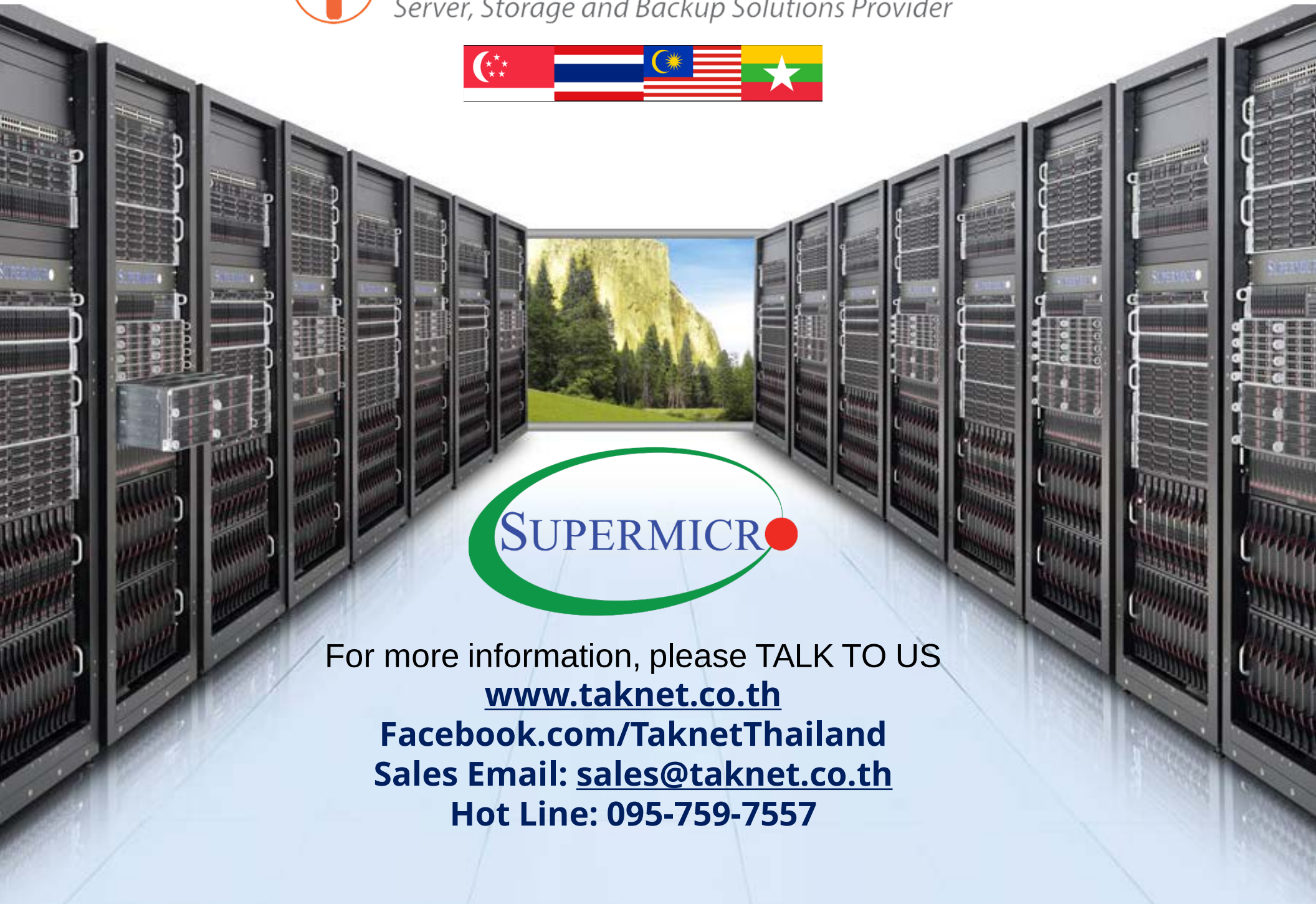
Pure Play OpenStack

by TAKNET SYSTEMS

Server, Storage and Backup Solutions Provider

TAKNET SYSTEMS

Server, Storage and Backup Solutions Provider



SUPERMICRO

For more information, please TALK TO US

www.taknet.co.th

Facebook.com/TaknetThailand

Sales Email: sales@taknet.co.th

Hot Line: 095-759-7557

Today's Presenters

Mr. AK. TAN
CEO & Founder
Taknet Systems

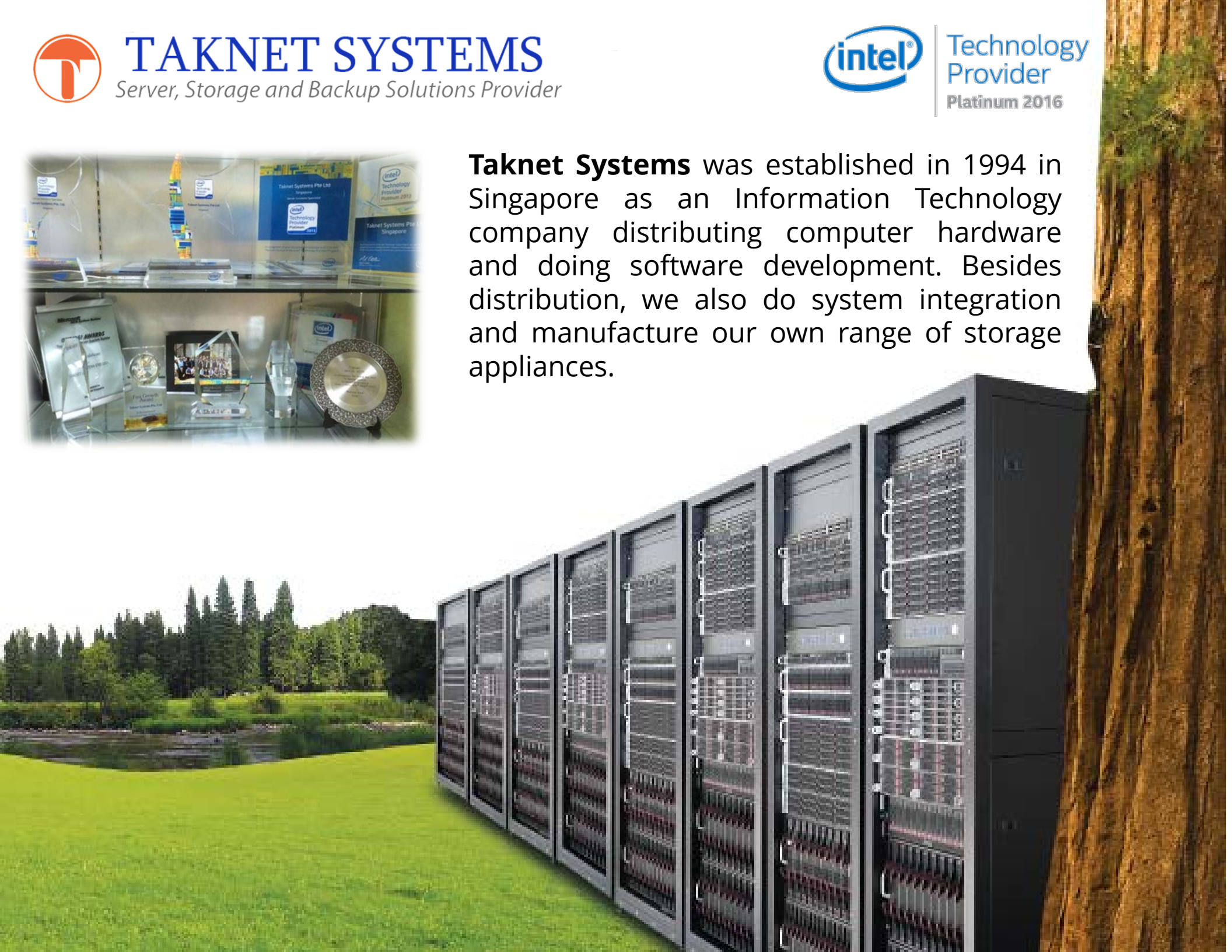
Mr. Aumnaj Kongjaroenthin
Product Manager
Taknet Systems (Thailand)

TAKNET SYSTEMS

Server, Storage and Backup Solutions Provider

intel Technology Provider
Platinum 2016

Taknet Systems was established in 1994 in Singapore as an Information Technology company distributing computer hardware and doing software development. Besides distribution, we also do system integration and manufacture our own range of storage appliances.

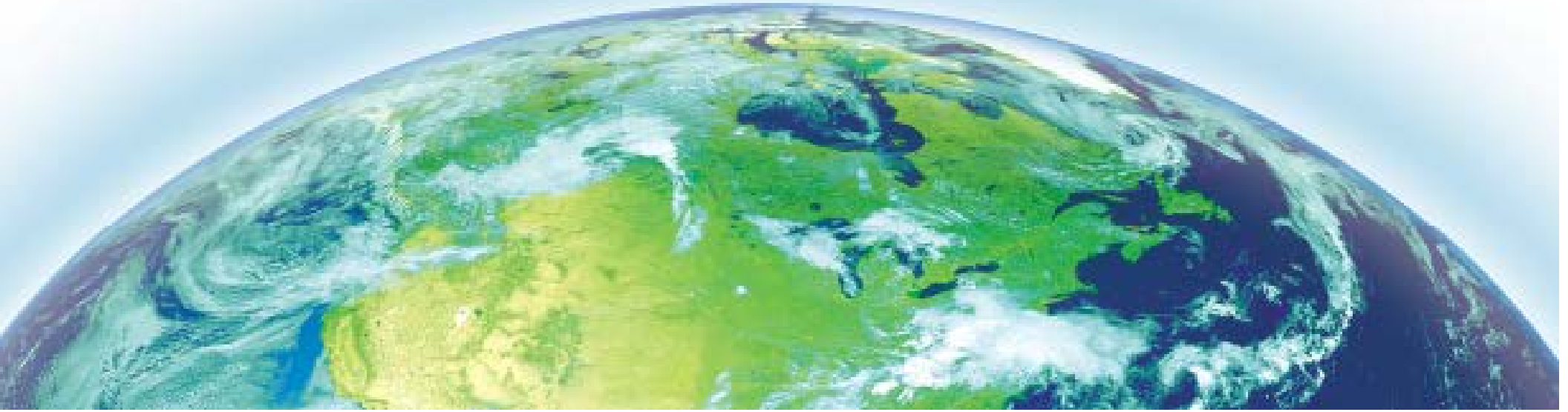


TAKNET SYSTEMS

Server, Storage and Backup Solutions Provider

Offices locate in 4 countries

Singapore Thailand Myanmar Malaysia



TAKNET SYSTEMS

Server, Storage and Backup Solutions Provider

intel Technology Provider
Platinum 2016

Our Corporate Strategy

- We listen to your need.
- We customized your solution.
- We deliver to your expectation.

TAKNET SYSTEMS
Server, Storage and Backup Solutions Provider

intel Technology Provider
Platinum 2016

Our Products & Services

SUPERMICRO

intel

SEAGATE

HGST

nexenta

SAMSUNG

TOSHIBA

open-e
PARTNER AUTHORIZED

NVIDIA

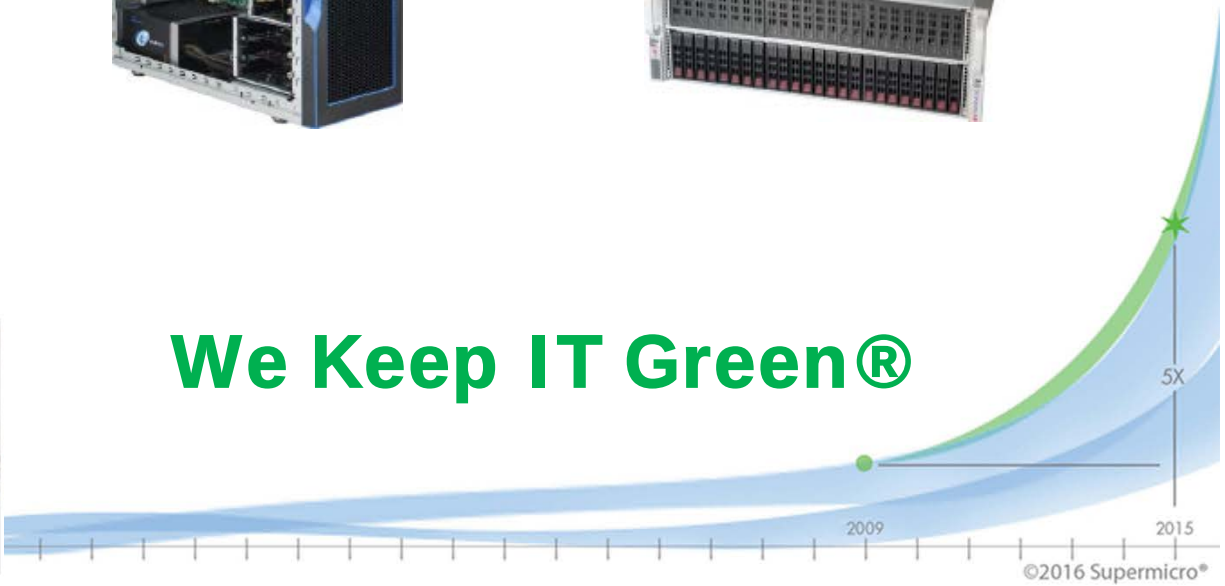
areca®

TAKNET SYSTEMS
Server, Storage and Backup Solutions Provider

intel Technology Provider
Platinum 2016

Server, Storage Server, and Workstation

We Keep IT Green®



Industry's Leading Hot-Swap NVMe Solutions

Increasing your Productivity and Throughput

New ALL FLASH Solutions!

