



70 YEARS OF CREATING TOMORROW



**Los Alamos**  
NATIONAL LABORATORY

# Cloud Management with OpenStack

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# Overview

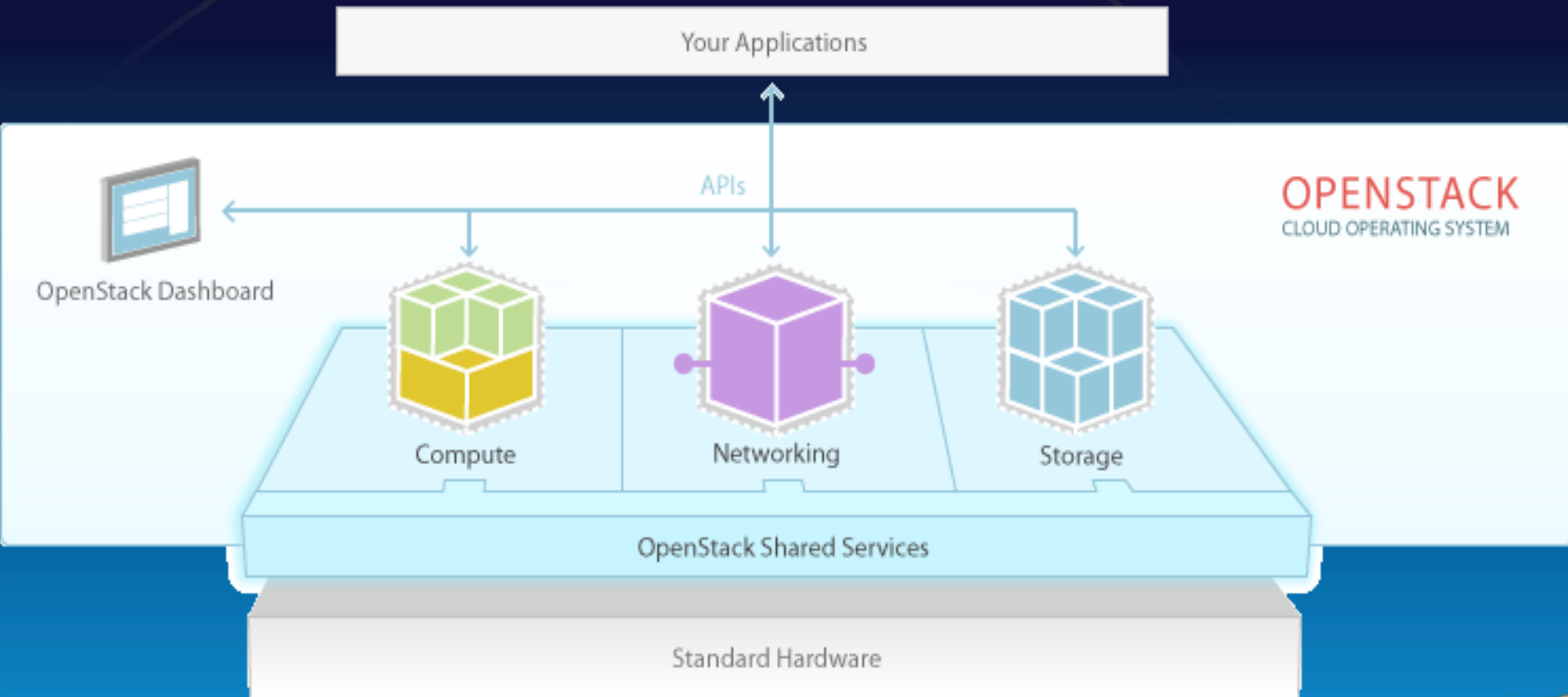
- What is OpenStack
- Networking, storage, compute
- Benchmarking
- Results
- Future work
- Lessons Learned

