

Software Defined Datacenter Solution

# CSQCT 雲 達 科 技

(intel)

超融合架構與軟體定義資料中心 QxStack Microsoft WS2016 Cloud Ready Appliance

# Get Quanta Computer 雲 達 科 技 Quanta Cloud Technology

Reputable provider of datacenter infrastructure holding major domains of public internet such as,

- Search Engine
- Major Cloud Service Provider
- Social Network
- E-commerce

## QCT design appliances that best suits our clients

(intel) XEON: inside

#### Racks

#### Network Switch

#### Storage

Server

- OCP-Open Rack
- OCP-OCS
- Scorpio
- 1G Switch
- 10G Switch
- 25G Switch
- 40G Switch
- 100G Switch
- Storage server
- JBOD
- Cluster Server
- Cloud server
- High density server









# Scalability

#### Efficiency

#### Reliability

#### Serviceability

Agility



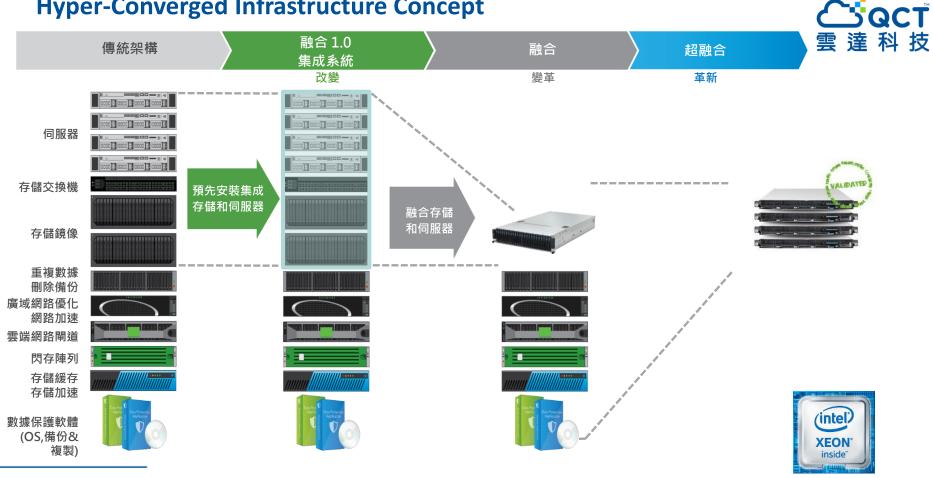
## QxStack Microsoft WS2016 Cloud-Ready Appliances

www.QCT.io

4

QCT CONFIDENTIAL

#### Hyper-Converged Infrastructure Concept

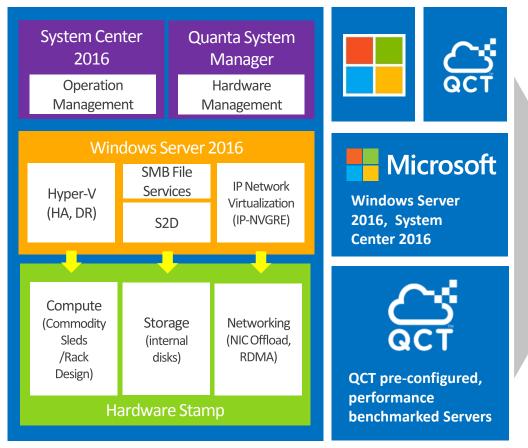


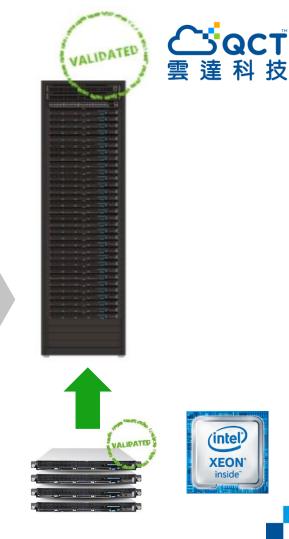
www.QCT.io

QCT CONFIDENTIAL

#### **QCT Windows Server 2016 Cloud Ready Appliance**

#### A Solution that safeguards your business







## **Scenario-based Demo:**

- 1. RDMA Technology
- 2. High Availability
- 3. VDI Workload 4 node 400 VMs
- 4. Container 4 node 500 containers
- 5. Hybrid cloud management Operation Management Suite (OMS)
- 6. Backup and DR Azure Site Recovery

#### **QCT Windows Server 2016 Solution delivers dramatic performance boost**

With more than 32,500 students from about 120 nations, **Johannes Gutenberg University Mainz (JGU)** is one of the largest universities in Germany. They are looking for a new and efficient way of working with its huge data amount on exchange and sharepoint server.



