VMware + OpenStack

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VMware + OpenStack: A Fork in the Road?

VMware + OpenStack: Better Together

An industry-wide APIs + tool ecosystem that cloud application developers love…

….industry leading data center virtualization technologies that enterprise IT already knows how to operate.

Why is OpenStack Interesting?

Confusion about OpenStack + VMware is often the result of confusion over what makes OpenStack interesting to real end-users.

Freedom of Choice…

- Choose different virtualization technologies for compute, network, and storage.
- Choose different deployment models (do-it-yourself vs. vendor solution)

… with standard APIs for developers

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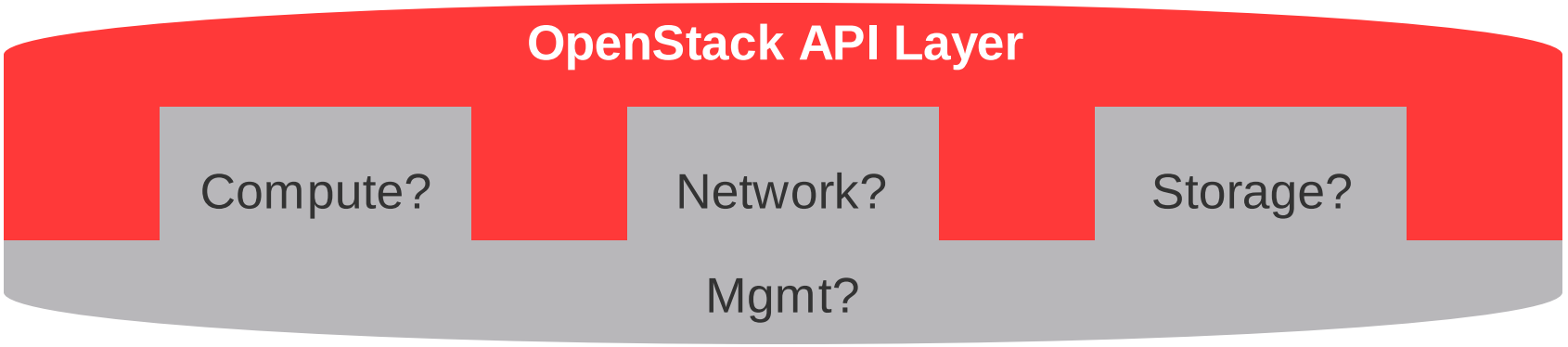
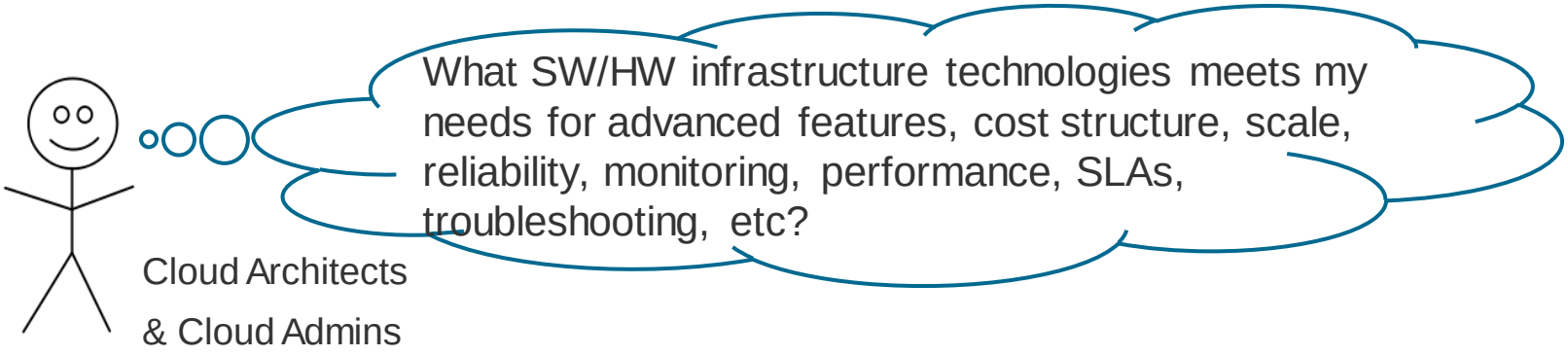
Choice of Technology





Choice of Consumption Model

- **OpenStack is not a product, it is an open source codebase, managed by OpenStack Foundation**
- **OpenStack is/will be available in many different forms, including:**

"Do-it-Yourself":
Download framework source code, build internal team to do almost everything.

"Distro":
Packaged framework code with install/config mgmt bundled with OS. Pay for support.

"Core+":
Commercial product, uses OpenStack code and APIs, but often also include proprietary addons.

"API Compat":
Existing product adds OpenStack API compatibility.

- Flexible / Customizable
- Vendor Agnostic
- Complex + resource intensive to operate.
- Missing mgmt tools.

