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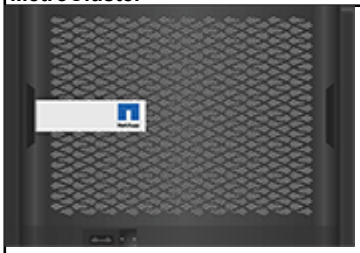
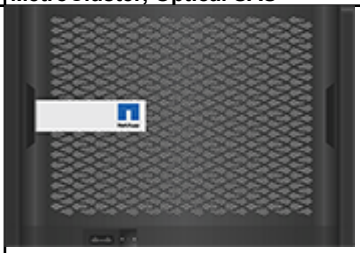
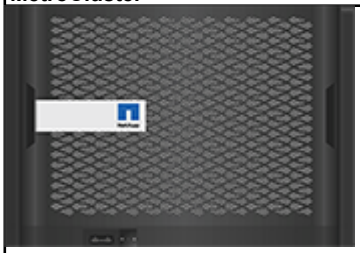
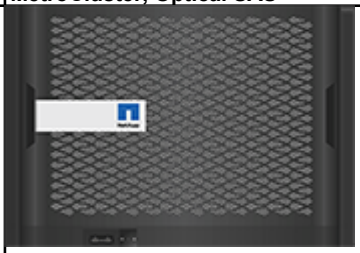
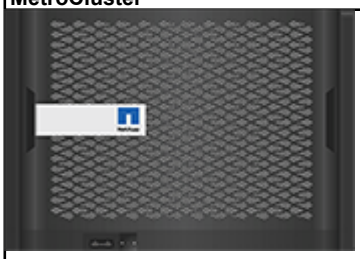
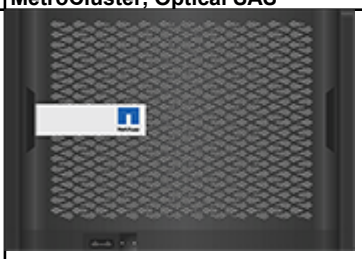
Specifications	FAS9000 2-Node Fabric MetroCluster	FAS9000 2-Node Stretch MetroCluster, Fiber Bridge	FAS9000 2-Node Stretch MetroCluster, Optical SAS
			
	ONTAP 9.1	ONTAP 9.1	ONTAP 9.1
Storage Limits			
Max Number of Drives (Total)	1440	1440	1440
Max Number of Internal Drives	N/A	N/A	N/A
Max Number of MSATA Drives	N/A	N/A	N/A
Max Number of NL-SAS Drives	1440	1440	1440
Max Number of SAS Drives	1440	1440	1440
Max Number of SATA Drives	1440	1440	1440
Max Number of SSD Drives	480	480	480
Max Number of DS212C Shelves	120 external	120 external	80 external
Max Number of DS2246 Shelves	60 external	60 external	60 external
Max Number of DS224C Shelves	60 external	60 external	60 external
Max Number of DS4243 Shelves	60 external	60 external	60 external
Max Number of DS4246 Shelves	60 external	60 external	60 external
Max Number of DS4486 Shelves	N/A	N/A	N/A
Max Number of DS460C Shelves	N/A	N/A	24 external
Capacity Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Marketing Maximum Raw Capacity	N/A	N/A	N/A
Effective Capacity	N/A	N/A	N/A
Core Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of storage virtual machines (SVMs) - NAS	N/A	N/A	N/A
Maximum number of LIFs - NAS	N/A	N/A	N/A
Maximum number of connections - NAS	N/A	N/A	N/A
Maximum number of flexible volumes - NAS	N/A	N/A	N/A
Maximum number of flexible volumes with DPO - NAS	N/A	N/A	N/A
Maximum number of lock manager locked objects (CIFS and NFS combined)	N/A	N/A	N/A
Maximum Infinite Volume Data Constituent Size	N/A	N/A	N/A
Minimum Root Aggregate (MiB)	N/A	N/A	N/A
Minimum Root Volume (GiB)	N/A	N/A	N/A
System Maximums and Limits			
Max Nodes per Cluster (NAS / SAN)	1 / 1	1 / 1	1 / 1
Max FabricPool Size	Not Supported	Not Supported	Not Supported

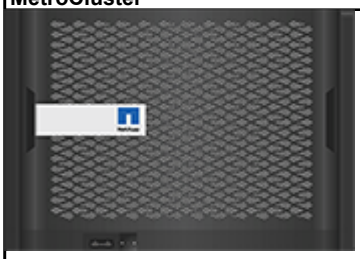
Specifications	FAS9000 2-Node Fabric MetroCluster	FAS9000 2-Node Stretch MetroCluster, Fiber Bridge	FAS9000 2-Node Stretch MetroCluster, Optical SAS
			
