Open Storage Network Seminar Series
Hardware
January 21, 2021

OSN Pod Overview

Hardware is deployed in "Scalable Units" known as Pods

Each Pod is:

- A single bill of materials
- Delivered with all hardware racked and configured
  - Sites just need to connect power and networking
- Capable of 40Gbps sequential IO
- Target cost $150,000
- 1 PB useable storage

OSN S3 Compatible Interface

Ceph Monitor Service

Ceph OSD Service

OSN Pod Storage View

Site Requirements

Physical Space Requirement

- 42U (750mm x 1200mm) Rack Enclosure

Power Requirement

- Connection for 2x IEC 60309 60A 3P4W PDUs

We will work with sites to incorporate their own Rack and PDU into a Pod

Networking Requirements

- Access to Internet2
    - 100 GbE is preferred, but sites with slower connections may participate
- 1 GbE to Commercial Internet for OOB Management

Storage Node Highlights

5 Storage Nodes per Pod

- 4U Supermicro Server
- 18 Core Skylake CPU
- 256 GB RAM
- 36 x 8TB Seagate HDD
- 2 x 50 GbE data network

5 Node Total: 1.44 PB Raw Storage

Complete Hardware Details at https://www.openstoragenetwork.org

Proxy Node & Switch Highlights

3 Monitor/Proxy Nodes per Pod

- 1U Supermicro Server
- 18 Core Skylake CPU
- 256 GB RAM
- 2 x 50 GbE data network

Top of Rack Switches

- Mellanox SN2100 16-port 100 GbE
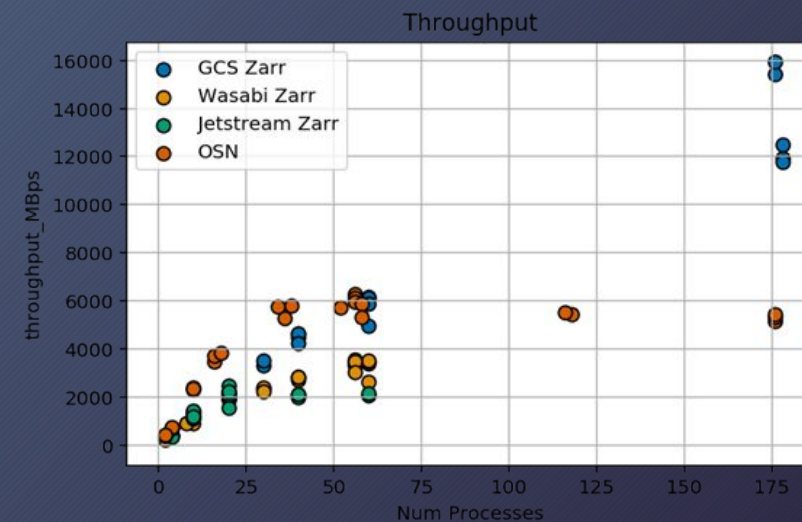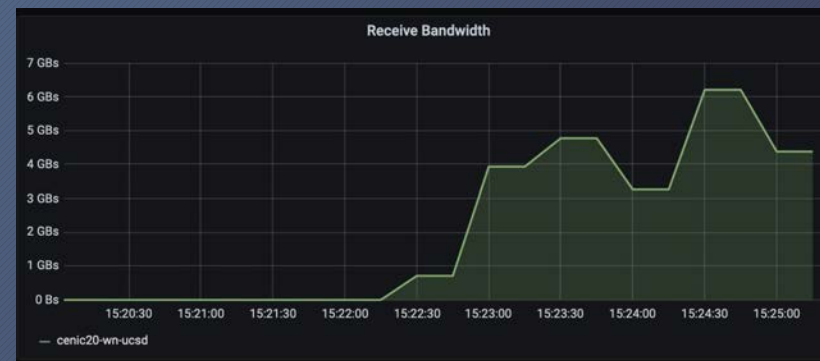- Netgear M4300 24-port 1 GbE

OSN Pod Benchmarks

IceCube (SDSC) recorded 5.5 GBps read speed from 10 nodes. IceCube only able to get 4 GBps from Azure Storage and AWS S3 in similar tests.

Pangio (NCSA) was "extremely impressed" with the results of their benchmarks. Pangio achieved 5.5 GBps read speeds from threaded tests. They reported higher throughput from the OSN than from Google's Cloud Storage US-CENTRAL region.

"OSN is a very viable alternative to cloud storage for us for many use cases" - Pangio

OSN Pod Update for 2021

3 Monitor/Proxy Nodes

- 1U Supermicro Server

12 Storage Nodes

- 2U Supermicro Server
- SSD/NVMe for Cache/Journal

Same rack, power, and networking requirements

Still 1 PB of usable storage and target cost of $150,000

Available in the second quarter 2021