- Less Flexible
- Vendor Specific
- Easier to adopt + operate
- Includes mgmt. tools

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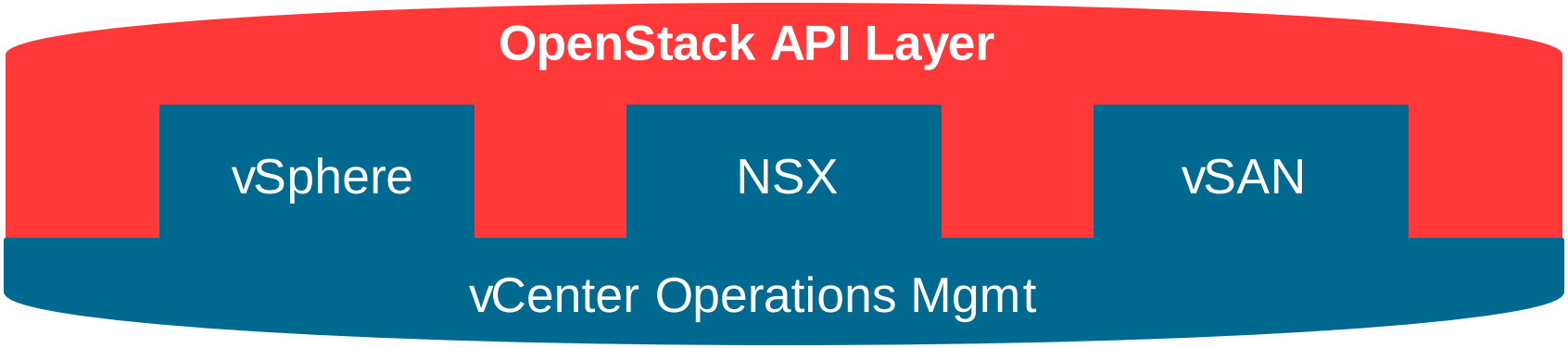
Why OpenStack + VMware?

The benefits of OpenStack …

- Choice of underlying technologies
- Choice of deployment model.



…with the innovation and reliability of VMware

- Best-in-class SW infrastructure technology, consumed as individual components or as an integrated software suite.

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VMware's OpenStack Initiative

- **Contribute to OpenStack**
  - Integrate VMware compute, network, storage SW with OpenStack.
  - Make OpenStack better, helping customers succeed with their cloud effort.

- **Help customers understand how VMware technology helps them build the best possible OpenStack cloud.**
  - Show customers how VMware compute, network, and storage, components helps them run a better cloud.
  - Show how vCloud Suite provides critical mgmt. capabilities beyond IaaS provided by OpenStack (e.g., governance, cost-analysis, operations mgmt).
  - Work with ecosystem to make sure it is easy to deploy OpenStack + VMware

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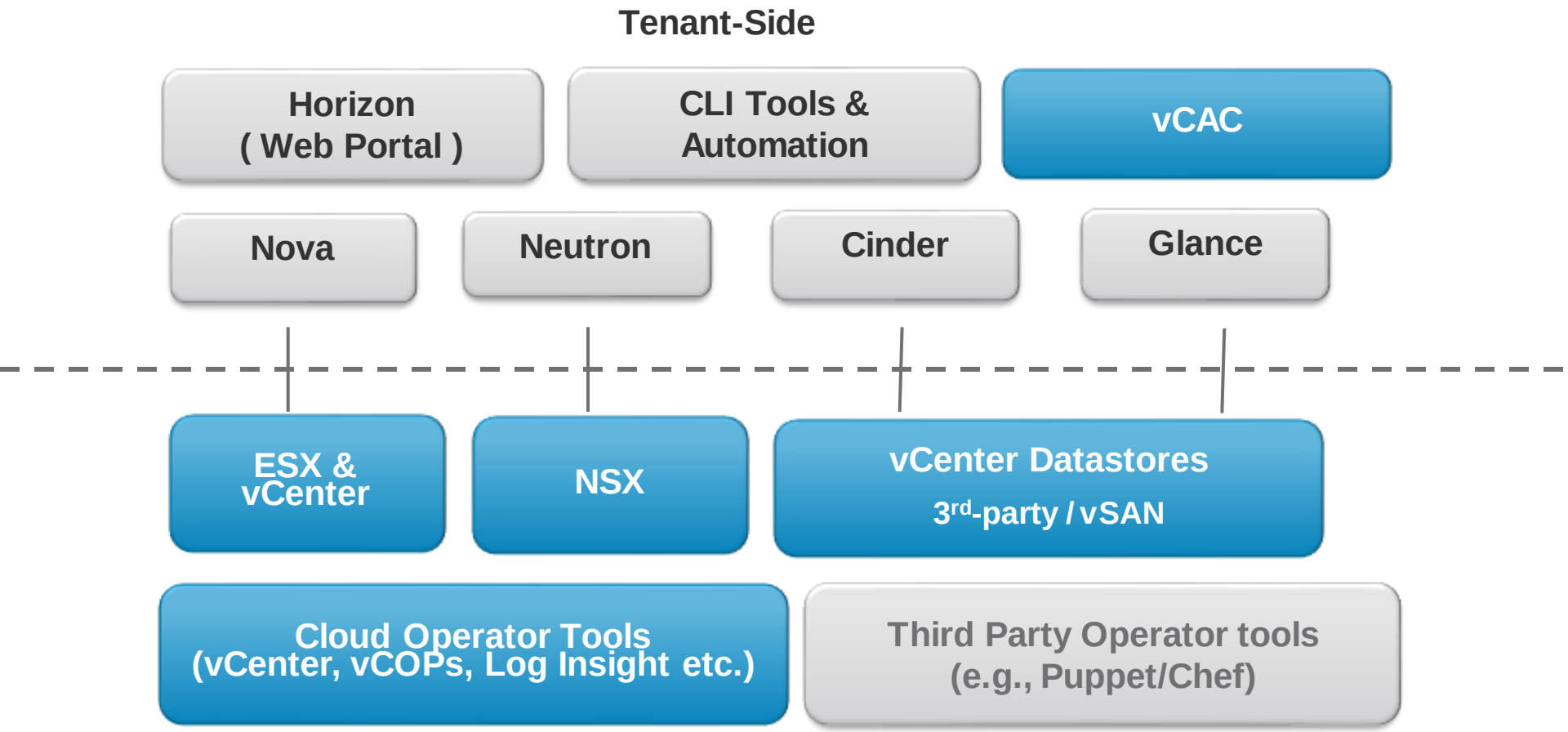
Why OpenStack on VMware?



