

ULTIMATE X

Overview

Ultimate X[®] (ULT X) is a high-performance and distributed data movement/access solution. Easy to integrate, it presents itself as a simple shared storage tier to applications using industry standard NFSv3/NFSv4/SMBv3 interfaces. ULT X also supports backend storage interfaces of NFSv3, NFSv4, S3 and S3EOZ (Amazon S3 Express One Zone) allowing conversion from S3 to file. ULT X moves data significantly faster and more efficiently than existing methods to support recurring edge-to-core or edge-to-cloud ingest workloads, data centralization for analytics platforms, backups, cloud migrations, and/ or data center consolidations—reducing project costs, improving operational efficiencies, and accelerating time to insights and action. ULT X also enables applications (whether on-prem or in the cloud) to securely access and operate on remote data (such as at the edge, on-prem, in another cloud region, or in a different cloud) in near real time—without having to move or copy it first. For more information, see Vcinity [Ultimate X At A Glance](#). ULT X PCIe configurations also provide high availability, achieved by pairing a cluster of multiple servers running ULT X software with corresponding fault-tolerant networking components. These resilient configurations also allow for scale-out growth for future demands. Additionally, using PCIe cards of different capacities, ULT X enables scale-up growth from 100Mbps to 100Gbps.

ULT X Configurations

	ULT X VM	ULT X Metal	ULT X PCIe 50G	ULT X PCIe 100G
Deployment	Edge/Cloud	Edge	Hub/Edge	Hub
Hardware/Software	Software		Hardware/Software	
Deployment Options	VM: KVM™, ESXi™ Cloud: AWS™, Azure™	SW-only for customer or 1U server	Converged PCIe card in 1U server	Converged PCIe card in 2U server
Aggregate BW ¹	Up to 2Gbps ²	Up to 5Gbps	Up to 50Gbps	Up to 100Gbps
Min WAN BW ³	50Mbps (Data Movement) / 500Mbps (Remote Data Access)			
Use Cases	Multi-site, Data Movement, Remote Data Access (File/S3)			
Endpoints (EP)	4		16	32
HA Configs	Not supported		3x50G=150G, 48EP 150G, 24EP protected	3x100G=300G, 96EP 300G, 48EP protected
Data Security	IPsec, AES-256			
Application Intfc	NFSv3, NFSv4, SMBv3, S3 only for Enterprise			
Storage Interface	NFSv3, NFSv4, S3, S3EOZ			

¹ Performance varies with factors including network configuration, storage, and server platforms.

² Up to 2Gbps per end point for ULT X VM; aggregate number specified for the rest of ULT X variants in the table.

³ Vcinity solutions offer the best value for WAN links larger than the values specified here for each use case.

VM Specifications

Typical Requirements

Processor/ DRAM ¹	16vCPUs and 128GB DRAM minimum
Storage	Minimum of 4x250GB SSD or NVMe ² OS Volume 200GB SSD minimum
WAN Interface	vNIC 1 or 10Gbps depending on available WAN bandwidth
LAN/Compute Interface	vNIC 1 or 10Gbps depending on available WAN bandwidth
Management Interface for SSH/HTTPS	vNIC minimum 1Gbps. May be combined with LAN/compute interface.

Recommended Cloud Instances

AWS	Memory Optimized	r5n.8xlarge (recommended), r5n.12xlarge, r5n.16xlarge, r5n.24xlarge
		r5.8xlarge, r5.12xlarge, r5.16xlarge, r5.24xlarge
		r5a.8xlarge, r5a.12xlarge, r5a.16xlarge, r5a.24xlarge
	Storage Optimized	i3en.6xlarge, i3en.12xlarge, i3en.24xlarge
Azure		E16s, E32s and E64s

Hypervisor Host Support

KVM	≥ v1.5.3
VMWare	ESXi vSphere hypervisor v7.02 (7.0 minimum), vCenter v7.02 minimum

¹ Required DRAM for VM decided by use case and overall storage configuration.

² Required disk cache determined by testing parameters, dataset/fileset size, and external storage/shares specifications.