	ONTAP 9.1	**ONTAP 9.1**	**ONTAP 9.1**
Max Infinite Volume Data Constituent Size	Not Supported	Not Supported	Not Supported
Max FlexGroup Data Constituent Size	Not Supported	Not Supported	Not Supported
Min Root Volume Size	962 GiB	962 GiB	962 GiB
NetApp Volume Encryption	Supported	Supported	Supported
FlexArray Specifications			
Spray Core Array LUNs Recommended Min Raw Capacity	119.53 TiB [1]	119.53 TiB [1]	119.53 TiB [1]
Spray Core Array LUNs Absolute Min Raw Capacity	71.72 TiB [2]	71.72 TiB [2]	71.72 TiB [2]
Max Array LUN Size	15.31 TiB [3]	15.31 TiB [3]	15.31 TiB [3]
Min Array LUN Size	1.05 GiB	1.05 GiB	1.05 GiB
Min Size for an Array LUN Aggregate	1.25 TiB	1.25 TiB	1.25 TiB
Min Array LUN Size – Root Volume	1.70 TiB	1.70 TiB	1.70 TiB
Spare Core Array LUN Min Size	1.35 TiB	1.35 TiB	1.35 TiB
Max RAID Groups in an Aggregate	150	150	150
Block Size	512 bytes	512 bytes	512 bytes
Neighborhood Visible and Assigned Devices	-	-	-
Processor			
Processor Model	64-bit 18-core 2.30 Ghz	64-bit 18-core 2.30 Ghz	64-bit 18-core 2.30 Ghz
Processor Architechture	64 bit	64 bit	64 bit
Processor Speed	2.30 Ghz	2.30 Ghz	2.30 Ghz
Processor Count (Per Node)	2	2	2
Processor Count (Per Config)	4	4	4
Processor Cores (Per CPU)	18	18	18
Processor Cores (Per Node)	36	36	36
Processor Cores (Per Config)	72	72	72
Memory			
NVRAM (Per Node)	32 GB	32 GB	32 GB
RAM (Per Node)	512 GB	512 GB	512 GB
Onboard Ports			
Ethernet Ports	-	-	-
Fibre Channel Ports	-	-	-
UTA2 Ports	-	-	-
Expansion Slots	10 x IO Module	10 x IO Module	10 x IO Module
SAS Ports	-	-	-
Physical Characteristics			
Rack Units	16	16	16
Chassis Height	14.02" (35.6 cm)	14.02" (35.6 cm)	14.02" (35.6 cm)
Chassis Width with Mounting Flanges	19.02" (48.3 cm)	19.02" (48.3 cm)	19.02" (48.3 cm)
Chassis Width without Mounting Flanges	17.72" (45 cm)	17.72" (45 cm)	17.72" (45 cm)
Chassis Depth with Cable Mgmt	36.81" (93.5 cm)	36.81" (93.5 cm)	36.81" (93.5 cm)
Chassis Depth without Cable Mgmt	30.79" (78.2 cm)	30.79" (78.2 cm)	30.79" (78.2 cm)

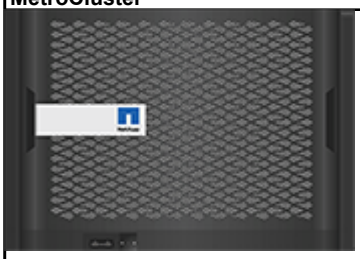
Specifications	FAS9000 2-Node Fabric MetroCluster	FAS9000 2-Node Stretch MetroCluster, Fiber Bridge	FAS9000 2-Node Stretch MetroCluster, Optical SAS
			
