What's New in Newton

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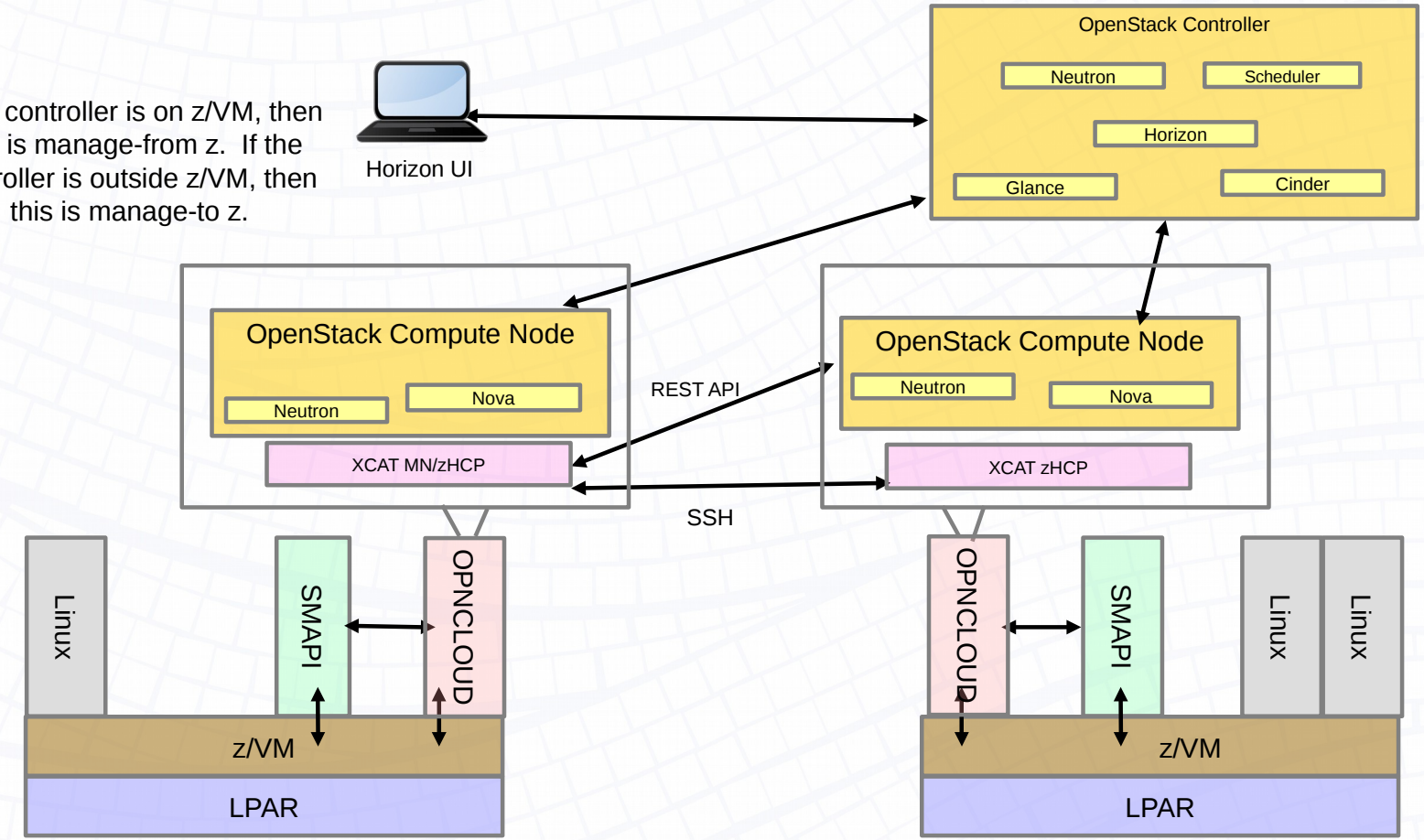
IBM's z/VM Cloud Stack approach

1. z/VM drivers provided to the OpenStack community
   - z/VM drivers are currently open source, part of the OpenStack namespace and developed in the open.
     - Nova
     - Neutron
     - Ceilometer
   - Actively working with the OpenStack community to get our drivers accepted, this means devoting team members to helping the community, working on Continuous Integration system, etc

If the controller is on z/VM, then this is manage-from z. If the controller is outside z/VM, then this is manage-to z.