#### Challenge

- Complexity of IT management
- Performance bottlenecks with high loading

#### Solution

QCT WS2016 solution combined leading-edge cloud-Ready OS with high quality hardware system using NVMe SSDs

"All in all, we think QCT pre-validated solution has excellent compatibility and performance with the Windows Server 2016 OS."

#### Results

- 1.4M IOPS and 80TB capacity by only 4 nodes cluster
- Single console management on SW and HW layer
- Easy to scale-out solution



C<sup>™</sup>QCT 雲 達 科 技

QCT CONFIDENTIAL

### **QCT powers Software-Defined Technology - RDMA**

#### More CPU resources

Enable more CPU resource by offloading network I/O processing onto network adapter

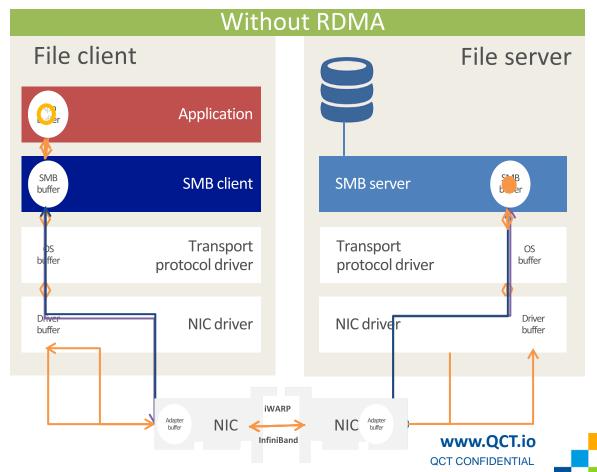
#### High throughput

High throughput

(3700MB/s to 7800MB/s) with low latency and ability to take advantage of high-speed network

#### **SMB** Multichannel

Compatible with SMB multichannel for load balancing and failover



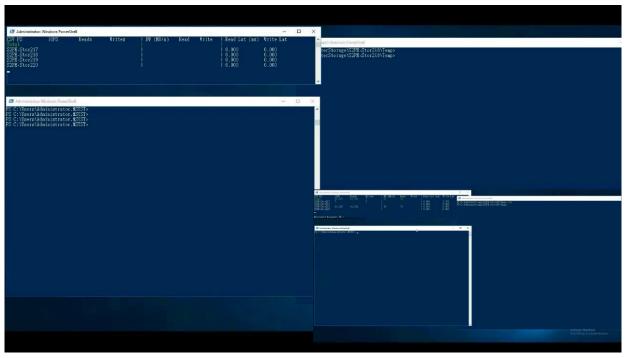


**Q:** What is difference with or without RDMA? If I were to transfer a 100Gb file from one server to another, how much faster can RDMA achieve?





**A:** QCT's RDMA feature significantly increases throughput and reduces read/write latency. In QCT's experiment, it takes a mere 3.6 minutes to transfer 100G file from one node to another (27% Time Reduction!!!)







# **Q:** If one of the QCT servers within a **cluster shuts down**, what happens to the VMs on that server?



# A: If one of QCT's server shuts down, the VM automatically modes to other QCT servers in the cluster..... in merely 1-2 minutes!!!