	ONTAP 9.1	**ONTAP 9.1**	**ONTAP 9.1**
Chassis Weight			
System Clearance Dimensions			
Front Clearance (Cooling)	6.03" (15.3 cm)	6.03" (15.3 cm)	6.03" (15.3 cm)
Front Clearance (Maintenance)	31.01" (78.7 cm)	31.01" (78.7 cm)	31.01" (78.7 cm)
Rear Clearance (Cooling)	6.03" (15.3 cm)	6.03" (15.3 cm)	6.03" (15.3 cm)
Rear Clearance (Maintenance)	22.02" (55.9 cm)	22.02" (55.9 cm)	22.02" (55.9 cm)
Environmental Requirements			
Operating Temperature Range	41 to 113 deg F 5 to 45 deg C	41 to 113 deg F 5 to 45 deg C	41 to 113 deg F 5 to 45 deg C
Storage Temperature Range	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C
Transit Temperature Range	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C
Operating Relative Humidity	8 to 90 %	8 to 90 %	8 to 90 %
Storage Relative Humidity	10 to 95 %	10 to 95 %	10 to 95 %
Transit Relative Humidity	10 to 95 %	10 to 95 %	10 to 95 %
Operating Altitude Range	Up to 10000.0 ft Up to 3048.0 m	Up to 10000.0 ft Up to 3048.0 m	Up to 10000.0 ft Up to 3048.0 m
Storage Altitude Range	Up to 40000.0 ft Up to 12192.0 m	Up to 40000.0 ft Up to 12192.0 m	Up to 40000.0 ft Up to 12192.0 m
Transit Altitude Range	Up to 39989.8 ft Up to 12192 m	Up to 39989.8 ft Up to 12192 m	Up to 39989.8 ft Up to 12192 m
Acoustic Noise - Sound Power	7.4 bels	7.4 bels	7.4 bels
Acoustic Noise - Sound Pressure	65 dBA	65 dBA	65 dBA
Input Power Voltage	100 to 120	100 to 120	100 to 120
Storage OS Requirements (for selected major version)			
Recommended Version	9.1P20	9.1P20	9.1P20
Minimum OS	9.1	9.1	9.1
Maximum OS	9.1P20	9.1P20	9.1P20
Software and Firmware * indicates that firmware is bundled with Storage OS Version			
BIOS	10.12, 10.11, 10.9, 10.7, 10.5, 10.4, 10.3, 10.1*	10.12, 10.11, 10.9, 10.7, 10.5, 10.4, 10.3, 10.1*	10.12, 10.11, 10.9, 10.7, 10.5, 10.4, 10.3, 10.1*
Service Processor Firmware	4.10, 4.9, 4.8P1, 4.8, 4.7, 4.1P7, 4.1P2, 4.1P1, 4.1*	4.10, 4.9, 4.8P1, 4.8, 4.7, 4.1P7, 4.1P2, 4.1P1, 4.1*	4.10, 4.9, 4.8P1, 4.8, 4.7, 4.1P7, 4.1P2, 4.1P1, 4.1*
Product Standards Compliance			
Certifications EMC/EMI	AS/NZS, FCC, ICES, KCC, VCCI	AS/NZS, FCC, ICES, KCC, VCCI	AS/NZS, FCC, ICES, KCC, VCCI
Certifications safety	BIS, CB, CSA, IRAM, NOM, NRCS, SONCAP, TBS	BIS, CB, CSA, IRAM, NOM, NRCS, SONCAP, TBS	BIS, CB, CSA, IRAM, NOM, NRCS, SONCAP, TBS
Certifications Safety/EMC/EMI	EAC, UKRSEPRO	EAC, UKRSEPRO	EAC, UKRSEPRO
Certifications Safety/EMC/EMI/RoHS	BSMI, CE, UKCA	BSMI, CE, UKCA	BSMI, CE, UKCA
Standards EMC/EMI	BS-EN-55024, BS-EN55035, CISPR 32, EN55022, EN55024, EN55032, EN55035, EN61000-3-2, EN61000-3-3, FCC Part 15 Class A, ICES-003	BS-EN-55024, BS-EN55035, CISPR 32, EN55022, EN55024, EN55032, EN55035, EN61000-3-2, EN61000-3-3, FCC Part 15 Class A, ICES-003	BS-EN-55024, BS-EN55035, CISPR 32, EN55022, EN55024, EN55032, EN55035, EN61000-3-2, EN61000-3-3, FCC Part 15 Class A, ICES-003

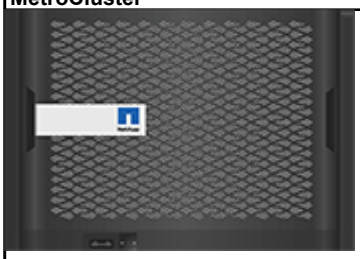
Specifications	FAS9000 2-Node Fabric MetroCluster	FAS9000 2-Node Stretch MetroCluster, Fiber Bridge	FAS9000 2-Node Stretch MetroCluster, Optical SAS
			
