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Building an OpenStack* cloud for enterprise use case

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Agenda

- OpenStack* private cloud for enterprise
- Organization & process considerations
- Use case
- Summary

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OpenStack* private cloud for enterprise

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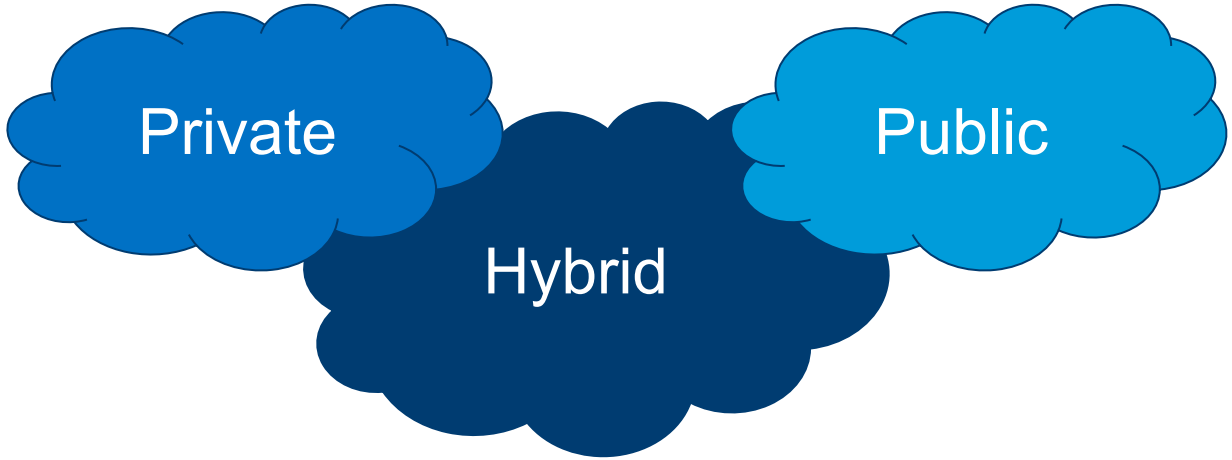
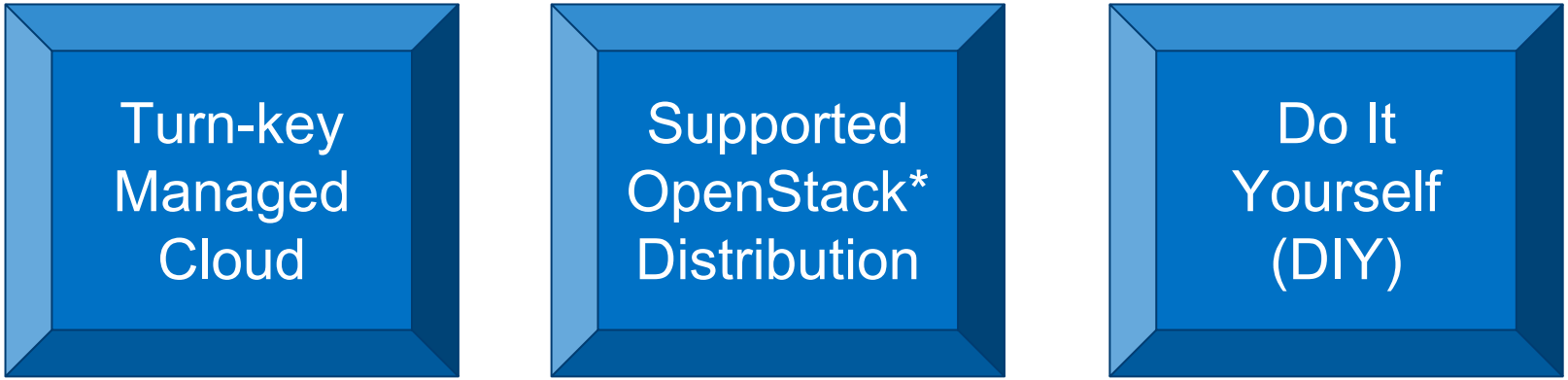
Enterprise cloud strategy



