HPE Storage

Technical white paper

Loadbalancer.org sizing recommendations for S3-protocol networks

Loadbalancer.org sizing for HPE Solutions with Scality

HPE GreenLake

Contents

Introduction

Loadbalancer.org offers accelerated performance through HPE ProLiant servers with enterprise load-balancing software deployed on HPE ProLiant DL20 and DL360 Servers for maximum performance. Loadbalancer.org products are approved by Scality for use with Scality S3 API in RING and ARTESCA. The Loadbalancer.org software for application delivery control (ADC) is deployed on virtual machines or physical servers and supports the HPE server systems described in this paper.

This paper provides guidance on how to configure storage server platforms approved by Hewlett Packard Enterprise to support the Loadbalancer.org Enterprise ADC product for delivering S3 access network load balancing for HPE Solutions with Scality.

Loadbalancer Enterprise ADC

Loadbalancer.org ensures high performance and availability for Scality S3 object storage solutions, RING and ARTESCA.

- Maintain high availability of the Scality storage cluster locally and across geo-distributed environments by using detailed health checks and controlling network traffic flow at DNS and TCP levels
- Ensure high performance by monitoring the load on individual nodes and redirecting traffic
- Enhance data management applications by offering reliable runtime operation with increased response time and lower network latency

Layer 2 connectivity and interface bonding

Interface bonding combines multiple physical interfaces into a single logical interface. Bonding enables built-in redundancy so that a logical interface can survive a physical interface failure. In the case of Link Aggregation Control Protocol (LACP), additional bond members increase the aggregate throughput.

Global server load balancing

For multisite RING deployments, it is possible to use the Loadbalancer.org global server load balancing (GSLB) functionality to provide high availability and location affinity across multiple sites. Using this optional, DNS-based feature, if a site's RING service or load balancers are offline, local clients are automatically directed to a functioning RING cluster at another site. A full explanation and instructions on setting up this feature can be found in the deployment guide.

Figure 1 provides an illustration of a multisite load-balancing architecture.

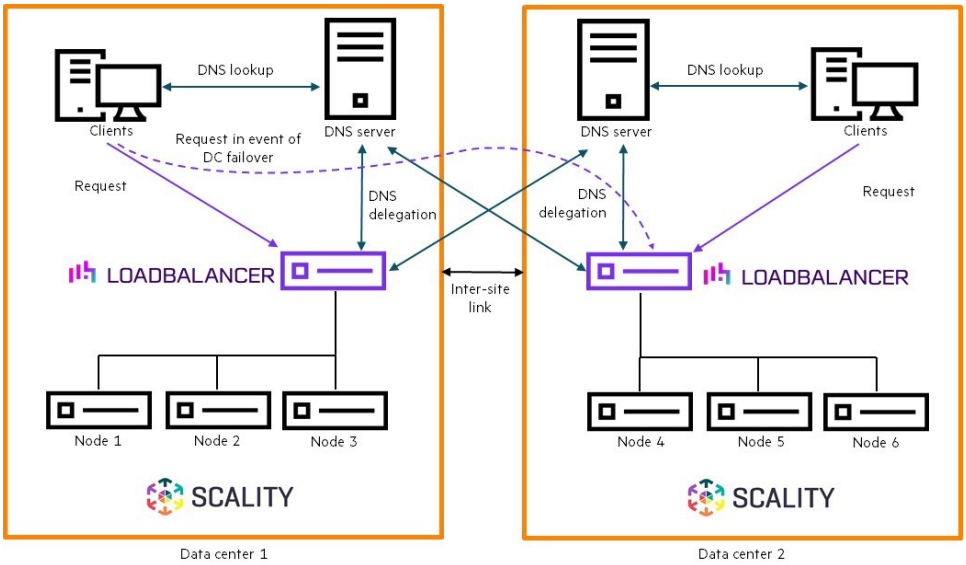

Figure 1. Dual data center network load-balancing architecture

Loadbalancer Enterprise ADC server requirements

- A server cluster running Loadbalancer Enterprise ADC
  - Recommended minimum of two server nodes per cluster for high availability
- Two ports per server (10/25/40GbE or 100GbE) for cluster networking
  - Minimum of 10GbE
  - Recommended 25GbE or greater
- One 1GbE port per server for HPE iLO management

Recommendations

- Load balancing methods:
  - Layer 7 source network address translation (SNAT) for maximum control of traffic and the ability to do SSL termination on the appliance
  - Layer 4 direct return (DR) for faster return without packet inspection
  - Software DNS / global server load balancing (SDNS/GSLB) for throughputs surpassing 100 Gbps
- Network Time Protocol (NTP)
- N-1 (N=number of nodes) floating IPs per node per client-facing VLAN (Scality uses a single IP per server)

Note
For full deployment and configuration information, see the Load Balancing Scality RING deployment guide.

Cabling

Loadbalancer Enterprise ADC uses Ethernet protocol within the cluster network. It supports a variety of direct-attach copper (DAC) and fiber cables with Ethernet transceivers.

For 10/25/100GbE DAC, use a cable recommended by the switch vendor.