	ONTAP 9.1	ONTAP 9.1	ONTAP 9.1
Standards Safety	ANSI/UL60950-1, ANSI/UL62368-1, BS-EN62368-1, CAN/CSA C22.2 No. 60950-1, CAN/CSA C22.2 No. 62368-1, EN60825-1, EN62368-1, IEC 62368-1, IEC60950-1 (all national deviations), IS 13252(part 1)	ANSI/UL60950-1, ANSI/UL62368-1, BS-EN62368-1, CAN/CSA C22.2 No. 60950-1, CAN/CSA C22.2 No. 62368-1, EN60825-1, EN62368-1, IEC 62368-1, IEC60950-1 (all national deviations), IS 13252(part 1)	ANSI/UL60950-1, ANSI/UL62368-1, BS-EN62368-1, CAN/CSA C22.2 No. 60950-1, CAN/CSA C22.2 No. 62368-1, EN60825-1, EN62368-1, IEC 62368-1, IEC60950-1 (all national deviations), IS 13252(part 1)
System Availability & Support			
Release Date	Oct 2016	Oct 2016	Oct 2016
End of Availability (EOA)	-	-	-
End of Support (EOS)	-	-	-
NFS Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of Export Policies	N/A	N/A	N/A
Maximum number of Export Rules	N/A	N/A	N/A
Maximum NFSv4 Access Control Entries	N/A	N/A	N/A
Maximum number of client objects	N/A	N/A	N/A
Maximum number of pNFS objects	N/A	N/A	N/A
WAFL Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum Size of a 64-bit Aggregate (TiB)	N/A	N/A	N/A
Maximum Size of a 64-bit Volume (TiB)	N/A	N/A	N/A
Maximum file size in a 64-bit Volume (TiB)	N/A	N/A	N/A
Maximum number of Volume Snapshot Copies	N/A	N/A	N/A
Maximum character length for Snapshot copy names	N/A	N/A	N/A
Maximum number of hard links	N/A	N/A	N/A
Maximum number of inodes/files	N/A	N/A	N/A
Maximum number of qtrees	N/A	N/A	N/A
Maximum number of concurrent DataMotion for Volumes (vol move) operations	N/A	N/A	N/A
Quality of Service Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of Policy Groups	N/A	N/A	N/A
Maximum number of QoS user workloads	N/A	N/A	N/A
Maximum number of nodes participating in QoS	N/A	N/A	N/A
SAN Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of storage virtual machines (SVMs) - SAN	N/A	N/A	N/A
Maximum number of flexible volumes - SAN	N/A	N/A	N/A

Specifications	FAS9000 2-Node Fabric MetroCluster	FAS9000 2-Node Stretch MetroCluster, Fiber Bridge	FAS9000 2-Node Stretch MetroCluster, Optical SAS
			
	ONTAP 9.1	ONTAP 9.1	ONTAP 9.1
Maximum number of flexible volumes with DPO - SAN	N/A	N/A	N/A
Maximum number of LUNs	N/A	N/A	N/A
Maximum number of LUN mappings	N/A	N/A	N/A
Maximum LUN size (TiB)	N/A	N/A	N/A
Maximum FC queue depth available	N/A	N/A	N/A
Maximum Number of SAN Hosts (ITNs)	N/A	N/A	N/A
Maximum number of LIFS - iSCSI	N/A	N/A	N/A
Maximum number of LIFS - FCP	N/A	N/A	N/A
Maximum number of igroups	N/A	N/A	N/A
Maximum number of initiators	N/A	N/A	N/A
Maximum number of portsets	N/A	N/A	N/A
Maximum number of iSCSI sessions	N/A	N/A	N/A
CIFS Cluster Limits	Scope:HA Pair	Scope:HA Pair	Scope:HA Pair
Maximum number of connected shares	N/A	N/A	N/A
Maximum number of regular shares	N/A	N/A	N/A
Maximum number of open files	N/A	N/A	N/A
Maximum number of local users	N/A	N/A	N/A
Maximum number of local groups	N/A	N/A	N/A
Maximum number of local group members	N/A	N/A	N/A
Data Protection Cluster Limits	Scope:HA Pair	Scope:HA Pair	Scope:HA Pair
Maximum number of NDMP sessions	N/A	N/A	N/A
Maximum number of data protection (DP) mirrors and/or SnapVault relationships	N/A	N/A	N/A
Maximum number of data protection (DP) mirrors and/or SnapVault relationships for FabricPool	N/A	N/A	N/A
Maximum number of load sharing (LS) mirrors	N/A	N/A	N/A
Maximum number of concurrent Snap Mirror or SnapVault transfers	N/A	N/A	N/A
Maximum fan-out from source for DP mirror	N/A	N/A	N/A
Maximum fan-out from source for LS mirror	N/A	N/A	N/A

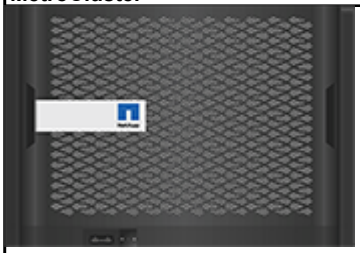
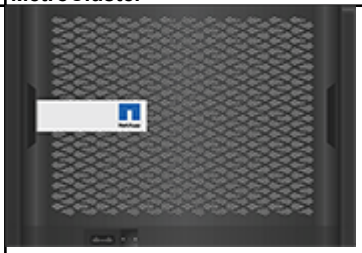
Specifications	FAS9000 2-Node Fabric MetroCluster	FAS9000 2-Node Stretch MetroCluster, Fiber Bridge	FAS9000 2-Node Stretch MetroCluster, Optical SAS
			