IBM's z/VM Cloud Stack approach

2. Cloud Manager Appliance
   - Single guest that includes xCAT and OpenStack distro
     - All necessary pieces of OpenStack are included to be an OpenStack Compute Platform (compute, network, block storage, identity, orchestration, etc)
   - Included with z/VM, no separate fees for service and support
   - Allows customers to try out cloud, without risk
   - Can only manage z/VM, can be integrated as part of a larger solution
     - When running it as xCAT, can be part of SUSE OpenStack Cloud 6
     - When running as xCAT+OpenStack, can be part of VMWare vRealize or IBM Cloud Orchestrator
     - CMA can only manage z/VM
   - Cloud enablement solution
     - Works in conjunction with hypervisor management tools

CMA Liberty – March 2016

- Provides a migration path from ICM solution to CMA
  - Makes sure no customers are left behind
  - RHEL7 and SLES12 provisioning through OpenStack images
  - OpenStack Keystone v3

z/VM 6.4

6.4 ships with the CMA Liberty appliance
Remove ZHCP userid
Change XCAT userid to OPNCLOUD
Change the configuration files to a model using IMBED files instead of the LOCALMOD process (which can be painful in an SSI environment)
Document process for Alternative Deploy Provisioning (cloning via OpenStack)

Alternative Deploy Provisioning

- Allows you to make an exact copy of a guest (cloning)
- Looks like a regular deploy from image to OpenStack
- Can use Flashcopy (if available) for a super-fast deploy
- Some restrictions:
  - Must have your own networking that's provisioned on the guest as it IPLs the first time
  - Snapshot and resize OpenStack functions are not allowed
- Detailed instructions available in Chapter 8 of the Enabling zVM for OpenStack book

Alternative Deploy Provisioning

- Setup steps:
  1. Create a dummy image, subnet and flavor in OpenStack
     1. The dummy image is first created via a special xCAT script, then uploaded into OpenStack
     2. The dummy subnet and flavor can have any attributes, they are not used
  2. Unlock the master virtual machine to the CMA - exchange keys
  3. Create a DOCLONE COPY file on the MAINT 193 disk
     1. The name of the dummy image, which virtual machine to copy, and what pool of DASD to use
  4. Upload the DOCLONE COPY file to the CMA via a provided script

```
 DOCLONE  COPY     B1  F 80  Trunc=71 Size=2 Line=0 Col=1 Alt=0

00000 * * * Top of File * * *
00001 /* imgflash uses FlashCopy to create the cloned disks. */
00002 IMAGE_NAME=flashclone; CLONE_FROM=clons198; ECKD_POOL=POOL1;
00003 * * * End of File * * *
```

CMA Newton

The current major release of our appliance is OpenStack Newton
Released on January 20, 2016 for z/VM 6.4 only

