Apache CloudStack™ Collab conference of 2019 on April 26th in Florianopolis, Brazil.

Mastering CloudStack monitoring, debugging, and logs gathering

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About me

- Gabriel Beims Bräscher
- Bachelor & Master of Science in Computer Science (UFSC)
- Open source enthusiast
- 2013 - First time using CloudStack (CloudStack 4.1.0)
- 2017 - Apache CloudStack Committer
- 2019 - Release Manager for the Apache CloudStack 4.12.0.0 version

Summary

- Introduction
- CloudStack Components
- Some Examples
  - Template Registration
  - Deploy VM
- Components troubleshooting details
  - System VMs
  - Hypervisors
  - CloudStack management
- Conclusion

Introduction

- CloudStack connects and orchestrates multiple devices
  - Network
  - Storages
  - Hosts
 - System VMs
  - CloudStack management
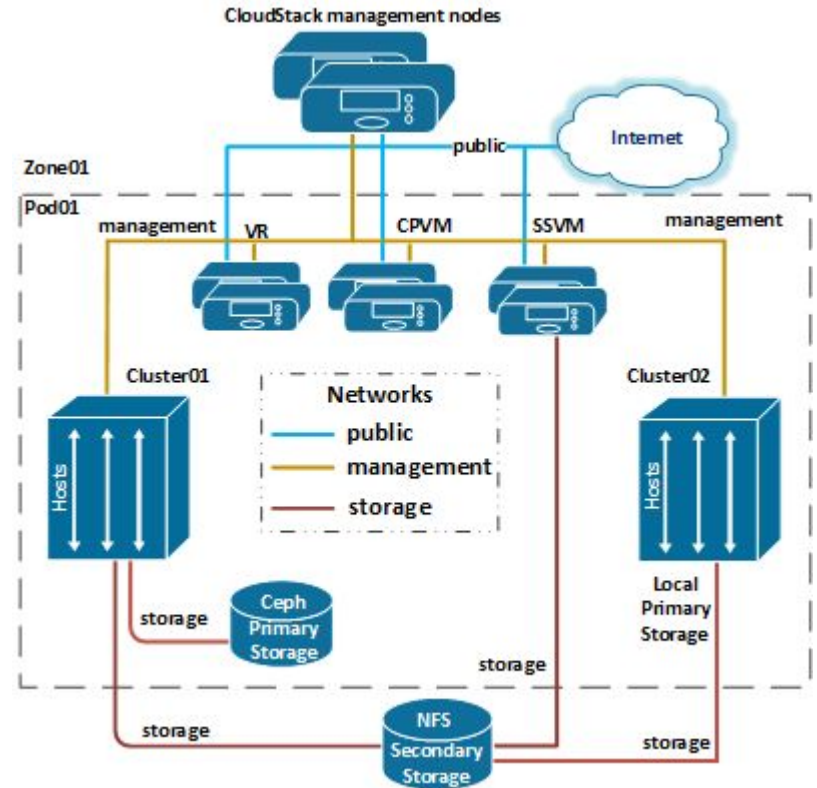
Introduction

- CloudStack connects and orchestrates multiple devices
- Troubleshooting skills is crucial for quickly identifying and addressing issues
  - Fail to start VM
  - Error during new VM template registration
  - Cannot migrate VM to another host
  - Storage write/read is slow
 - Insufficient capacity
  - etc...

CloudStack Components

- Network
- Primary Storage
- Secondary Storage
- Hosts
- Virtual Routers (VR)
- Console Proxy VMs (CPVM)
- Secondary Storage VMs (SSVMs)
- CloudStack management nodes
- CloudStack database nodes
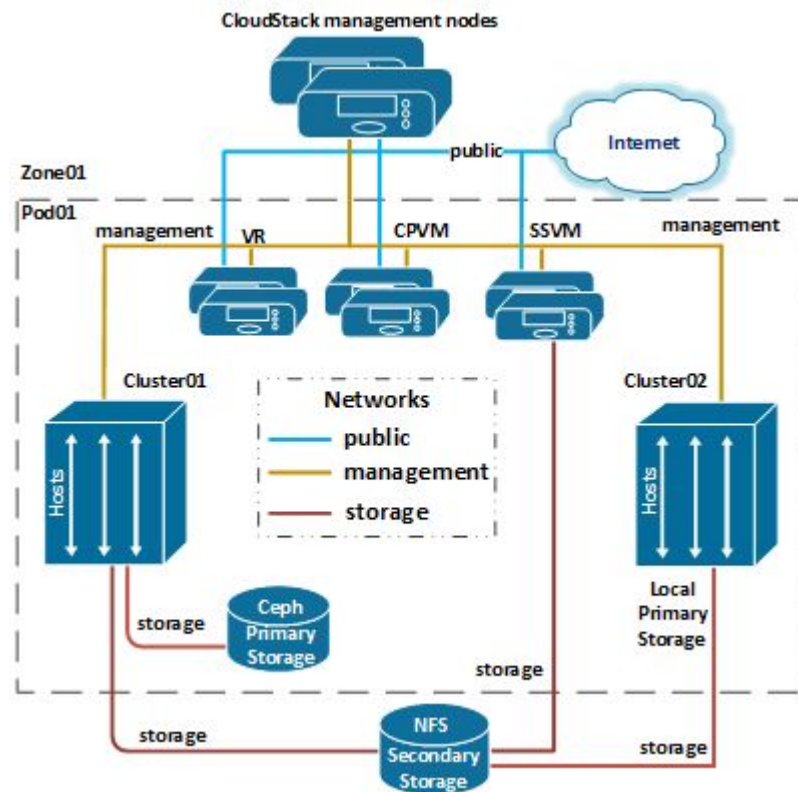
Register template