Ultra 1U 10 NVMe
(SYS-1028U-TN10RT+)

Ultra 2U 24 NVMe
(SYS-2028U-TN24R4T+)

Simply Double 2U 48NVMe
(SSG-2028R-NR48N)

Hybrid Multi-Node Solutions!

Twin

FatTwin

MicroCloud

Blade

EX DP

Hybrid Single Node Solutions!

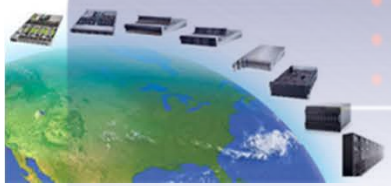
Ultra

WIO

Data Center Optimized
(DCO)

Storage

- Supermicro has the complete NVMe (PCI-e SSD) product offering
- Over 60+ NVMe ready SKUs (All Flash/Hybrid) solutions in 9 different server categories
- Breakthough performance and lower latency
- Ideal for caching, burst buffering, memory swap, faster storage and much more



TAKNET SYSTEMS
Server, Storage and Backup Solutions Provider

intel Technology Provider
Platinum 2016

Enterprise HDD, SAS, SSD, NVMe

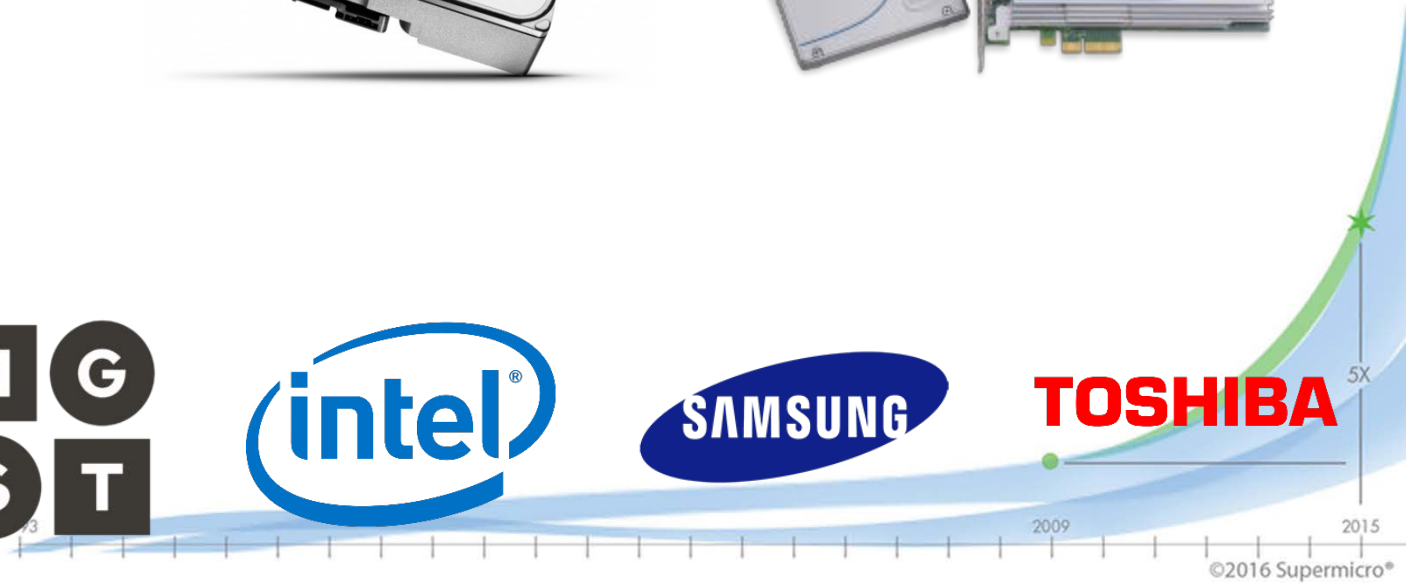
SEAGATE

HGST

intel

SAMSUNG

TOSHIBA



TAKNET SYSTEMS
Server, Storage and Backup Solutions Provider

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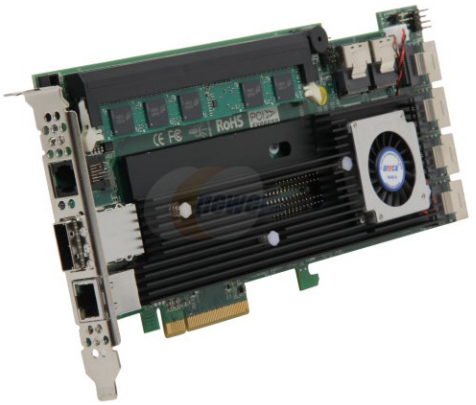
Peripherals

Raid Controller, GPU, RAM, Network Adapter

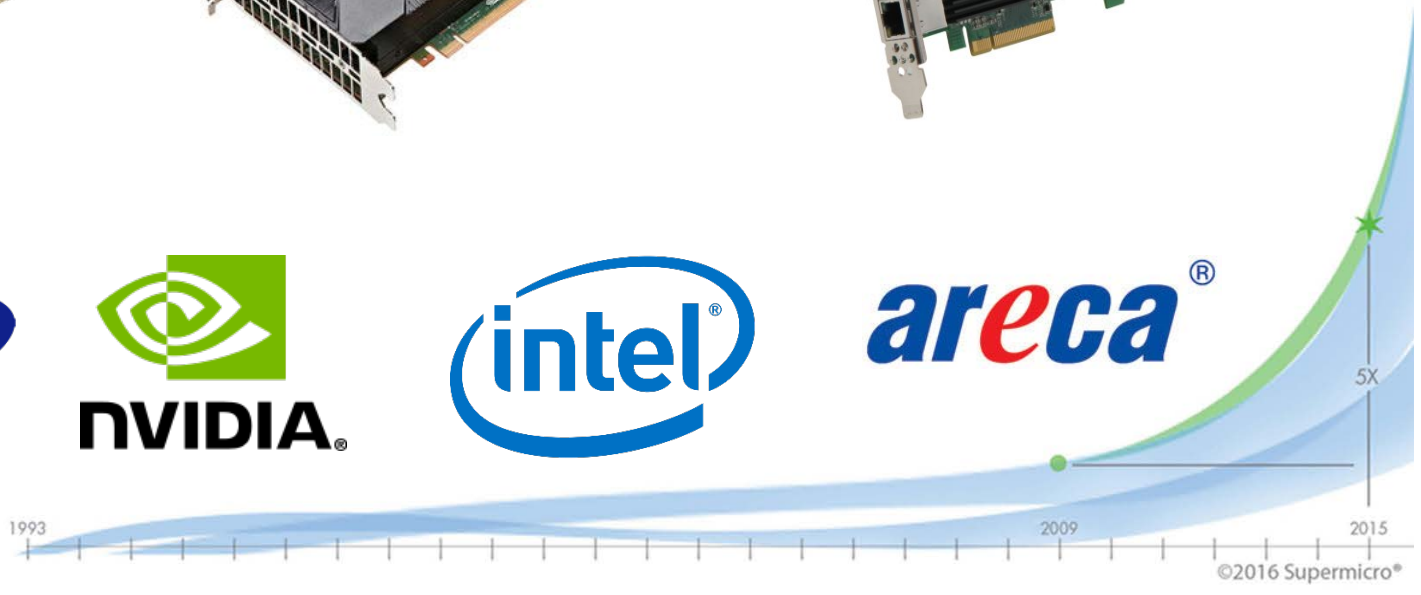


SAMSUNG

NVIDIA

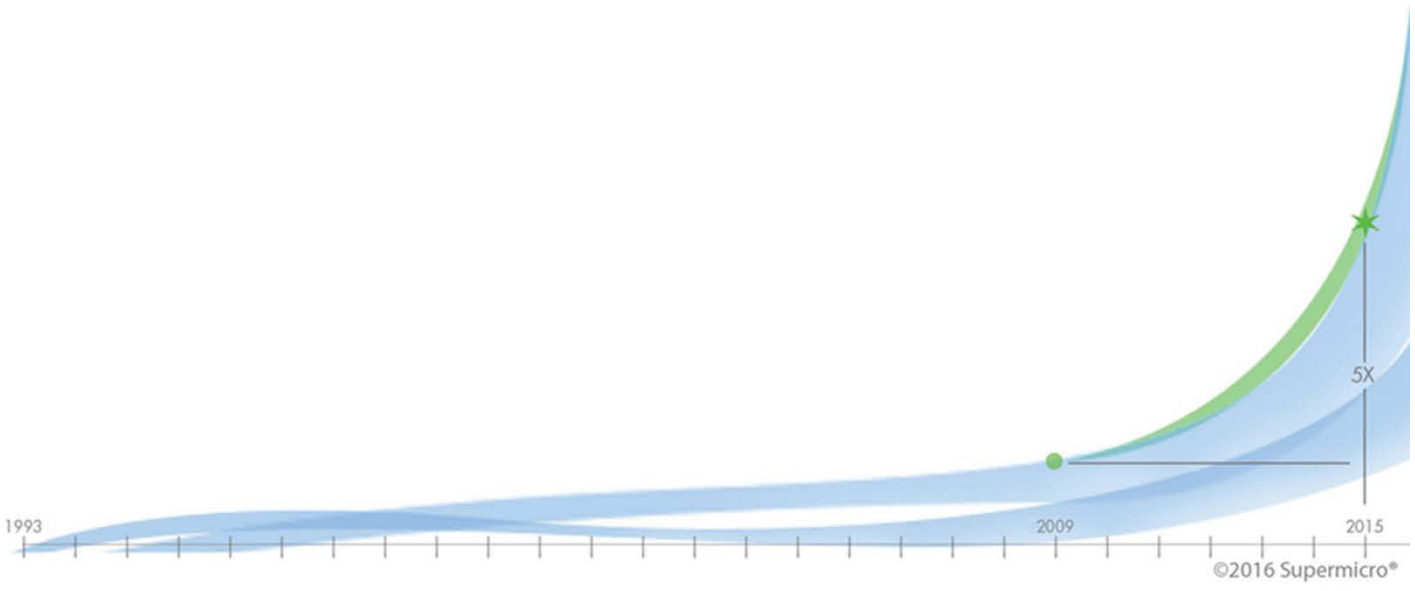
intel

areca



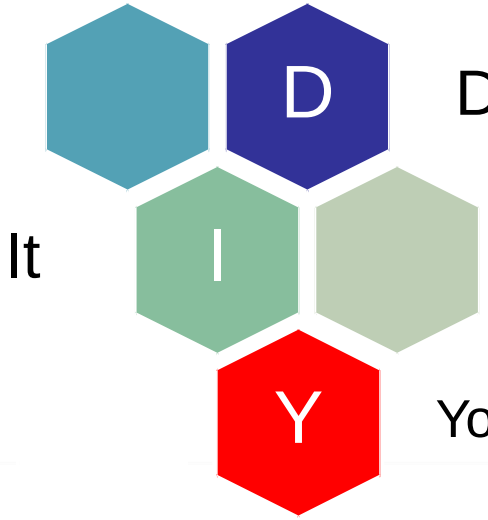
openstack™
CLOUD SOFTWARE

Are You Ready to Deploy OPENSTACK?



But HOW?