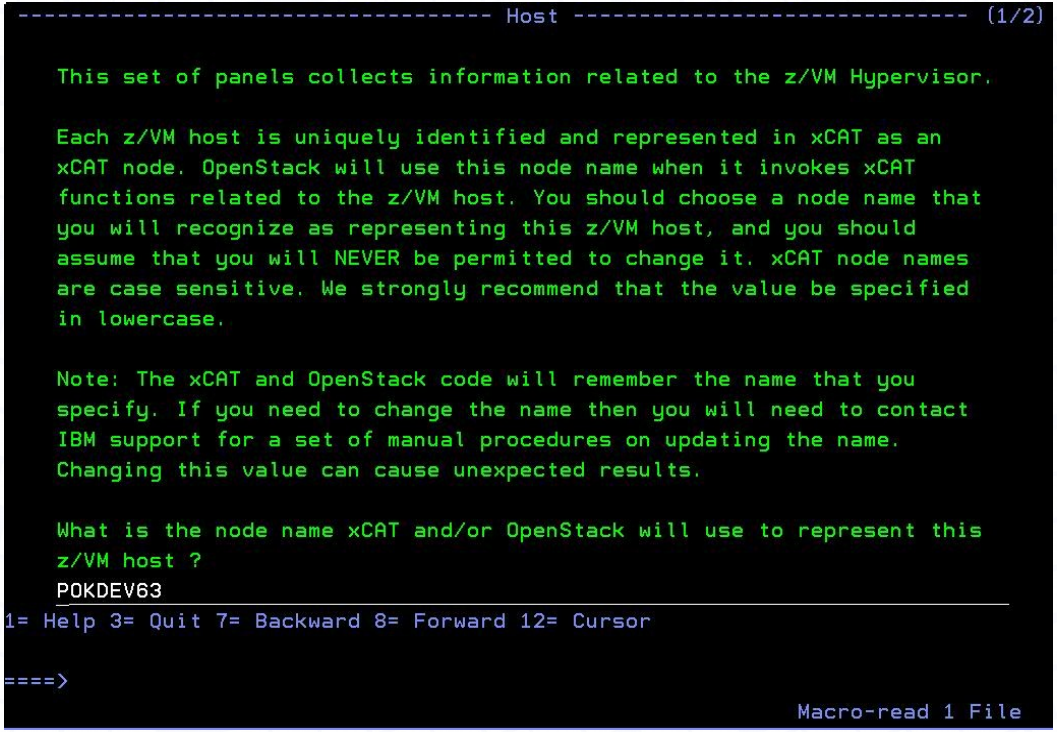
- Major items
  - Logging enhancements
  - Ubuntu guest support
  - Switch to IUCV instead of SSH as the communication path between CMA and the guests
  - Installation simplification
  - Continued OpenStack community support
  - Ongoing security support

Installation Simplification

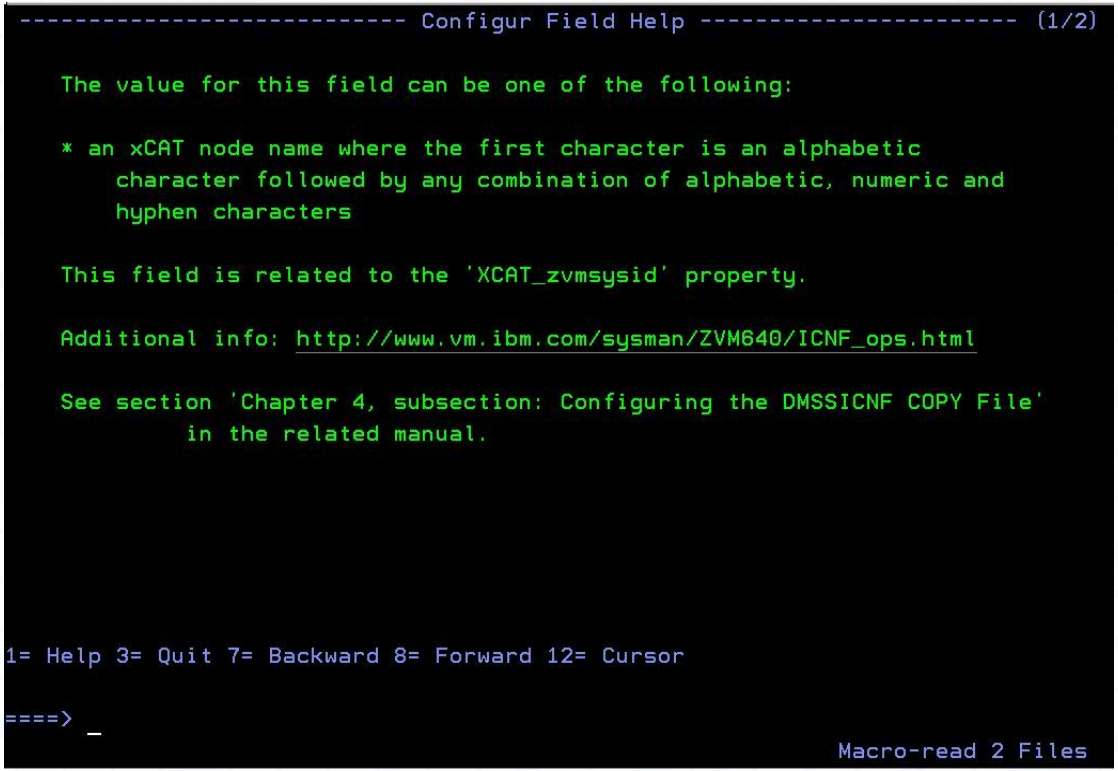
CONFIGUR wizard to help guide you through the DMSSICMO and DMSSICNF files