1. Register template command
2. Allocate DB entry for the template
3. Download to secondary storage
4. Update DB entry with 'ready' status
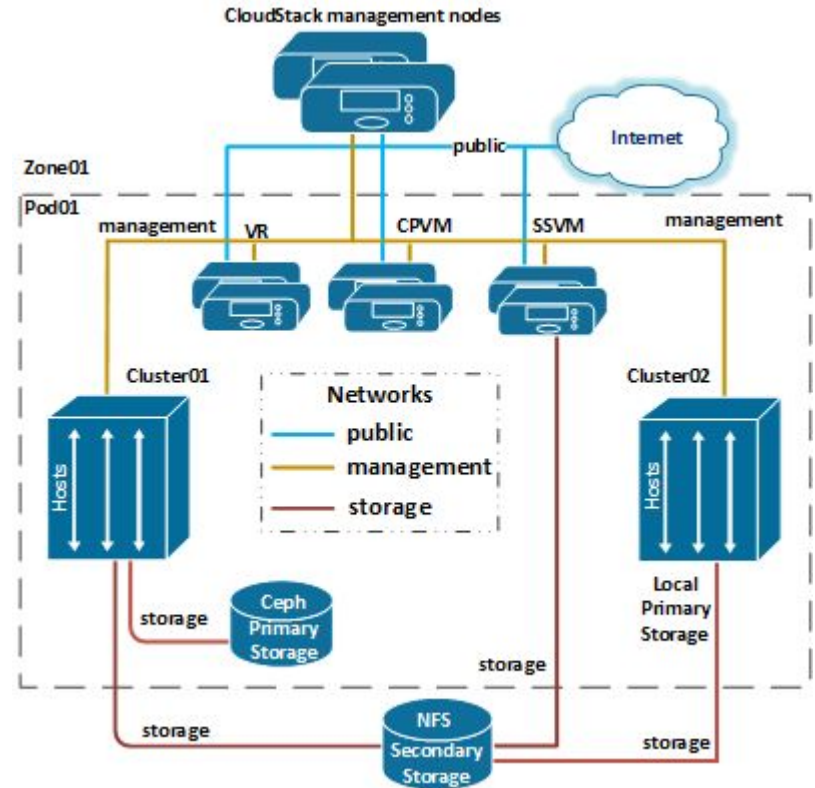
Deploy VM

1. Deploy Virtual Machine command
2. Assign IP address(es) for VM
3. Check if ROOT volume is ready
4. Find suitable hosts
5. Find storage pools for the VM volume
6. Allocate volume on target storage pool
7. Copy template to primary storage
8. Start VM on target host
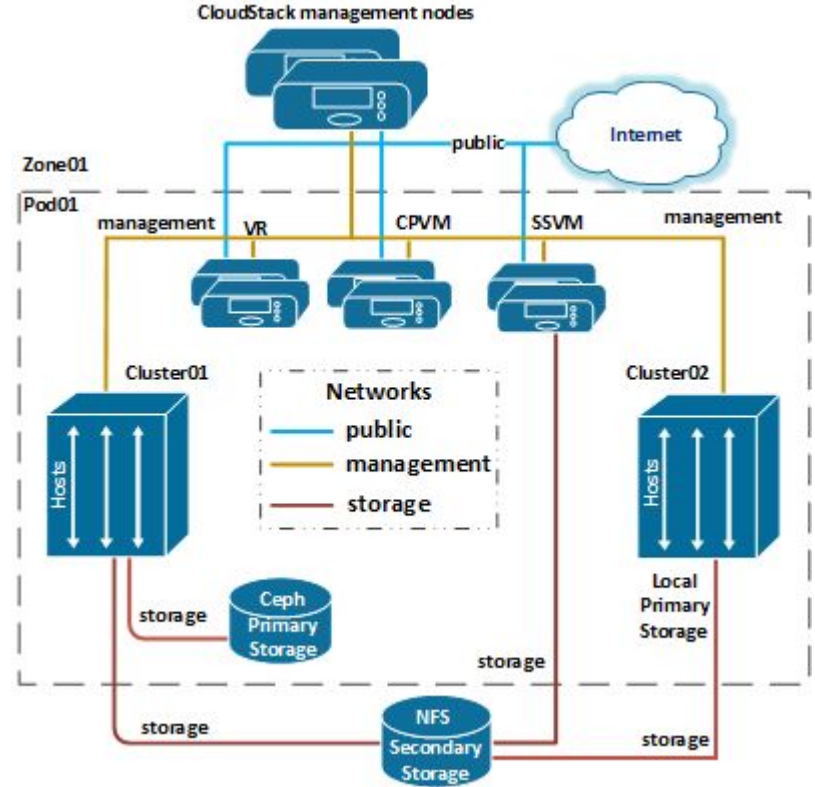
CloudStack management

