

FUT7534

# SUSE® Cloud Roadmap:

Becoming the Inside Cloud Service Provider



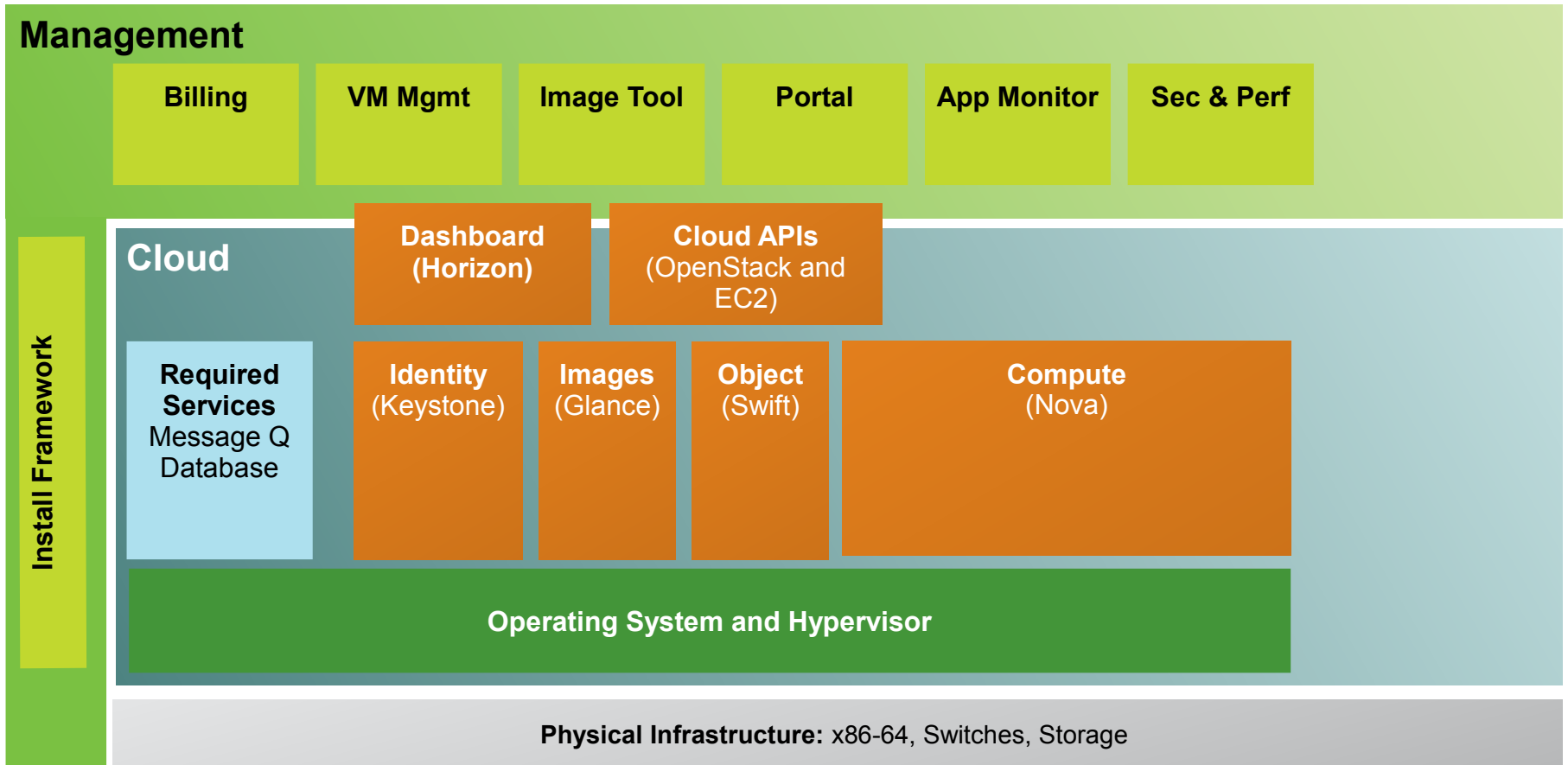
# Promise of Private Cloud Computing



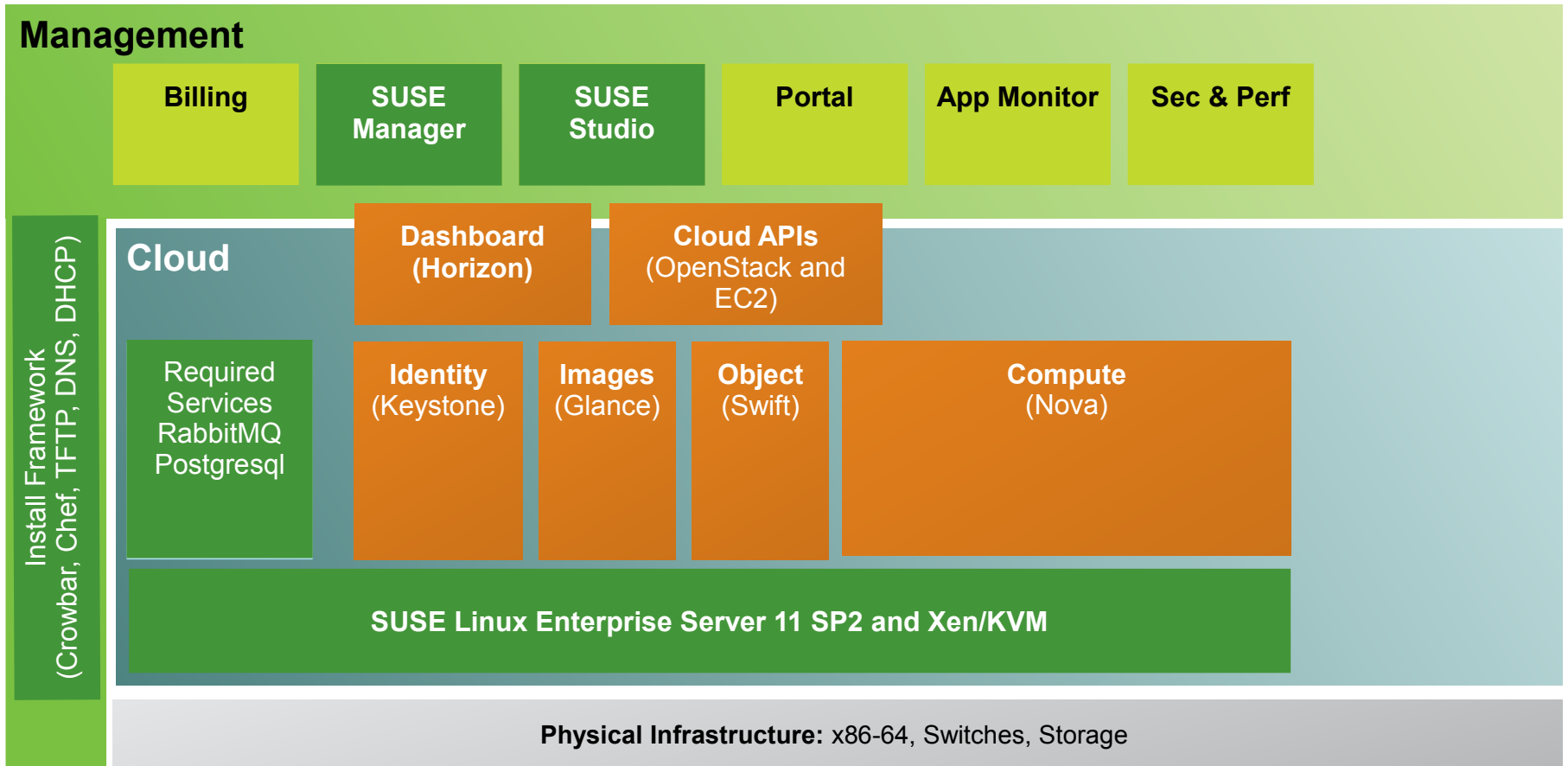
- Lower Costs
- Increased Agility
- Greater Control and Security