	ONTAP 9.1	**ONTAP 9.1**	**ONTAP 9.1**
Maximum number of clusters that can be peered	N/A	N/A	N/A
Maximum Number of constituent volumes in a SnapMirror relationship	N/A	N/A	N/A

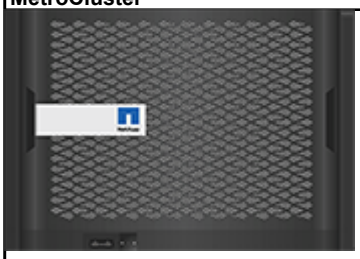
Specifications	FAS9000 4-Node Fabric MetroCluster	FAS9000 8-Node Fabric MetroCluster	FAS9000 Single Chassis HA Pair
			
	ONTAP 9.1	ONTAP 9.1	ONTAP 9.1
Storage Limits			
Max Number of Drives (Total)	1440	2880	1440
Max Number of Internal Drives	N/A	N/A	N/A
Max Number of MSATA Drives	N/A	N/A	1440
Max Number of NL-SAS Drives	1440	2880	1440
Max Number of SAS Drives	1440	2880	1440
Max Number of SATA Drives	1440	2880	1440
Max Number of SSD Drives	480	960	480
Max Number of DS212C Shelves	120 external	240 external	80 external
Max Number of DS2246 Shelves	60 external	120 external	60 external
Max Number of DS224C Shelves	60 external	120 external	60 external
Max Number of DS4243 Shelves	60 external	120 external	60 external
Max Number of DS4246 Shelves	60 external	120 external	60 external
Max Number of DS4486 Shelves	N/A	N/A	30 external
Max Number of DS460C Shelves	N/A	N/A	24 external
Capacity Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Marketing Maximum Raw Capacity	15,000,000	30,000,000	15,000,000
Effective Capacity	N/A	N/A	N/A
Core Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of storage virtual machines (SVMs) - NAS	64	64	1,024
Maximum number of LIFs - NAS	256	256	512
Maximum number of connections - NAS	5,000	5,000	100,000
Maximum number of flexible volumes - NAS	500	500	2,000
Maximum number of flexible volumes with DPO - NAS	N/A	N/A	N/A
Maximum number of lock manager locked objects (CIFS and NFS combined)	700,000	700,000	3,000,000
Maximum Infinite Volume Data Constituent Size	N/A	N/A	N/A
Minimum Root Aggregate (MiB)	N/A	N/A	N/A
Minimum Root Volume (GiB)	N/A	N/A	N/A
System Maximums and Limits			
Max Nodes per Cluster (NAS / SAN)	2 / 2	4 / 4	24 / 12
Max FabricPool Size	Not Supported	Not Supported	Not Supported

Specifications	FAS9000 4-Node Fabric MetroCluster	FAS9000 8-Node Fabric MetroCluster	FAS9000 Single Chassis HA Pair
			
	ONTAP 9.1	**ONTAP 9.1**	**ONTAP 9.1**
Max Infinite Volume Data Constituent Size	Not Supported	Not Supported	100 TiB
Max FlexGroup Data Constituent Size	Not Supported	Not Supported	100 TiB
Min Root Volume Size	962 GiB	962 GiB	962 GiB
NetApp Volume Encryption	Supported	Supported	Supported
FlexArray Specifications			
Spray Core Array LUNs Recommended Min Raw Capacity	119.53 TiB [1]	119.53 TiB [1]	119.53 TiB [1]
Spray Core Array LUNs Absolute Min Raw Capacity	71.72 TiB [2]	71.72 TiB [2]	71.72 TiB [2]
Max Array LUN Size	15.31 TiB [3]	15.31 TiB [3]	15.31 TiB [3]
Min Array LUN Size	1.05 GiB	1.05 GiB	1.05 GiB
Min Size for an Array LUN Aggregate	1.25 TiB	1.25 TiB	1.25 TiB
Min Array LUN Size – Root Volume	1.70 TiB	1.70 TiB	1.70 TiB
Spare Core Array LUN Min Size	1.35 TiB	1.35 TiB	1.35 TiB
Max RAID Groups in an Aggregate	150	150	150
Block Size	512 bytes	512 bytes	512 bytes
Neighborhood Visible and Assigned Devices	-	-	-
Processor			
Processor Model	64-bit 18-core 2.30 Ghz	64-bit 18-core 2.30 Ghz	64-bit 18-core 2.30 Ghz
Processor Architechture	64 bit	64 bit	64 bit
Processor Speed	2.30 Ghz	2.30 Ghz	2.30 Ghz
Processor Count (Per Node)	2	2	2
Processor Count (Per Config)	8	16	4
Processor Cores (Per CPU)	18	18	18
Processor Cores (Per Node)	36	36	36
Processor Cores (Per Config)	144	288	72
Memory			
NVRAM (Per Node)	32 GB	32 GB	32 GB
RAM (Per Node)	512 GB	512 GB	512 GB
Onboard Ports			
Ethernet Ports	-	-	-
Fibre Channel Ports	-	-	-
UTA2 Ports	-	-	-
Expansion Slots	20 x IO Module	20 x IO Module	20 x IO Module
SAS Ports	-	-	-
Physical Characteristics			
Rack Units	16	32	8
Chassis Height	14.02" (35.6 cm)	14.02" (35.6 cm)	14.02" (35.6 cm)
Chassis Width with Mounting Flanges	19.02" (48.3 cm)	19.02" (48.3 cm)	19.02" (48.3 cm)
Chassis Width without Mounting Flanges	17.72" (45 cm)	17.72" (45 cm)	17.72" (45 cm)
Chassis Depth with Cable Mgmt	36.81" (93.5 cm)	36.81" (93.5 cm)	36.81" (93.5 cm)
Chassis Depth without Cable Mgmt	30.79" (78.2 cm)	30.79" (78.2 cm)	30.79" (78.2 cm)