- ## Management logs
  ```
  /var/log/cloudstack/management/management.log
  ```

- ## Enable debug mode
  ```
  <category name="org.apache">
      <priority value="INFO"/>
  </category>
  <category name="org.apache.cloudstack">
      <priority value="DEBUG"/>
  </category>
  ```
- **Ports:** 8080 (API), 8096(Unauthenticated Access), 8250(System VMs), 9090 (cluster), 45219 (JMX console)

System VMs

- ## Storage System VM
  - ### Run the SSVM health check script `/usr/local/cloud/systemvm/ssvm-check.sh`
    1) network connectivity 2) status of secondary storage 3) ability to write to secondary storage 4) connectivity with management server at port 8250 and 5) status of java process.
- ## All System VMs (SSVM, CPVM, VR)
  - `/var/log/cloud.log`
  - `/var/log/cloud/cloud.out`
  - `Check if the cloud service is running ~# service cloud status`
  - `ssh into System VM with cloudstack-ssh 169.254.0.224 (from KVM), Or`
    `ssh -i /var/cloudstack/management/.ssh/id_rsa -p 3922 root@Private IP (any hypervisor)`
- `Ports 3922 and 8250`

Hypervisors

- **XenServer**
  ```
  /var/log/messages
  /var/log/xensource.log
  /var/log/SMlog
  Ports: 22, 443, 8250
  ```
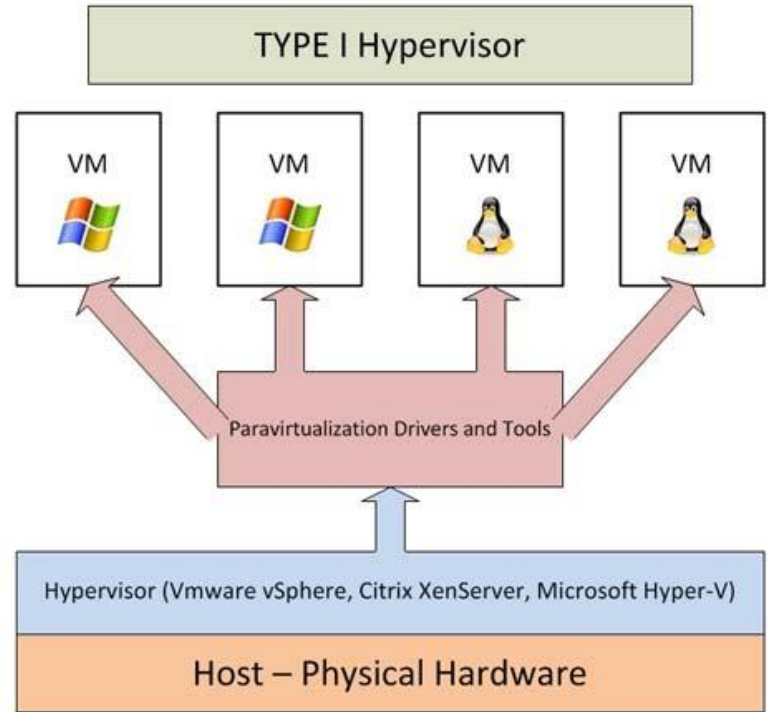- **KVM**
  ```
  /var/log/cloudstack/agent/agent.log
  Ports: 22, 16509, 16514, 8250, 1798,
  5900-6100, 49152-49216
  ```
- **vSphere**
  ```
  /var/log/hostd.log
  /var/log/vpxa.log
  Ports: 443, 8250
  ```
- **Hyper-V**
  ```
  /var/log/cloudstack/agent/agent.log
  Ports: 8250
  ```

Conclusion

1. Keep calm
2. Start by the CloudStack management server logs
3. Enable Debug logging
4. Read the logs looking for Errors and Exceptions
5. Debug following all the stacks
6. Keep annotations on each step and be able to reproduce

Thank you!

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Apache CloudStack Committer
The Apache Software Foundation
https://www.apache.org/
https://cloudstack.apache.org/