Back to the Future

# OpenStack Essex

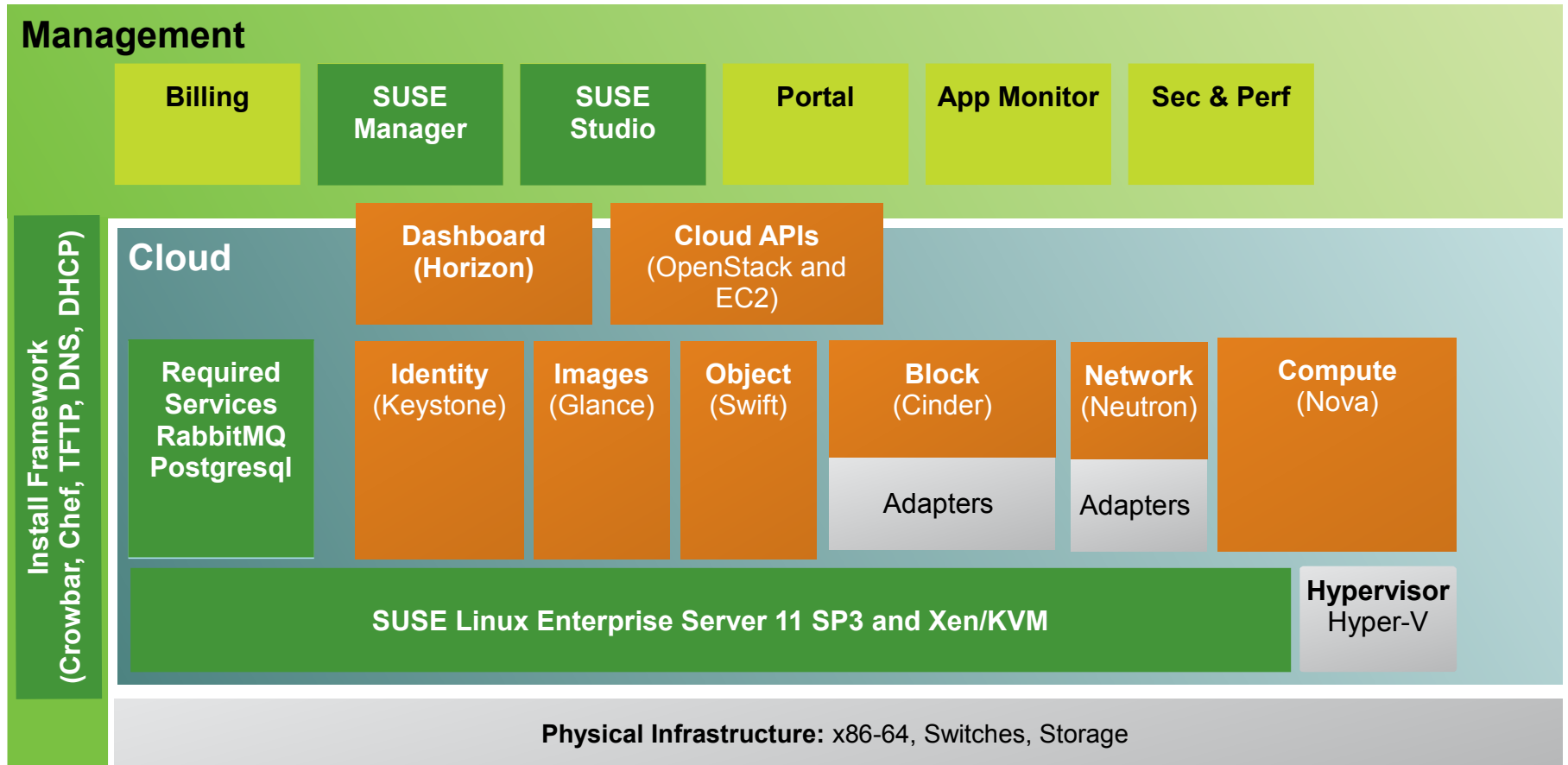


# SUSE Cloud 1



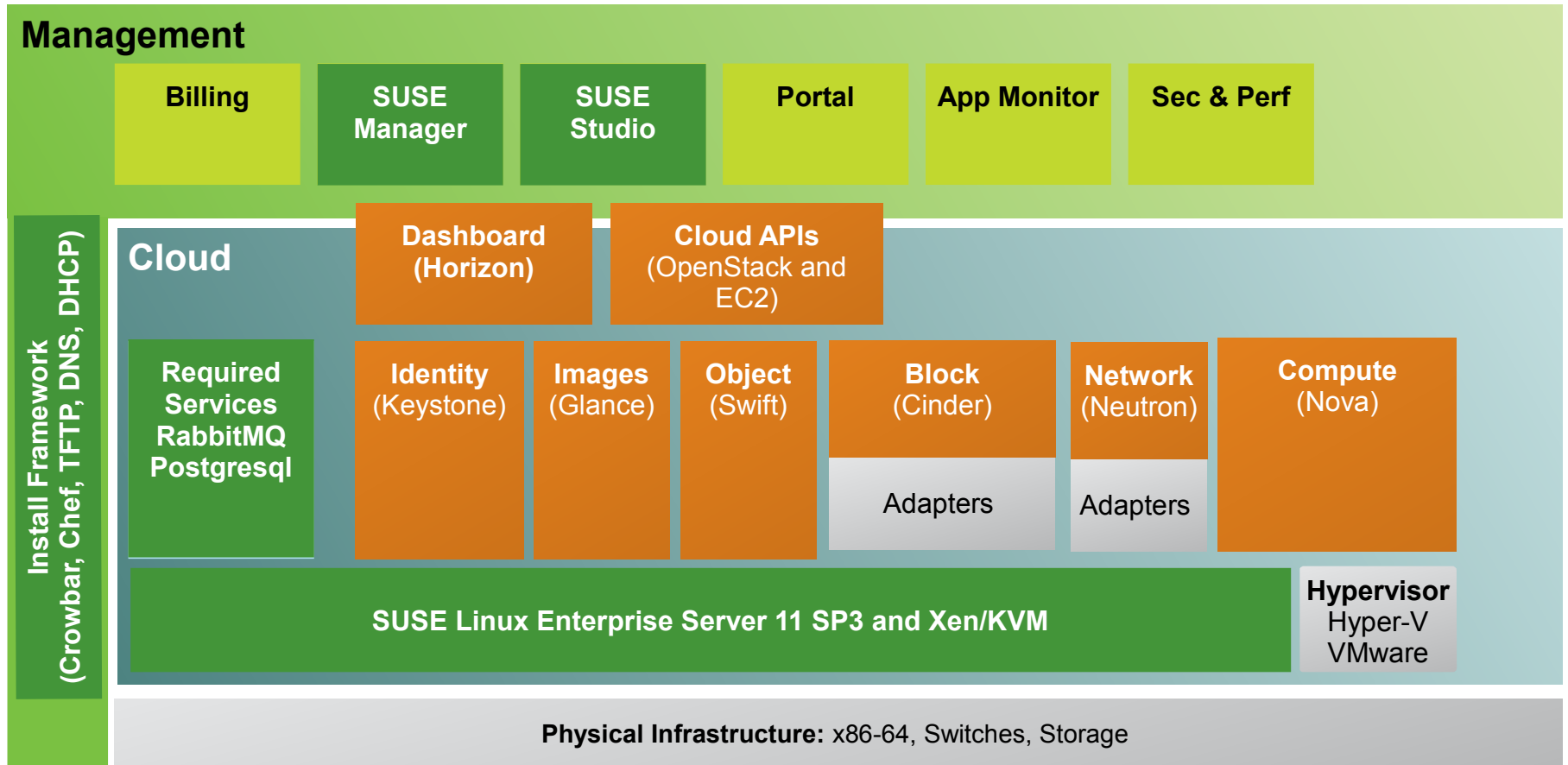
- OpenStack Essex
- 3<sup>rd</sup> Party Tools
- SUSE Product
- Partner Solutions