OpenStack or 3rd Party Component

VMware Component

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VMware's Contributions to the Community

VMware Havana Contributions: #7 contributor to core projects.

17 Developers

319 Commits

3,693 Code Reviews

Neutron

Nova Cinder

Docs **Tempest** **Devstack**

Statistics from: http://www.stackalytics.com/

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OpenStack + VMware Integration Timelines

Grizzly Release (Q2 '13)
Neutron (Network) Nova (Compute)

Havana Release (Q4 '13)
Neutron (Network) Nova (Compute) Cinder (Block Storage)

Icehouse Release (Q2 '14)
Neutron (Network) Nova (Compute) Cinder (Block Storage) Glance (Image)

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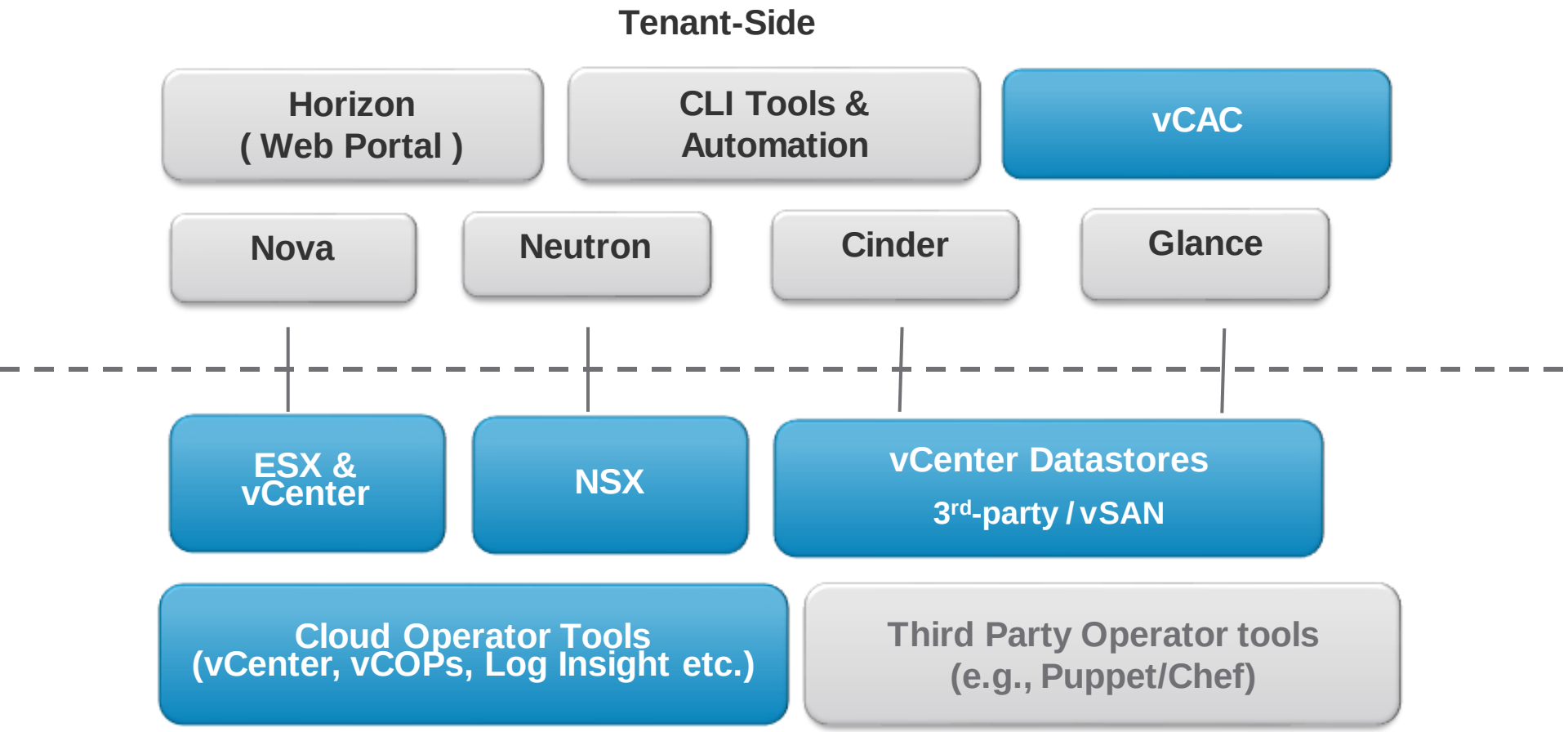
Why OpenStack on VMware?