Private cloud consumption models



reference: http://www.openstack.org/enterprise

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Requirements & constraints

Regulatory & compliance

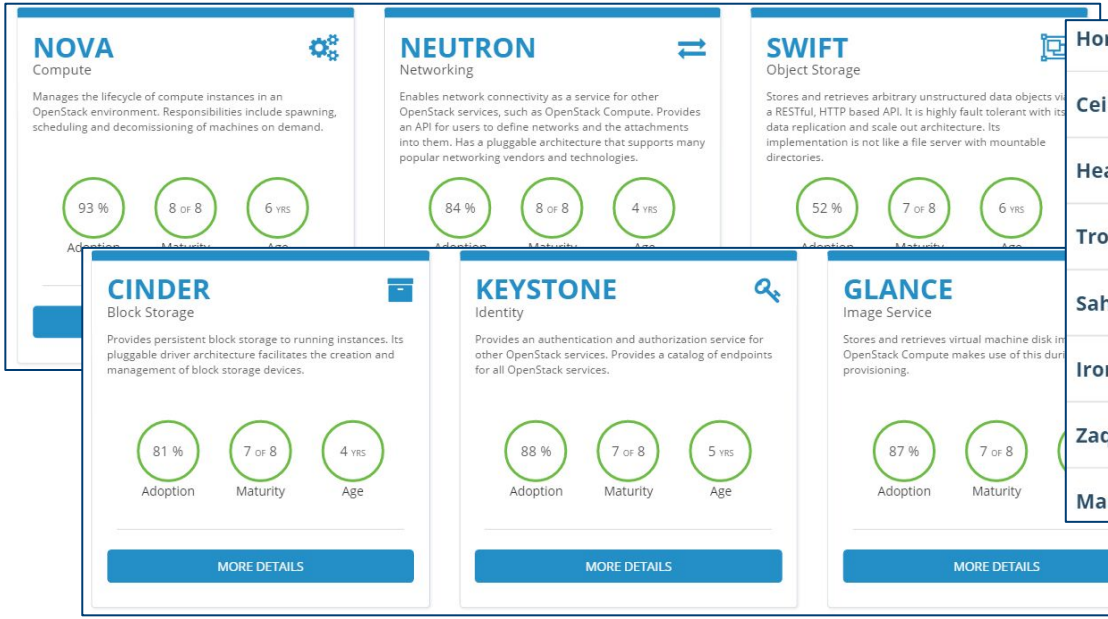
Investment & funding

more...

System integration

Geographic locations

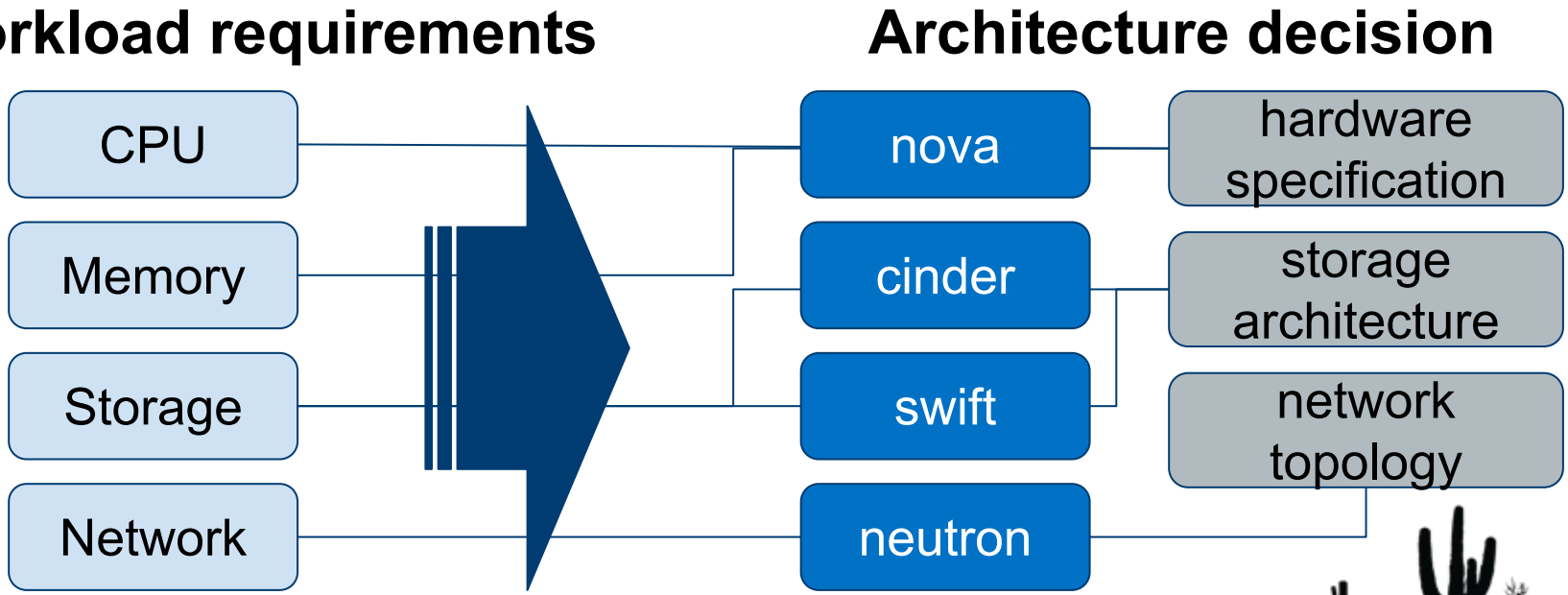
Design & implementation considerations - feature maturity