# SUSE Cloud 2



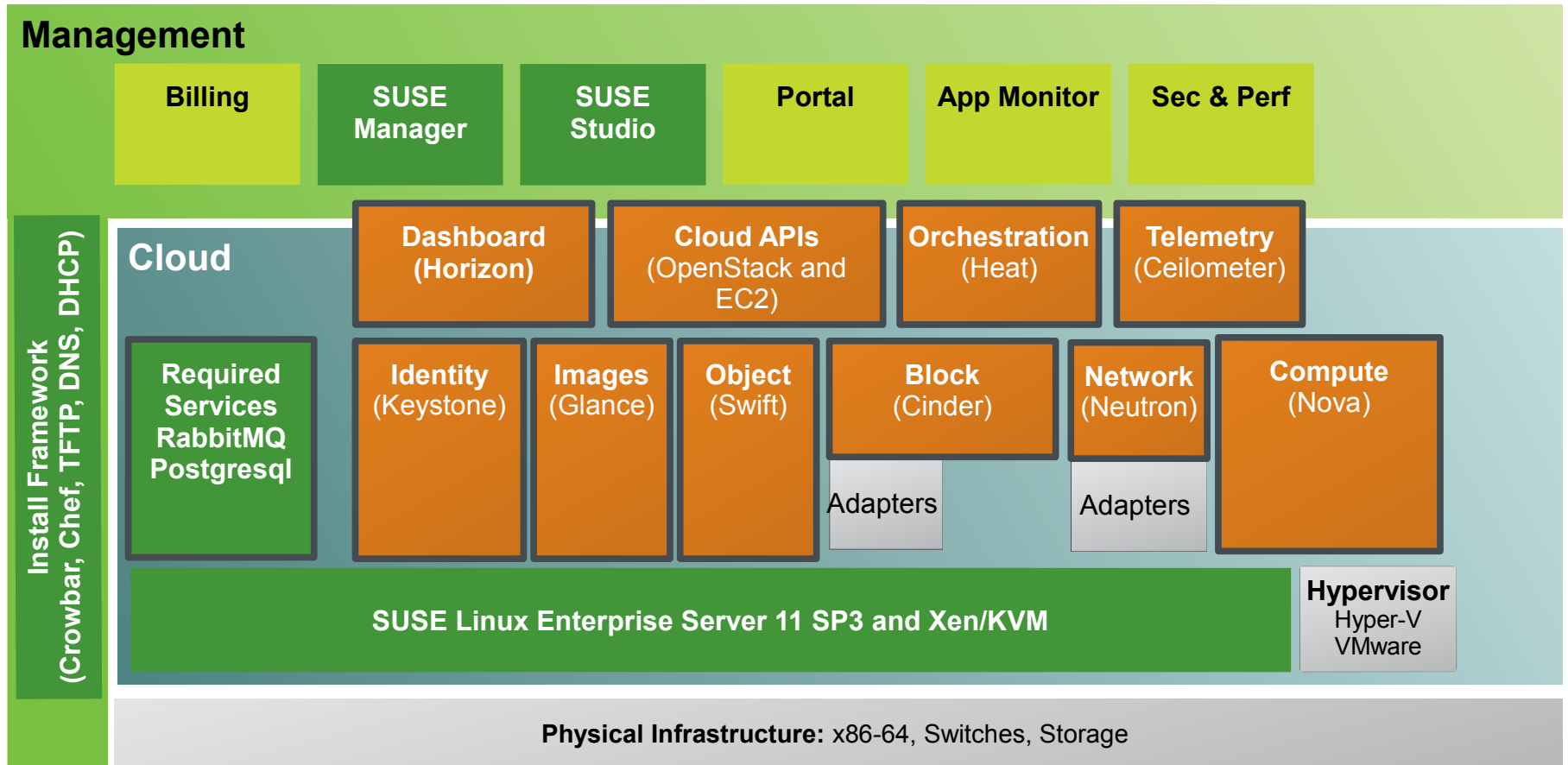
- OpenStack Grizzly
- 3<sup>rd</sup> Party Tools
- SUSE Product
- Partner Solutions