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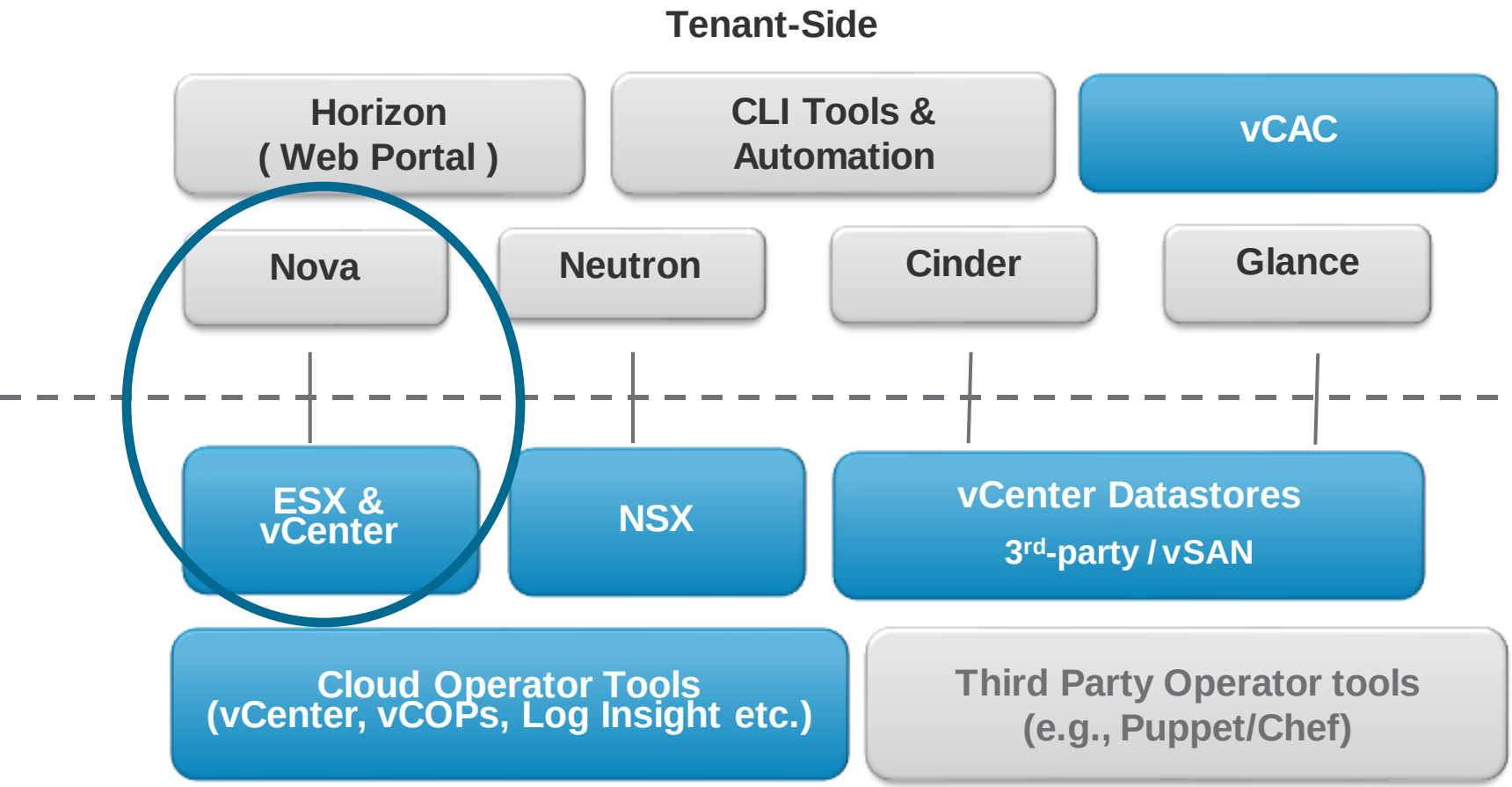

OpenStack or 3rd Party Component

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Choosing a Compute Driver: Why vSphere for Nova?

Technical:

- Purpose-built hypervisor platform provides unmatched combination of reliability, security, and performance.
- Availability features (vMotion, HA) and compatibility testing protect critical production workloads.
- Advanced resource management (DRS, SDRS) protects from noisy neighbors, better utilizes HW.

Operational:

- Enterprise-polished solution simplifies adoption.
- Enterprises already have the expertise.
- Vast array of VMware + Ecosystem tools to manage the infrastructure layer