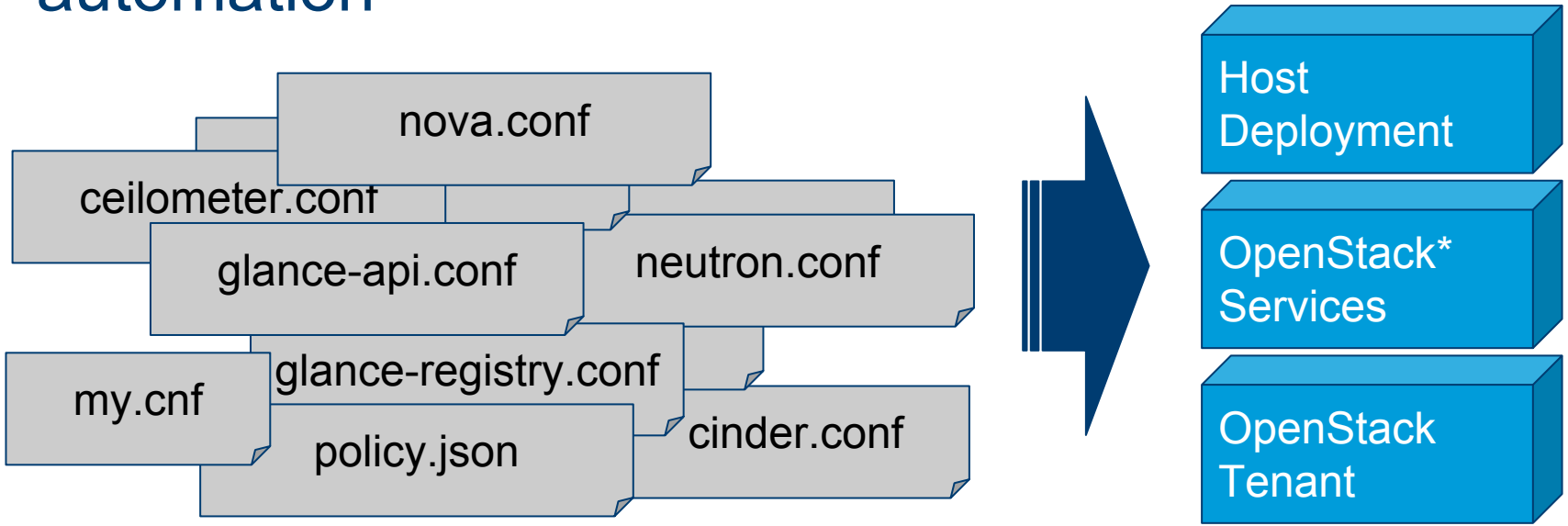
Horizon	Dashboard	6 of 8	5 Yrs	86 %
Ceilometer	Telemetry	2 of 8	4 Yrs	59 %
Heat	Orchestration	4 of 8	4 Yrs	64 %
Trove	Database	3 of 8	2 Yrs	17 %
Sahara	Elastic Map Reduce	3 of 8	2 Yrs	11 %
Ironic	Bare-Metal Provisioning	3 of 8	2 Yrs	20 %
Zaqar	Messaging Service	3 of 8	2 Yrs	2 %
Manila	Shared Filesystems	5 of 8	2 Yrs	11 %

reference: http://www.openstack.org/software/project-navigator

Design & implementation considerations - workload & capacity



Design & implementation considerations - automation



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Design & implementation considerations - deployment phases

Deployment	Benefits	Use Case	OpenStack Projects
All-in-one	Easy to start	PoC	nova, neutron, keystone, glance, horizon, cinder, *swift, heat*
Non-HA multi-nodes	Small capacity Fast experiments	PoC, pilot Greenfield apps	nova, neutron, keystone, glance, horizon, cinder, *swift, heat, ceilometer*
HA multi-nodes	HA Larger capacity Dedicated resources	Pilot, production workloads Big data	nova, neutron, keystone, glance, horizon, cinder, *swift, heat, ceilometer, murano, trove*

reference: http://www.openstack.org/enterprise

Use case

OpenStack* engineering lab

- DevTest environment
- Developers & architects
- Agile development environment
- Enabling Intel architecture and features

