

OpenStack in the Land of Guilder

Building Private Clouds with OpenStack

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**Let me 'splain...
No, there is too
much.**

Let me sum up.



"In scale-up, servers are like pets. You name them and when they get sick, you nurse them back to health..."



...In scale-out, servers are like cattle. You number them and when they get sick, you shoot them.”

— Bill Baker

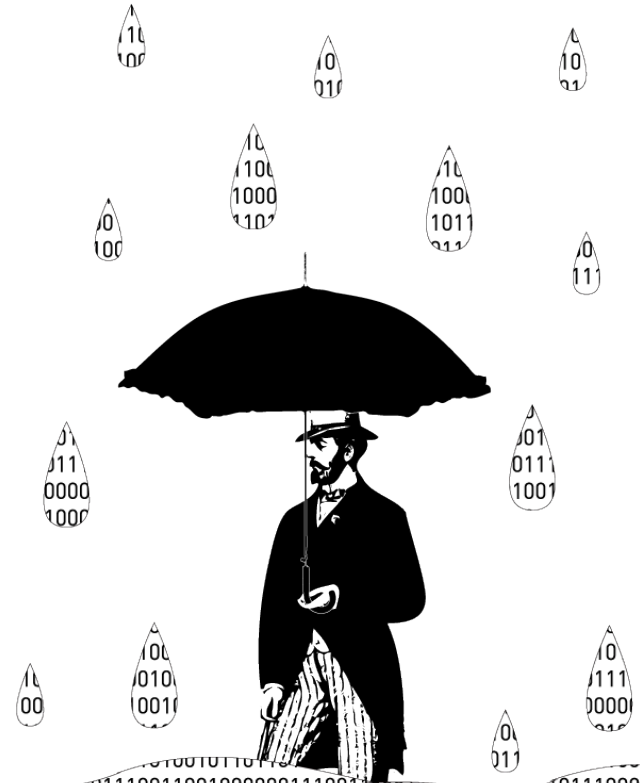


Planning: Design Goals

- Return on Agility
- Minimized down-time
- Minimal IT headcount



“...by 2020, our
Digital Universe will
be 44 TIMES AS BIG
as it was in 2009...”