Start HAD on SAPH Sacc220. Virtual Machine Connection   Tex	P       Caseries       ▼       ▼         Owner Node       Piorty       Monaton       ▼
Image: State of the state	Durine Node       Plinity       iformation         52PH-580-20       Medum       52PH-580-21       Medum         52PH-580-217       Medum       52PH-580-21       Scalar         52PH-580-217       Medum       52PH-580-21       Scalar         52PH-580-217       Medum       52PH-580-21       Medum         52PH-580-217       Medum       52PH-580-21       Medum         52PH-580-217       Medum       52PH-580-21       Medum
Concerning of the second of	Durine Node       Plinity       iformation         52PH-580-20       Medum       52PH-580-21       Medum         52PH-580-217       Medum       52PH-580-21       Scalar         52PH-580-217       Medum       52PH-580-21       Scalar         52PH-580-217       Medum       52PH-580-21       Medum         52PH-580-217       Medum       52PH-580-21       Medum         52PH-580-217       Medum       52PH-580-21       Medum
Registe Bin     Image: Status     S	Owner Node       Florty       Information         52PH-36x220       Medum       52PH-36x217         52PH-36x217       Medum       52PH-36x217
Project Bin   Set Hausek and Shaining Center   Failower Cluster Manager   Pailower Cluster Manager   Status     Image: Strategy of the ment Status   Image: Strategy of the m	Owner Node       Florty       Information         52PH-36x220       Medum       52PH-36x217         52PH-36x217       Medum       52PH-36x217
Set Network and Sharing Center   Solar Context     Image: Context <td>Owner Node       Florty       Information         52PH-36x220       Medum       52PH-36x217         52PH-36x217       Medum       52PH-36x217</td>	Owner Node       Florty       Information         52PH-36x220       Medum       52PH-36x217         52PH-36x217       Medum       52PH-36x217
Enclose   Example	Owner Node       Florty       Information         52PH-36x220       Medum       52PH-36x217         52PH-36x217       Medum       52PH-36x217
Internet   Internet   Internet   Internet     Connection   Devices   Internet   Internet     Devices   Internet   Internet <td>Owner Node       Florty       Information         52PH-36x220       Medum       52PH-36x217         52PH-36x217       Medum       52PH-36x217</td>	Owner Node       Florty       Information         52PH-36x220       Medum       52PH-36x217         52PH-36x217       Medum       52PH-36x217
Image: Status     Internet Status     In	S2PH-Sep220       Medum         S2PH-Sep217       Medum
Image: Section of Constraints   Constraints   Participants   Partitants   Partitants   Participants <td>S2PH-Sec217       Medium         S2PH-Sec217       Medium</td>	S2PH-Sec217       Medium
Reg 2 int   General   Internet   Inter	S2PH-Slov217       Medum
Col D fit Convection   Convection   A     Col D fit Col D fit C	52914.9ar217 Medum 52914.9ar217 Medum 52914.9ar217 Medum 52914.9ar217 Medum 52914.9ar217 Medum 52914.9ar217 Medum
Construction   Determine   Determine   C   Set where S2PH ST0R2174   ID Purring   Mould Machine     Construction   The Period Construction   No related State   Finishing   Mould Machine     Construction   Determine   Example   Finishing   Mould Machine     Construction   Determine   Example   Mould Machine     Construction   Determine   Example   Mould Machine     Construction   Determine   Example   Mould Machine     Construction   Determine   Mould Machine   Mound Machine     Construction   Determine   Mound Machine   Mound Machine     Construction   Determine   Mound Machine   Mound Machine     Construction   Determine   Mound Machine   Mound Machine     Construction   Mound Machine   Mound Machine   Mound Machine     Constr	52PH-5kor217 Medum 52PH-5kor217 Medum 52PH-5kor217 Medum 52PH-5kor217 Medum
The product of the	52PH-Stor217 Medium 52PH-Stor217 Medium 52PH-Stor217 Medium 52PH-Stor217 Medium
Borgenstration   Braining   Braining   Braining   Material Machine     Borg Dar P   Duration   D000000   D0000000   D0000000   D00000000   D0000000000   D0000000000000   D000000000000000000000000000000000000	S2PH-Stor217 Medium S2PH-Stor217 Medium S2PH-Stor217 Medium
Operation       Op/Sign       Network Connection       Network Connection       Metwork Connection	S2PH-Stor217 Medium S2PH-Stor217 Medium
Boy of Fr   Speech:   20.0 Udp3   Instantian   Matrix Convection C   Image: S2PH 5TOR2174   Image: S2PH STOR2174   I	S2PH-Stor217 Medium
Reg IP frie   Details   oot problems   Peperty   Imbase 52PH STOR217.9   Imbase 52PH STOR217.9   Imbase 52PH STOR217.9     Reg IP frie   and repair network   Conrection-specific Description   Imbase 52PH STOR217.91   Imbase 52PH STOR217.91   Imbase 52PH STOR217.91     Reg IP frie   Autointy   Physical Address   Imbase 52PH STOR217.91   Imbase 52PH STOR217.91   Imbase 52PH STOR217.91	
Re) 17 fr Re) 17 fr	S2PH-Stor217 Medium
Kep Ly Tro Rep Ly Tro Activity Devocitation Physical Address	S2PH-Stor217 Medium
Physical Address	S2PH-Stor217 Medium
	S2PH-Stor217 Medium
Reply tro Sent — Received Once Fraded	S2PH-Stor217 Medium
Pv4 Subset Mask	
Reply fro bytes. 2,910,002 10,702,007 IPv4 Default Gatewa	,
Septy fr Pod 005-Seerce = 10 as in et al i e	Preferred Owners: Any no
Reply tro	
Refriest Refriest Refriest Refriest Refriest Virtual Machine S2PH-HA01	
Kop ly fri Rob ly fri Phy 5 Dec 2 minutes and the status - status and the stat	
Reply from 8. CPU leaner 02	Up Time: 0.12:32
Reply from 8 Windows Ensual	Assigned Memory: 4096 MB
integration Services: 10.0.14393	Heartbeat: OK
Computer Name: WINCT/HEARINGS	Operating System: Windows Server 2016 Standard Operating System Version: 10.0.10011
	operating system teraters. 10.0.10011
Liable to determine monitored	services:
tt 🔎 🗇 🧔 🖳 🔤	Activate Windows