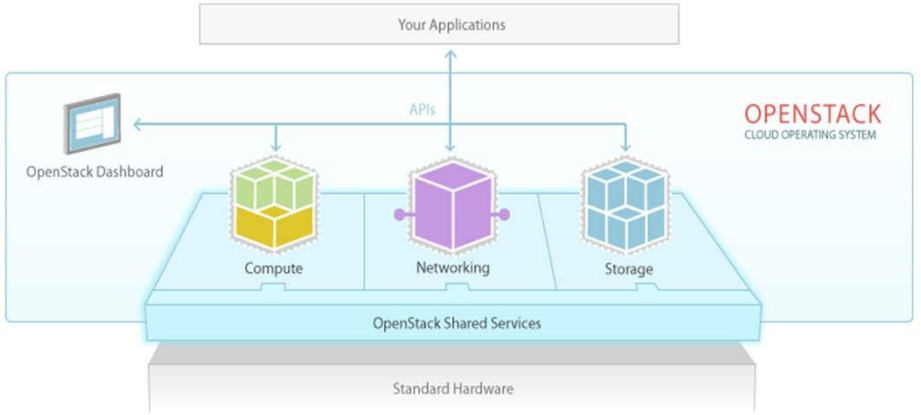
(Ready Nodes/ Certified Models)



DO

It

Yourself



We offer THREE flexibility approaches…

Reference Architectures/ Turn Keys

Total Solutions/ Appliances

SOP on Your Choices

1.

openstack™
CLOUD SOFTWARE

Distributions
Applications
Solutions

Based on Requirements
- Profile
- Usages
- End Goals

2.

Network

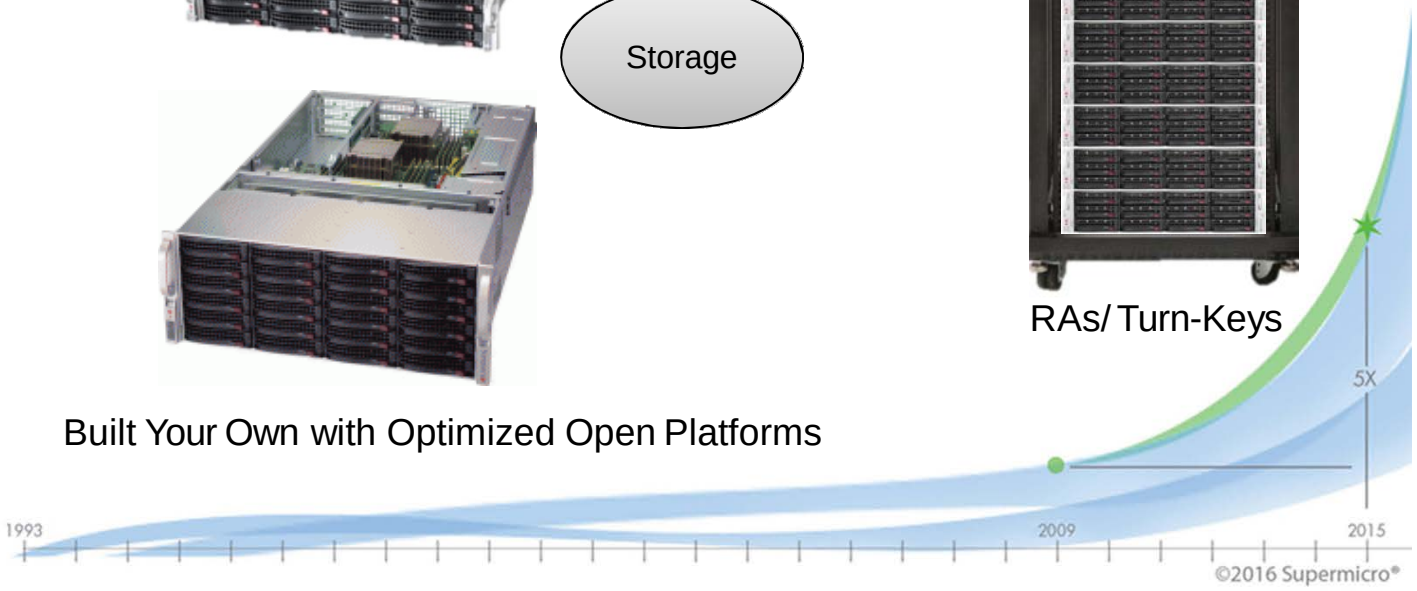
Compute

Storage

Built Your Own with Optimized Open Platforms

3.

RAs/ Turn-Keys



4.

New Generation Server Solutions

TWIN SYSTEMS

2U Twin²® X9DRT-HF 2U Twin®
2027TR-HTRF 6027TR-DTRF

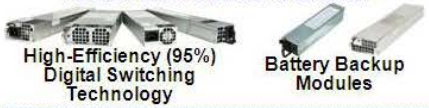
DATACENTER OPTIMIZED (DCO)

1U SuperServer® 6017R-TDF
2U SuperServer® 6027R-73DARF
X9DRD-iF X9DRD-7LN4F

WIDE I/O (WIO) OPTIMIZED

1U SuperServer® 6017R-WRF
2U SuperServer® 2027R-WRF
X9DRW-iF

POWER SUPPLIES / UPS BACKUP



High-Efficiency (95%) Digital Switching Technology
Battery Backup Modules

GPU SOLUTIONS

1U 4/3 GPU SuperServer®
1027GR-TRF
X9DRG-HF
2U 6/4 GPU SuperServer®
2027GR-TRFT
GPU SuperBlade®
GPU SuperWorkstation
7047A-T
X9DAi

UP & MAINSTREAM

3U MicroCloud
5037MR-H8TRF
X9SRW-3F
SC825/815 Chassis
SC118G/818G Chassis
X9SRG-F
X9SRL-F
SC825/732/733/826 Chassis

SUPERSTORAGE

4U 36x HDDs
6047R-E1R36N
4U 24x HDDs
6047R-E1R24N
2U 12x HDDs
6027R-E1R12N
3U 16x HDDs
6037R-E1R16N
X9DRi-LN4F+

SUPERBLADE®

TwinBlade®
10x SBI-7227R-T2
DatacenterBlade®
14x SBI-7427R-S3/T3
GPU Blade
10x SBI-7127RG
Storage Blade
10x SBI-7127R-S6
SBM-XEM-F8X4SM
8Gb FCoE Switch
SBM-IBS-Q3616/M
SBM-IBS-Q3618/M
40Gb InfiniBand Switch
SBM-XEM-X10SM
10GbE Switch

COMPLETE INTEGRATED RACK SOLUTIONS

42U SuperRack®

Data Center Management Tools

Layer 3 Ethernet Switches

SSE-X3348S/SR
48 Port 10GbE w/4 Port 40GbE
SSE-X24S/SR
24 Port 10GbE
SSE-G48-TG4
1/10 GbE

14U SuperRack®

ONE-STOP Solution Provider

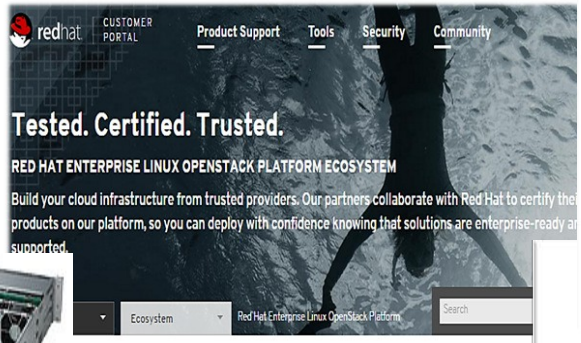
Offer optimized solutions…

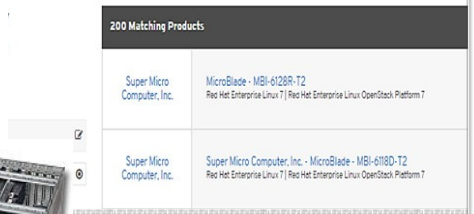
Compute

Network

Storage

SUPERMICRO®





Ubuntu Server certified hardware

Canonical works closely with OEMs to certify Ubuntu on a range of their hardware.

The following are all certified. More and more devices are being added with each release, so don't forget to check this page regularly.

Vendor

- De
- HP
- Lenovo
- IBM
- Cisco UCS
- NEC Corporation
- QUANTA Computer Inc
- Fujitsu Limited.
- Supermicro

Supermicro SYS-F628R3-RC1BPT+ Server

Supermicro SSG-5028R-E1CR12L Server

Supermicro SYS-6018R-WTR Server

Supermicro SYS-6018U-TR4+ Server

Supermicro SYS-5018R-WR Server

Supermicro SYS-6028R-TRT Server

nvm EXPRESS

80 PLUS TITANIUM

Fully Certified with Latest Versions

- Offer certified open-platforms
- Reduce Time & Effort on validations
- Select broadest portfolio options
- Increase the compatibility
- Accelerate and simplify deployment process

Over 200+ Certified HW with RedHat

MIRANTIS redhat. ubuntu ***In progress

*more to come

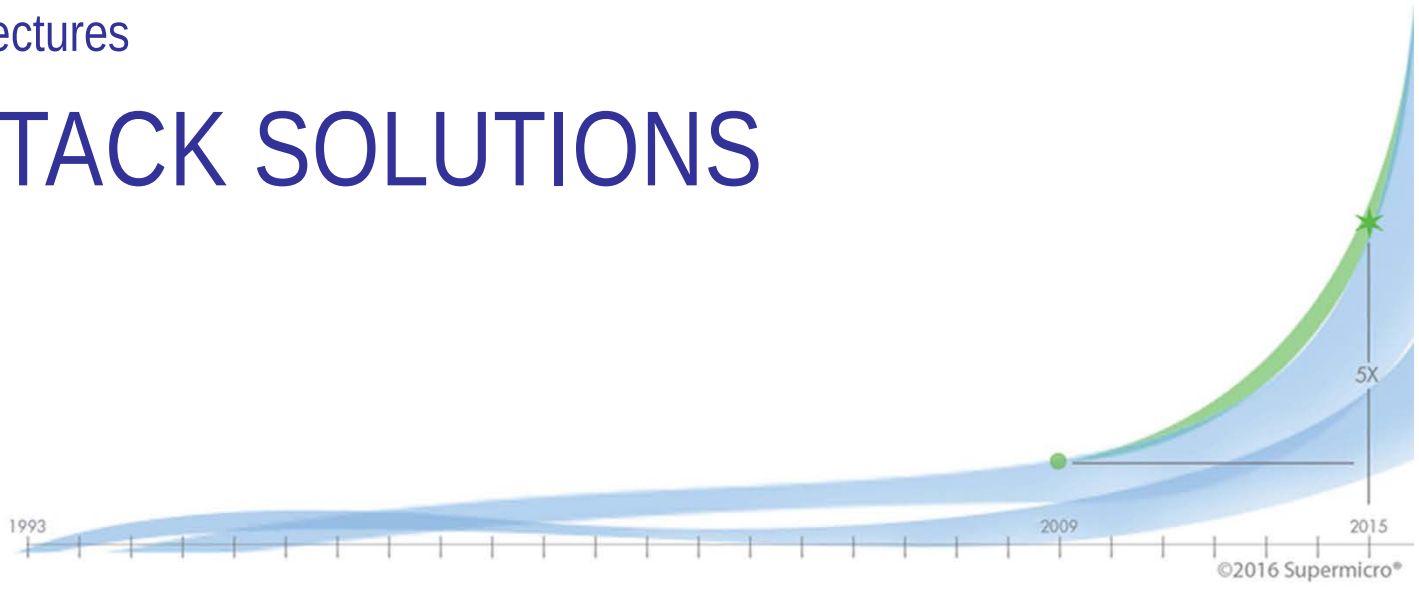
Certified Optimized Offering

OPEN STACK SOLUTIONS

Offer Highest Performance/ Watts/ Ft.