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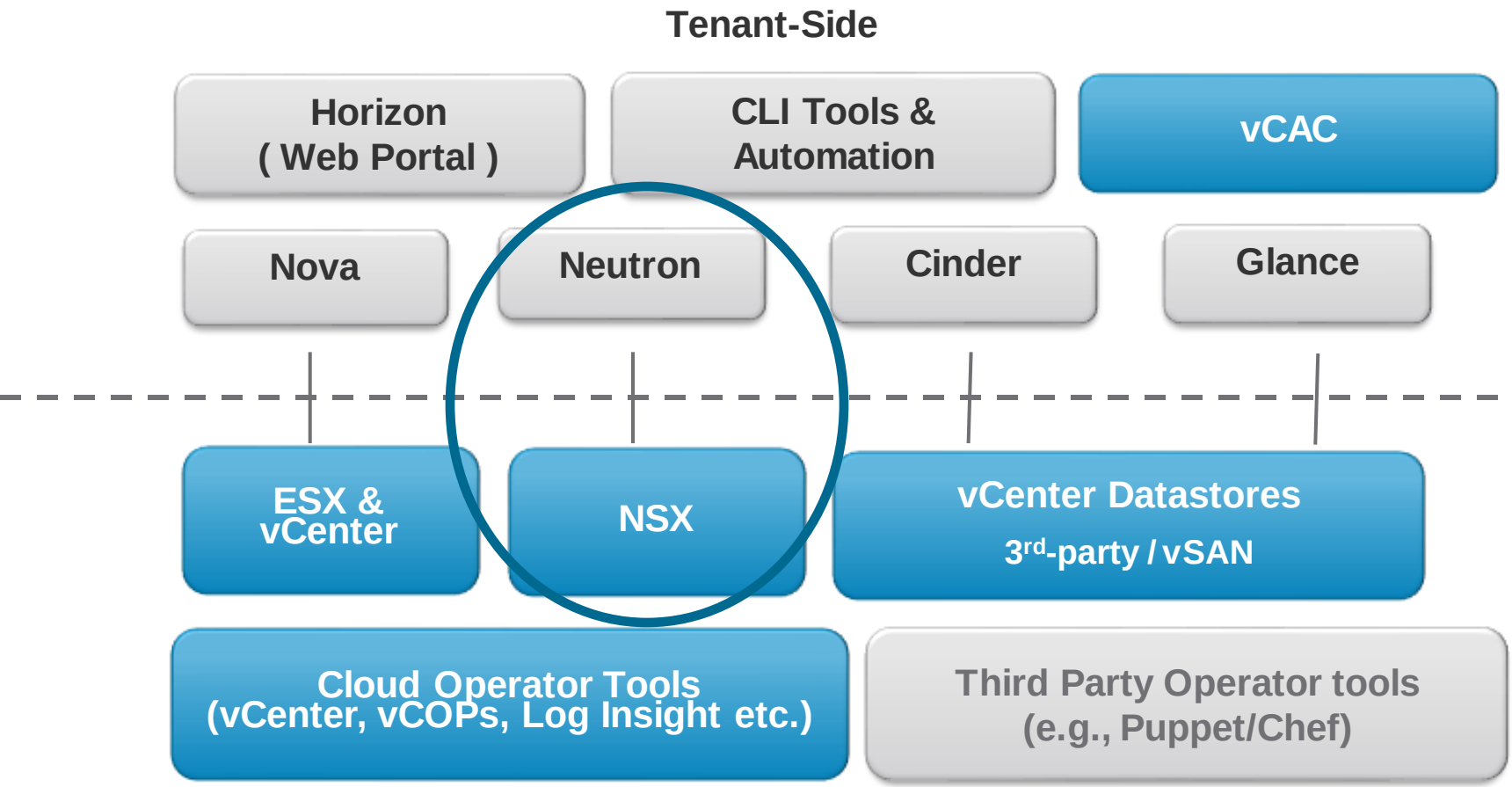
Why OpenStack on VMware?



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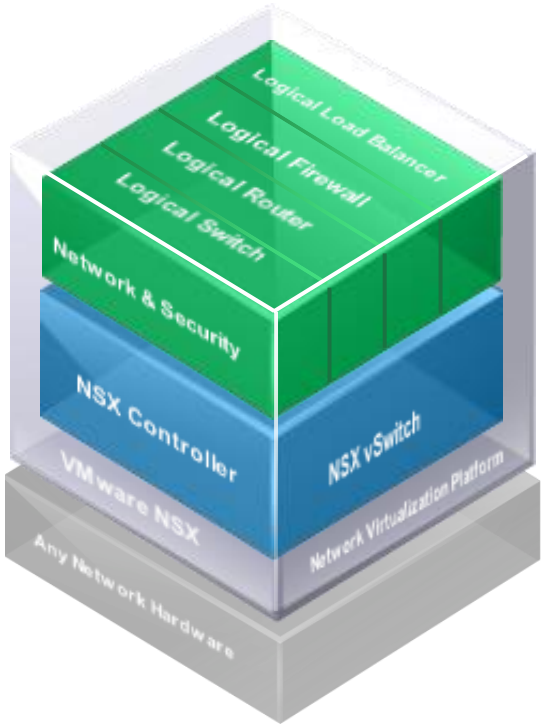
Choosing a Network Driver: Why NSX for Neutron?

Technical Capabilities:

- First and most production-hardened network virtualization solution.
  - Doesn't relay on physical network for VLANs, FW, etc. Works with gear from any vendor.
- The technical "details" matter:
  - Tunneling packet performance
  - High-availability + scale-out model.
  - "Distributed" network services.



