WEKA SYSTEM DESCRIPTION

1 x DGX H100 with WEKApod Cluster

August 20, 2024

Contents

- Hardware
  - Server
  - Client
  - Switch
- Software
  - Server
  - Client
  - Switch
- Configuration & Settings
  - Server
  - Client
  - Switch

Hardware

Server

- WEKApod storage server: 8 qty
- Form factor: 1U
- CPU: AMD EPYC 9454P 48-Core Processor, single socket
- Memory: 384 GB
- Boot drive: Dell BOSS-N1, 960 GB
- OS: Rocky Linux 8.6 (Green Obsidian)
- Data network: NVIDIA ConnectX-7 adapter card, 400Gb/s NDR IB, Single-port
  - 2 ports/server in active/active configuration
- SSD: 14 x Samsung Dell NVMe PM1743 RI E3.S 3.84TB, TLC NVME, 3840 GB

Hardware

Clients

- 1 x WEKA POSIX clients
- Commercial name: NVIDIA HGX H100
- CPU: Intel(R) Xeon(R) Platinum 8480C, 3.8 GHz, dual socket
- Memory: 2048 GB
- Boot drive: 2 x NVME SAMSUNG MZ1L21T9HCLS-00A07 1.92 TB
- OS: 22.04.2 LTS (Jammy Jellyfish)
- Data network: NVIDIA ConnectX-7 adapter card, 400Gb/s NDR IB, Single-port
  - 2 ports/server in active/active configuration

Hardware

Switch

- NVIDIA Infiniband MQM9700-NS2F
- 64 ports

Software

Server

- OS: Rocky Linux 8.6 (Green Obsidian)
- Kernel: 4.18.0-372.9.1.el8.x86_64
- OFED: 5.8-1.1.2.1
- WEKA software: 4.2.11

Software

Clients

- DGX OS: 6.1 (based on 22.04.2 LTS (Jammy Jellyfish))
- Kernel: 5.15.0-1040-nvidia
- OFED: 5.8-5.1.1.2
- WEKA software: 4.2.11
- Provisioned by NVIDIA BCM

Software

Switch

- MLNX-OS v3.10.1214

Configuration and Settings

Servers

- WEKA processes per server:
  - COMPUTE -- 29
  - DRIVE -- 14
- Protection: 5+2
- Total usable capacity: 220 TiB
- Infiniband MTU: 4k
- HA: WEKA HA (not LACP or bonding)
- No special tuning applied

Configuration and Settings

Clients

- WEKA processes per server:
  - FRONTEND -- 16
- Mount parameters
  - rw,relatime,forcedirect,inode_bits=auto,readahead_kb=4096,dentry_max_age_positive=600000,dentry_max_age_negative=0,container_name=client
- Infiniband MTU: 4k
- HA: WEKA HA (not LACP or bonding)

Configuration and Settings

Switch

- No special tuning of configuration applied

WEKA