Reference Architectures

OPEN STACK SOLUTIONS



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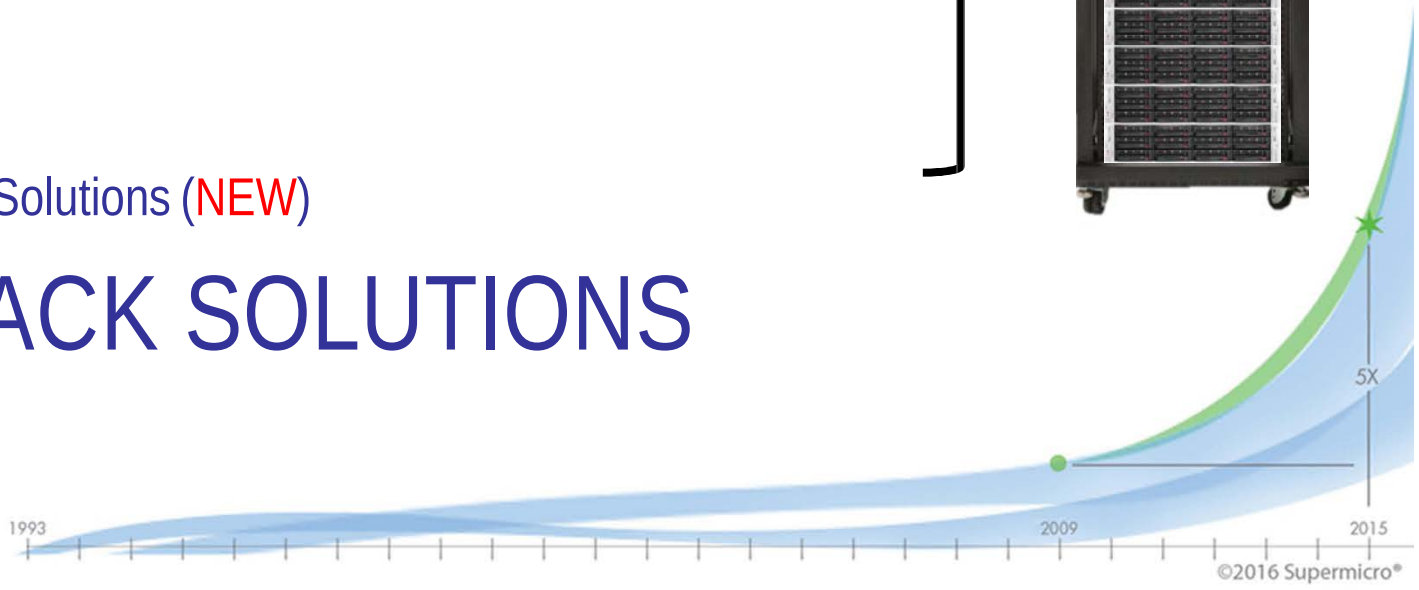
Pure Play OpenStack®

openstack™ CLOUD SOFTWARE

Unlocked Appliance Solutions (NEW)

OPEN STACK SOLUTIONS



Vendor	MOS Version	5.0.1	5.1	5.1.1	6.0	6.0.1	6.1	7.0	8.0	9.0
Supermicro			4	4	4	1	8	8	9	14
Dell			8			11	10	5	4	2
HP		10	1		1	4	9	4	1	3
Cisco							2	1	3	3
Lenovo						2				
Inspur					1					
Quanta						1	1			
Huawei							3		3	2
QEMU								1		
Advantech									3	
Fujitsu									4	
Quanta Computer Inc									1	1
VMware									1	

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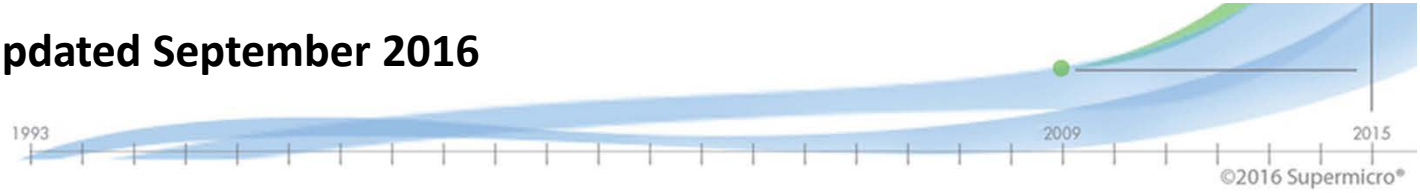
Pure Play OpenStack®

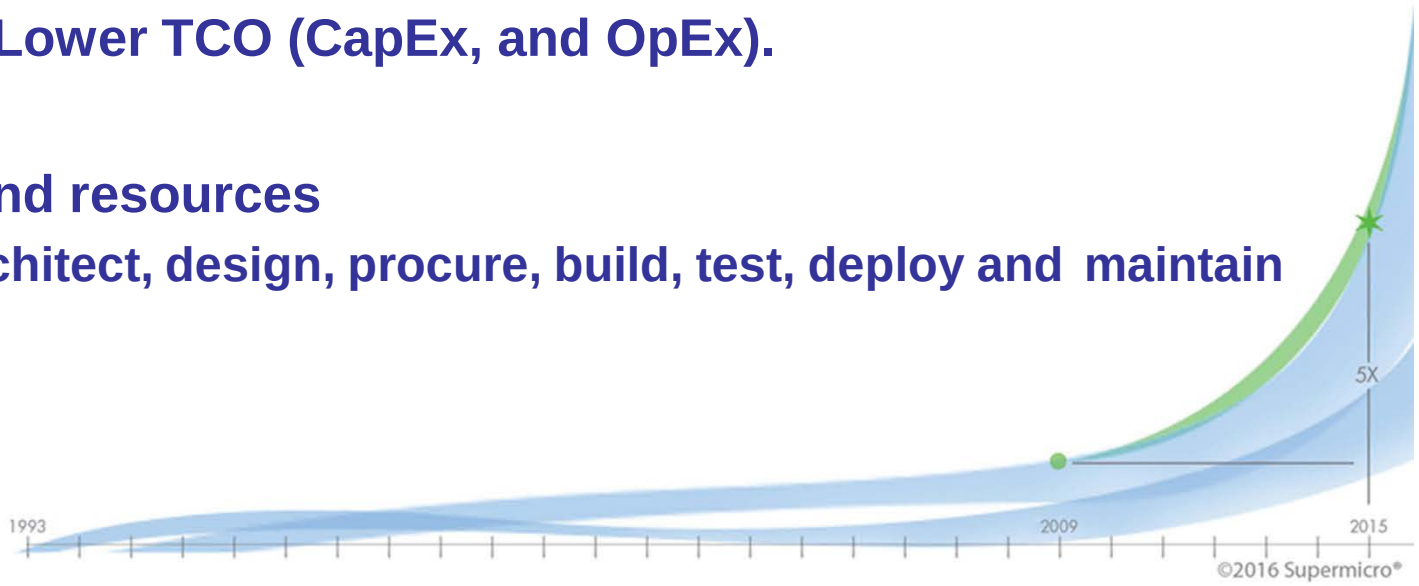
References: https://www.mirantis.com/validated-solution-integrations/hardware-compatibility/

Updated September 2016



Why Hyper Converged Rack Solutions

- **Excellent H/W + Excellent S/W = Excellent solution.**
- **Integrated, Validated.**
  - **Ready Out of Box,**
  - **Compute, Network, Storage**
- **Optimized for specific usages.**
- **Faster TTM and Lower TCO (CapEx, and OpEx).**
- **Reduced risks and resources**
  - **Required to architect, design, procure, build, test, deploy and maintain solutions.**



SuperMicro Mirantis OpenStack Appliance

- **Flexible rack-based appliances**
  - Start small, grow over time
  - Extend to multi-rack clusters
  - Optimize the kW per rack within your power footprint
- **HA configuration**
  - 3 Foundation nodes
  - 3+ Storage nodes
- **Scalable choice**
  - 5-21 Compute nodes per rack
  - Dense TwinPro design with 4 nodes per 2U system

Network

Arista 7050SX-72

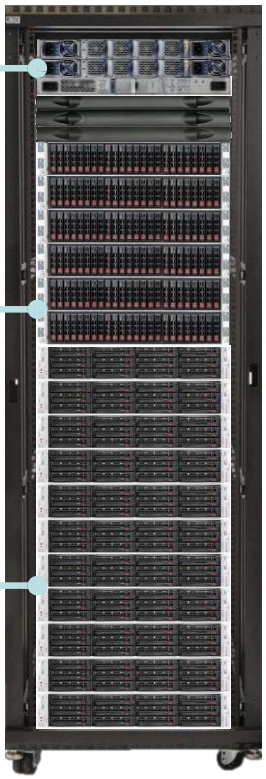
Arista 7010T-48

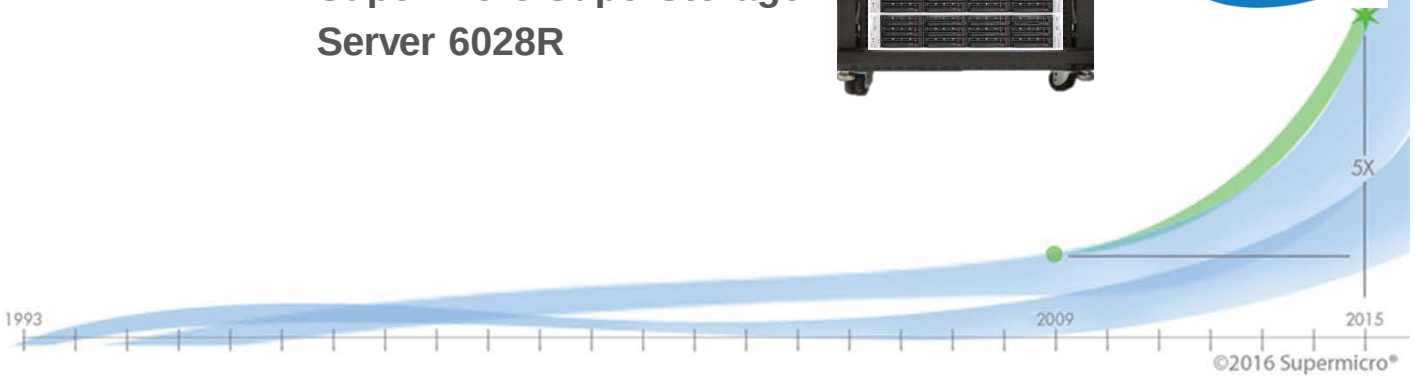
Compute + Foundation

SuperMicro SuperServer 2028TP-HR

Storage

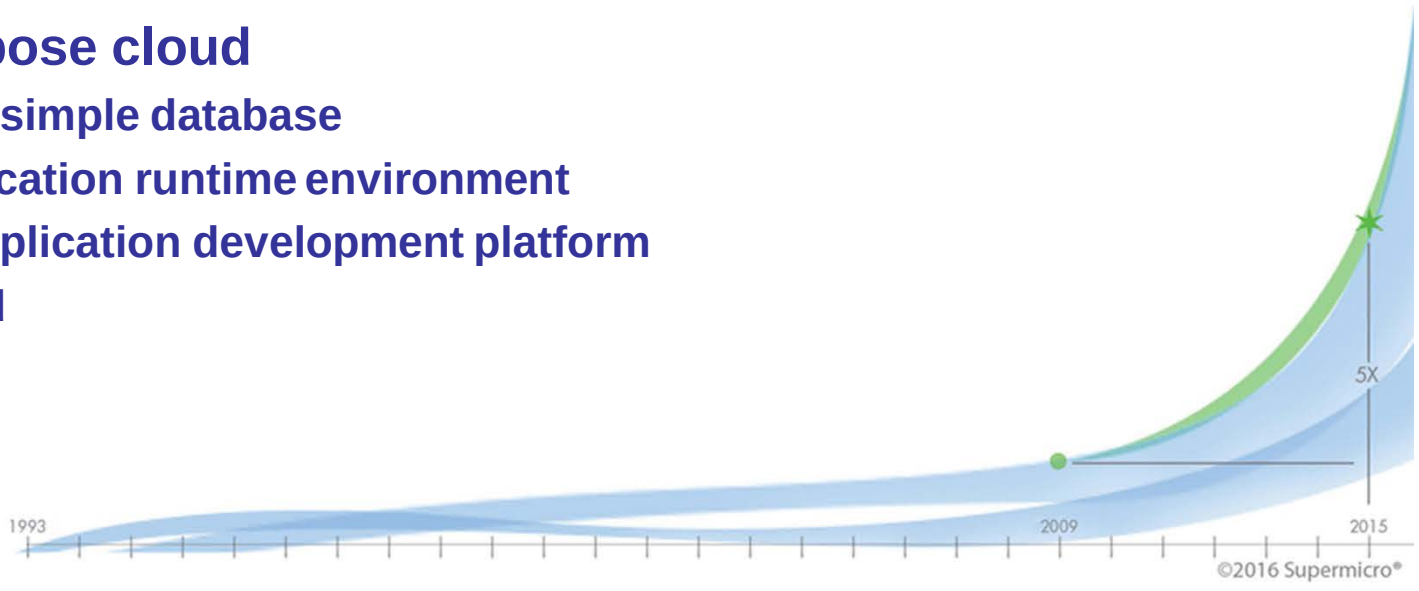
SuperMicro SuperStorage Server 6028R





SuperMicro Mirantis OpenStack Appliance Use cases

- **Infrastructure as a service for web application**
  - **On-premises, Off-premises, LAMP, SQL DB, Unstructured DB, Web hosting etc..**
- **Platform as a Service**
  - **Dockers, VM instances, CloudFoundary, Java, …**
  - **DevOps**
- **General purpose cloud**
  - **Providing a simple database**
  - **A web application runtime environment**
  - **A shared application development platform**
  - **Lab test bed**



