The next iteration of the MOC

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Who am I?

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In the beginning...

- Original MOC deployment four years ago.
- OpenStack and installation tooling was not as mature then as it is now.
- Non-homogenous hardware configuration
- Based on Puppet modules originally from Red Hat’s Astapor project
- Puppet modules were locally customized
Early success

- Original MOC environment was successful!
- Used to support hundreds of users across both classes and research projects.
Limitations and pressures

- The configuration of the original MOC environment had some limitations:
  - No high-availability
  - Difficult to introduce new features/new services
  - Difficult to upgrade
  - Difficult to support

- Increasing pressure on the MOC environment:
  - Increasing number of users on the MOC
  - Increased demand for resources
New hardware and a way forward

- In the spring of 2018, the MOC received a major hardware donation from Two Sigma
  - 100 servers
  - 2 x Intel Xeon CPU E5-2690 v2 @ 2.90GHz or similar
  - 384 GB per compute host
- The MOC decided to implement a new OpenStack environment on the Two Sigma hardware with the goal of addressing the limitations of the existing environment
Red Hat OpenStack Platform Director

- Based on the upstream “TripleO” project (OpenStack-On-OpenStack)
- A limited, opinionated OpenStack environment (the “undercloud”) manages the target hardware and OpenStack installation (the “overcloud”)
Advantages to Using Director

- Reduced manual effort
  - Easy to enable any Red Hat supported service.
- More robust infrastructure
  - HA configured "out of the box"
  - Recommended configuration settings are already in place
- More supportable
  - Configuration of the MOC hosts will be familiar to Red Hat support
Provisioning Models

- In a typical install, Director handles the entire process from system discovery, operating system provisioning, and software installation and configuration.
- In the “split stack” deployment model, local tools are used for operating systems provisioning, while Director is used only for the software installation and configuration aspect.
New Infrastructure

- Highly available network infrastructure (Brocade switch fabric)
- Highly available controllers
- Dedicated network hosts for better performance as environment grows
Current status

- Currently 15 nodes dedicated to OpenStack compute resources
  - Other hardware used for elastic bare metal environment (BMI/HIL)
- Internal testing over the next week
- Followed by limited external testing
- Followed by general availability
Thank you!