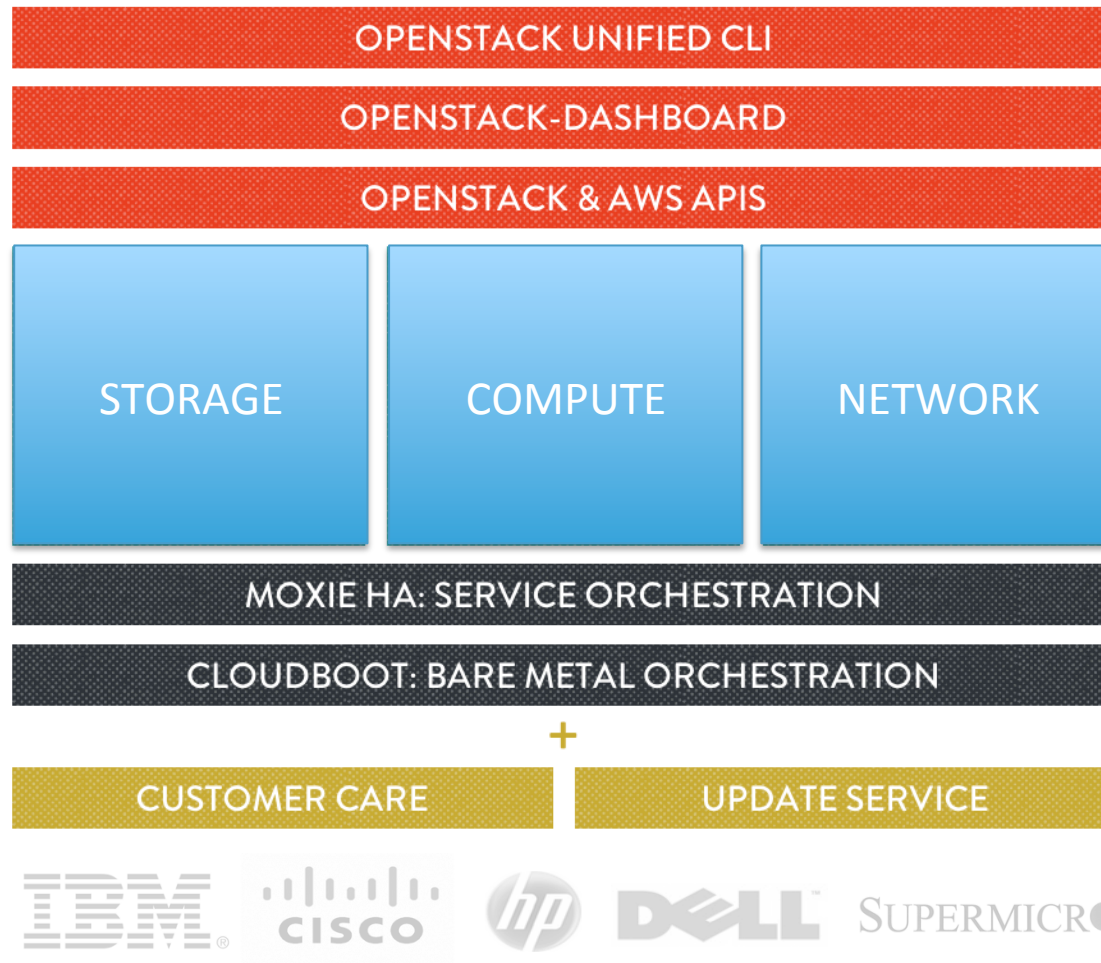


Understanding OpenStack

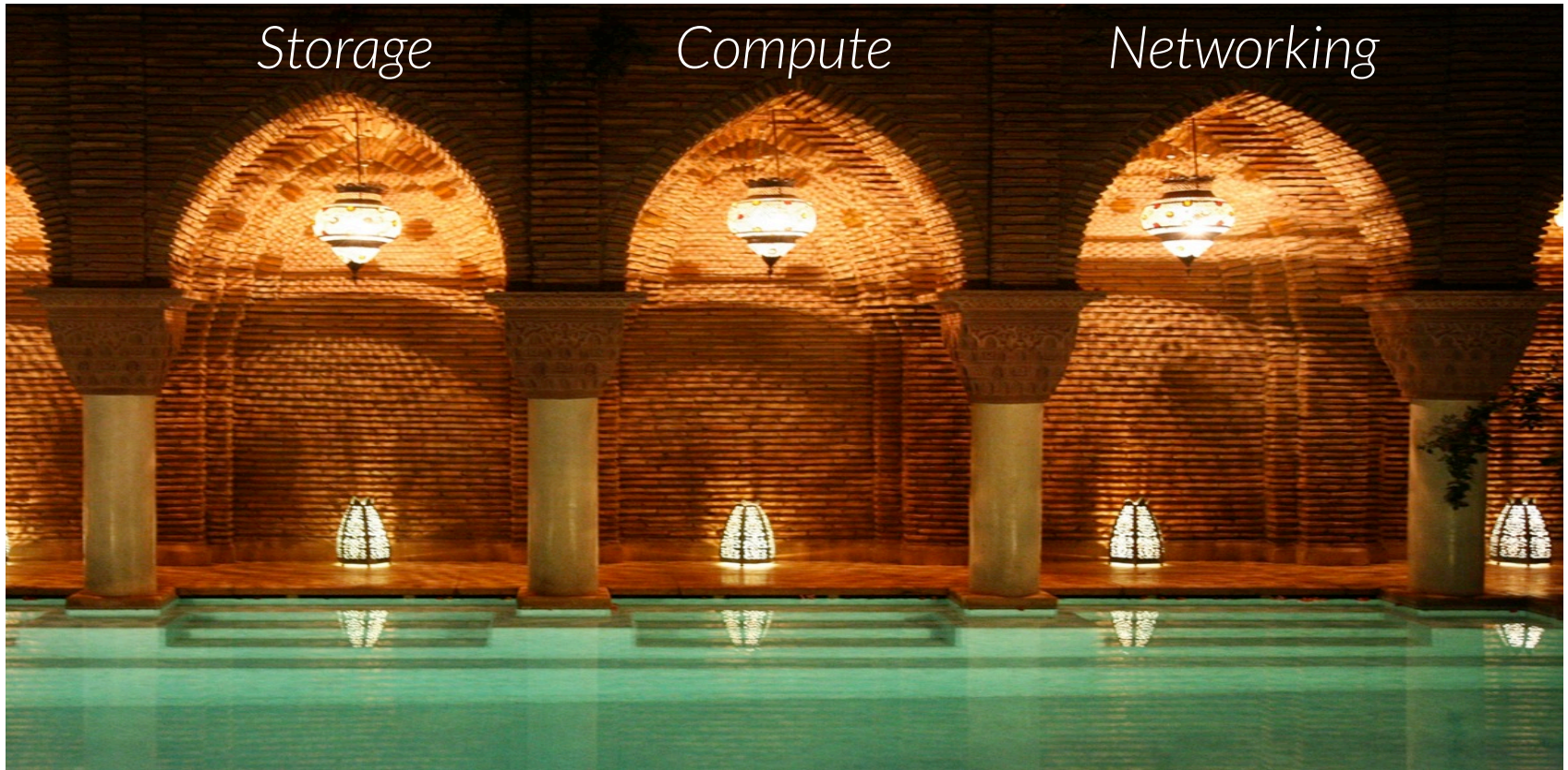
- OpenStack is a framework
- Key component selections
- Orchestration choices