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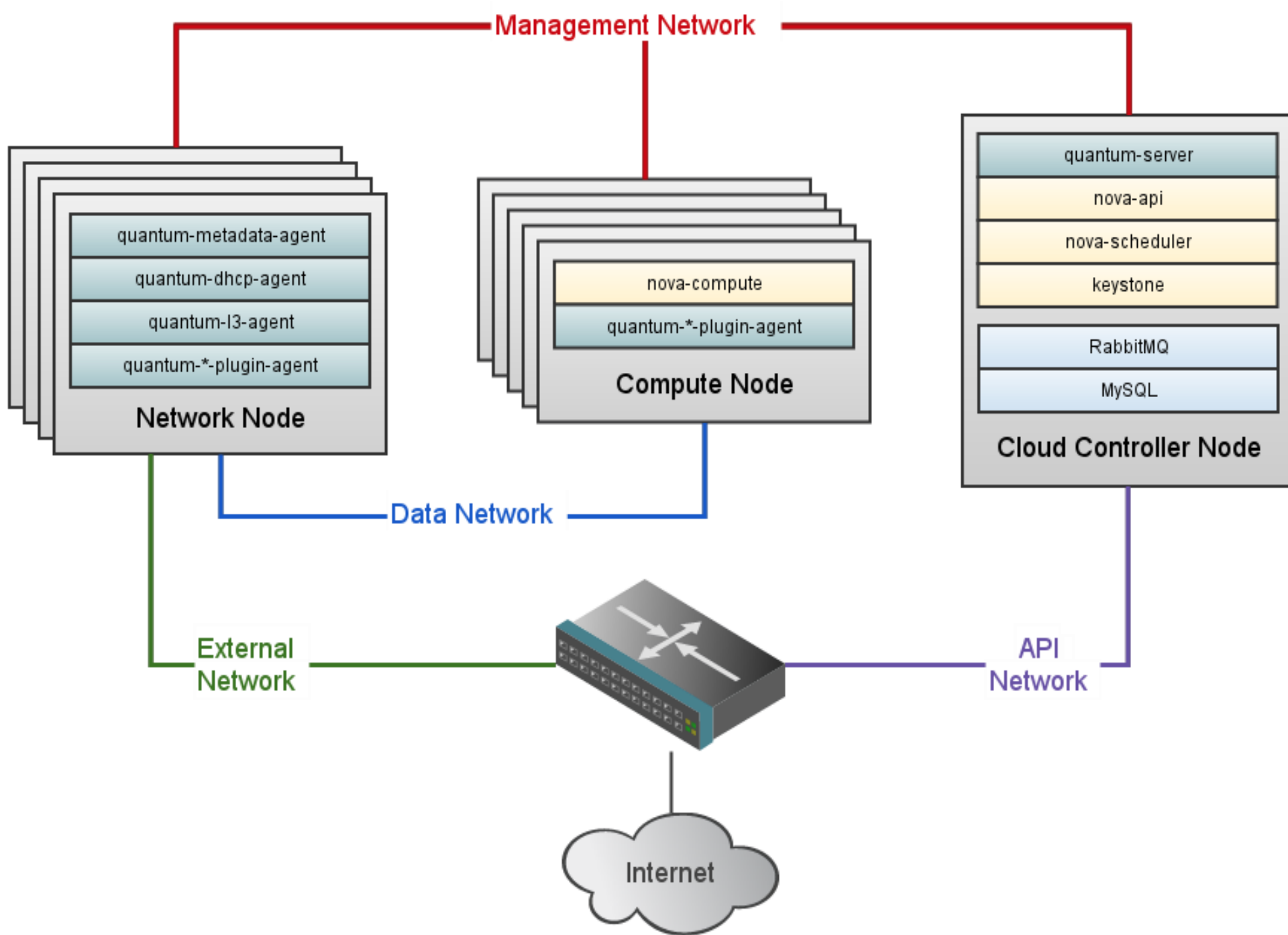