Appliance Compute + Foundation Nodes

Network

Arista 7050SX-72

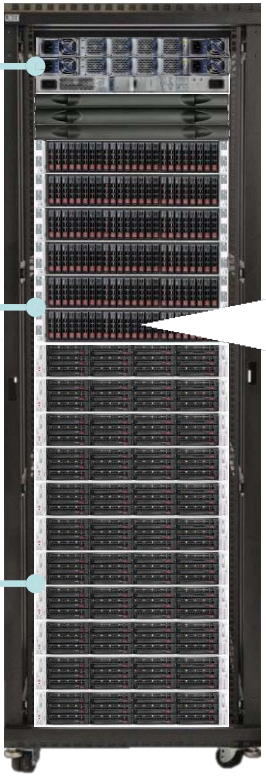
Arista 7010T-48

Compute + Foundation

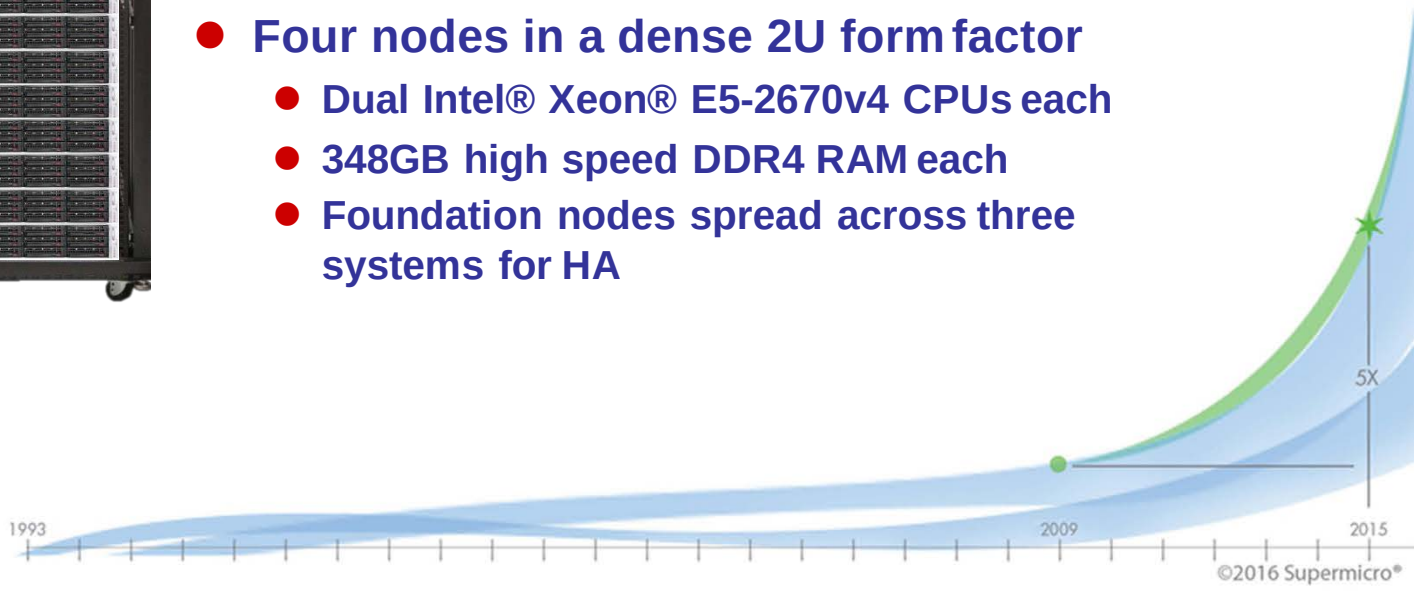
SuperMicro SuperServer 2028TP-HR

Storage

SuperMicro SuperStorage Server 6028R



- **Four nodes in a dense 2U form factor**
  - **Dual Intel® Xeon® E5-2670v4 CPUs each**
  - **348GB high speed DDR4 RAM each**
  - **Foundation nodes spread across three systems for HA**



Appliance Storage Nodes

Network

Arista 7050SX-72

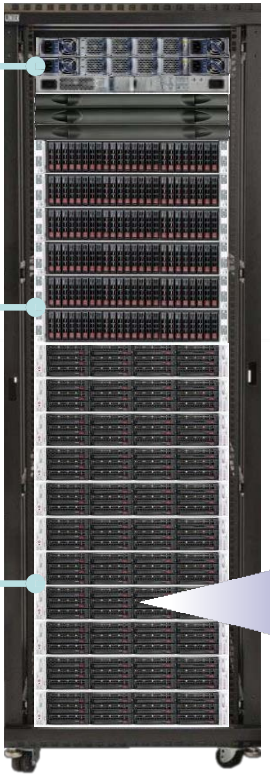
Arista 7010T-48

Compute + Foundation

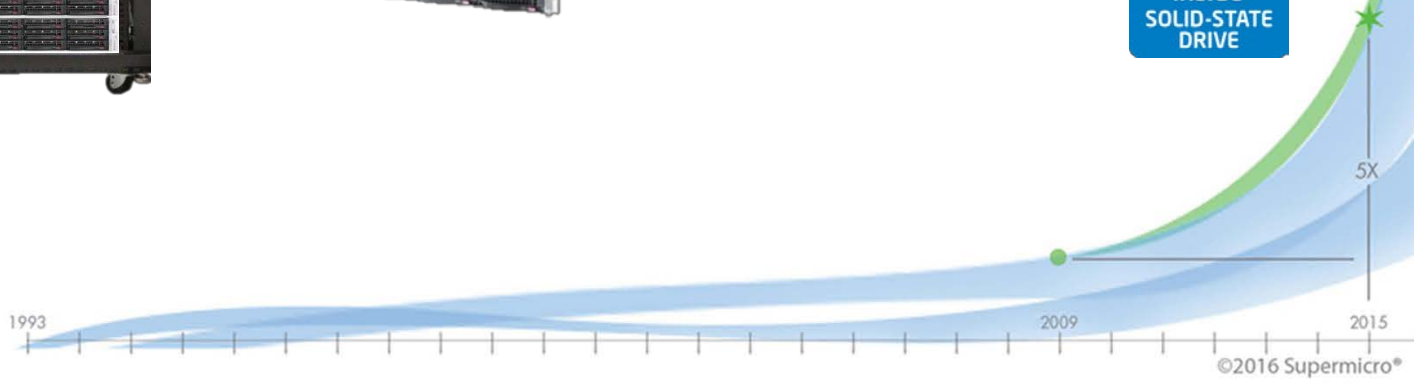
SuperMicro SuperServer 2028TP-HR

Storage

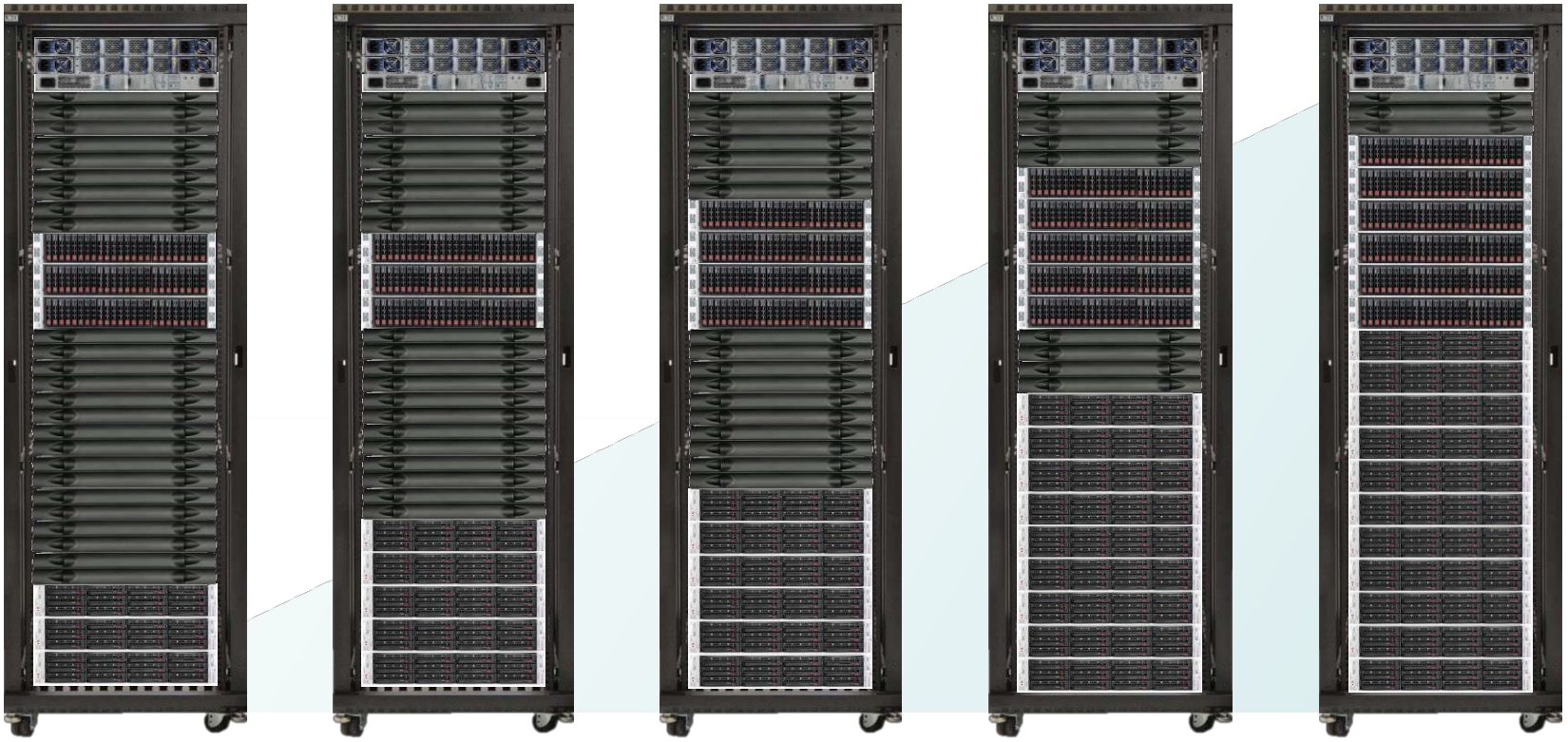
SuperMicro SuperStorage Server 6028R



- Storage nodes optimized for Ceph
  - **Dual Intel® Xeon® E5-2630v4 CPUs each**
  - **Intel® 800GB NVMe SSD for Ceph write journals**
  - **Intel® 80GB SSDs for node Operating System**
  - **Ceph OSDs on 12 x 4TB HDDs**