Specifications	FAS9000 4-Node Fabric MetroCluster	FAS9000 8-Node Fabric MetroCluster	FAS9000 Single Chassis HA Pair
			
	ONTAP 9.1	**ONTAP 9.1**	**ONTAP 9.1**
Chassis Weight			
System Clearance Dimensions			
Front Clearance (Cooling)	6.03" (15.3 cm)	6.03" (15.3 cm)	6.03" (15.3 cm)
Front Clearance (Maintenance)	31.01" (78.7 cm)	31.01" (78.7 cm)	31.01" (78.7 cm)
Rear Clearance (Cooling)	6.03" (15.3 cm)	6.03" (15.3 cm)	6.03" (15.3 cm)
Rear Clearance (Maintenance)	22.02" (55.9 cm)	22.02" (55.9 cm)	22.02" (55.9 cm)
Environmental Requirements			
Operating Temperature Range	41 to 113 deg F 5 to 45 deg C	41 to 113 deg F 5 to 45 deg C	41 to 113 deg F 5 to 45 deg C
Storage Temperature Range	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C
Transit Temperature Range	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C	-40 to 158 deg F -40 to 70 deg C
Operating Relative Humidity	8 to 90 %	8 to 90 %	8 to 90 %
Storage Relative Humidity	10 to 95 %	10 to 95 %	10 to 95 %
Transit Relative Humidity	10 to 95 %	10 to 95 %	10 to 95 %
Operating Altitude Range	Up to 10000.0 ft Up to 3048.0 m	Up to 10000.0 ft Up to 3048.0 m	Up to 10000.0 ft Up to 3048.0 m
Storage Altitude Range	Up to 40000.0 ft Up to 12192.0 m	Up to 40000.0 ft Up to 12192.0 m	Up to 40000.0 ft Up to 12192.0 m
Transit Altitude Range	Up to 39989.8 ft Up to 12192 m	Up to 39989.8 ft Up to 12192 m	Up to 39989.8 ft Up to 12192 m
Acoustic Noise - Sound Power	7.4 bels	7.4 bels	7.4 bels
Acoustic Noise - Sound Pressure	65 dBA	65 dBA	65 dBA
Input Power Voltage	100 to 120	100 to 120	100 to 120
Storage OS Requirements (for selected major version)			
Recommended Version	9.1P20	9.1P20	9.1P20
Minimum OS	9.1	9.1	9.1RC2
Maximum OS	9.1P20	9.1P20	9.1P20
Software and Firmware * indicates that firmware is bundled with Storage OS Version			
BIOS	10.12, 10.11, 10.9, 10.7, 10.5, 10.4, 10.3, 10.1*	10.12, 10.11, 10.9, 10.7, 10.5, 10.4, 10.3, 10.1*	10.12, 10.11, 10.9, 10.7, 10.5, 10.4, 10.3, 10.1*
Service Processor Firmware	4.10, 4.9, 4.8P1, 4.8, 4.7, 4.1P7, 4.1P2, 4.1P1, 4.1*	4.10, 4.9, 4.8P1, 4.8, 4.7, 4.1P7, 4.1P2, 4.1P1, 4.1*	4.10, 4.9, 4.8P1, 4.8, 4.7, 4.1P7, 4.1P2, 4.1P1, 4.1*
Product Standards Compliance			
Certifications EMC/EMI	AS/NZS, FCC, ICES, KCC, VCCI	AS/NZS, FCC, ICES, KCC, VCCI	AS/NZS, FCC, ICES, KCC, VCCI
Certifications safety	BIS, CB, CSA, IRAM, NOM, NRCS, SONCAP, TBS	BIS, CB, CSA, IRAM, NOM, NRCS, SONCAP, TBS	BIS, CB, CSA, IRAM, NOM, NRCS, SONCAP, TBS
Certifications Safety/EMC/EMI	EAC, UKRSEPRO	EAC, UKRSEPRO	EAC, UKRSEPRO
Certifications Safety/EMC/EMI/RoHS	BSMI, CE, UKCA	BSMI, CE, UKCA	BSMI, CE, UKCA
Standards EMC/EMI	BS-EN-55024, BS-EN55035, CISPR 32, EN55022, EN55024, EN55032, EN55035, EN61000-3-2, EN61000-3-3, FCC Part 15 Class A, ICES-003	BS-EN-55024, BS-EN55035, CISPR 32, EN55022, EN55024, EN55032, EN55035, EN61000-3-2, EN61000-3-3, FCC Part 15 Class A, ICES-003	BS-EN-55024, BS-EN55035, CISPR 32, EN55022, EN55024, EN55032, EN55035, EN61000-3-2, EN61000-3-3, FCC Part 15 Class A, ICES-003