# SUSE Cloud 3



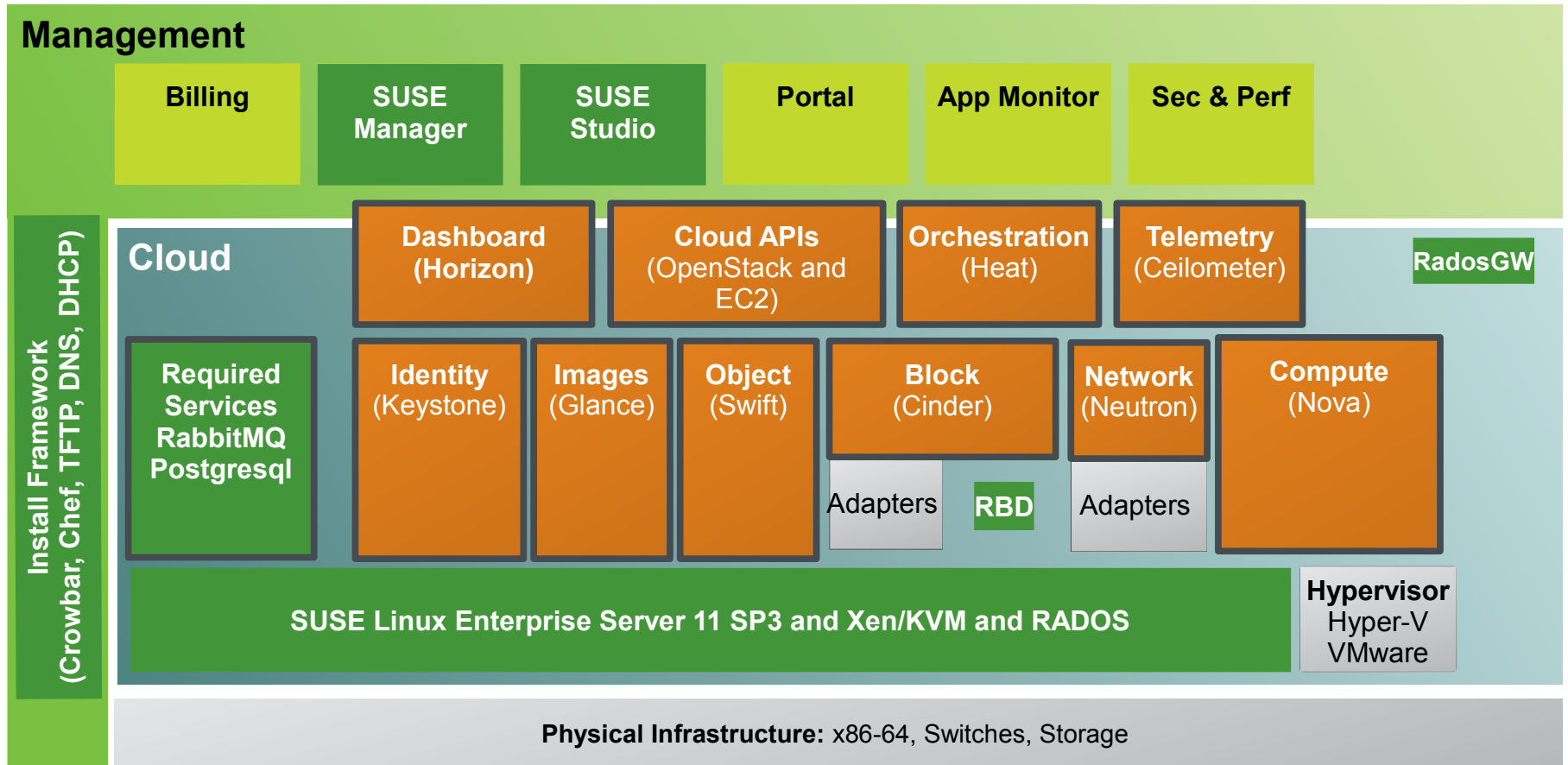
- OpenStack Havana
- 3<sup>rd</sup> Party Tools
- SUSE Product
- Partner Solutions

# SUSE Cloud 3 – High Availability





# SUSE Cloud 4



What's Next for OpenStack?

# OpenStack Directions

- Bare Metal (Ironic)
  - Ability to provision physical servers through OpenStack
- DNS Service (Designate)
  - Name resolution for guests and OpenStack services
- Shared file system (Manila)
  - Enable guests to access shared folders
- OpenStack Data Processing (Sahara)
  - Hadoop as a service
- Queue Service (Zaqar)
  - Message passing between VMs
- Key Management (Barbican)

# Public Cloud Evolution: Amazon

## • Initial Offerings – Basic Building Blocks

- S3 Object Storage
- EC2 Virtual Computers

## • Now:

- Amazon Elastic Compute Cloud (EC2)
- Amazon Elastic MapReduce
- Auto Scaling
- Elastic Load Balancing
- AWS CloudFormation
- Amazon Simple Workflow Service (SWF)
- Amazon Simple Queue Service (SQS)
- Amazon Simple Notification Service (SNS)
- Amazon Simple Email Service (SES)

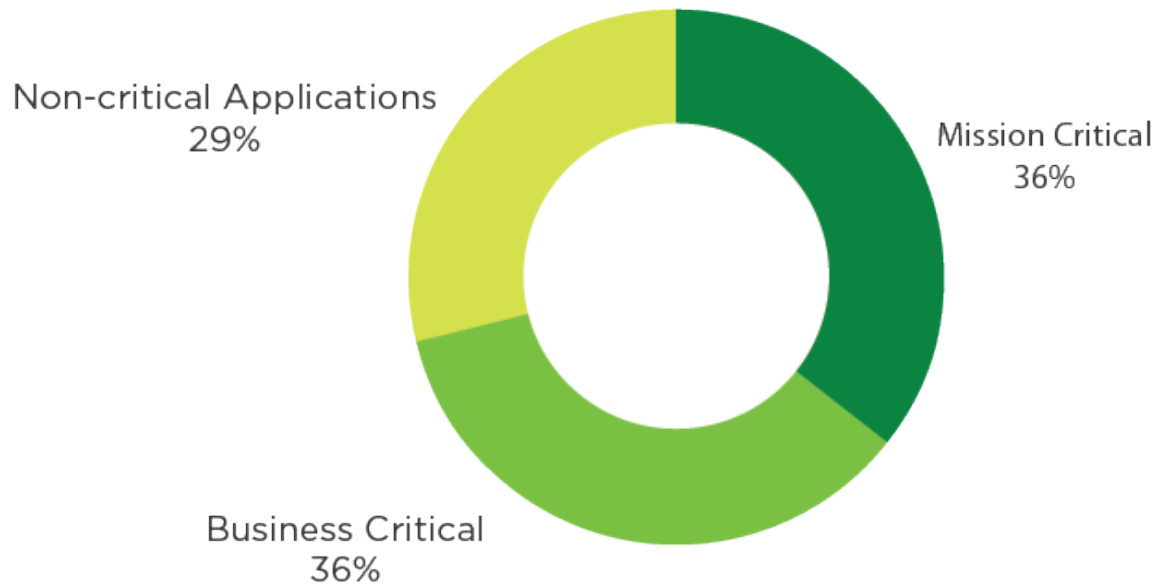
What's Next for SUSE OpenStack?

# SUSE Cloud Priorities

- Focus on making SUSE Cloud mission critical ready
  - High availability
  - Non-disruptive Upgrade
- Work within the OpenStack community to:
  - Represent customer requirements to individual projects
  - Collaborate with partners to deliver a broader solution
- Stay aligned with upstream lifecycle
  - New features
  - Stability