- Can also check to see that installed service is up to date
- Can work on the MAINT 193 disk files, or a local disk version
- Options to save progress, or only do a stripped down version of the wizard without so much explanation.

Installation Simplification



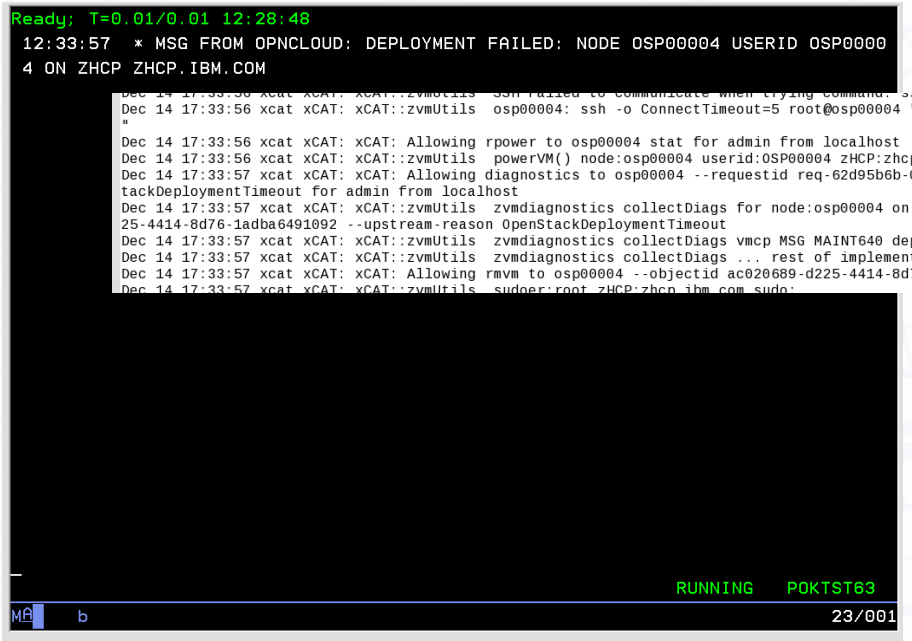
Installation Simplification



Logging and serviceability enhancements

- Installation Verification Program runs automatically every hour
- Will send results to the notify ID if problems detected
- Standardized error messages on CMA startup, if there are errors in the config files
  - Also cleaned up extra messages to the console on CMA startup
- Laying the groundwork for future improvements
  - Passing down the request ID from OpenStack to xCAT to be able to group together all calls associated with that transaction
  - When a userid fails to deploy, message notify ID

Logging and serviceability enhancements



- Log shown is /var/log/messsages
- Additional log entries are in /var/log/nova/nova-compute.log if debug logging is on

Ubuntu Guest Support

- Support for Ubuntu 16.04
  - Does not include boot from volume support
  - Instructions also included in Chapter 6 of the Enabling Guide on how to create a deployable image
  - This enables more support in OpenStack than using the Ubuntu provided images
- Support for OpenStack deploys of Ubuntu only
  - Like RHEL7 and SLES12, xCAT deploy support is not available yet

IUCV for Guest → CMA communication

- Inter User Communication Vehicle is a z/VM only method of communicating between guests. It requires a script to run on the guests to handle the data, and directory authorization for the client.
  - No hardware or key exchanges needed
- When possible, use IUCV instead of SSH to communicate between deployed guests and the CMA
  - Exceptions:
    - Guests were not created with the new xcatconf4z activation engine
    - Discovered guests
    - Alternative Deploy Provisioned (cloned) guests
- This is true for both OpenStack and xCAT deployed guests
- If you had existing guests, they should be migrated to the new IUCV communications as part of the Newton migration

