Cinder

OpenStack Compute Node (SLES on x86)
- Nova
- Neutron
- Ceilometer

OpenStack Compute Node (SLES on x86)
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Guests:
- RHEL 6 & 7
- SLES 11 & 12

Horizon UI

IBM z Systems
OpenStack Liberty support for z/VM

- Available as of March 2016
- Includes:
  - OpenStack Liberty support
  - Ceilometer support
  - RHEL7 and SLES12 provisioning through OpenStack
  - Keystone v3
  - With Liberty FixPack 2, included HTTPS support for OpenStack REST APIs
- Liberty is the first release of the Cloud Manager Appliance that is not part of the IBM Cloud Manager with OpenStack product
  - The ICM deployer is not included
  - Cannot manage from z to other platforms
  - Only the xCAT GUI and Horizon GUI are included; evaluate your self-service portal needs to see if an additional OpenStack product is right for you
- The Chef server is not included
  - The Chef client and cookbooks are still included
OpenStack for KVM on z - Overview

- Enabled since OpenStack Kilo (4/2015)

- OpenStack products:
  - IBM Cloud Manager with OpenStack 4.3 (OS Kilo)
    - ICM has been withdrawn from marketing after ICM 4.3
  - Ubuntu OpenStack 16.04 (OS Mitaka)
    - Supported now with compute nodes on Ubuntu KVM
    - Upcoming: Support for compute nodes on KVM for IBM z Systems

- More information:
  -Canonical announcement for Ubuntu OpenStack on z:
  - ICM for KVM on z page:
Example: Ubuntu OpenStack for KVM on z

Horizon UI

OpenStack Controller Node (SLES on x86 / z)
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- Nova
- Cinder

Guests: Ubuntu

OpenStack Compute Node (Ubuntu KVM)
- Nova
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- KVM/qemu

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OpenStack Compute Node (KVM for IBM z Systems)
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Available

Coming Up