Specifications	FAS9000 4-Node Fabric MetroCluster	FAS9000 8-Node Fabric MetroCluster	FAS9000 Single Chassis HA Pair
			
	ONTAP 9.1	**ONTAP 9.1**	**ONTAP 9.1**
Standards Safety	ANSI/UL60950-1, ANSI/UL62368-1, BS-EN62368-1, CAN/CSA C22.2 No. 60950-1, CAN/CSA C22.2 No. 62368-1, EN60825-1, EN62368-1, IEC 62368-1, IEC60950-1 (all national deviations), IS 13252(part 1)	ANSI/UL60950-1, ANSI/UL62368-1, BS-EN62368-1, CAN/CSA C22.2 No. 60950-1, CAN/CSA C22.2 No. 62368-1, EN60825-1, EN62368-1, IEC 62368-1, IEC60950-1 (all national deviations), IS 13252(part 1)	ANSI/UL60950-1, ANSI/UL62368-1, BS-EN62368-1, CAN/CSA C22.2 No. 60950-1, CAN/CSA C22.2 No. 62368-1, EN60825-1, EN62368-1, IEC 62368-1, IEC60950-1 (all national deviations), IS 13252(part 1)
System Availability & Support			
Release Date	Oct 2016	Oct 2016	Oct 2016
End of Availability (EOA)	-	-	-
End of Support (EOS)	-	-	-
NFS Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of Export Policies	6,000	6,000	12,000
Maximum number of Export Rules	70,000	70,000	140,000
Maximum NFSv4 Access Control Entries	N/A	N/A	N/A
Maximum number of client objects	102,400	102,400	100,000
Maximum number of pNFS objects	1,024,000	1,024,000	1,024,000
WAFL Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum Size of a 64-bit Aggregate (TiB)	N/A	N/A	N/A
Maximum Size of a 64-bit Volume (TiB)	N/A	N/A	N/A
Maximum file size in a 64-bit Volume (TiB)	N/A	N/A	N/A
Maximum number of Volume Snapshot Copies	127,500	127,500	510,000
Maximum character length for Snapshot copy names	N/A	N/A	N/A
Maximum number of hard links	N/A	N/A	N/A
Maximum number of inodes/files	N/A	N/A	N/A
Maximum number of qtrees	30,000	30,000	200,000
Maximum number of concurrent DataMotion for Volumes (vol move) operations	16	16	16
Quality of Service Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of Policy Groups	6,000	6,000	12,000
Maximum number of QoS user workloads	6,000	6,000	12,000
Maximum number of nodes participating in QoS	N/A	N/A	N/A
SAN Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of storage virtual machines (SVMs) - SAN	64	64	250
Maximum number of flexible volumes - SAN	500	500	2,000

Specifications	FAS9000 4-Node Fabric MetroCluster	FAS9000 8-Node Fabric MetroCluster	FAS9000 Single Chassis HA Pair
			