IUCV for Guest → CMA communication

- When all guests use IUCV, the administration network between guests and the CMA will not be needed
- This means that guests need no IP connectivity for the control plane, which allows for better network isolation and true VLAN support
  - openstack_xcat_mgt_ip and openstack_xcat_mgt_mask properties
  - in the DMSSICMO COPY file will be deprecated
- Check out the IUCV client and server code to see how this works
  - Github link: http://bit.ly/2gMgLhX
- The OPNCLOUD id now has an “IUCV ANY” statement in its directory entry

Community relations

- Working to develop xCAT fully in the open.
  - The zhcp code is done and is built from github
  - Still working on the xCAT mn code, merging it with the current
  - upstream codebase
  - Github link to both repositories
  - https://github.com/zVMopenstack
- Console log support for OpenStack
  - Community required function to integrate into nova project
  - You must add the directory statement COMMAND SPOOL CONS * START to the OSDFLT SAMPPROF file on the MAINT 193 disk to enable this
  - Available through the “Log” tab on the instance

What's next

- CMA Liberty will continue to be supported with security APARs
  - On 6.3 – until End of Service
  - On 6.4 until July 20, 2017
- CMA Newton
  - Planning fixpacks as well as security APARs
  - Known issues we plan to address
    - Boot from volume support
    - IUCV support for cloned and discovered guests
- Next OpenStack release we plan to update CMA for is Pike
  - OpenStack Community Pike will come out sometime late summer/early fall 2017
  - CMA Pike will be sometime after that