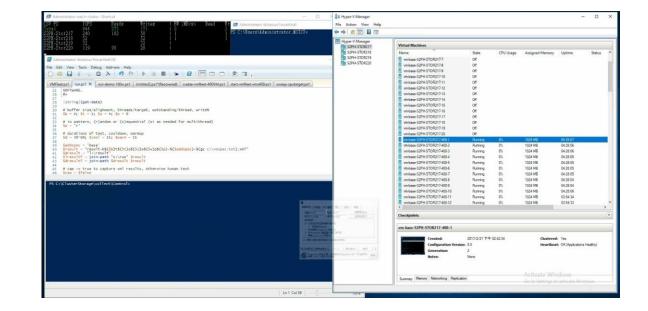
# **Q:** I am a US enterprise, and I want to run VDI workload on my new infrastructure. For this specific purpose, what can QCT offer?



# A: With QCT's MSW2000, it can run 400 VMs per 4 node cluster.

#### VM Profile

- 2vcpu
- 4G RAM
- 120G Disk
- 50 IOPS

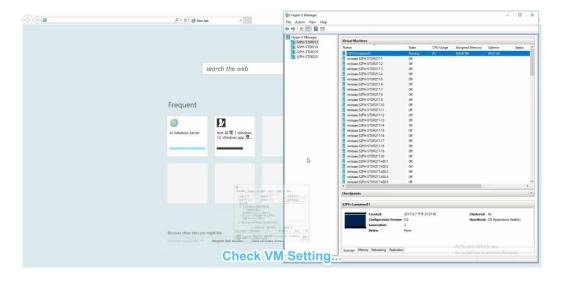




# **Q:** These days microservices are very popular. What if I also want to run microservices on containers in the future?

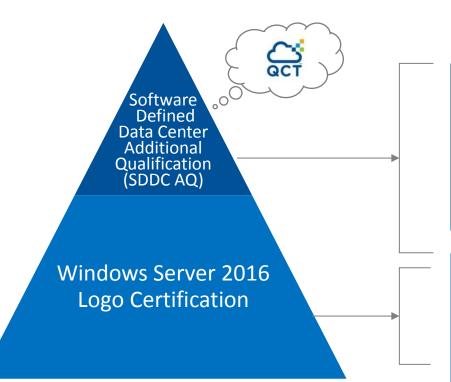


# A: For a VM in one node within 4 node cluster of MSW2000, it can run 500 Docker containers with only 44Gb memory and 160Gb of capacity.