Appliance SKUs Configurations 3 Foundation Nodes



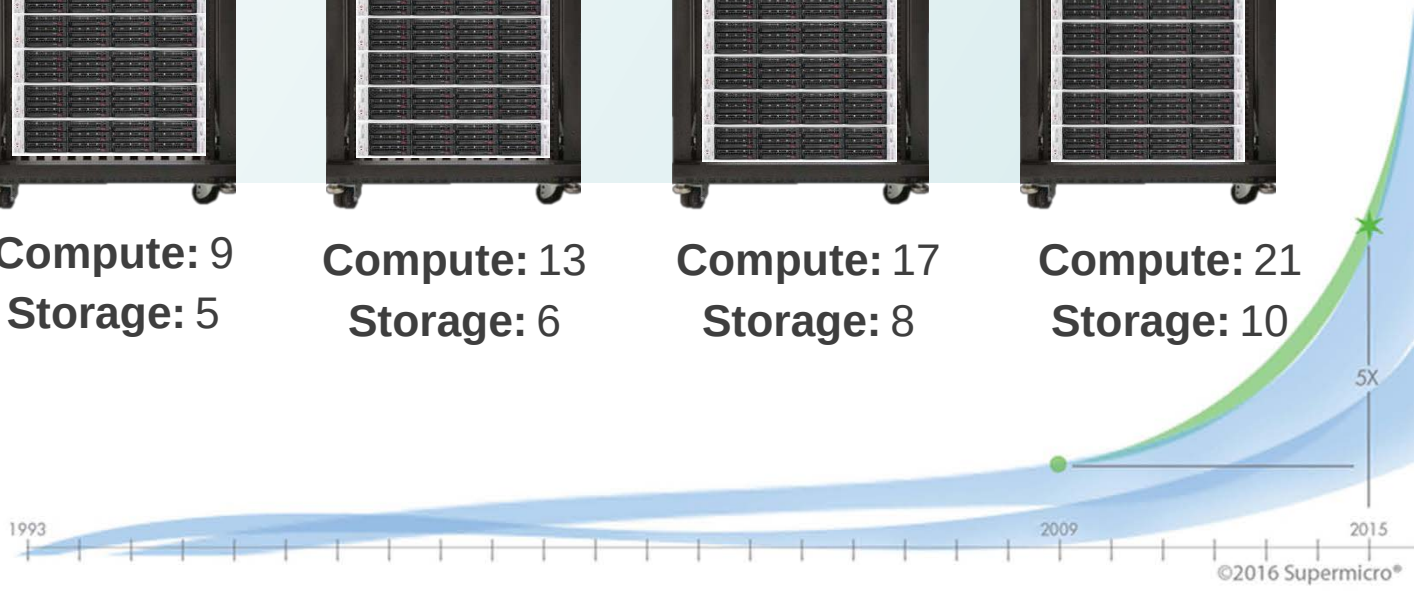
Compute: 5
Storage: 3

Compute: 9
Storage: 5

Compute: 13
Storage: 6

Compute: 17
Storage: 8

Compute: 21
Storage: 10



Value Differentiation

- **Customization to fit customer's requirement**
  - **Engage with customer to build to meet customer's needs.**
- **Highly available, power and thermal optimized configuration.**
- **Lower TCO**
  - **Lower CapEx**
  - **Lower OpEx**
- **Start small and expand as needed.**
- **Effective and better support**
  - **H/W through SMCI and S/W through Mirantis.**

MIRANTIS
Pure Play OpenStack®

Customer Engagement protocol

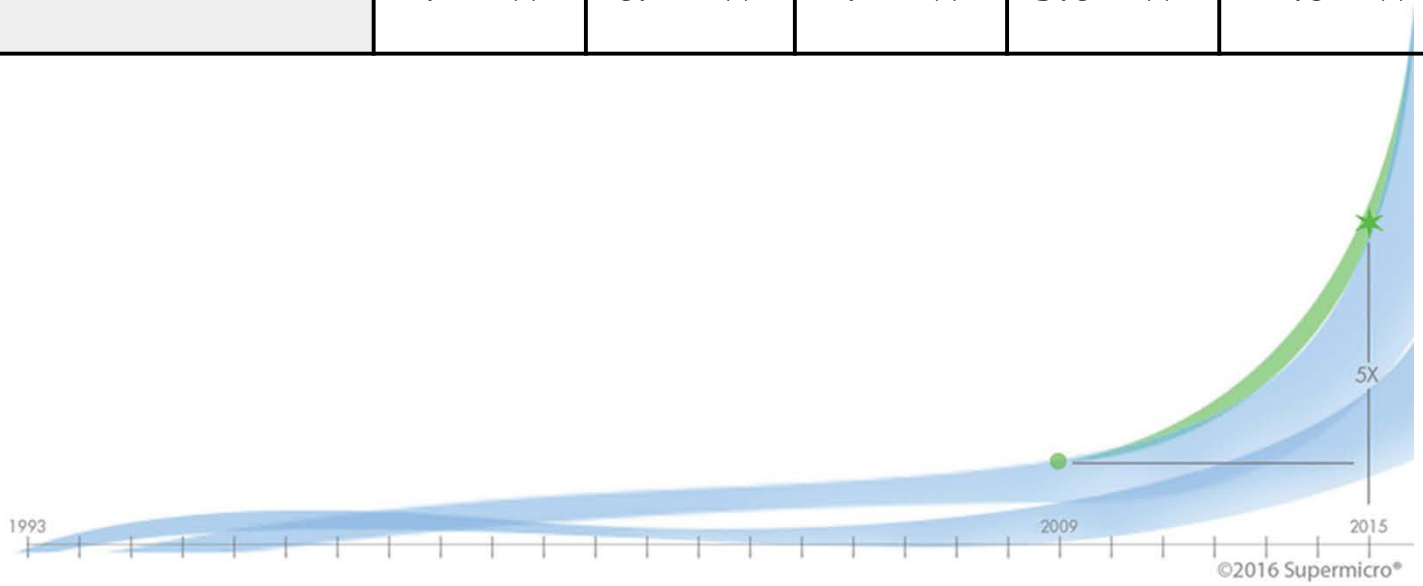
Requirements → Design in discussion → Work out proposal → Proof of concept → Delivery of project → Support

- **Open discussion with customer to understand their requirements.**
- **Iterative process until we settle on agreed design.**
- **Build to agreed configuration for 100% satisfaction.**

Detailed Information – For Reference only

Foundation Nodes	3*	3	3	3	3
Compute Nodes	5*	9	13	17	21
Storage Nodes	3	5	6	8	10
Estimated Maximum Number of VM's*	240	432	624	816	1008
Power Footprint	4.1 KW	6.1 KW	7.7 KW	9.6 KW	11.6 KW

This is for reference only



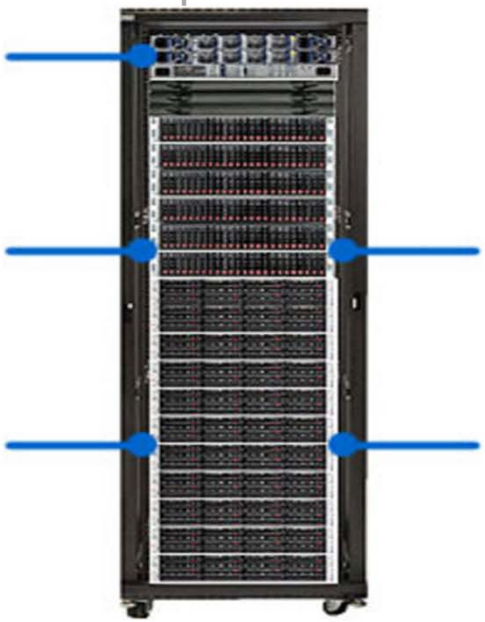
OpenStack Cloud Solution (NEW)

Supermicro Mirantis Unlocked Appliance

Network
Arista 7050SX-72
Arista 7010T-48

Compute + Foundation
SuperMicro SuperServer 2028TP-HR

Storage
SuperMicro SuperStorage Server 6028R



Superserver 2028TP-HR

SuperStorage Server 6028R

MIRANTIS
OpenStack Certification®

SUPERMICRO

intel inside XEON

ARISTA

nvm EXPRESS

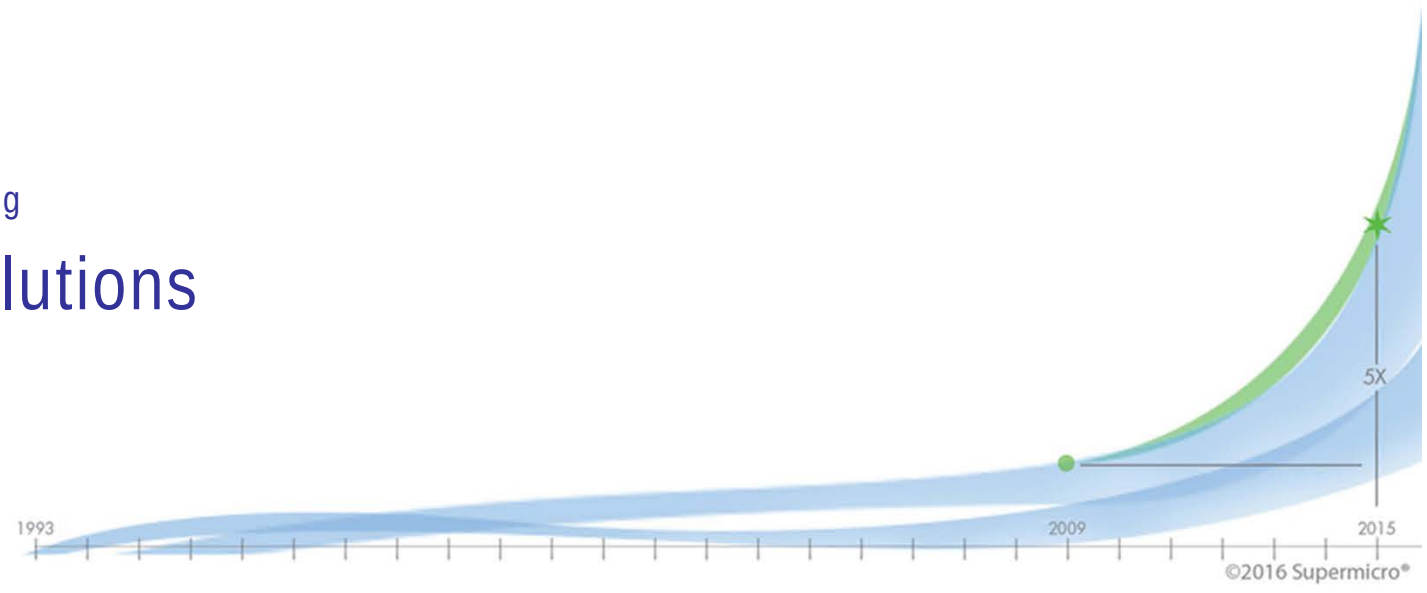
Reference Architecture (RA) – Appliance/ Hardware Ready SKU

SRS–OPNSTK-MTAP-01	SRS–OPNSTK-MTAP-02	SRS–OPNSTK-MTAP-03	SRS–OPNSTK-MTAP-04	SRS–OPNSTK-MTAP-05
5 Compute Nodes	9 Compute Nodes	13 Compute Nodes	17 Compute Nodes	21 Compute Nodes
Up to 240 VMs*	Up to 432 VMs*	Up to 624 VMs*	Up to 816 VMs*	Up to 1008 VMs*
3 Storage Nodes	5 Storage Nodes	6 Storage Nodes	8 Storage Nodes	10 Storage Nodes
144TB raw / 48TB usable	240TB raw / 64TB usable	288TB raw / 80TB usable	384TB raw / 112TB usable	480TB raw / 144TB usable

*Each VM = 4 vCPU + 8GB RAM

Storage Based Cluster Offering

Open Stack Solutions



TAKNET SYSTEMS
Server, Storage and Backup Solutions Provider

intel Technology Provider
Platinum 2016

2016 EMEA
Confidential

Maximizing Storage Server Density

- **Innovative Server Design**
  - Dual Intel® Xeon™ E5-2600 v4/v3
  - Up to 24 DIMM support
- **SAS3, Hybrid and 100% NVMe**
- **Front and Top-loading Bays**
- **Capacity Configurations**
  - Dense 3.5" drive support
- **Performance Configurations**
  - All Flash Storage / NVMe