# OpenStack Cloud



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# All Instances

Project Admin

### System Panel

Overview

Instances

Volumes

Flavors

Images

Projects

Users

Networks

Routers

System Info

Terminate Instances

## Instances

<input type="checkbox"/>	Project	Host	Name	IP Address	Size	Status	Task	Power State	Actions
<input type="checkbox"/>	admin	osvmmware.localdomain	<a href="#">Biz_Talk</a>	192.168.23.8	m1.tiny   512MB RAM   1 VCPU   0 Disk	Active	None	Running	<a href="#">Edit Instance</a> <a href="#">More</a>
<input type="checkbox"/>	admin	osvmmware.localdomain	<a href="#">Oracle_db</a>	192.168.23.7	m1.tiny   512MB RAM   1 VCPU   0 Disk	Active	None	Running	<a href="#">Edit Instance</a> <a href="#">More</a>
<input type="checkbox"/>	admin	osvmmware.localdomain	<a href="#">Puppet_Master</a>	192.168.23.6	m1.tiny   512MB RAM   1 VCPU   0 Disk	Active	None	Running	<a href="#">Edit Instance</a> <a href="#">More</a>
<input type="checkbox"/>	admin	osvmmware.localdomain	<a href="#">web-deploy</a>	192.168.23.5	m1.tiny   512MB RAM   1 VCPU   0 Disk	Active	None	Running	<a href="#">Edit Instance</a> <a href="#">More</a>
<input type="checkbox"/>	admin	osvmmware.localdomain	<a href="#">RHEL6</a>	192.168.23.4	m1.tiny   512MB RAM   1 VCPU   0 Disk	Active	None	Running	<a href="#">Edit Instance</a> <a href="#">More</a>
<input type="checkbox"/>	admin	osvmmware.localdomain	<a href="#">f19-web</a>	192.168.23.2	m1.small   2GB RAM   1 VCPU   20GB Disk	Active	None	Running	<a href="#">Edit Instance</a> <a href="#">More</a>

Displaying 6 items



# Storage and Compute Services

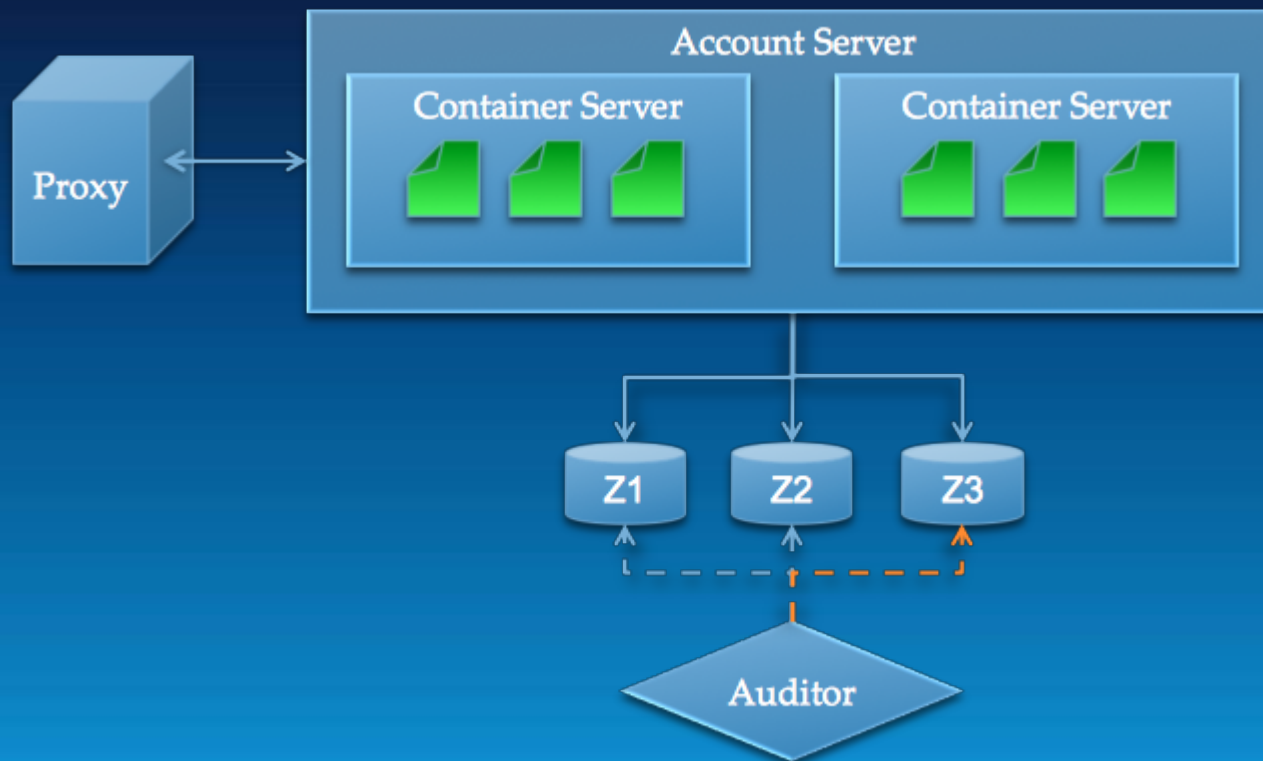
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# Swift Object Storage