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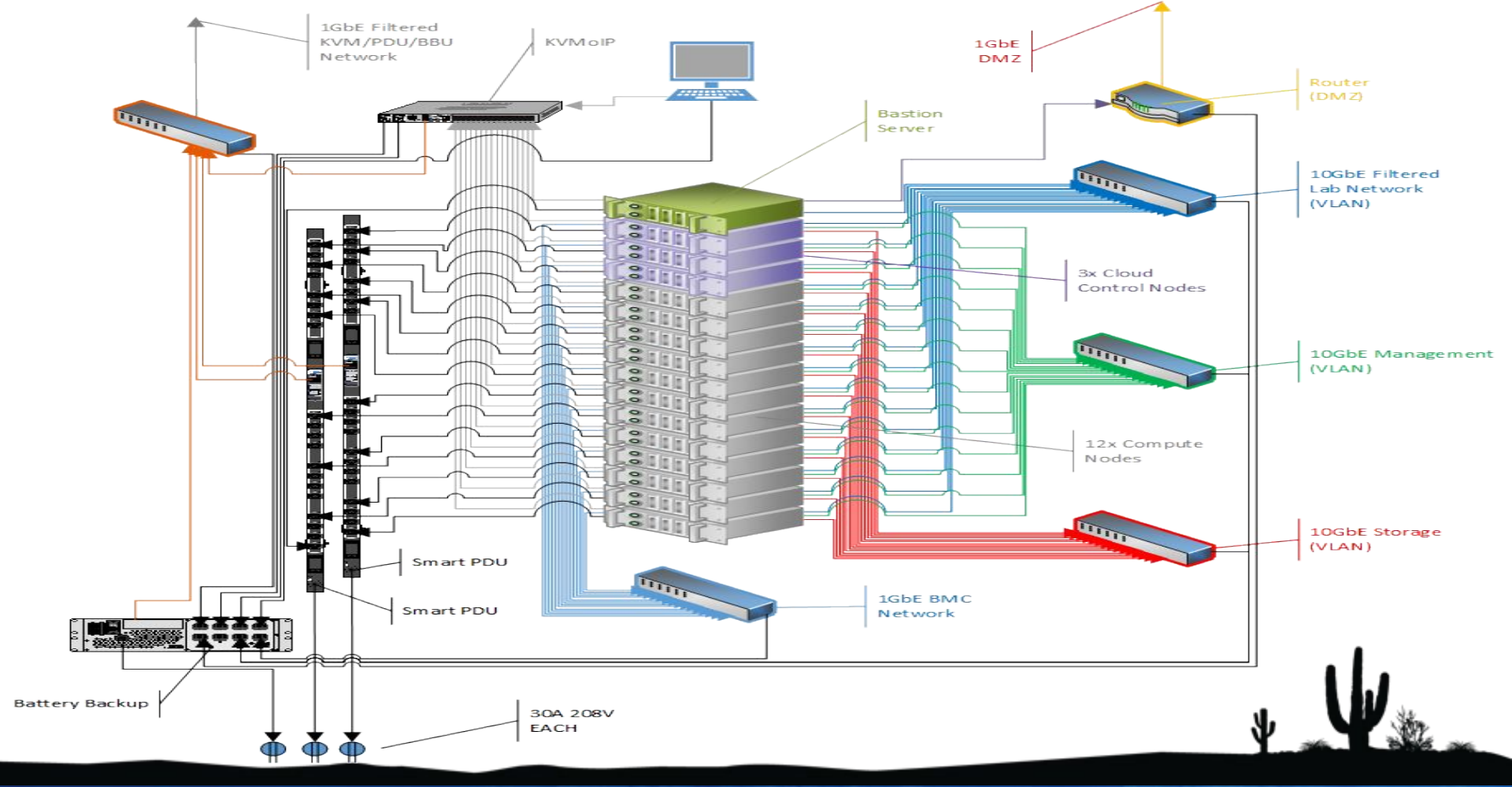

