Learnings from scaling Ironic at Yahoo

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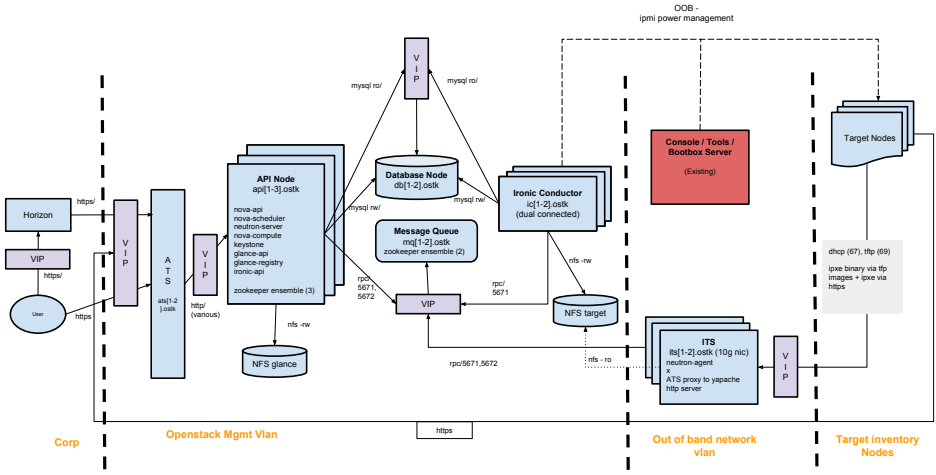
https://github.com/saga/presentations/

Background and Architecture

Cluster Architecture



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- Create neutron port for the node
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- Once everything is successful, switch to pxe_ipmitool driver

Ironic

Ironic Setup

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- Ironic Conductors(2)

What could possibly go wrong?

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- Ironic API calls took too long

Solutions

- Sync_Power_State periodic task

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- Sync_Power_State periodic task
- Increase the number of Ironic Conductors
- Run multiple conductors on the same host

Neutron

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- ISC DHCPD driver instead of dnsmasq

What is sync state?

A tale of two drivers

- OMShell driver

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- Pypureomapi driver

OMShell

```
-bash-4.1$ omshell
> server 127.0.0.1
> port 7911
> key keyname secret
> connect
obj: <null>
> new host
obj: host
> set hardware-address = 00:1c:1a:1d:10:54
obj: host
hardware-address = 00:1c:1a:1d:10:54
> open
obj: host
hardware-address = 00:1c:1a:1d:10:54
ip-address = 0a:d7:a6:b1
name = "hostname.yahoo.com-0"
hardware-type = 00:00:00:01
>remove
```

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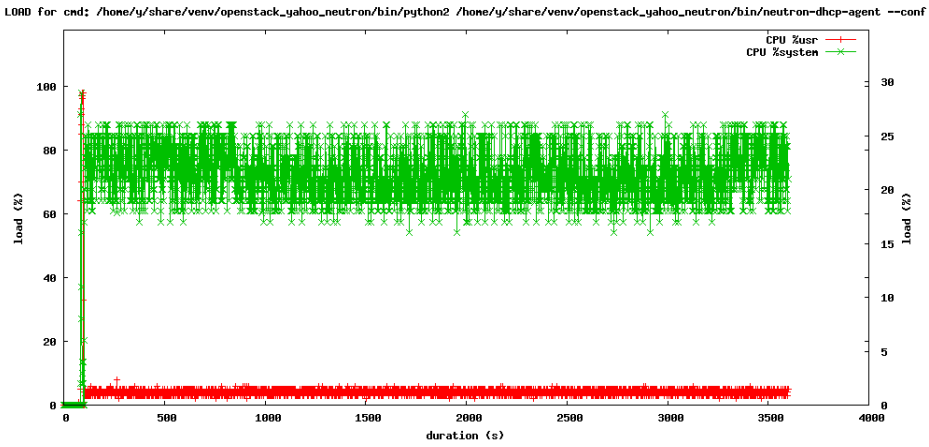
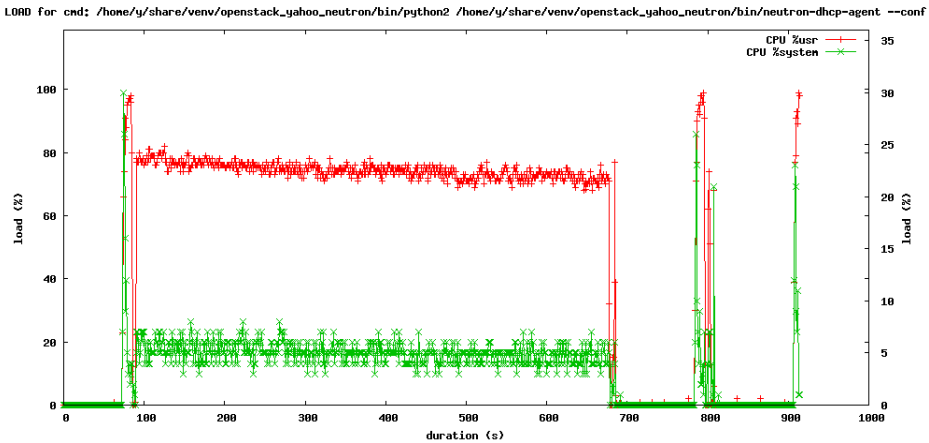
Sync State with OMShell



Sync State with PypureOMAPI



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- ISC DHCPD restarts are not ideal
- VIP thinks dhcpd is down whenever it restarts
- Move to Kea DHCP Server if possible

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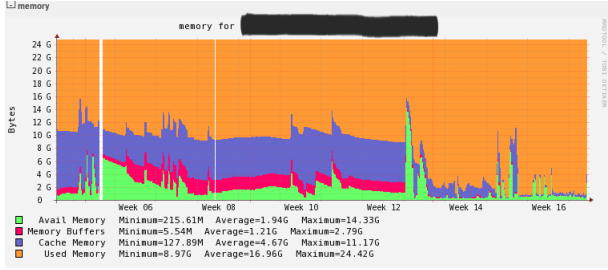
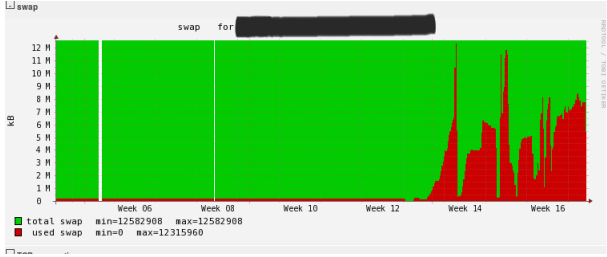
Density Test

When did things started to break?

- At 24500 nodes, API servers started swapping

Swap and memory usage on API nodes





Memory usage

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- Long Term Fix: Investigate memory usage, isolate neutron

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- Avoid spawning processes, try and use native python libraries whenever possible
- Pay attention to periodic tasks
- Be prepared to scale horizontally
- Pay attention to number of workers,conductors,rpc_workers
- Don’t forget to have fun :)

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Questions