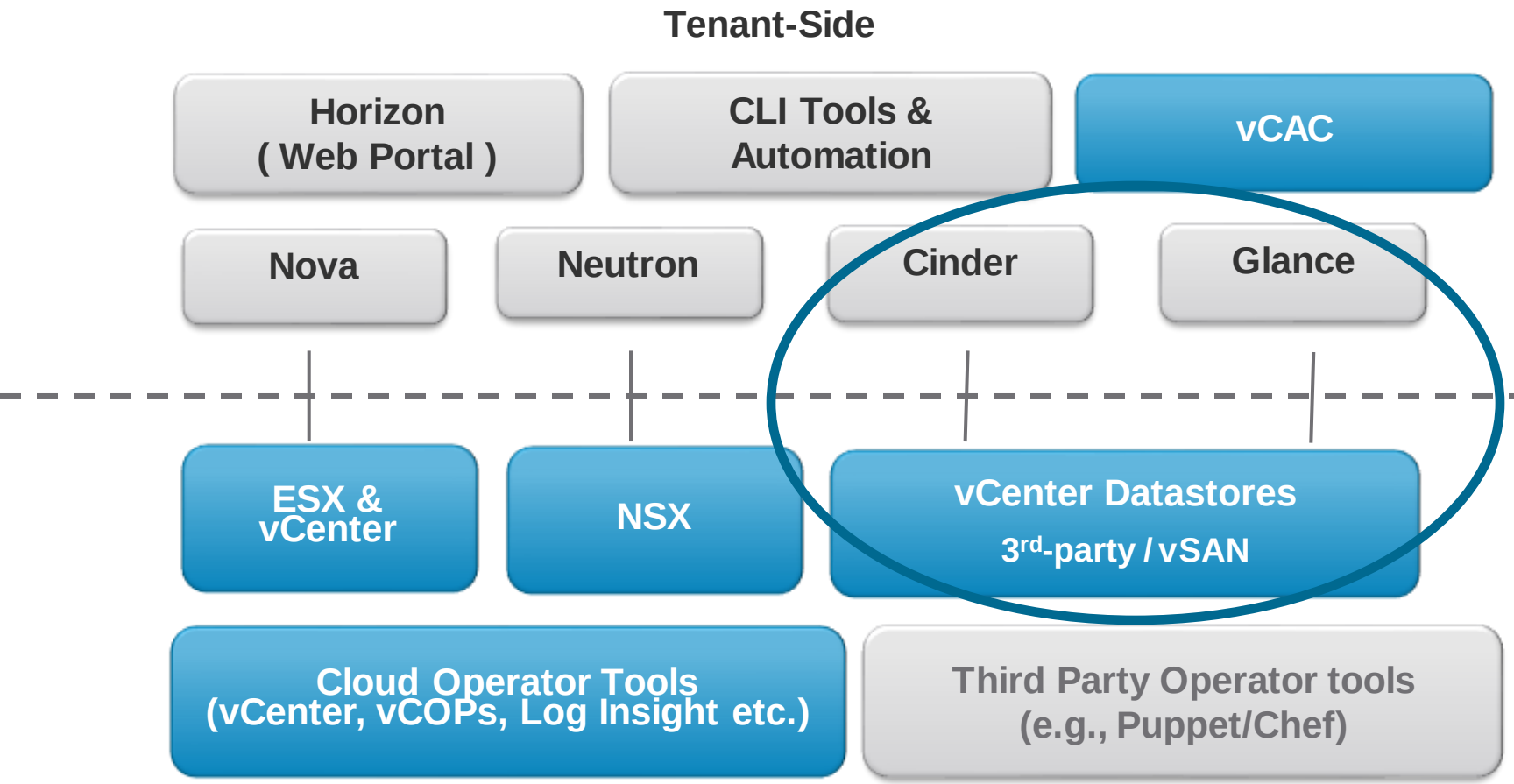
Compatibility + Ecosystem:

- Works on KVM, XenServer, and ESX.
- Integrations with many HW Switch vendors to allow NSX to manage physical workloads.

Operations:

- Troubleshooting tools to view how virtual networks are built, impact of physical network failures.

Why OpenStack on VMware?



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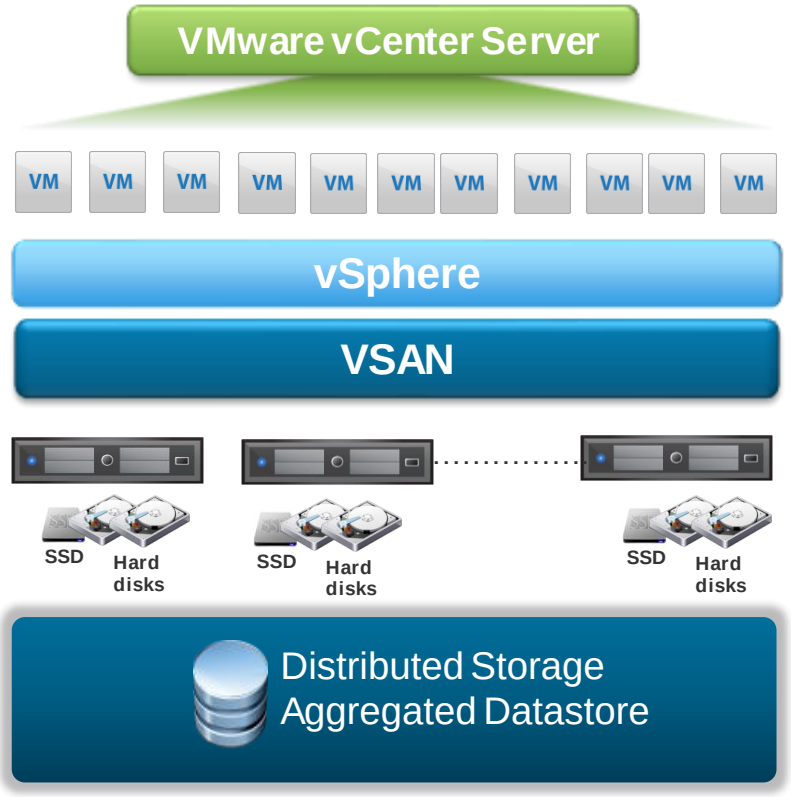
Choosing a Block Storage Driver: Why vSphere for Cinder?