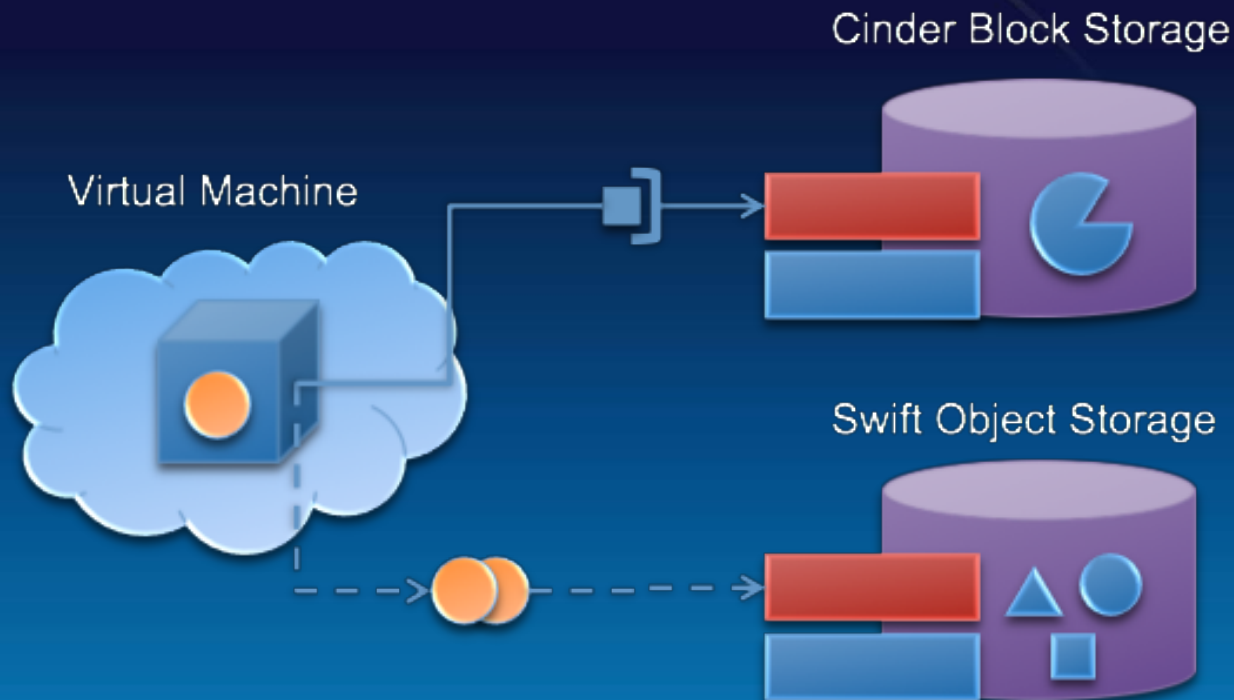
How it works, the structure:



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# Cinder Block Storage



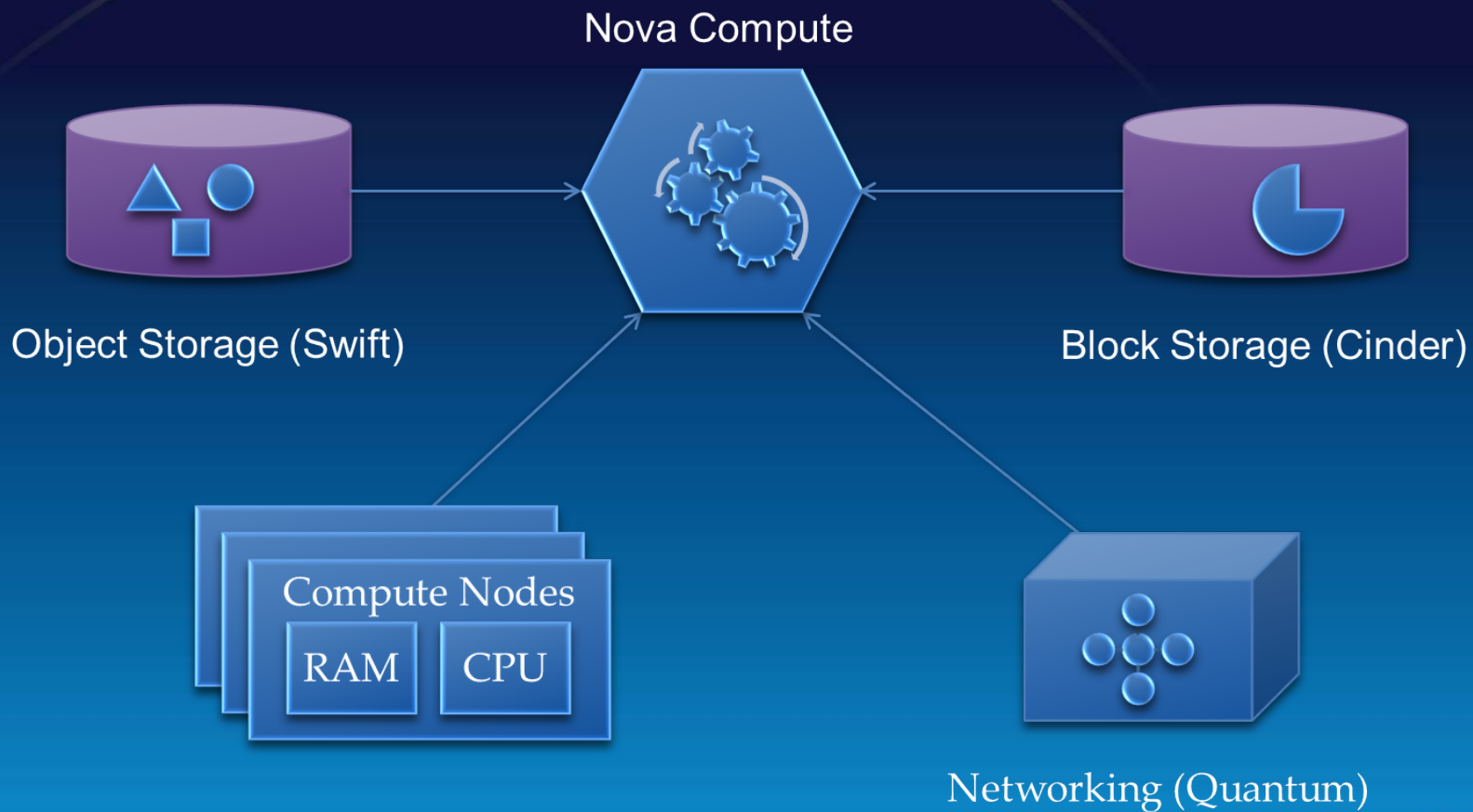
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# Nova Compute