# Forrester: More and More Systems Are Considered Critical

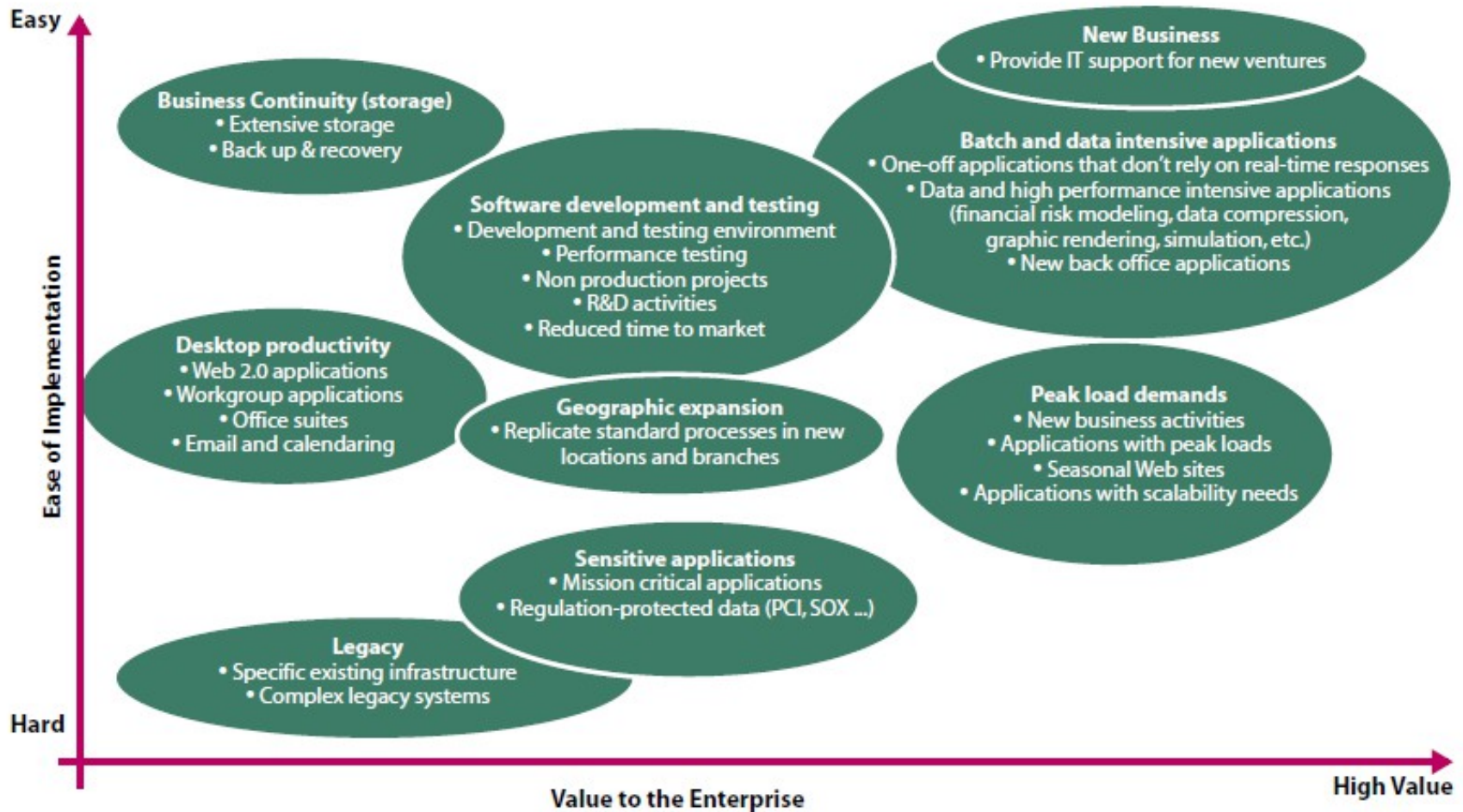
“What percentage of your applications and data fall into the following tiers?”



Base: 94 global disaster recovery decision-makers and influencers  
(does not include “don’t know” responses; percentages do not total 100 because of rounding)

Source: Forrester Research, Inc.

# Determining Private Cloud Workloads



Source: Accenture Technology Labs

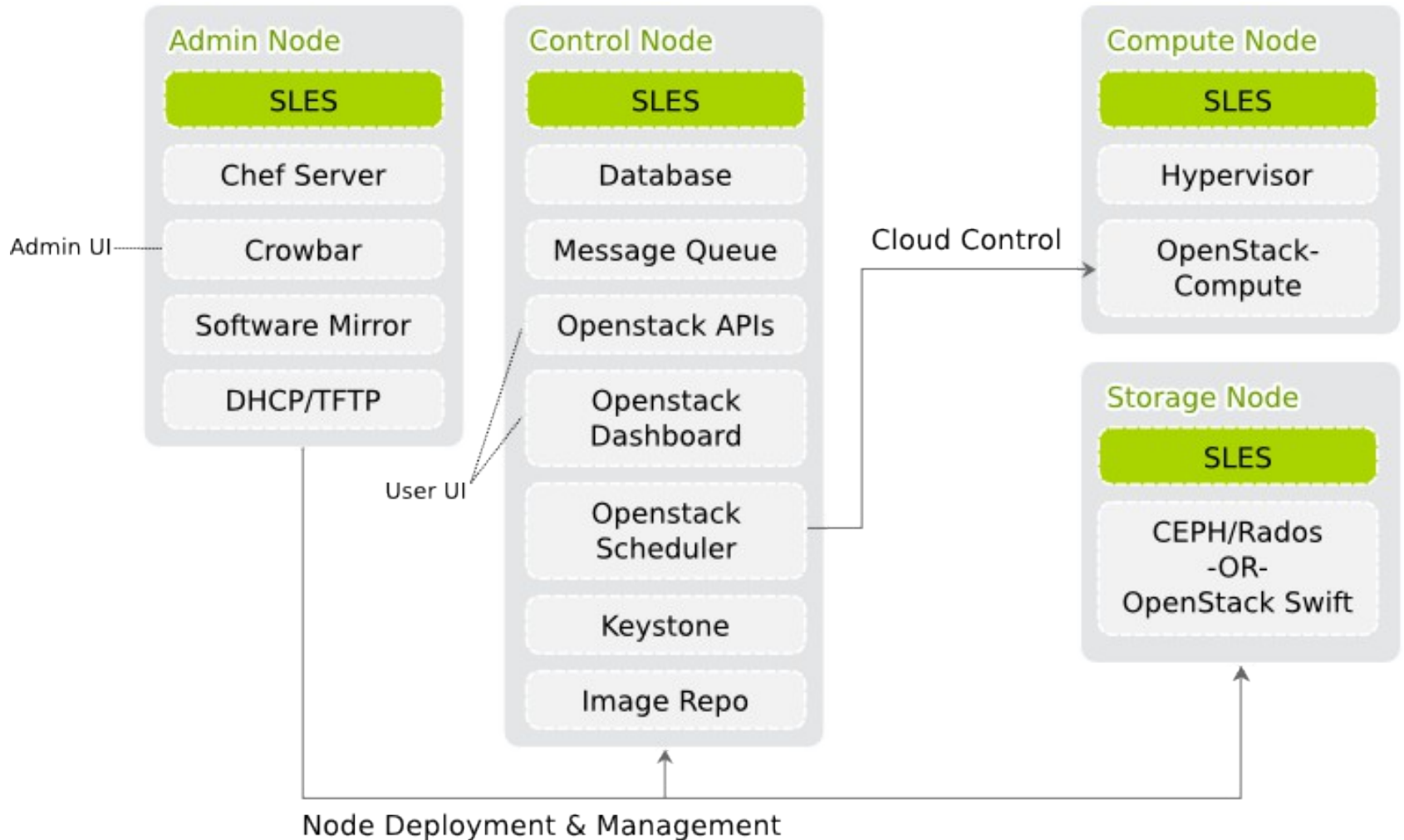


# OpenStack Considerations

# High Availability for OpenStack

- First question: what is important
- Users need to start/stop VMs at any time
- Virtual instances need access to services:
  - Storage
  - Network
- Providing HA for the control node is critical

