How Hot is the OVN?

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- Spun out of IBM Research
- We're hiring!
  - Search for “cloudlab” in IBM jobs
- Development and operation of next-generation cloud
  - Compute
  - Storage (object and block)
  - Datacenter operations
  - Network services
  - Network virtualization
Network Virtualization

- Current focus: control plane
  - Availability
  - Scalability

- Development
- Operations
Objectives

- Benchmark
  - Startup
  - Steady state
  - Failure conditions

- Contribute improvements upstream

- Implement and operate clouds
  - From small private clouds
  - To hyperscale/hyperconverged
    - 100k+ servers
Goals

- Develop framework for automated benchmarking
- Replicate tests as ovn code evolves
- Compare performance on different platforms
- Model workloads to forecast limits
- Develop deployment tools
- Operate live networks
Approach

- Initial focus: how to test ovn at scale?
  - Openstack Rally, or something else?

- Requirements
  - Flexibility: bare metal and virtual machines
  - Scalability
  - Automation
  - Replicability

- Sandbox is awesome!
  - Minor modifications allow multiple instances per endpoint

- Majority of work is on orchestration
  - Building code
  - Provisioning testbed
  - Testing
  - Evaluation
Methodology

- Ansible
  - Orchestration
    - Apply to different testbeds
    - Parameterize
    - Deploy and synchronize
    - Retrieve data

- Scripts (Bash/Python)
  - Run tests
  - Analyze data
Roles

- Master
- Builder
- Distributor
Master

- Runs main ansible
- Sets up testbed
- Runs tests
Builder

1. Install needed packages
2. Retrieve code from repositories
3. Compile code
4. Install needed packages on distributors
5. Copy code to distributors
Install needed packages on lower level distributors or endpoints

Deploy code to lower level distributors or endpoints
Testing

Master
(Laptop, CI/CD, etc.)

Controller

Endpoint 1
Endpoint 2
Endpoint n
The workings

- ansible-playbook -i *localhosts* setup_testbed.yml
  - Sets test machines up
  - Repositories and versions can be parameterized

- ansible-playbook -i ~/t901 test_network_startup.yml -e “instances=1”
Instances=100

Controller CPU usage

CPU Usage

00:00 00:10 00:20 00:30 00:40 00:50 01:00 01:10 01:20 01:30

Time
Lessons learned

- Testing ovn at scale not difficult with sandbox
- Ansible is awesome
  - Make sure you understand YAML and Jinja2