### Windows Server Software-Defined Top-standard program endorsed by MSFT



#### Private Cloud Simulator Test

- Solution Level certification on server cluster
- Simulate 1yr datacenter operation in 7 days stress test with strict standard

#### Hardware Lab Kit Test

- Hardware level and OS certification on single server
- Hardware stability

## QCT MSFT WS 2016 Hyper Converged Cloud Ready Appliances



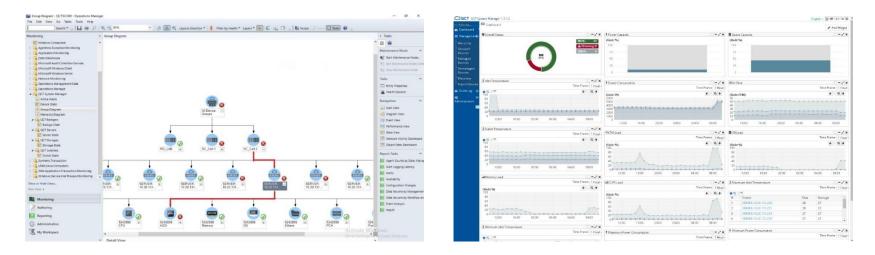
ѕки	MSW20	MSW2000				MSW6000				MSW8000			
Profile	Hybrid	1		-	All-Flash	Oline		-	All-NVMe			To the Year	
IOPS (4 node)	1M	1M				1.37M				3M			
Raw Capacity (4 node)	409.6 TI	409.6 ТВ				83.2 TB				70.4 TB			
Scale	4 to 16 l	4 to 16 Nodes				4 to 16 Nodes				4 to 8 Nodes			
Form Factor	1U 1-No	1U 1-Node Storage Server				2U 1-Node Rack Server				1U 1-Node Rack Server			
Per Node													
CPU	Intel Xe	Intel Xeon E5-2620 v4				Intel Xeon E5-2680v4				Intel Xeon E5-2695 v4			
Memory	256 - 51	256 - 512 GB				512 GB or above				512 GB or above			
NVMe						1.6 TB				17.6 TB			
SSD	3.2 – 6.4	3.2 – 6.4 TB				9.6 – 19.2 TB							
HDD	72 – 96	72 – 96 TB											
NIC	1x Quar	1x Quanta OCP Mezzanine CX3, 10G				1x Quanta OCP Mezzanine CX4, 25G				1x Quanta OCP Mezzanine CX4, 25G			
RDMA	Yes	Yes				Yes				Yes			
TPM 2.0	Yes	Yes				Yes				Yes			
Drives (Per Node)	Туре	Qty.		Size	Туре	Qty.		Size	Туре	Qty.		Size	
Cache	SATA SSD	4	2.5"	0.8 - 1.6 TB	NVMe SSD	2	2.5″	800 GB	NVMe SSD	2	2.5″	800 GB	
Capacity	SATA HDD	12	3.5″	6ТВ, 8ТВ	SATA SSD	12	2.5″	0.8 - 1.6 TB	NVMe SSD	8	2.5″	2 TB	

#### **Quanta System Management**



#### Software and Hardware Monitoring in one console!

- IT assets management including server, storage, networking, chassis, and rack management
- Remote management console
- **Monitor** and **alert** administrators to potential problems and offer possible root causes or corrective action.
- Provide **RESTful API** which allows developers to further customize their monitor needs

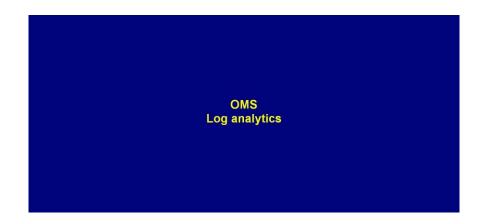


**Q:** I really like QCT's Windows Server 2016 solution now, but I also currently have Azure account, with some of my workloads running on it. If I buy QCT's solution, how can I comprehensively and easily manage my overall resources?



A: When you purchase QCT solution, you also purchase our infrastructure planning know-how. We know how to best utilize your resource to achieve your business goal.

In this case, our architect suggest a joint management with Operation Management Suite (OMS) to jointly manage your public/private resource and workloads.









#### Make quality business decisions in QCT solution center

Customer briefing and demonstration Performance testing and benchmark Proof of concept Solution workshop

Align your challenges with a specialized industry solution