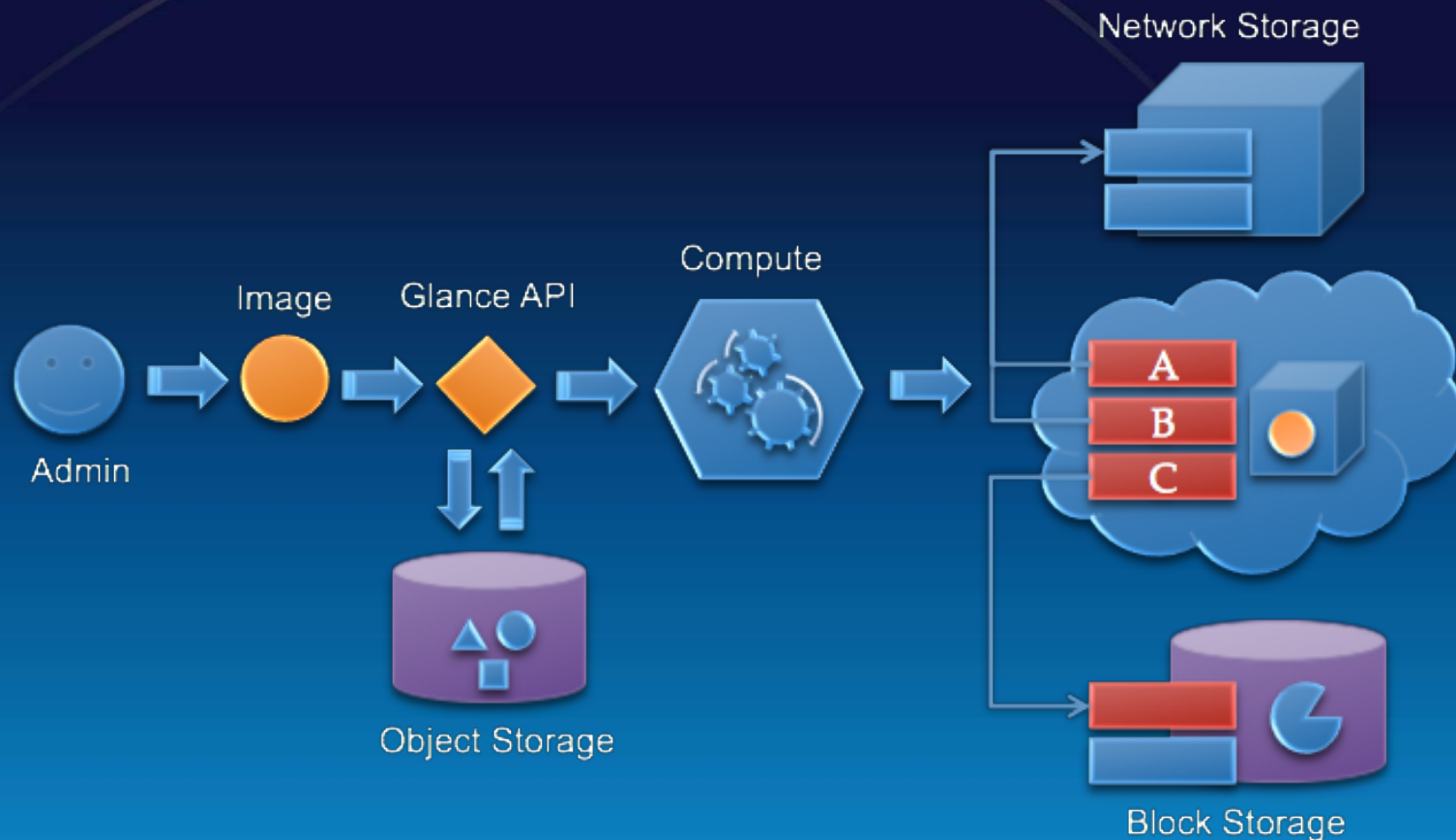


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# Life of an instance



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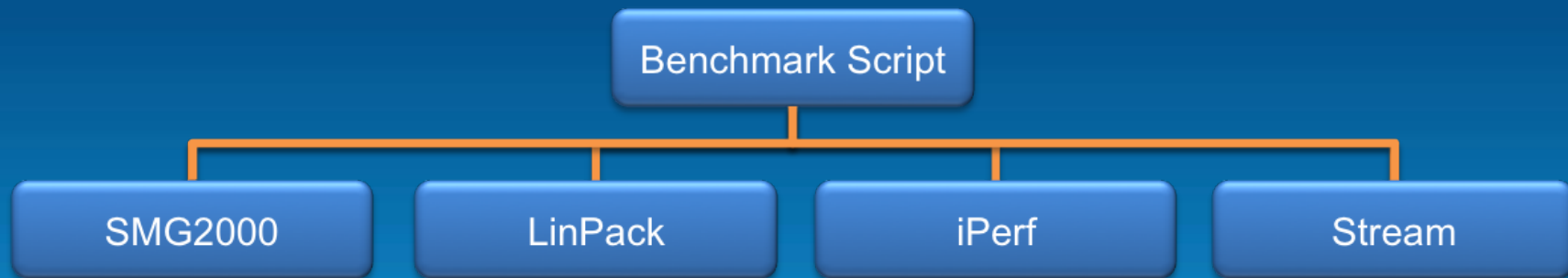
# Process & Results

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# Methods

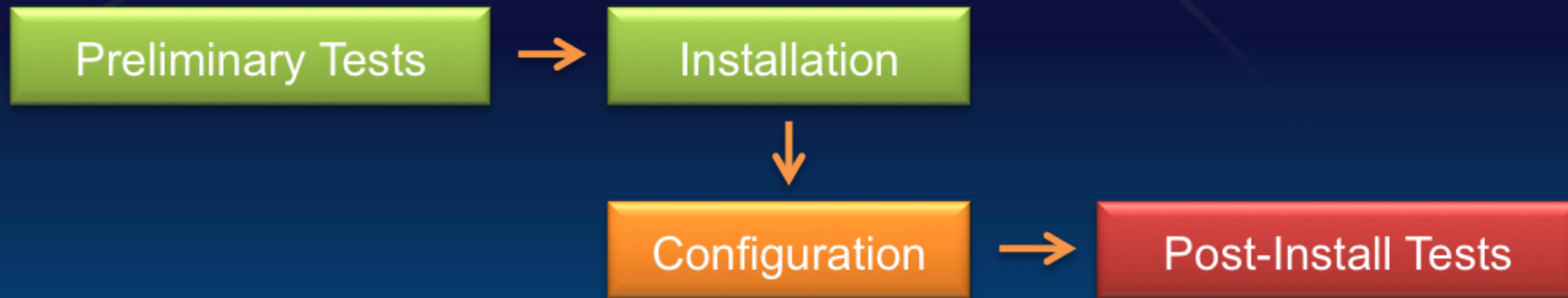


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# Results



## Roadblocks

- Hardware
- RDO PackStack/Manual
- Quantum/Nova-Network
- Configuring Scripts
- Database control
- Warewulf
- Authentication
- Languages



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# Future Work & Conclusion

- Left to do:
  - Post-installation benchmarks
  - Failure Testing & High Availability Testing
  - Overhead performance
- Overall:
  - Installation 👍 Configuration 👎
  - Scalable & cost effective
  - Alternative to VMware
  - Not ready for mainstream

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# Lessons Learned

- Difficult configuration
- Requires expertise
- Consider OpenStack training
- Fragile product



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# Acknowledgements

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- Breen Malmberg
- Derek Walker

## Administrative staff

- Carol Hogsett
- Josephine Olivas
- Scott Robbins

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# Thank You!

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## Questions?

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