ULT X Metal Specifications

Systems Overview

Software .iso	Contains the complete software appliance including the RHEL OS
Server ¹	1U server with 16 cores minimum
DRAM	128GB (min)/256GB ECC DRAM
Storage ²	- Data drives 2x960GB NVMe (up to 8x) - OS drives 2x 480GB M.2 SSD
WAN Interface	10/25GE (10G min)
LAN/Management Interfaces	1/10/25GE (10G min)

Power and Environmental

Power Input	100-240 VAC, auto-voltage sensing
Power Consumption	<450W typical
Temperature	Operating: 50°F to 95°F (10°C to 35°C) Storage: -40°F to 158°F (-40°C to 70°C)
Humidity	Operating: 10% to 85% RH, non-condensing Storage: 5% to 95% RH, non-condensing

Chassis

Form Factor ¹	1RU (ULT X bare metal with server config)
Dimensions	1.75" high, 27.6" deep, 17.3" wide
1GE Interfaces	2x 1000Base-T Ethernet Copper RJ45 connector
10/25GE Interfaces	4x 10/25GE SFP+ pluggable transceiver
Ventilation	Front-to-back airflow
Acoustics	Intelligent, speed-controlled fans for low-noise operation
Power Supply	Redundant, hot-swappable AC power supply and fan assembly
Warranty	1 year for hardware

¹ The server may be provided by Vcinity or by the customer. Customers using their own server should meet the minimum requirements specified above.

² Required disk cache determined by testing parameters, dataset/fileset size, and external storage/shares specifications.

ULT X 50G PCIe Specifications

Systems Overview (typical)

Software .iso	Contains the complete software appliance including the RHEL OS
Server ¹	1U server with 16 cores minimum
DRAM	256GB minimum
Storage ²	- Data drives 6x960GB NVMe (up to 8x) - OS drives 2x 480GB M.2 SSD
Fabric Extension	PCIe CNX6, 100G/4x25G card
WAN Interfaces	2x25GE (1x QSFP28-DD connector breakout to 25GE lanes)
LAN Interfaces	2x25GE
NAS/SAN Interfaces	2x25GE
Management Interface	1000Base-T Ethernet Copper RJ45 connector

Chassis

Form Factor	1RU (server + embedded PCIe card)
Dimensions	1.75" high, 27.6" deep, 17.3" wide
Server: 1GE Interfaces	2x 1000Base-T Ethernet Copper RJ45 connector
Server: 10/25GE Interfaces	4x 10/25GE SFP28 Interfaces
PCIe Card: 25GE Networking Interface	1x QSFP28-DD Interface
CNX6 PCIe Card: 100GE Interfaces	2x QSFP28 Interfaces
Ventilation	Front-to-back airflow
Acoustics	Intelligent, speed-controlled fans for low-noise operation
Power Supply	Redundant, hot-swappable AC power supply and fan assembly
Warranty	1 year for hardware

Power and Environmental

Power Input	100-240 VAC, auto-voltage sensing
Power Consumption	<500W typical total (server + PCIe 20/50G)
Temperature	Operating: 50°F to 95°F (10°C to 35°C) Storage: -40°F to 158°F (-40°C to 70°C)
Humidity	Operating: 10% to 85% RH, non-condensing Storage: 5% to 95% RH, non-condensing

¹ Additional server and fabric extension options available.

² Required disk cache determined by testing parameters, dataset/fileset size, and external storage/shares specifications.

ULT X PCIe 100G Specifications

Systems Overview (typical)¹

Software .iso	Contains the complete software appliance including the RHEL OS
Server¹	2U server with 16 cores minimum
DRAM	256GB minimum
Storage²	- Data drives 6x960GB NVMe (up to 8x) - OS drives 2x 480GB M.2 SSD
Fabric Extension	PCIe CNX7, 400G/4x100G card
WAN Interface(s)	2x100GE QSFP28 interfaces
LAN Interfaces	2x100GE QSFP28-DD interface
NAS/SAN Interfaces	2x100GE QSFP28-DD interface
Management Interface	1000Base-T Ethernet Copper RJ45 connector

Power and Environmental

Power Input	120/240 Volt
Power Consumption	TBD
Temperature	Operating: 50°F to 95°F (10°C to 35°C) Storage: -40°F to 158°F (-40°C to 70°C)
Humidity	Operating: 20% to 80% RH, non-condensing Storage: 8% to 90% RH, non-condensing

Chassis

Form Factor	2RU (server + embedded PCIe card)
Dimensions	3.5" high, 27.6" deep, 17.3" wide
Server: 1GE Interfaces	4X RJ45 Copper Interfaces
Server: 100GE Interfaces	2X QSFP28 Interfaces
CNX7 PCIe Card: 100GE Interfaces	2X QSFP28 Interfaces
PCIe Card Interface:	4x100GE interfaces
Ventilation	Front-to-back airflow
Acoustics	Intelligent, speed-controlled fans for low-noise operation
High Availability	Redundant, hot-swappable AC power supply and fan assembly
Warranty	1 year for hardware

¹ Additional server and fabric extension options available.