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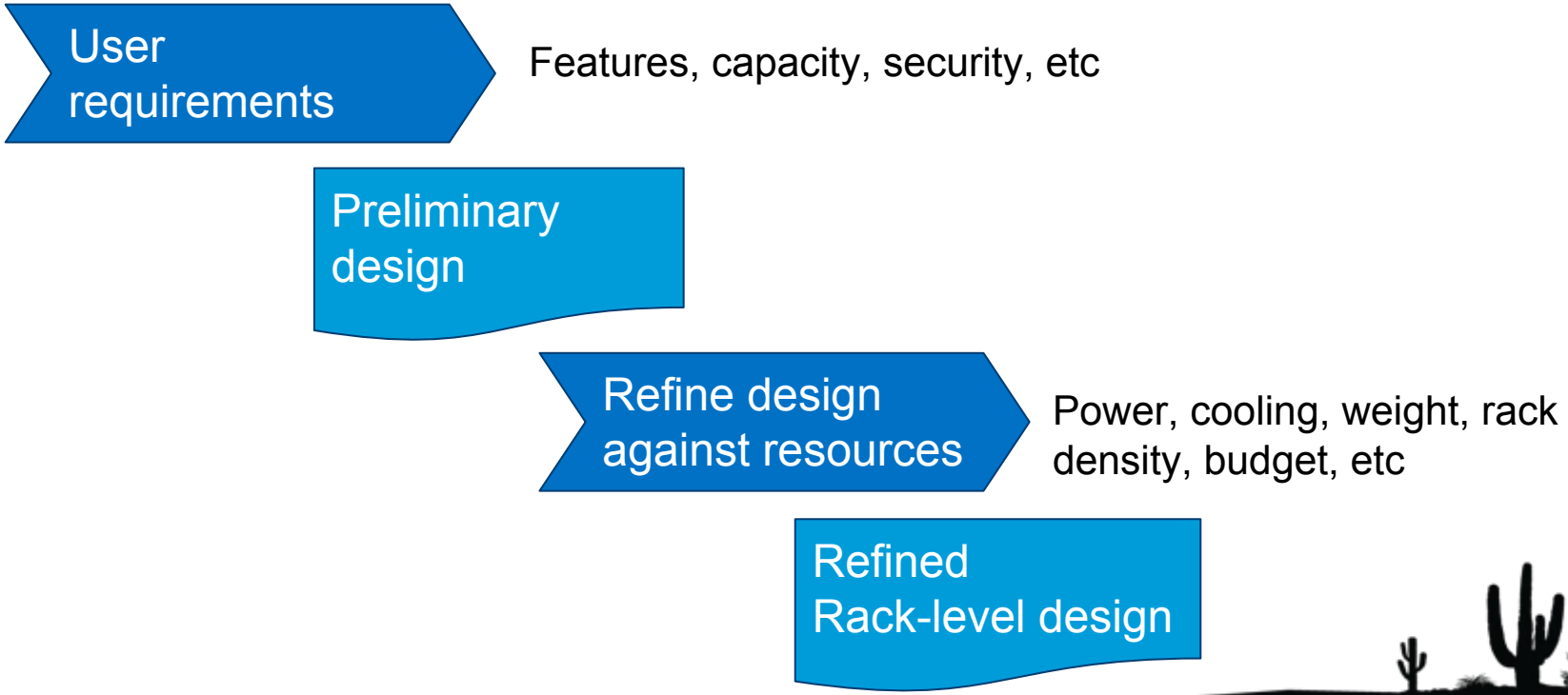
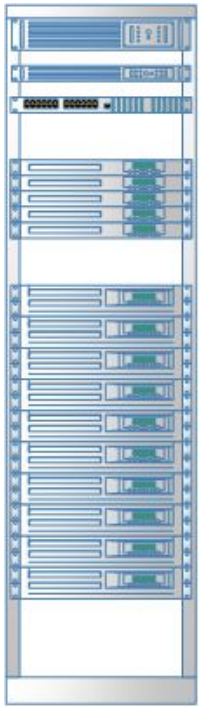
Designing infrastructure to fit within constraints