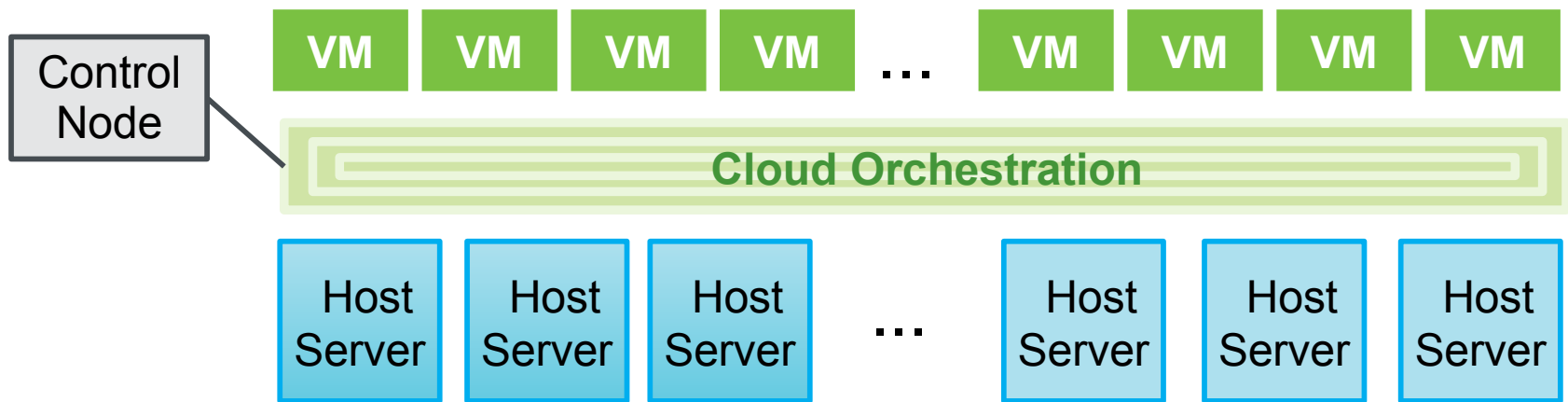
# OpenStack Distribution Components



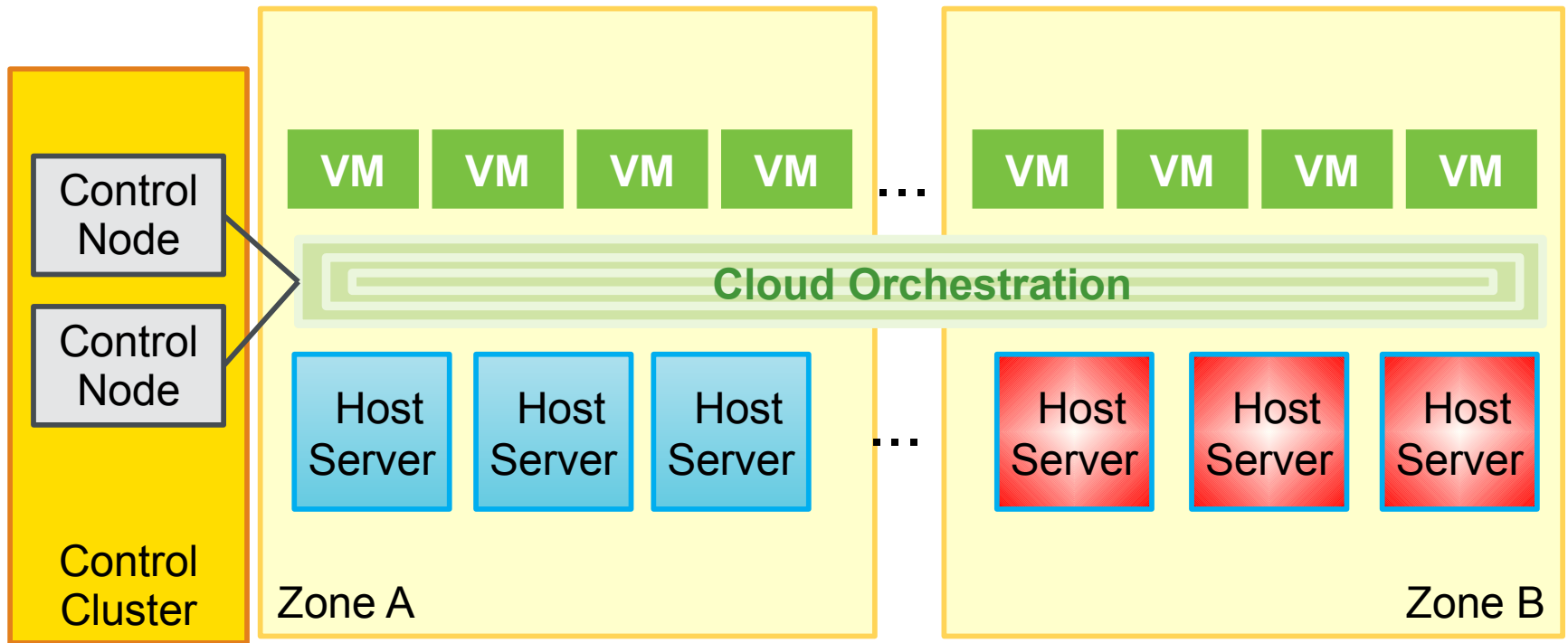
# Component Failure Assessment

- Control Node
  - Highest priority
  - Recovery realistically requires complete cloud restart
- Compute Node
  - Application level recovery is normal practice for existing clouds
  - Not existing “enterprise” expectation, but workaround exists for new workloads
- Admin Server
  - Least impact on deployed system
  - Operation can continue with no impact on end users