Simple but Powerful:

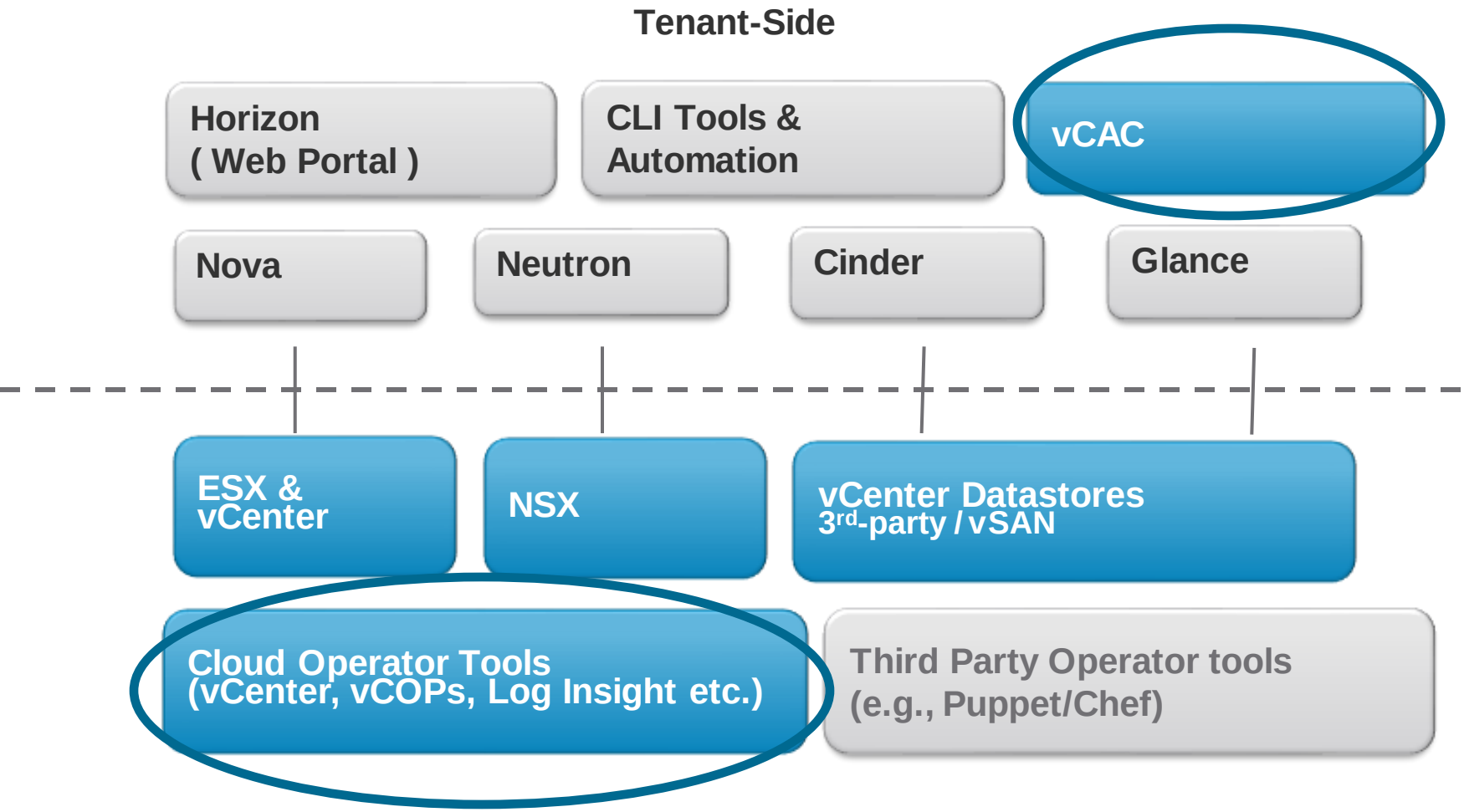
- Single driver works with any vSphere validated storage (NFS, iSCSI, FC)
- Leverages huge validation efforts across many vendors.
- Includes VAAI array acceleration work for snapshot, clone, etc.

Enables VMware “virtual SAN”:

- Provides shared storage leveraging SSD/Hard-disks on the hypervisor.
- Low-cost storage devices, but with accelerated by local SSD cache.
- SSD cache is configurable per-disk, allowing extremely high IOPs for data intensive workloads.



Why OpenStack on VMware?