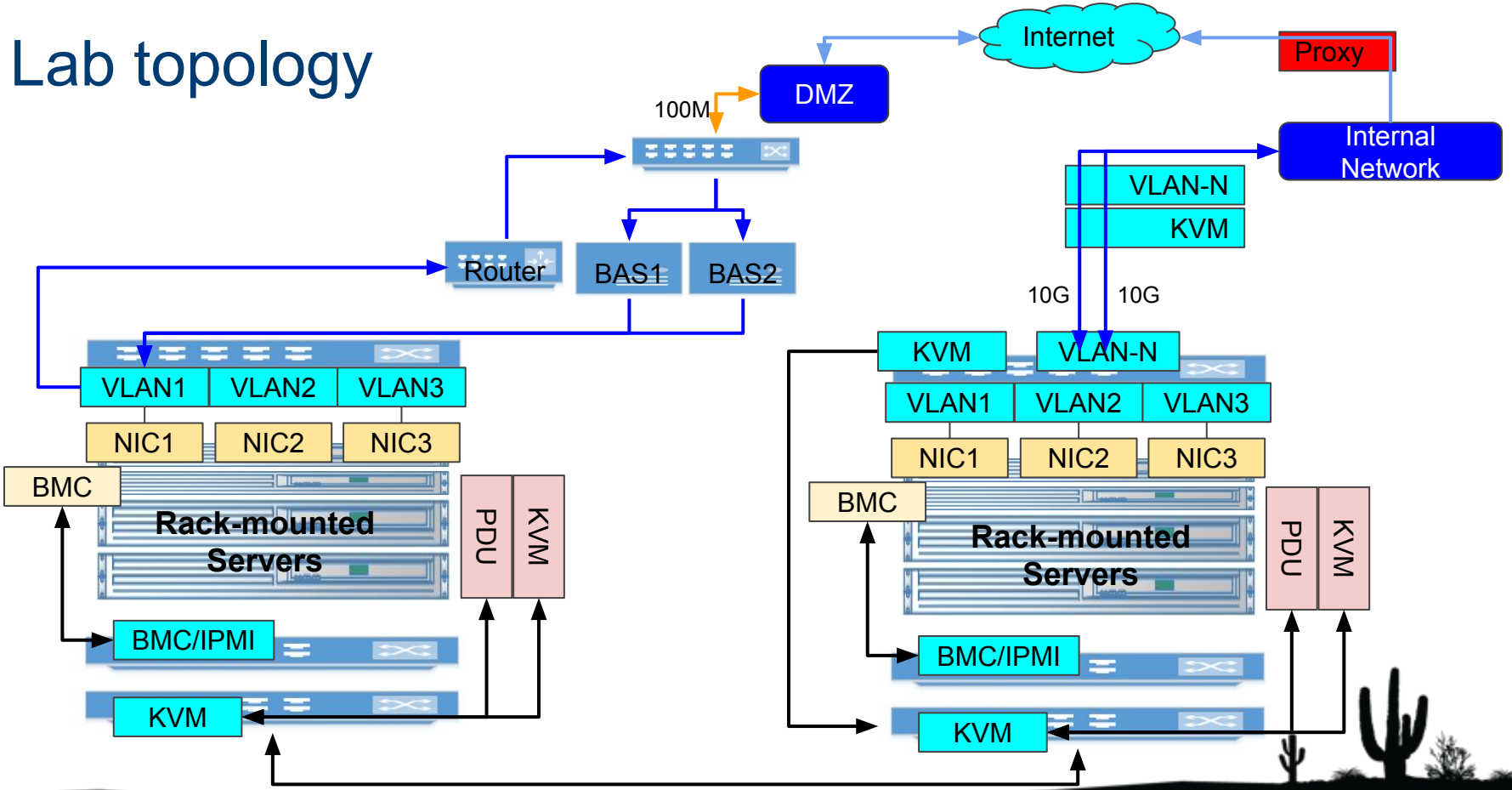


Reference hardware specification

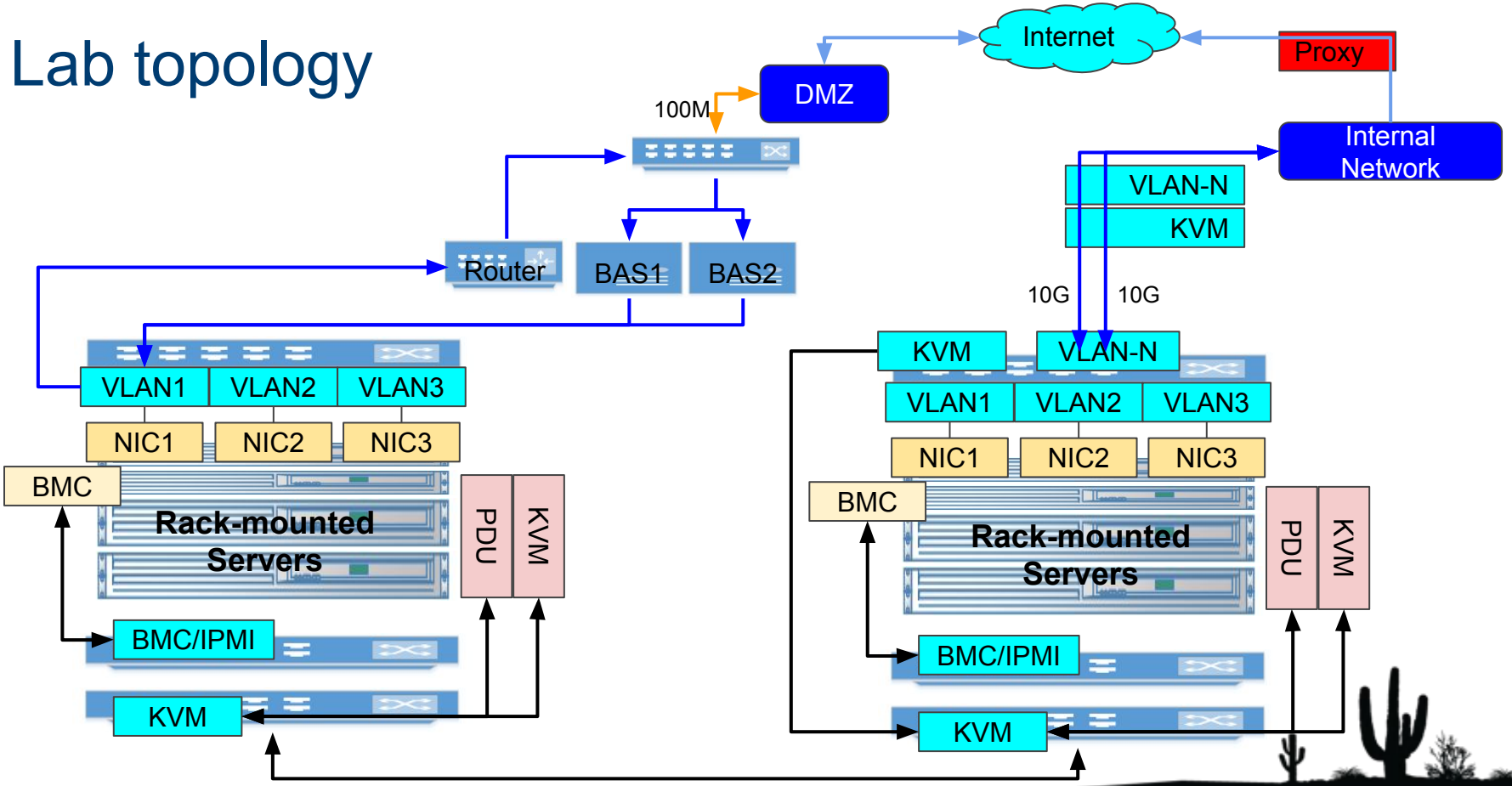


- Intel® Xeon® E5-2699 V3, 128GB DDR4, 4x 10 GbE, 2x 1 GbE, with Intel Enterprise SSD and enterprise-class SATA
  - 5 x 1U with 8 drive bays
  - 10 x 2U with 26 drive bays and Enterprise RAID
- Management Infrastructure
  - KVM over IP for remote management
  - 2x Network managed PDU @ 208V/30A
  - IPMI
- Network Infrastructure
  - 1x 48 port 10 GbE SFP+ managed
  - 2x 16 port 1 GbE unmanaged