# Cloud Structure



# Cloud Structure – HA Control Cluster



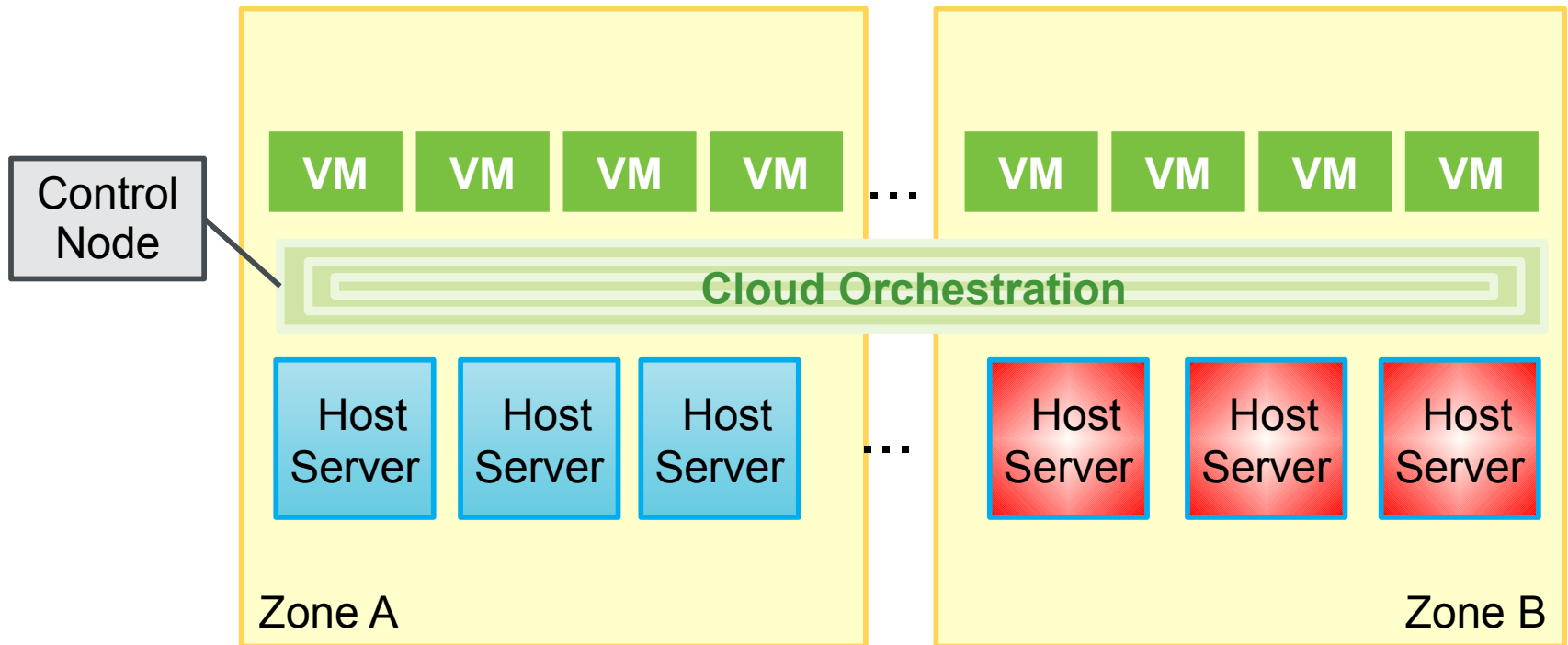
What About the Workloads?

# High Availability Directions

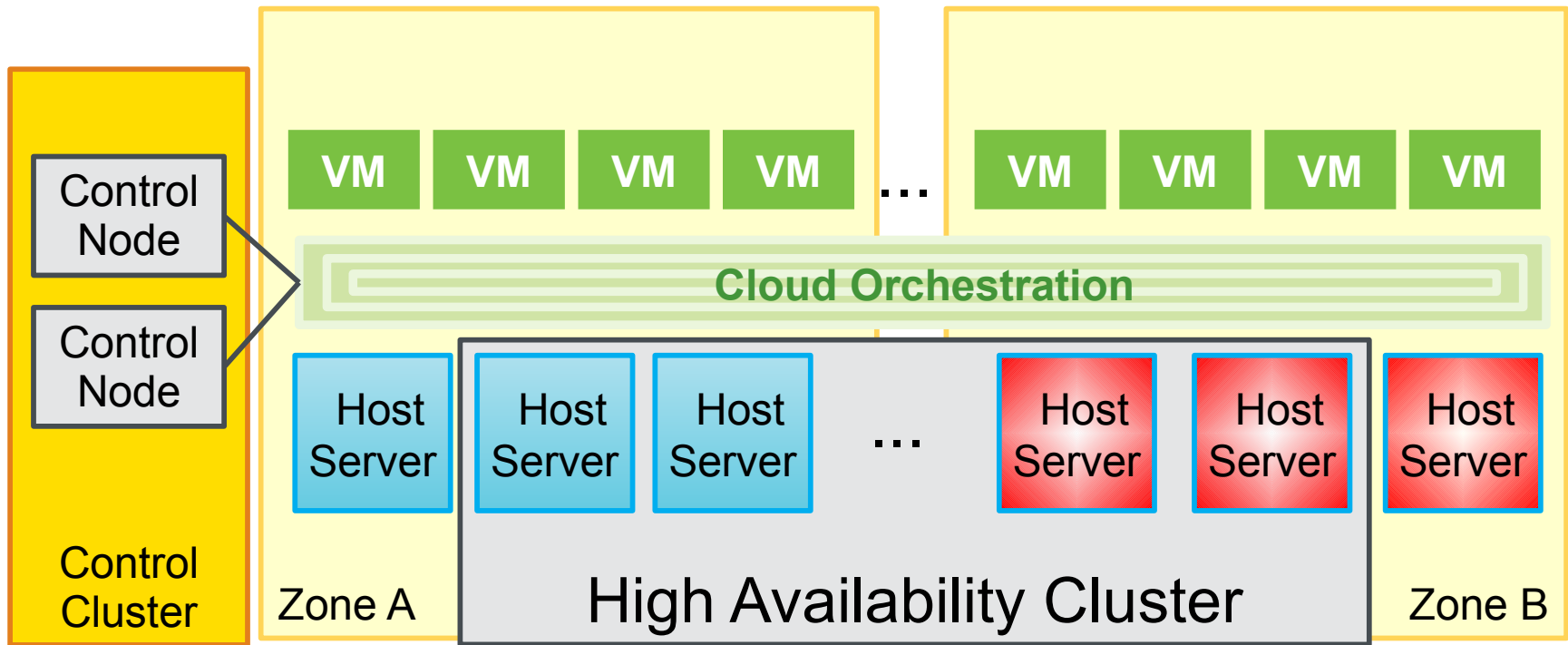
- Control Plane
  - Hot standby for Control Nodes
  - Ensures that cloud continues to operate to meet SLAs
- Guest vs. Server
  - Cloud 101 – Plan for infrastructure failure, or
  - Enterprise 101 – build a reliable infrastructure
- High availability guests
  - Use SUSE Linux Enterprise High Availability Extension in VMs
  - Backup VM is in a different availability zone
  - Application does not need to be changed
- High availability compute nodes
  - Use SUSE Linux Enterprise High Availability Extension on physical nodes
  - Backup VM is in same availability zone, but could be geographically different
  - All workloads on server are backed up