2U/48 x 2.5" bays

2U/24 x 3.5" bays

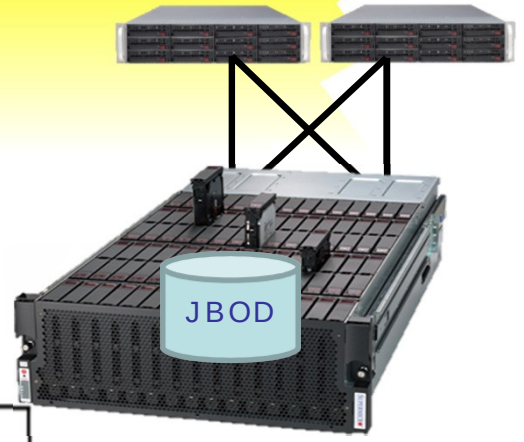
2U/16 x 3.5" bays

4U with 60 & 90 3.5" bays

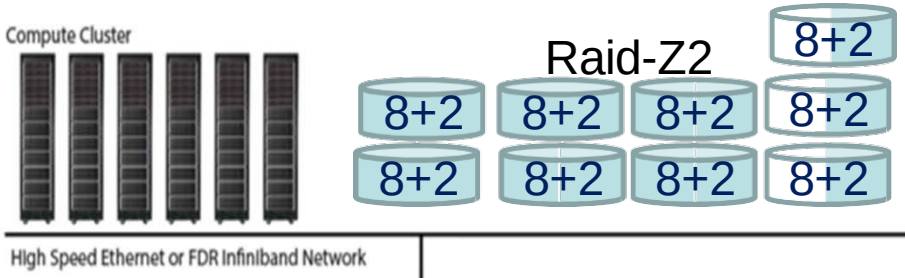
New Software Defined Storage

Intel Lustre on ZFS

Next Generation
ZFS on Linux with JBOD Target Devices



Scalable Building Block Architecture

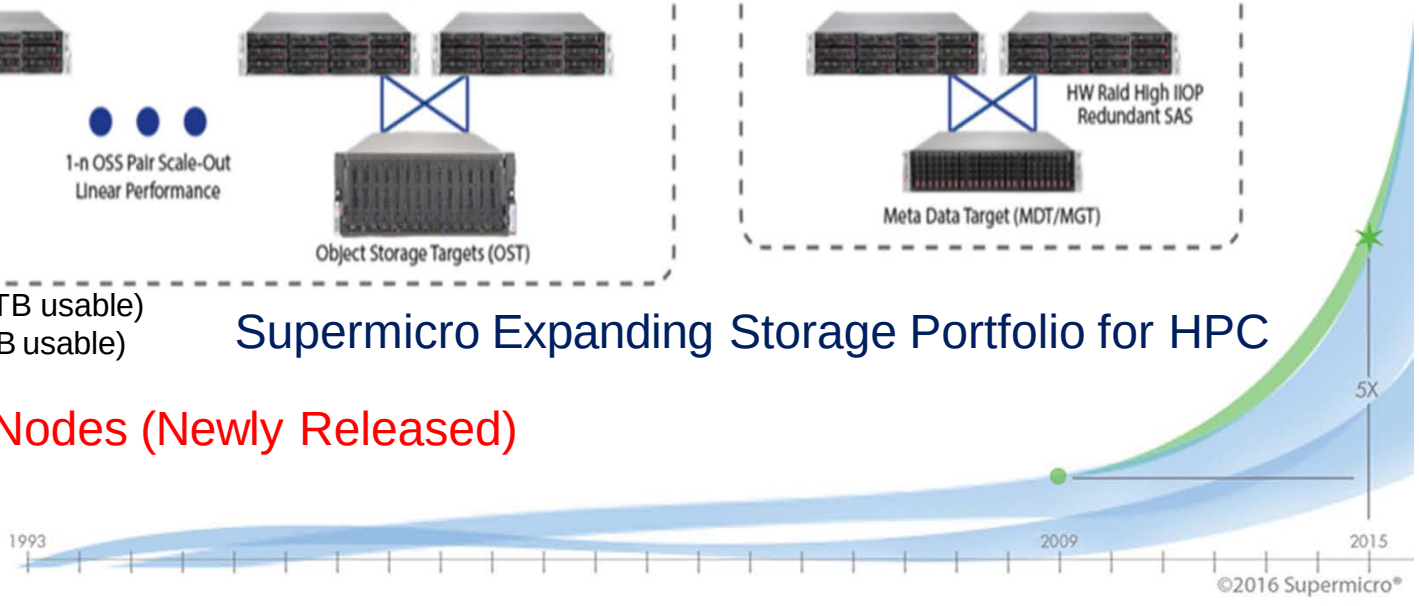


SRS-MDSHWR-Lustre-01

SRS-OSS190-Lustre-01 (576TB usable)
SRS-OSS290-Lustre-01(1.1PB usable)

Supermicro Expanding Storage Portfolio for HPC

Ready Nodes (Newly Released)



Supermicro Hadoop Ready Platforms

Server Platforms

1U NameNode

4U FatTwin 8x 3.5" Per

2U SSG 16x3.5"

2U SSG24x2.5"

2U TwinPro 6x 3.5" Per

2U TwinPro 12x 2.5" Per

HORTONWORKS

cloudera

hadoop

Hadoop Kit # SRS-14UL63-HADP-TL

Remote Management

IPMI Server Management

10G/1G Ethernet Switches

SSE-X24S
24 Ports 10GbE SFP+

SSE-G24-TG4
24 Ports 1GbE (RJ4)
4 Ports 10GbE (CX4, XFP or SFP+)

SSE-G48-TG4
48 Ports 1GbE (RJ4)
4 Ports 10GbE (CX4, XFP or SFP+)

SuperRack Integration

42U Cluster Rack

cloudera CERTIFIED

Hortonworks CERTIFIED

	PoC Cluster	High Capacity	IO Optimized	High Density Compute	Large Memory And Storage	Balanced	Large Memory/ Dual 10G
Model SKU	SRS-14TP08-HADP-01	SRS-42SG18-HADP-01	SRS-42SG18-HADP-02	SRS-42FT36-HADP-01	SRS-42FT36-HADP-02	SRS-42TP36-HADP-01	SRS-42TP34-HADP-02
Data Node	8	18	18	36	36	36	34
Form Factor	2U TwinPro	2U SSG		4U FatTwin		2U TwinPro	
	2x E5-2630V3	2x E5-2630V3	2x E5-2650V3	2x E5-2680V3	2x E5-2650V3	2x E5-2630V3	2x E5-2650V3
	64GB	64GB	128GB	128GB	256GB	64GB	256GB
	6 Bay 3.5'	16 Bay 3.5"	24 Bay 2.5"	8 Bay 3.5"	8 Bay 3.5"	6 Bay 3.5"	12 Bay 2.5"
Total Data Drive	48	288	432	288	288	216	408
Total Capacity	96TB (2TB)	1.15PB (4TB)	432TB (1TB)	576TB (2TB)	1.15PB (4TB)	432TB (2TB)	408TB (1TB)
Name Node	2x 1U Ultra	3x 1U Ultra	3x 1U Ultra	3x 1U Ultra	3x 1U Ultra	3x 1U Ultra	3x 1U Ultra
Management Node	1x 1U WIO	1x 1U WIO	1x 1U WIO	1x 1U WIO	1x 1U WIO	1x 1U WIO	1x 1U WIO
Switches	1x24PT GbE	1x 48PT GbE 1x 48PT 10GBase-T		1x 48PT GbE 1x 48PT10G SFP+			1x 48PT GbE 2x 48PT 10G SFP+
Cabinet (WxHxD)	14U 21.6x30.6x3 7.4	42U 23.5x82.4x 48					
PDU	1x2U 30A 208V Switched Single-Phase	2x 50A 208 3-Phase Metered PDU					

New Software Defined Storage

IBM Spectrum Accelerate

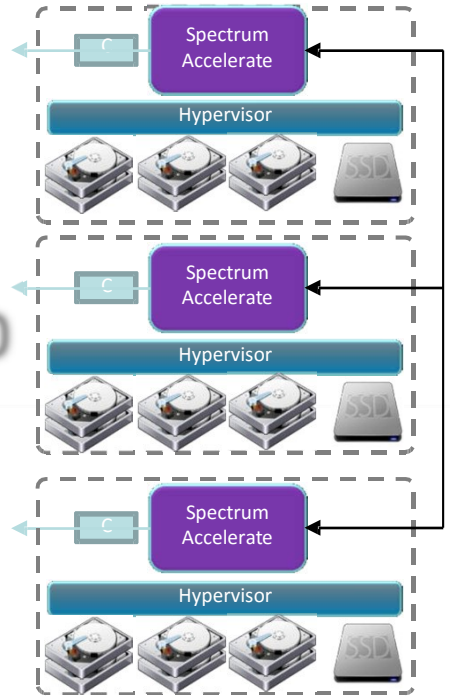
Ready Nodes (Newly Released)

Key Features

- Enterprise-Class storage with predictable performance
- Proven technology, over 100,000 servers deployed worldwide
- Highly reliable, highly available
- Manage and protect data with remote mirroring, multi-tenancy and quality of service
- Converges compute and storage
- Cut costs by repurposing infrastructure with flexible licensing
- Easy to deploy, easy to manage with intuitive GUI
- Highly secure with role-based access management