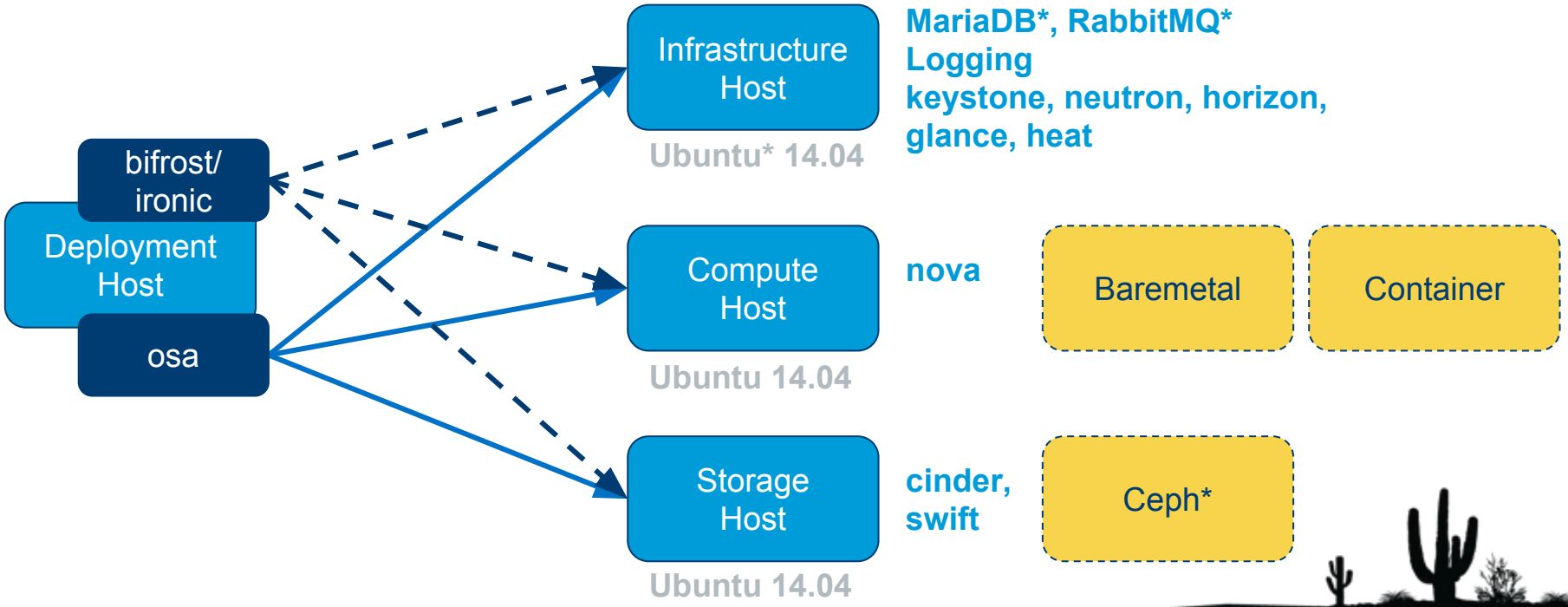
Lab topology



Lab topology



Automate deployment



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Organization & process considerations

Staffing

Develop special interest group within organization
Access OpenStack* project goals at different phases (PoC, Pilot, Production) and identify gaps in skillsets
Define roles needed for different consumption models

reference: http://www.openstack.org/enterprise

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Enterprise processes alignment

Cloud Model	Conventional Model
VM provisioning < 1-5 mins	Approval process > few days/weeks
Self-service, real-time support	Ticket-based support
Developers + Operators	Developers vs Operators
Agile, CI/CD software delivery pipeline	Waterfall SDLC model
Chargeback/showback	

Measuring value

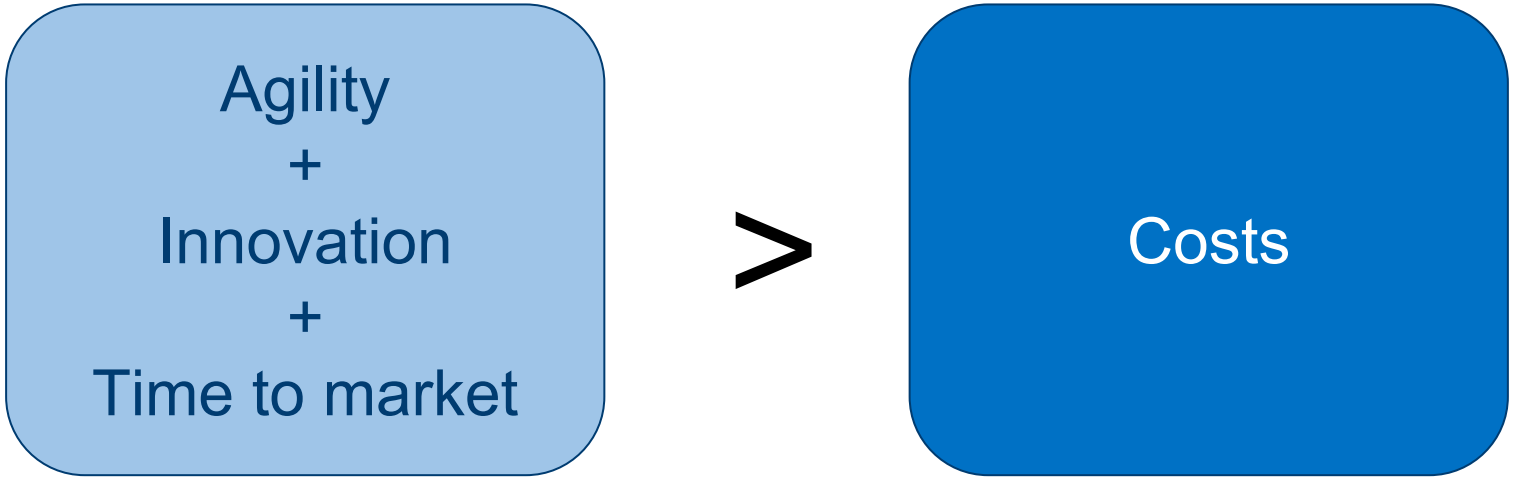
Cost

- Hardware & Software
- Infrastructure
- Maintenance
- Staffing
- Professional Services

Benefit

- IT efficiency
- Productivity
- Time to value
- Innovation

OpenStack* value



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Summary

Summary

- Understanding your constraints and limitation
- Design for flexibility
- Rack-level reference architecture

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Thank you!

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References

- The NIST* Definition of Cloud Computing
  http://dx.doi.org/10.6028/NIST.SP.800-145
- Enterprise Working Group
  https://wiki.openstack.org/wiki/Enterprise_Working_Group
- OpenStack* Enterprise
  https://www.openstack.org/enterprise
- OpenStack* Project Navigator
  http://www.openstack.org/software/project-navigator

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