	ONTAP 9.1	ONTAP 9.1	ONTAP 9.1
Maximum number of flexible volumes with DPO - SAN	N/A	N/A	N/A
Maximum number of LUNs	12,288	12,288	24,576
Maximum number of LUN mappings	12,288	12,288	24,576
Maximum LUN size (TiB)	N/A	N/A	N/A
Maximum FC queue depth available	N/A	N/A	N/A
Maximum Number of SAN Hosts (ITNs)	8,192	8,192	16,384
Maximum number of LIFS - iSCSI	256	256	1,024
Maximum number of LIFS - FCP	256	256	1,024
Maximum number of igroups	4,096	4,096	8,192
Maximum number of initiators	4,096	4,096	8,192
Maximum number of portsets	4,096	4,096	8,192
Maximum number of iSCSI sessions	8,192	8,192	16,384
CIFS Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of connected shares	96,000	96,000	1,000,000
Maximum number of regular shares	8,000	8,000	300,000
Maximum number of open files	350,000	350,000	1,500,000
Maximum number of local users	500	500	35,000
Maximum number of local groups	500	500	320,000
Maximum number of local group members	10,000	10,000	640,000
Data Protection Cluster Limits	**Scope:HA Pair**	**Scope:HA Pair**	**Scope:HA Pair**
Maximum number of NDMP sessions	36	36	36
Maximum number of data protection (DP) mirrors and/or SnapVault relationships	500	500	2,000
Maximum number of data protection (DP) mirrors and/or SnapVault relationships for FabricPool	N/A	N/A	N/A
Maximum number of load sharing (LS) mirrors	N/A	N/A	N/A
Maximum number of concurrent Snap Mirror or SnapVault transfers	N/A	N/A	N/A
Maximum fan-out from source for DP mirror	N/A	N/A	N/A
Maximum fan-out from source for LS mirror	N/A	N/A	N/A

Specifications	FAS9000 4-Node Fabric MetroCluster	FAS9000 8-Node Fabric MetroCluster	FAS9000 Single Chassis HA Pair
			
	ONTAP 9.1	**ONTAP 9.1**	**ONTAP 9.1**
Maximum number of clusters that can be peered	8	8	255
Maximum Number of constituent volumes in a SnapMirror relationship	N/A	N/A	100

Notes ID	Notes Description
1	A spray core occurs when there is no suitable spare core or if the spare core increase disruption time, then the system attempts to stripe the coredump over the non-file system region of multiple array LUNs. For a spray core to operate, a minimum total capacity of array LUNs assigned to the system is required which is defined by this value. If greater than 2 TiB array LUNs are used, the required capacity is increased five times because the non-file system region is a smaller percentage of the total space (0.2% compared to 1%).
2	A spray core occurs when there is no suitable spare core or if the spare core increase disruption time, then the system attempts to stripe the coredump over the non-file system region of multiple array LUNs. If there is no enough capacity available as per the Spray Core Array LUNs Recommended Min Raw Capacity (GiB) attribute value, the system attempts to first compress the data before spraying. Assuming 60% compression, the system should have at least the total assigned capacity as per the Spray Core Array LUNs Absolute Min Raw Capacity (GiB) attribute value for a compressed spray core to work. If greater than 2 TiB array LUNs are used, the required capacity is increased five times because the non-file system region is a smaller percentage of the total space (0.2% compared to 1%)".
3	The maximum LUN size provided is a number determined by the V-Series/FlexArray product team. Supported maximum LUN size will be the lesser of published maximum LUN size by NetApp and maximum LUN size supported by the backend array
4	The onboard UTA2 ports can be configured as FC Target/Initiator or CNA (FCoE target/Ethernet). The UTA2 ports are based on a dual port ASIC and both ports on each ASIC must be set to the same mode (enforced by Data ONTAP). Install X6599A-R6 10GbE SFP+ modules or approved copper twinax cables when using in CNA (FCoE target/Ethernet) mode. Install X6596-R6 16Gb FC SFP+ module when using in FC Target/Initiator mode.

Size, Weight, Acoustic, Power

FAS9000 with ONTAP 9.1

Associated Part No.	Configuration	Rack Units	Weight	Sound Power	Sound Pressure	Line Voltage Actual	Amps Typical	Amps Worst	Watts Typical	Watts Worst	BTU/Hr Typical	BTU/Hr Worst
FAS9000												
FAS9000A	FAS9000 2 PCM 2xSAS, 6xUTA, 6x40G, 4x10Gb-T, 2x8TB	8	214.5 lb (97.3 kg)	7.4 Bels	65 dBA	100	18.97	19.84	1859	1944	6345	6635
FAS9000A	FAS9000 2 PCM 2xSAS, 6xUTA, 6x40G, 4x10Gb-T, 2x8TB	8	214.5 lb (97.3 kg)	7.4 Bels	65 dBA	200	9.30	9.73	1822	1906	6219	6505
FAS9000A	FAS9000 2 PCM 4xSAS, 2xUTA, 6x40G, 2x2TB	8	198.0 lb (89.8 kg)	7.4 Bels	65 dBA	100	17.50	18.36	1715	1799	5854	6140
FAS9000A	FAS9000 2 PCM 4xSAS, 2xUTA, 6x40G, 2x2TB	8	198.0 lb (89.8 kg)	7.4 Bels	65 dBA	200	8.58	9.00	1681	1764	5738	6021
FAS9000A	FAS9000 2 PCM 4xSAS, 2xUTA, 6x40G, 2x8TB	8	198.0 lb (89.8 kg)	7.4 Bels	65 dBA	100	17.50	18.36	1715	1799	5854	6140
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Alternate View Images

Rear View - FAS9000 (Controller + Controller)