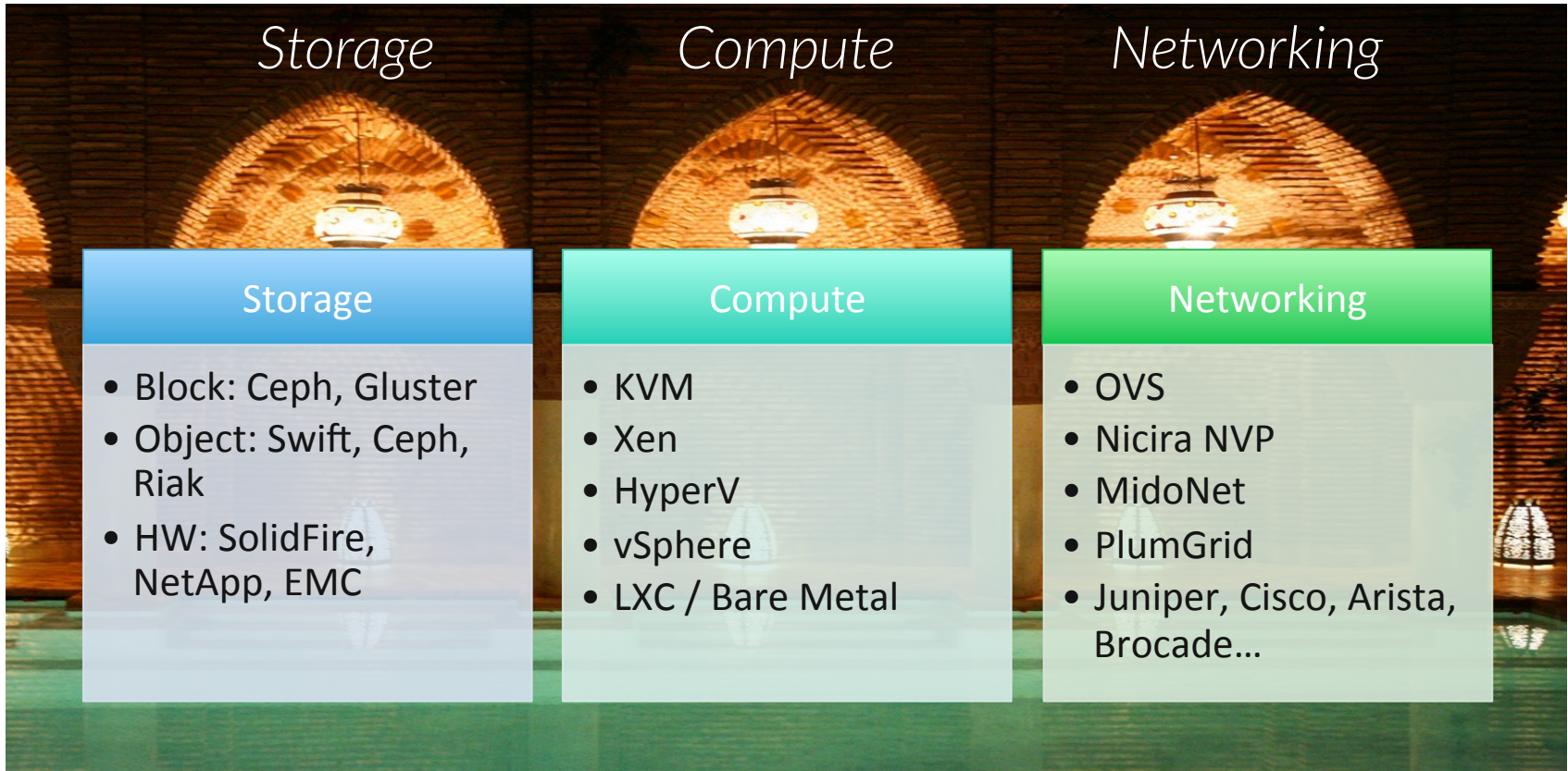
Understanding OpenStack



Choices, Choices, Choices



Choices, Choices, Choices



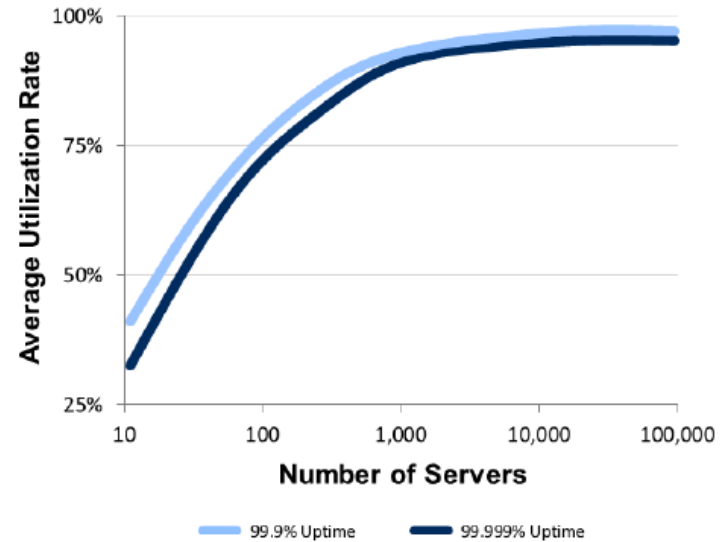
<i>Storage</i>	<i>Compute</i>	<i>Networking</i>
<p>Storage</p> <ul style="list-style-type: none">• Block: Ceph, Gluster• Object: Swift, Ceph, Riak• HW: SolidFire, NetApp, EMC	<p>Compute</p> <ul style="list-style-type: none">• KVM• Xen• HyperV• vSphere• LXC / Bare Metal	<p>Networking</p> <ul style="list-style-type: none">• OVS• Nicira NVP• MidoNet• PlumGrid• Juniper, Cisco, Arista, Brocade...