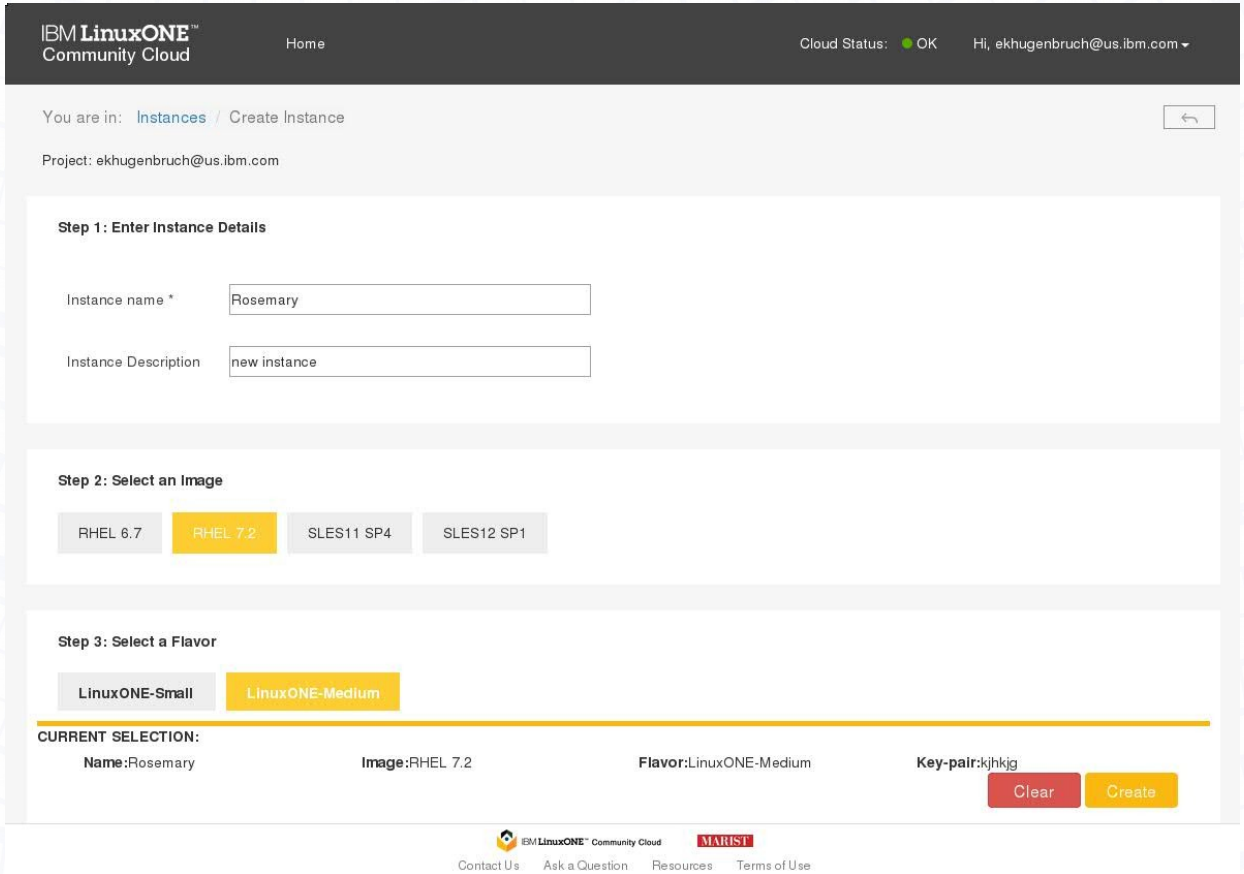
SUSE OpenStack Cloud 6

- Provides support for clouds stretched across multiple platforms (z/VM, VMWare, KVM, Xen, Hyper-V, Docker)
- Simplifies OpenStack installation and configuration, as well as application deployment
- Provides High Availability for controller node, as well as some types of compute nodes
- SUSE OpenStack Cloud 6 (Liberty) provides functionality to manage z/VM from an x86 environment.
- SUSE OpenStack Cloud 7 (Newton) will provide functionality to manage z/VM from a z Systems environment
- 60 day free trial! https://www.suse.com/products/suse-openstack-cloud/

- Starting an OpenStack Cloud Consortium under the Open Mainframe Project
- Bringing together customers, business partners and IBM to work jointly on:
  - Use cases and reference architecture for OpenStack on z Systems
  - Driving innovation in our drivers, defining what OpenStack means on the mainframe
- Currently looking for more customers interested in telling their Mainframe OpenStack story
- Watch the Open Mainframe Project blog and wiki for more information!
  - https://www.openmainframeproject.org/blog/2016/11/09/352

IBM LinuxONE™
Community Cloud

- Partnership between IBM and Marist University that provides a 120 day free trial of Linux running on z/VM to anyone who wants one
  - Aka: Public Cloud
- Uses the z/VM Liberty CMA support to control their cloud
  - Wrote their own portal that calls OpenStack APIs that's tailored to their needs
  - Supporting hundreds of machines on just two z/VM systems
- Allows IBM to highlight new projects they're getting involved with – includes how to set up Blockchain or Apache Spark. We hope this encourages new open source developers on z Systems.
- Try it out! https://developer.ibm.com/linuxone/


IBM LinuxONE™ Community Cloud
Home
Cloud Status: OK
Hi, ekhugenbruch@us.ibm.com
You are in: Instances / Create Instance
Project: ekhugenbruch@us.ibm.com
Step 1: Enter Instance Details
Instance name *
Rosemary
Instance Description
new instance
Step 2: Select an Image
RHEL 6.7
RHEL 7.2
SLES11 SP4
SLES12 SP1
Step 3: Select a Flavor
LinuxONE-Small
LinuxONE-Medium
CURRENT SELECTION:
Name:Rosemary
Image:RHEL 7.2
Flavor:LinuxONE-Medium
Key-pair:kjhkjg
Clear
Create
IBM LinuxONE™ Community Cloud
MARIST
Contact Us
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References

- Webpage
  This is where you'll find links to the latest service information and books
  http://www.vm.ibm.com/sysman/osmntlvl.html
- Wiki for OpenStack support on z/VM
  This is where we'll put doc updates, tips and tricks, etc
  http://ibm.co/2lk9KHO
- Blog where one of our dev leads puts tips and tricks
  http://ibm.co/2kT9izI
- Newton support announcement
  http://bit.ly/2l8VwaE

Thank You

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