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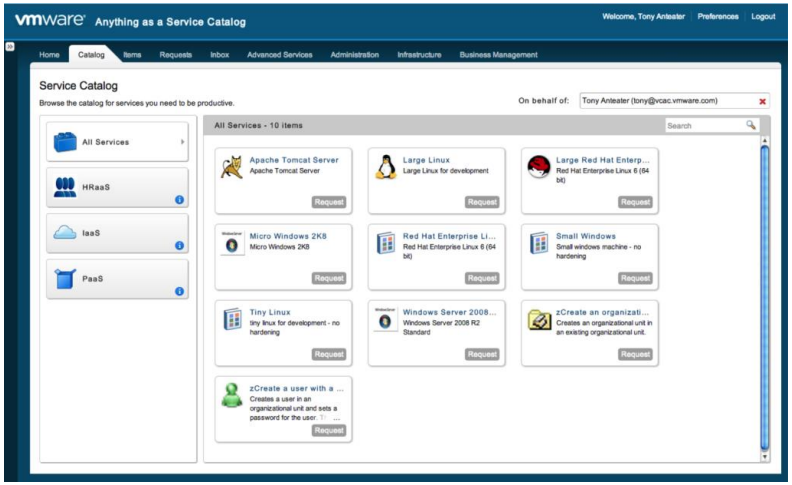
Management Technologies with OpenStack

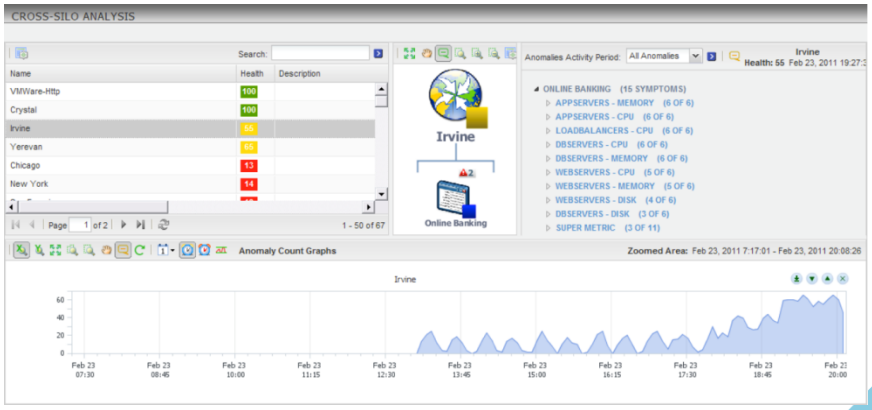
Application Management:

- vCloud Automation Center (vCAC) 6.0 includes support for consuming from OpenStack clouds, in addition to other back-ends like vSphere, KVM, + AWS.
- Provides governance, policy, workflow, and costing, which are not present in OpenStack.



Infrastructure Management:

- vCenter and the NSX manager provide base troubleshooting capabilities for investigating issues at SW layer.
- vCenter Operations Management (vCOPs) provides advanced visibility into the relationships between different elements, health monitoring, anomaly detection, etc.



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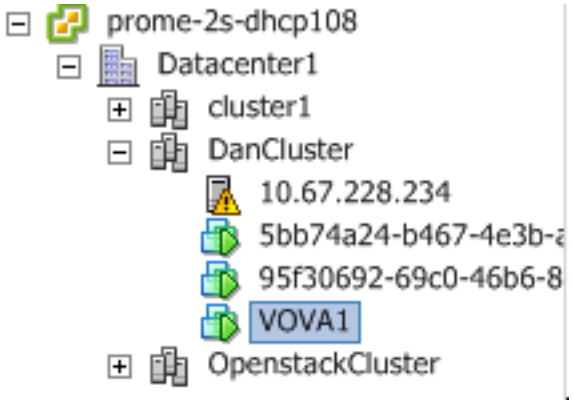
VOVA: An Easy Way to Build an OpenStack + vSphere Lab

Not a product, not for production workloads…



VOVA:

- A single OVF file containing a full OpenStack install.
- Deploy VMs via OpenStack to an existing cluster.
- Import, answer a few questions, and go!
- OpenStack on vSphere in under 20 minutes.

Download, ask questions, and provide feedback at:
https://www.vmware.com/go/openstack
A version with NSX support is also available.
Contact your account team!

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OpenStack + VMware Hands-on-Lab

Visit: http://www.vmware.com/go/openstacklab

This will provide a remote windows desktop within your own OpenStack on vSphere cloud lab within 30 seconds.

Includes step by step instructions to learn about OpenStack on vSphere (Nova + Cinder).

Update with Neutron + NSX support available in late Feb 2014.

Enabling Customer Choice: Distro Partners

vSphere + NSX:
Coordinating on reference arch. Support of joint customers.

NSX:
Ensuring support for joint customers using NSX with Open vSwitch on RHEL.

vSphere + NSX:
SUSE Cloud 2.0 includes support for vSphere, NSX support is in progress.

vSphere + NSX:
Mirantis FUEL will support automated provisioning of OpenStack with vSphere/NSX.

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Key Takeaways

An industry-wide APIs + tool ecosystem that cloud application developers love…

….industry leading data center virtualization technologies that enterprise IT already knows how to operate.

VMware + ecosystem partners have industry-leading compute, network, storage, and management software, helping you build the best possible OpenStack cloud.

VMware is serious about helping its customers succeed with OpenStack, and contributes significantly to the OpenStack community.

Thanks!

To learn more about OpenStack + VMware, please:

- Online Community: https://www.vmware.com/go/openstack
- Follow @danwendlandt for updates.

Questions?

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