² Required disk cache determined by testing parameters, dataset/fileset size, and external storage/shares specifications.

Standards Compliance

RFC 1813	Network File System (NFS) v3
RFC 7530	Network File System (NFS) v4
Microsoft	Server Message Block (SMB) v3
OpenStack	Swift (object)
Amazon AWS	S3—Simple Storage Service (object)
RFC 7143	Internet Small Computer System Interface (iSCSI)
IBTA Vol 1 Rel 1.3	InfiniBand, RoCE v2
IEEE 802.3	1/10/25/40G Ethernet
Amazon S3	Amazon Simple Storage Service (S3)
Amazon S3EOZ	Amazon S3 Express One Zone (S3EOZ)

Management Interface Specifications

- Multi-user, multi-site management for ULT X solution
- DMTF-compliant distributed management architecture
- Configuration of interfaces, file system, error thresholds, etc.
- Error notifications with configurable thresholds for raising notifications and severity levels
- Extensive monitoring of various components of the ULT X solution:
 - System inventory—Components, device logs and system information
 - Servers—CPU core, memory and storage utilization
 - File systems—Storage/file capacity, bandwidth utilization
 - Network—Interface status, throughput, bandwidth utilization, packet loss
- Logging—Syslog from each component, log status
- Account management—Creation/deletion of users, user information and access control

Certifications

UL 60950-1	United States / MET Nationally Recognized Testing Laboratory (NRTL) Mark
CSA C22.2 No. 60950-1	Canada / MET “c” Mark (Standards Council of Canada)
IEC 60950-1 Second	European Union / International /Edition CB (includes all country Scheme deviations)
FCC Part 15 Subpart B	BUS / FCC
ICES-003	Industry Canada

User Interface Specifications

- Easy-to-use, intuitive web-based management interface
- SAML support to enable Single Sign On (SSO)
- REST APIs for seamless integration into existing orchestration platforms as well as workflow and data/network management tools

Data Movement Specifications

- Data movement with unprecedented performance independent of distance
- Efficient, comprehensive, multi-site file management (includes remote management)
- Creation and running of jobs in manual or scheduled modes, including pre/post scripts
- Prioritization based on a job or individual file transfer level
- Optional packaging on a job or file transfer
- Configurable small file aggregation for improved transfer speeds
- Optional file verification
- Tamper-evident logging
- Configurable encrypted authentication for local and remote management connections

Ordering Information

Product ¹	Description	Part Number
ULT X VM	ULT X VM S/W only KVM/ESX/AWS/AZR Subscription	57-0209-122 ²
ULT X Metal	ULT X Metal S/W only Subscription	57-0209-024 ²
ULT X PCIe 50G	ULT X PCIe 50G Subscription	57-0209-135 ³
ULT X PCIe 100G	ULT X PCIe 100G Subscription	57-0209-132 ³
ULT X PCIe 3x50G HA	ULT X PCIe 3x50G HA Subscription	57-0209-144 ³
ULT X Metal w/Server	ULT X Metal Subscription w/Server	57-0209-126 ³
ULT X PCIe 50G w/Server	ULT X PCIe 50G Subscription w/Server	57-0209-136 ³
ULT X PCIe 100G w/Server	ULT X PCIe 100G Subscription w/Server	57-0209-134 ³
ULT X PCIe 3x50G HA w/Servers	ULT X PCIe 3x50G HA Subscription w/Servers	57-0209-145 ³
Add-on Items	Additional Vcinity FS per 1TB Subscription	93-0181-055 ²
	VM AES-256 license	93-0181-047 ⁴
	PCIe 25G AES-256 license	93-0181-069 ⁴
	PCIe 100G AES-256 license	93-0181-061 ⁴

- 1 Throughput numbers specified (e.g., 50Gbps for ULT X PCIe 50G) are best case and vary based on the MTU, latency, storage performance, etc.
2 Software-only product subscriptions are offered for 1- or 3-year terms.
3 Hardware/software product subscriptions are offered for 3-year terms only.
4. Vcinity AES 256 software is restricted under US EAR CCATS G163991, ECCN 5D002 C1.

The functionality described in this data sheet is currently available with ULT X Releases 4.5.x and 5.6.x.