Planning

- Diversity
- Scale minimums
- Scale maximums
- Key workload ratios

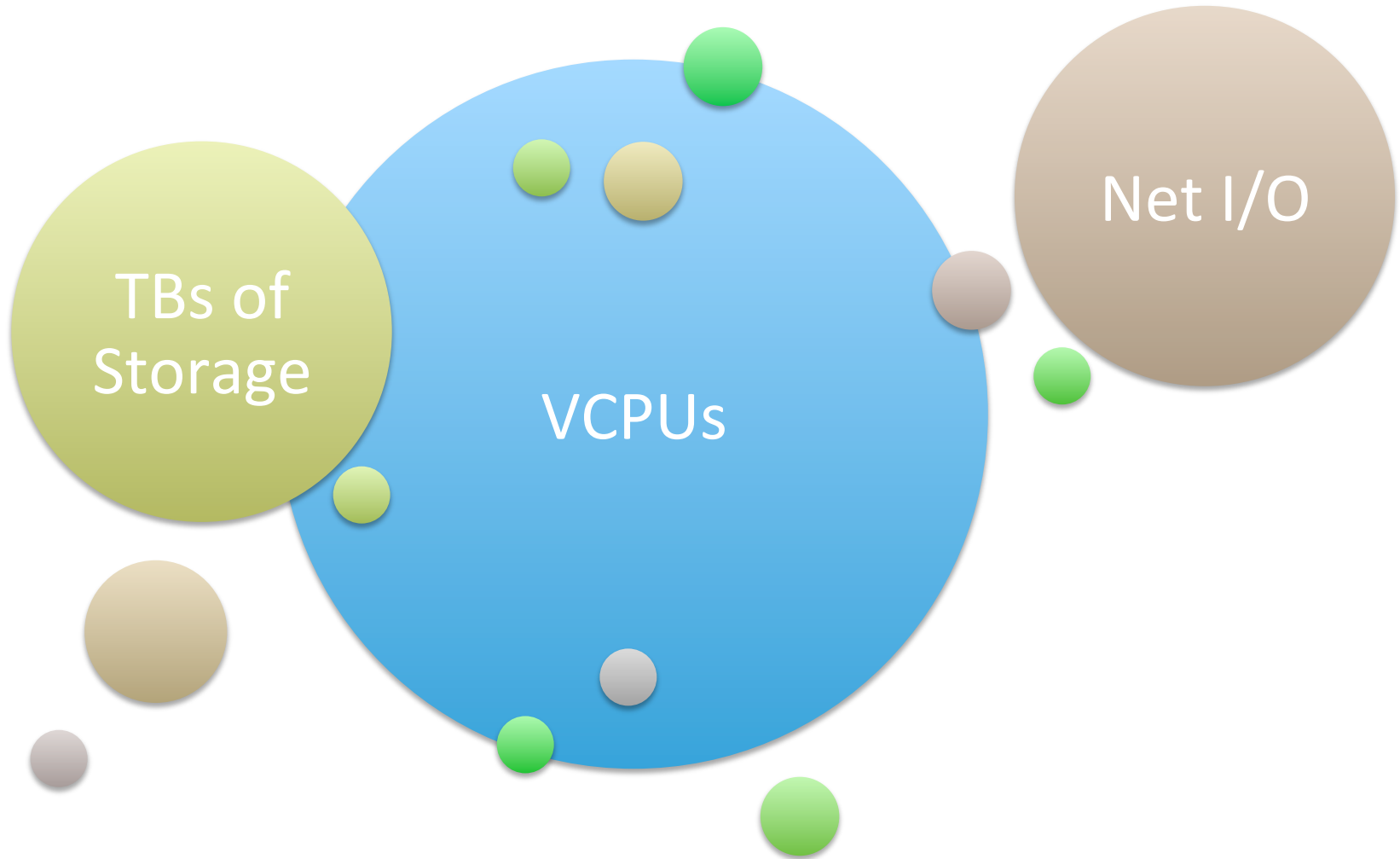
FIG. 11: DIVERSIFYING RANDOM VARIABILITY



Source: Microsoft.



Key Workload Ratio



Hardware Options

The Kennel

- VMware-style
- High-density blades
- Fiber Channel SAN storage

The Menagerie

- 1U and 2U servers
- Dedicated management and control nodes
- Bottom-of-Rack filers

The Ranch

- Null-tier architecture
- General purpose “nodes”
- Distributed control plane



Vendor Choices

Vendor Approach	Vendors
DIY	OpenStack.org source code
Packages	Canonical, RedHat, SUSE
System Integrators	Mirantis, MetaCloud
Hardware Appliances	Nebula, Morph Labs
Software Products	Cloud Scaling, Piston Cloud
All-in-one	IBM, HP, Dell
Other	Cisco, Rackspace, StackOps



Integration

- Authentication: LDAP, SAML and Beyond
- Beyond RRD & MRTG: Ceilometer, Canary
- SIEM: When logging is a big data problem...
- Routing and beyond: What about Layers 4+?



Winning Post-Install

- Orchestration and Client Tools
- Training and Best Practices
- Support and troubleshooting



Questions?



Thank you.

