

REFERENCE ARCHITECTURE

Maximum throughput and linear scalability with Quobyte's all-workloads data center file system.



Quobyte



RAUSCH NETZWERKTECHNIK ▲▲
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Features

- **Full POSIX file system:** Run any application. Multi-tenancy, ACLs, quotas.
- **Massive scalability:** Go from four nodes up to hundreds and petabytes of storage and scale performance linearly.
- **High-performance:** Use hardware to full capacity.
- **Highly available:** No single point of failure, automatic failover, split-brain safe.
- **Data protection in software:** Replication for metadata and data, erasure coding, end-to-end checksums.
- **Unified access across protocols:** NFS, Amazon S3, OpenStack (Cinder/Nova, Manila, Swift/S3), and Hadoop/Spark.
- **Complete:** UI, API, full-featured monitoring and device management.
- **Easy to manage,** reconfigure, upgrade, and extend.

Full-Featured and Linear Scale-Out Software-Defined Storage

A parallel POSIX file system at its core, Quobyte fulfills the highest demands on scalable performance and compatibility. It provides all the resource management and security features that workgroups and organizations require.

Quobyte is a full-stack software storage system that is designed for ultimate high availability and data safety without requiring any hardware support. Only requiring standard servers with direct attached disks (no RAID), it offers automatic fault-tolerance (split-brain safe) and protects data and metadata with replication, erasure coding and end-to-end checksums. Both data and metadata scale out linearly and increase performance with every added node.

System management is an integral part of Quobyte's architecture: this includes hardware and device management, built-in monitoring, zero-downtime upgrades, and automatic background tasks that can reconfigure the system on the fly, transparently drain servers or check and repair data. And everything is accessible from an easy-to-use browser-based console, an API or from the command line.

Native Linux and Windows clients yield maximum performance and fault-tolerance, but data is also accessible via built-in NFS, S3 and HDFS interfaces. A unified designed takes care that no information is lost across interfaces.

The BigFoot® XXLarge server is ideally suited for HPC workloads. Made in Germany, it houses 192 HDD bays per 16U plus 4 lean 240 GB SSD for the metadata in the back. By running Quobyte on BigFoot® servers, you get an ultra-reliable storage system with remarkable performance and linear scalability that is plug-and-play.



The BigFoot®-Quobyte reference architecture also goes beyond HPC and is a great fit for any other workloads, too. The combination of physical servers and software-defined storage gives customers the flexibility to run any kind of demanding enterprise applications, high-performance digital media processing and storing, or large-scale Big Data analyses. The Rausch Netzwerntechnik-certified configuration for their BigFoot® servers delivers unparalleled performance and dependence. Start with just four nodes and scale to hundreds and beyond – just as business requires.

Architecture Configuration

	4 node cluster	8 node cluster	12 node cluster	14 node cluster
Form Factor (Total System)	16U	32U	48U	64U
Raw capacity	1.92 PB	3.84 PB	5.76 PB	6.72 PB
Data Drives	192	384	576	672
Throughput	12 GB/s	24 GB/s	36 GB/s	42 GB/s
40 GbE port	4	8	12	14
Protocols	Native client for Linux and Windows, NFS 3/4, Amazon S3, HDFS			
Software	Quobyte Software Storage System			
Network Switch	40 Gigabit Ethernet			

Components in each node	
Form Factor	4U rack server
CPU	Intel® Xeon® E5-2630v4
HBA	3 x Avago/LSI-9305-16i SAS
RAM	64 GB DDR4
Storage Disks	48 x 10 TB HDD
Metadata Drive	240 GB SSD
NIC	Mellanox 40GbE NIC
Storage Enclosure	BigFoot® Chassis

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About Quobyte®

Quobyte combines recent distributed systems research with proven concepts for large-scale storage systems. With its scalability, reliability and automation, Quobyte's software storage system builds the foundation for next-generation warehouse-scale data centers. The company was founded in 2013 and draws on a decade of research with the open-source distributed file system XtreamFS.

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