NephoScale Hardware Reference Architectures

Turnkey Public, Private, Hybrid Openstack-based Cloud Solutions, One Software Stack

Neph*OS* + OpenStack = Flexibility

One Software Stack for Distributed, Converged, and HyperConverged Reference Architectures

The NephoScale Neph*OS* cloud software leverages OpenStack, yet is commercialized by NephoScale to meet enterprise needs for stability, redundancy, security, and scalability. The NephoScale team has developed innovative technology, and has skill and experience necessary to build and support scalable and secure public, private, and hybrid cloud environments. Neph*OS* was built to solve the unique issues facing service providers and enterprises.

Building and operating a public or private cloud can be a daunting task, and we're here to help you maximize the return on your investment. We enable your organization to offer users 24x7 self-service on-demand access to virtual servers, bare metal dedicated servers, and block and object-based storage, all over a high performance 10/40Gbps network. With its native billing, chargeback, and ticketing systems your NephoScale cloud can be deployed around most any consumption model.

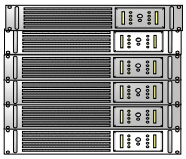
- Affordable license fees
- One interface to deploy either virtual servers or bare metal dedicated servers in either option of public or private clouds
- SDN/NFV functionality supporting Layer 2 and Layer 3 networking connectivity supported between on-premise and off-premise clouds, private and public clouds, and between virtual servers and bare metal dedicated servers
- Same base server images for both virtual and dedicated servers for easy workload migration within and between NephOS clouds
- Place application workloads in the right cloud environment based on your budgetary, security, compliance, scalability, and SLA requirements
- Cloudburst across private and public Neph*OS* powered cloud environments to eliminate scalability limitations in any single environment

Cloud Deployment Timeline

 Phone: 408-599-7008 | Email: sales@nephoscale.com | Website: http://nephoscale.com

Reference Architecture – Distributed Infrastructure

Cloud Management Platform (CMP)

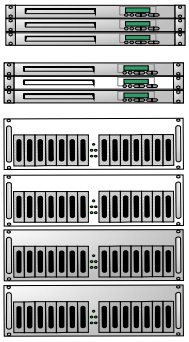


Cloud Controller 1
Cloud Controller 2
Cloud Controller 3
Cloud Controller 4
Cloud Builder 1
Cloud Builder 2

Networking (POD1 / 80 hosts)

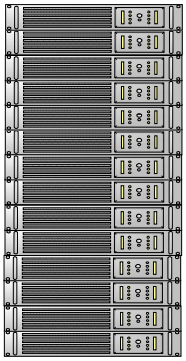
Quanta LY6, 32x40G
Quanta LY6, 32x40G
SDN Router
SDN Router

Swift Object-Based Storage Cluster



Object Storage LB Public 1
Object Storage LB Private 1
Object Storage Caching 1
Object Storage LB Public 2
Object Storage LB Private 2
Object Storage Caching 2
Object Storage Node 1
Object Storage Node 2
Object Storage Node 3
Object Storage Node 4

Virtual Server Nodes (Up to 80 per POD)



Networking Hardware	10Gbps Top of Rack Switch	IPMI Switch	Out of Band Console
Vendor / Product ID	Quanta T5032-LY6 or Edge Core AS6712-32X	Cisco 2960G-48TC or Brocade ICS-6430-48P	Open Gear IM4248-2-DAC-X2-US
Chipset	Broadcom Trident-2		
Ports	32x 40Gbps	48x 1Gbps	
Connector	QSFP	RJ-45	RJ-45

Cloud Management Platform	SDN Router	Cloud Builder	Cloud Controller	Database Nodes
Vendor	Supermicro			
Chassis	SC813TQ-R400CB	SC213LT-600LPB		
RAM	32GB	96GB		
Storage	2x 250 SSD Samsung 850 Pro or 2x 240GB SSD Intel S3500	8x 1TB SSD Samsung 850 Pro or 8x 800GB SSD Intel S3500		
Motherboard	X10-DRL-i			
CPU	1x E5-2620v3 (2.40 GHz 6 Core)	2x E5-2620v3 (2.40 GHz 6 Core)		
RAID Controller	LSI-9266-4i	LSI-9266-8i		
NIC	Intel X520-DA2 82599ES SFP+			

Virtual Server Node	Linux Node	Windows Node	ESXi Node
Vendor	Supermicro		
Chassis	SC213LT-600LPB		
RAM	96GB		
Storage	8x 1TB SSD Samsung 850 Pro or 8x 800GB SSD Intel S3500		
Motherboard	X10-DRL-i		
CPU	2x E5-2620v3 (2.40 GHz 6 Core)		
RAID Controller	LSI-9266-8i		
NIC	Intel X520-DA2 82599ES SFP+		