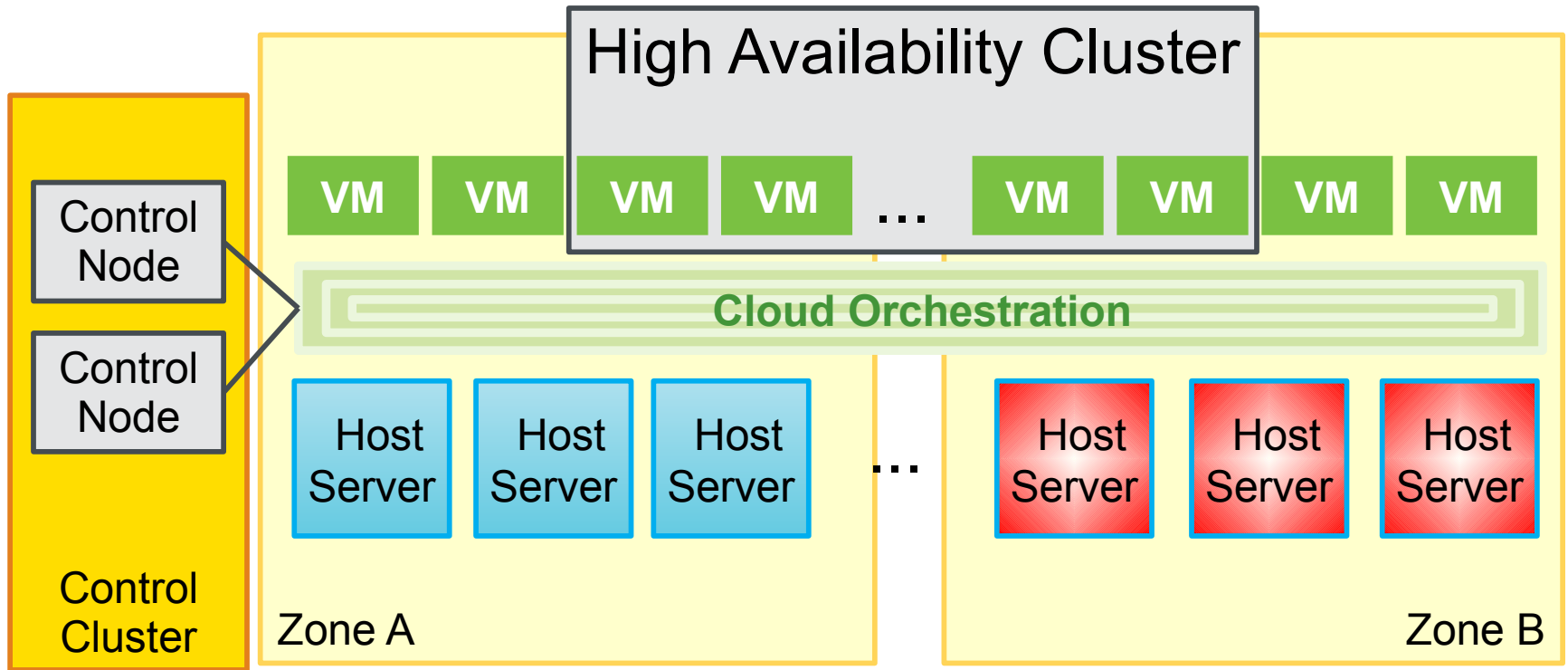
# Cloud Structure – Availability Zones



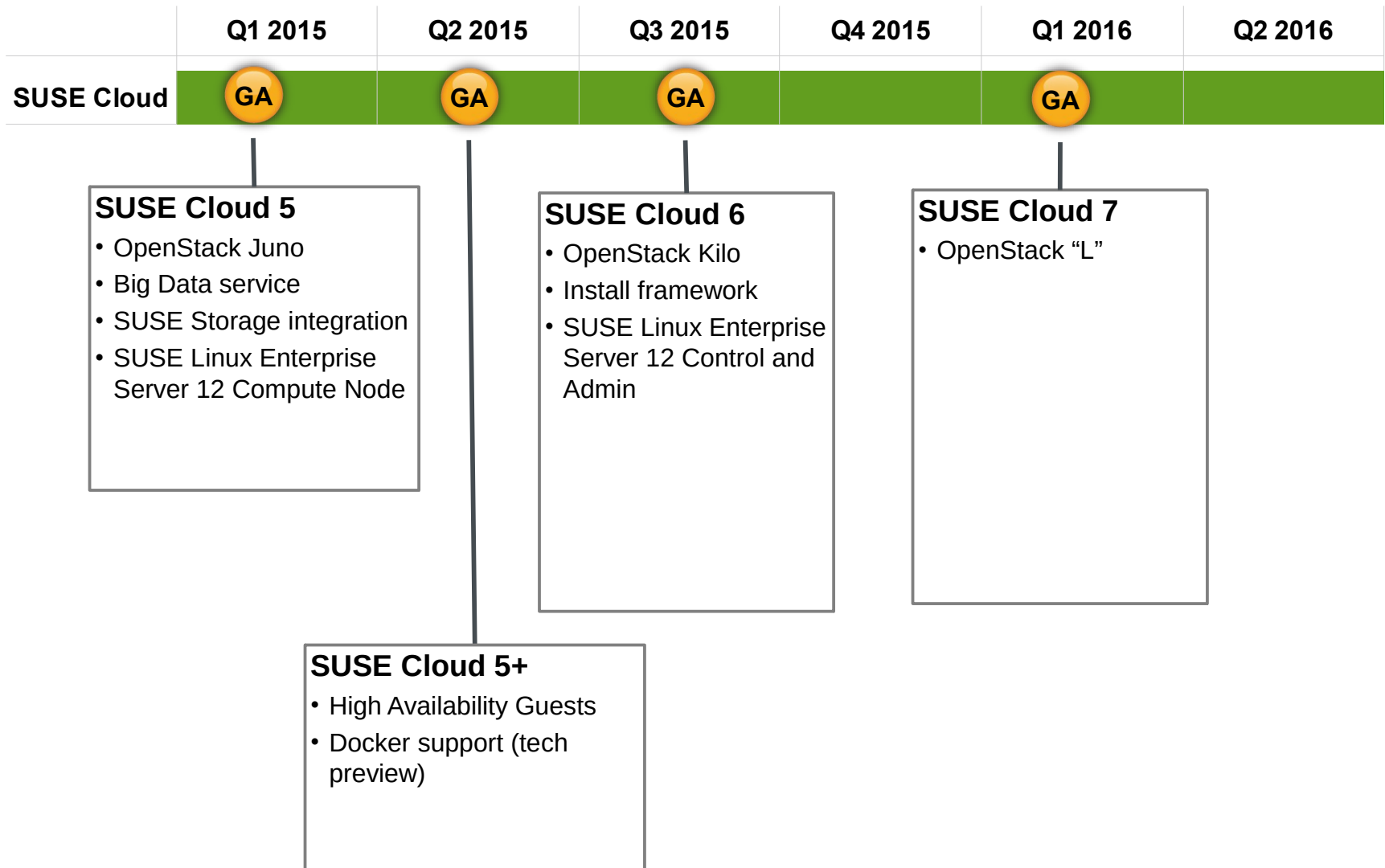
# Cloud Structure – Host Cluster



# Cloud Structure – VM Cluster



# SUSE Cloud Roadmap (tentative)





**Corporate Headquarters**  
Maxfeldstrasse 5  
90409 Nuremberg  
Germany

+49 911 740 53 0 (Worldwide)  
[www.suse.com](http://www.suse.com)

Join us on:  
[www.opensuse.org](http://www.opensuse.org)

## **Unpublished Work of SUSE LLC. All Rights Reserved.**

This work is an unpublished work and contains confidential, proprietary and trade secret information of SUSE LLC. Access to this work is restricted to SUSE employees who have a need to know to perform tasks within the scope of their assignments. No part of this work may be practiced, performed, copied, distributed, revised, modified, translated, abridged, condensed, expanded, collected, or adapted without the prior written consent of SUSE. Any use or exploitation of this work without authorization could subject the perpetrator to criminal and civil liability.

## **General Disclaimer**

This document is not to be construed as a promise by any participating company to develop, deliver, or market a product. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. SUSE makes no representations or warranties with respect to the contents of this document, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. The development, release, and timing of features or functionality described for SUSE products remains at the sole discretion of SUSE. Further, SUSE reserves the right to revise this document and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes. All SUSE marks referenced in this presentation are trademarks or registered trademarks of Novell, Inc. in the United States and other countries. All third-party trademarks are the property of their respective owners.