2U 12x 3.5" SSG

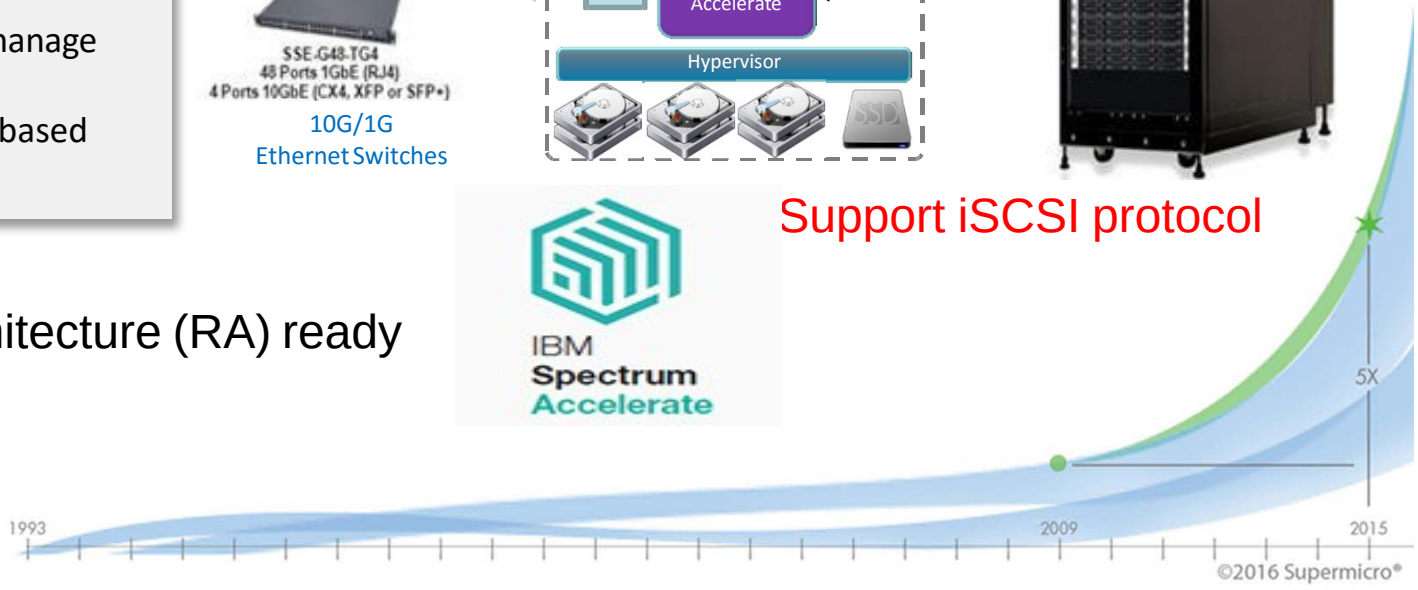
10G/1G Ethernet Switches



Support iSCSI protocol

Reference Architecture (RA) ready

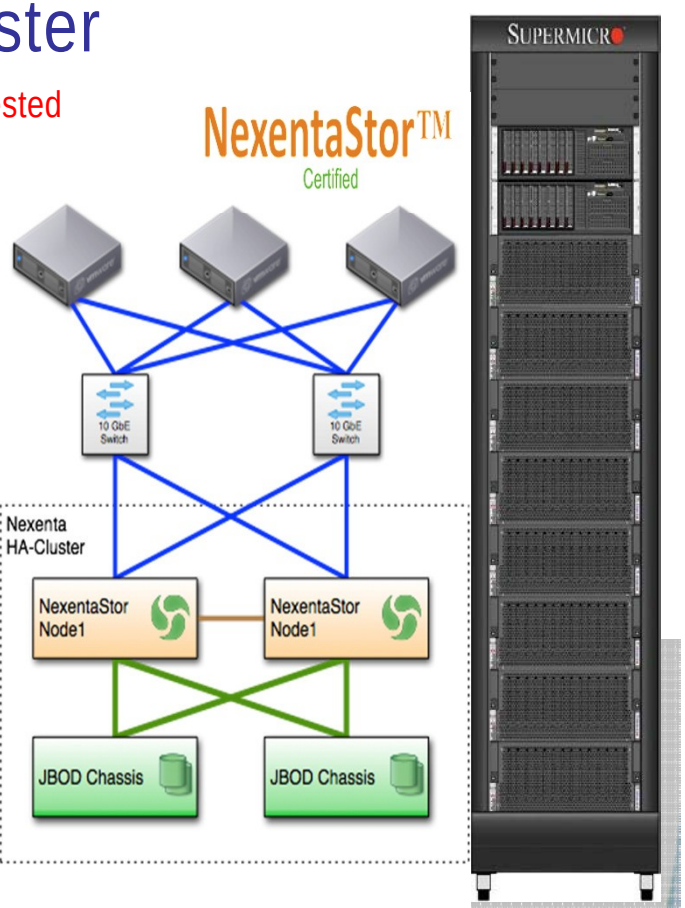
IBM Spectrum Accelerate



NexentaStor Storage Cluster

Fully Integrated, Fully Optimized, Completely Tested

	NSM-20-X10	NSM-54-X10	NSM-82-X10	NSM-166-X10	NSM-340-X10	NSM-508-X10	NSM-1408-X10	NSM-5760-X10
SMC NexentaStor SKU	SRS-NSM020-SN0B-01	SRS-NSM054-HA2B-01	SRS-NSM082-HA1B-01	SRS-NSM166-HA2B-01	SRS-NSM340-HA4B-01	SRS-NSM508-HA6B-01	SRS-NS1408-HA8B-01	SRS-NS5760-HA8B-01
Raw Capacity	20TB	54TB	82TB	166TB	340TB	508TB	1408TB	5760TB
Data Drive #	10	45	41	83	170	254	352	720
Form Factor (total system)	2U	8U	8U	12U	20U	28U	36U	36U
Memory (total system)	96GB	192GB	192GB	192GB	512GB	512GB	512GB	512GB
Read Cache	N/A	400GB	400GB	400GB	800GB	800GB	N/A	N/A
10GbE port	2	4	4	8	8	8	8	8
Software	NexentaStor 4.0 or above							
Protocol	NFS v3, v4, CIFS, SMB 2.1, FC, iSCSI							
Client OS	RHEL, Windows, VMware, Hyper-V, OpenStack, Citrix Xen							
Controller	1x SYS-6028U-NEX1	2x SYS-6028U-NEX1			2x SYS-6028U-NEX2			
CPU	E5-2609 v3 1.9GHz, 6-core, 2-socket				E5-2643 v3 3.4GHz, 6-core, 2-socket			
DRAM	96GB (12x 8GB)				256GB (16x 16GB)			
Boot Drive	2TB (2x 1TB SAS 7.2k 3.5)							
SAS HBA	3x AOC-S3008L-L8e	1x AOC-SAS3-9300-8e		2x AOC-SAS3-9300-8e	2x AOC-SAS3-9300-16e	3x AOC-SAS3-9300-16e	4x AOC-SAS3-9300-16e	4x AOC-SAS3-9300-16e
NIC	1x AOC-STGN-12S			2x AOC-STGN-12S				
Data HDD	10x 2TB 7.2k SAS	N/A						
Storage Enclosure N/A	N/A	2x CSE-216BE2C-R741JBOD 24x 2.5"	1x CSE-847E2C-R1K28JBOD 44x 3.5"	2x CSE-847E2C-R1K28JBOD 44x 3.5"	4x CSE-847E2C-R1K28JBOD 44x 3.5"	6x CSE-847E2C-R1K28JBOD 44x 3.5"	8x CSE-847E2C-R1K28JBOD 44x 3.5"	8x CSE-946ED-R2KJBOD 90x 3.5"
Data HDD	N/A	1.2TB SAS 10k 2.5"	2TB SAS 7.2k 3.5"				4TB SAS 7.2k 3.5"	8TB SAS 7.2k 3.5"
Data Drive #	10	45	41	83	170	254	352	720
L2ARC	N/A	400GB MLC (1x 400GB)			800GB MLC (2x 400GB)		N/A	N/A
ZIL/SLOG	N/A	2x 200GB SSD	2x 200GB SSD	4x 200GB SSD	4x 200GB SSD	8x 200GB SSD	N/A	N/A



MAX offer up to 5.7PB Offering

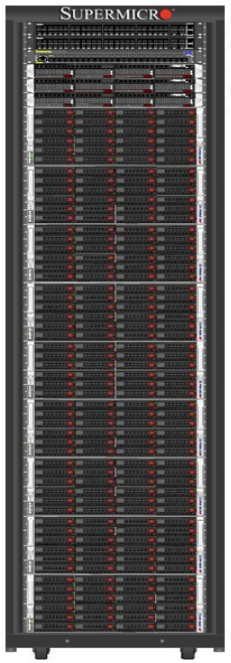
Supermicro Ceph Object Storage Platform

Confidential

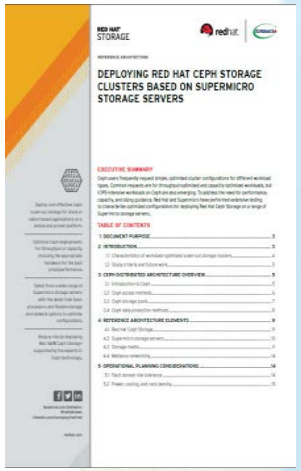
(NEW)

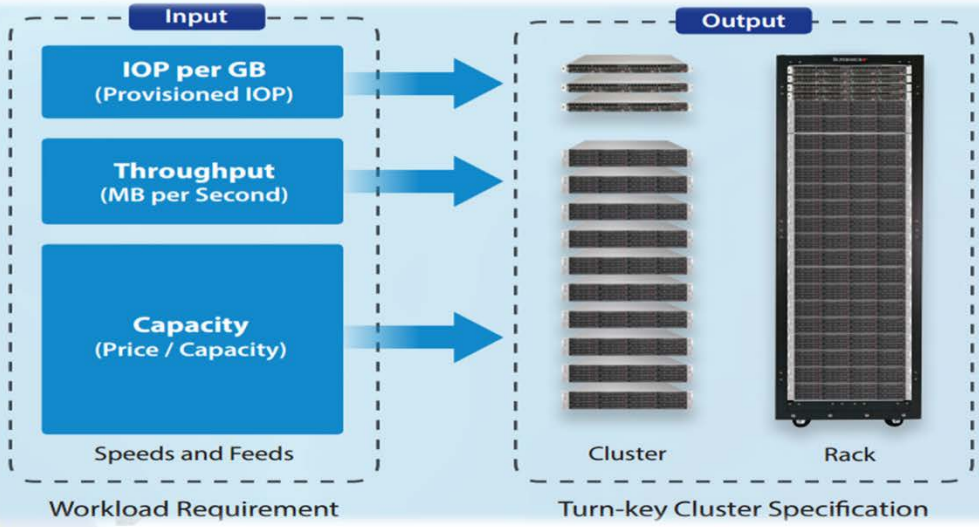
Workload/ Application	MySQL/Database	Digital Media Serving - Small	Digital Media Serving - Large	Capacity-Archive
Solution SKUs	SYS-5038MR-OSD006P	SRS-42E112-Ceph-05 SRS- RCS112-Ceph-05	SRS-42E136-Ceph-05 SRS-RCS136-Ceph-05	SRS-42E172-Ceph-05 SRS-RCS172-Ceph-05
I/O profile/Protocol	IOP / Block	Throughput/Block & Object	Capacity/Object	Capacity/Object
Data Protection	2x Replication	3x Replication	3x Replication and Erasure code	Erasure code
Form factor	3U	23U (with switches and 3x Monitor nodes)	41U (with switches and 3x Monitor nodes)	41U (with switches and 3x Monitor nodes)
Usable capacity	3.2TB	240TB	1.5 PB using 7+2 Erasure Code	2.5 PB using 7+2 Erasure Code
Node count	8x OSD nodes	3x Mon, 10x OSD nodes	3x Mon, 9x OSD nodes	3x Mon, 9x OSD nodes
Network / Switches	10G SFP+ / NA	10G SFP+ / 1x SSE-X3348SR, 48port SFP+ - Reverse Air Flow, 1x SSE-G24-TG4, 24x port switch	10G SFP+ / 2x SSE-X3348SR, 48port SFP+ - Reverse Air Flow, 1x SSE-G24-TG4, 24x port switch	10G SFP+ / 2x SSE-X3348SR, 48port SFP+ - Reverse Air Flow, 1x SSE-G24-TG4, 24x port switch
Rack dimensions & PDU	NA / NA	42U (82.4"Hx 23.5"Wx 48"D) / 2x Metered Rack PDU,NEMA L6-30P,IEC 320 C13,C19	42U (82.4"Hx 23.5"Wx 48"D) / 2x Metered Rack PDU,NEMA L6-30P,IEC 320 C13,C19	42U (82.4"Hx 23.5"Wx 48"D) / 2x Rack PDU 208V 50A 3-Phase
Subscription	Capacity based subscription for Red Hat Ceph Storage 1.3 (includes Red Hat Enterprise Linux 7.1)			

Fully Integrated Ceph Storage Cluster



- Front end 10G for client access, back end 10G for replication in write intensive environments
- 3x Monitor nodes for maximum resiliency and availability
- Optimized OSD nodes with Xeon E5 v3 processors, SSD or NVMe and 10G NIC bonding. Data integrity is guaranteed by 3x copy replication among OSDS or erasure coding
- Standard 42U rack with metered PDUs, rack customization options available
- Full cluster integration service includes full cluster burn-in and testing, BIOS and FW update, Ceph installation and configuration, networking configuration





10GbE Switches

48x 10GbE Ports

24x 10GbE Ports

Monitor Node

4x 3.5" HDD Bays

12x 3.5" HDD Bays

2U 12x 2.5"SSG

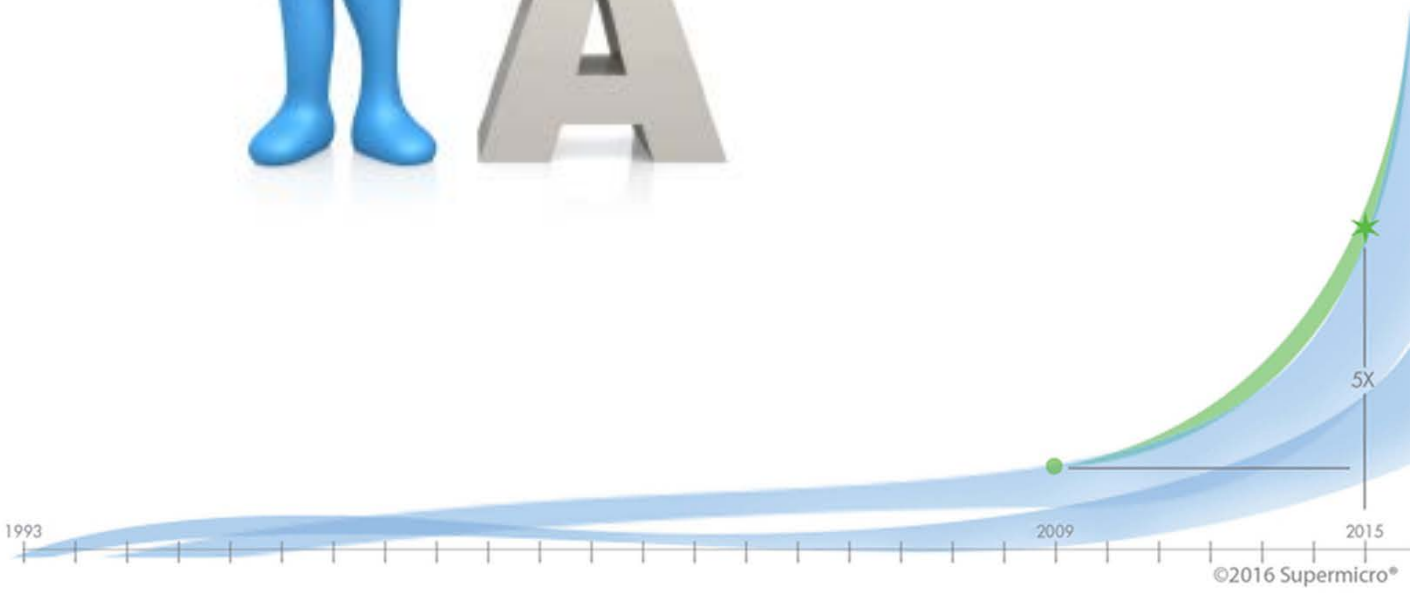
36x 3.5" HDD Bays

4U 36x3.5"SSG

72x 3.5" HDD Bays

4U 72x3.5"SSG


Q&A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