Object Storage	Public/Private Load Balancing	Storage Caching	Storage Node
Vendor	Supermicro		
Chassis	SC813TQ-R400CB		SC825TQ-R740LPB
RAM	32GB	64GB	32GB
Storage	2x 500GB SSD Samsung 850 Pro or 2x 480GB SSD Intel S3500	2x 1TB SSD Samsung 850 Pro or 2x 800GB SSD Intel S3500	4x 4TB SATA 7200 RPM HDD plus 80GB SSD
Motherboard	X10-DRL-i		
CPU	1x E5-2620v3 (2.40 GHz 6 Core)		
RAID Controller	N/A		
NIC	Intel X520-DA282599ES SFP+		

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Reference Architecture – Converged Infrastructure

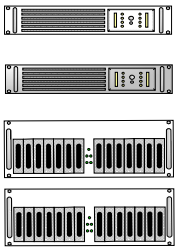
Cloud Management Platform (CMP)

Cloud Controller 1, SDN Router
Cloud Controller 2, SDN Router
Cloud Builder 1
Cloud Builder 2

Networking (POD1 / 80 hosts)

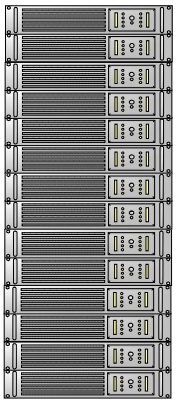
Quanta LY6, 32x40G
Quanta LY6, 32x40G

Swift Object-Based Storage Cluster



Object Storage LB Public 1
Object Storage LB Private 1
Object Storage Caching 1
Object Storage LB Public 2
Object Storage LB Private 2
Object Storage Caching 2
Object Storage Node 1
Object Storage Node 2

Virtual Server Nodes (Up to 80 per POD)



Networking Hardware	10Gbps Top of Rack Switch	IPMI Switch	Out of Band Console
Vendor / Product ID	Quanta T5032-LY6 or Edge Core AS6712-32X	Cisco 2960G-48TC or Brocade ICS-6430-48P	Open Gear IM4248-2-DAC-X2-US
Chipset	Broadcom Trident-2		
Ports	32x 40Gbps	48x 1Gbps	
Connector	QSFP	RJ-45	RJ-45

Converged Infrastructure	Cloud Node	Cloud Controller + DLR	Cloud Builder
Vendor	Supermicro		
Chassis	SC213LT-600LPB		
RAM	192GB		
Storage	8x 1TB SSD Samsung 850 Pro		
Motherboard	X10-DRL-i		
CPU	2x E5-2670v3 (2.3GHz 12 Core)		
RAID Controller	LSI-9266-8i		
NIC	Intel X520-DA2 82599ES SFP+		

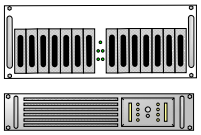
Object Storage	Public/Private Load Balancing/Storage Caching	Storage Node
Vendor	Supermicro	
Chassis	SC813TQ-R400CB	SC825TQ-R740LPB
RAM	64GB	32GB
Storage	2x 1TB SSD Samsung 850 Pro or 2x 800GB SSD Intel S3500	4x 4TB SATA 7200 RPM HDD plus 80GB SSD
Motherboard	X10-DRL-i	
CPU	1x E5-2620v3 (2.40 GHz 6 Core)	
RAID Controller	N/A	
NIC	Intel X520-DA282599ES SFP+	

Reference Architecture – Hyperconverged Infrastructure

Networking

Quanta 3048-LY8
Quanta 3048-LY8

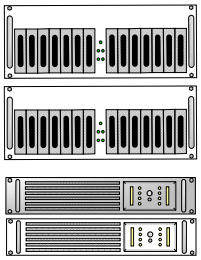
HC Super Node



SDN Router, Cloud Controller, VM Nodes, Object-Based and Block Storage

Cloud Builder

HC Super Node – H/A



SDN Router, Cloud Controller, VM Nodes, Object-Based and Block Storage

SDN Router, Cloud Controller, VM Nodes, Object-Based and Block Storage

Cloud Builder 1

Cloud Builder 2

Networking Hardware	10Gbps Top of Rack Switch	IPMI Switch	Out of Band Console
Vendor / Product ID	Quanta T3048-LY8	Cisco 2960G-48TC or Brocade ICS-6430-48P	Open Gear IM4248-2-DAC-X2-US
Chipset	Broadcom Trident-2		
Ports	32x 40Gbps	48x 1Gbps	
Connector	SFP / QSFP	RJ-45	RJ-45

Hyperconverged	HC SuperNode w/SDN Router	Dual HC SuperNode w/SDN Router (H/A)	Cloud Builder
Vendor	Supermicro		
Chassis	SC216BAC-R920LPB		SC213LT-600LPB
RAM	768GB	384GB	192GB
Storage	8x 1TB SSD Samsung 850 Pro	16x 1TB SSD Samsung 850 Pro	8x 1TB SSD Samsung 850 Pro
Motherboard	X10DRC-LN4+		X10-DRL-i
CPU	2x E5-2670v3 (2.3GHz 12 Core)		
RAID Controller	LSI-9266-8i		
NIC	Intel X520-DA2 82599ES SFP+		