For fiber cables, OM4 is recommended.

Transceivers:

- SFP+ for 10GbE
- SFP28 for 25GbE
- SFP28+ for 40GbE
- QSFP28 for 100GbE

Sample BOMs

Best practices include two load balancers (configured in active/passive) per Scality RING cluster or data center.

The sample BOMs show our recommendation for medium and large deployments. Depending on cluster size and throughput requirements, your Scality cluster may require more than one pair of load balancers per site.

Smaller RING deployments (up to six nodes) may be suitable for Loadbalancer.org Virtual Appliances deployed on virtual machines for more cost-effective deployments.

Virtual options

There are two virtual options available from Loadbalancer.org:

- Enterprise VA Prime—4 Gbps
- Enterprise VA Max—Unrestricted

By default, the appliance is allocated the following resources:

- Two vCPUs
- 4 GB RAM
- 20 GB disk

Virtual resources are not restricted and can be increased as needed.

Single-root I/O virtualization (SR-IOV) in VMware® environments can also be used for dedicated hardware interfaces to a virtual appliance. (SR-IOV requires Loadbalancer Enterprise VA Max.)

Standard-performance (medium) Loadbalancer.org configuration

Table 1 lists the minimum recommended BOM for each Loadbalancer.org server (up to 50 Gbps throughput). Loadbalancer.org solutions include a supported Linux® OS. Do not include RAID controllers in your BOM. For further recommendations, contact your Loadbalancer.org representative.

Table 1. Medium Loadbalancer.org configuration

Quantity per server	HPE SKU	Description
1	P65390-B21	HPE ProLiant DL20 Gen11 2LFF Non-hot Plug Configure-to-order Server
1	P65223-B21	Intel® Xeon® E-2436 2.9GHz 6-core 65W FIO Processor for HPE
1	P64336-B21	HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 Unbuffered Standard Memory Kit
1	P26262-B21	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
1	P10115-B21	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
1	P65411-B21	HPE ProLiant DL20 Gen11 External OCP Cable Kit
1	861686-B21	HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD
1	P52753-B21	HPE ProLiant DL320 Gen11 x16 FHHL Riser Kit
2	865438-B21	HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
1	P64576-B21	HPE Easy Install Rail 12 Kit
Quantity per server	**Loadbalancer.org SKU**	**Description**
1	SCISOMED	Loadbalancer Scality—ISO Medium Image (Enterprise ADC Software License)
1	SC5247ISOMED	Loadbalancer Scality—5 Year Standard support for Medium ISO Image
1	PSR	Loadbalancer Professional Services (Remote Delivery)

High-performance (large) Loadbalancer.org configuration

Table 2 lists the minimum recommended BOM for each Loadbalancer.org server (up to 100 Gbps throughput). Loadbalancer.org solutions include a supported Linux OS. Do not include RAID controllers in your BOM. For further recommendations, contact Loadbalancer.org. For solutions requiring more than 100 Gbps, contact your Loadbalancer.org representative.

Table 2. Large Loadbalancer.org configuration

Quantity per server	HPE SKU	Description
1	P65390-B21	HPE ProLiant DL20 Gen11 2LFF Non-hot Plug Configure-to-order Server
1	P65223-B21	Intel Xeon E-2436 2.9GHz 6-core 65W FIO Processor for HPE
1	P64336-B21	HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 Unbuffered Standard Memory Kit
1	P26262-B21	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
1	P10115-B21	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
1	P65411-B21	HPE ProLiant DL20 Gen11 External OCP Cable Kit
1	861686-B21	HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD
1	P52753-B21	HPE ProLiant DL320 Gen11 x16 FHHL Riser Kit
2	865438-B21	HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
1	P64576-B21	HPE Easy Install Rail 12 Kit
Quantity per server	**Loadbalancer.org SKU**	**Description**
1	SCISOMED	Loadbalancer Scality—ISO Medium Image (Enterprise ADC Software License)
1	SC5247ISOMED	Loadbalancer Scality—5 Year Standard support for Medium ISO Image
1	PSR	Loadbalancer Professional Services (Remote Delivery)

Conclusion

HPE and Loadbalancer.org combine to provide a robust solution that ensures high performance and availability for HPE Solutions with Scality. Loadbalancer Enterprise ADC and HPE give confidence in enabling:

- **High availability:** Ensure availability of Scality S3 storage across distributed environments with detailed health checks and traffic control
- **Performance optimization:** Monitor individual node load and redirect traffic for high performance
- **Effortless maintenance:** Simplify deployments with certified guides and templates while enabling Scality cluster expansions without downtime
- **Disaster recovery and multisite resilience:** Streamline disaster recovery procedures with granular control over data center traffic
- **Unified procurement:** All solution components are available through HPE or certified partners, simplifying procurement with one contract and purchase order

Resources

HPE Storage Solutions for Scality

Load balancing Scality RING

HPE and Loadbalancer.org

Learn more at

Loadbalancer.org/partners/HPE

techpartner.it.HPE.com/techpartner/partnerdetail.xhtml?partner=Loadbalancer.org++Inc.

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