ACTIVESCALE™

Highlights

- **Easy Deployment:** All you need are power and network connections
- **Dynamic Scalability:** Support rapid growth with scale-up and scale-out configurations
- **Extreme Data Durability:** Prevent data loss and data corruption with BitDynamics, BitSpread, advanced erasure coding and versioning
- **High Availability:** Protect data from system or site outages with 3-geo configurations or 2-site data replication
- **Low TCO:** Leverage vertical integration and high-density, power-efficient drives to slash both CapEx and OpEx
- **Cloud Management:** Drive intelligent petabyte-scale management with ActiveScale SM and CM

Applications/Workloads

Data Protection
- Backup and archive
- Tape consolidation
- Disaster recovery

Analytics and Machine Learning
- Data lakes and big data analytics
- Predictive modeling
- Supply chain optimization

Digital Repositories
- Digital assets
- Sync and share collaboration
- Unstructured data repositories

Media and Entertainment
- Digital media archives
- Cloud bursting
- File ingest

The ActiveScale™ X100 system is an integrated cloud object storage solution that facilitates a "Data Forever" architecture, combining excellent data and investment protection with ease of operation. Enterprises can scale up from 1PB to 7PB (raw) within a single rack and scale out to over 63PB (raw) – in a single data center or across multiple geographies (geo-spread). The ActiveScale X100 is designed for large-scale unstructured data sets that require extreme durability, long-term retention and fast retrieval, so you can keep up with rapid growth and demanding business objectives.

Simplified Deployment and Operation

The ActiveScale X100 system eliminates the deployment complexity of DIY approaches. Each system vertically integrates software, networking, and hardware resources for fast, optimized implementation. Once installed, the ActiveScale system presents an Amazon S3™-compliant interface that easily integrates with your existing S3-aware applications and enables a hybrid cloud configuration. Unified Data Access provides additional flexibility, enabling cold NFS files to be ingested and stored cost-effectively in the same highly scalable object storage system. ActiveScale SM gives you real-time system management across an entire namespace. And for strategic management, ActiveScale CM cloud-based storage analytics provide historical trends and predictive capabilities to drive smarter decisions and optimal business results.

Dynamic Scalability

Start with the base configuration and simply add modules to scale up capacity as your storage requirements grow. The ActiveScale X100 system scales up to 7PB of raw capacity. It also supports a scale-out configuration with up to nine racks – in a single data center or across 3 sites – that deliver over 63PB of raw capacity. Front-end I/O connectivity and back-end storage capacity can also be scaled independently to meet your changing application needs. Patented dynamic data placement technology lets you grow your system without re-balancing or forklift upgrades. As a result, IT staff can easily add capacity and performance to keep up with high data growth rates and utilization.

Extreme Availability and Durability

Advanced system availability is essential for a highly resilient cloud infrastructure. The ActiveScale X100 system can be configured across three locations (geo-spread), dispersing data geographically and delivering continuous data access even in the event of a data center outage. You can maintain uninterrupted operations at significantly lower costs than traditional replication-based architectures. Two-site asynchronous replication is also available for customers without three data centers. Amazon Web Services™ customers also have the flexibility to deploy a hybrid cloud configuration that replicates objects from the ActiveScale X100 to Amazon S3 for backups or analytics jobs. Advanced erasure coding and patented BitSpread® technology deliver extreme data durability – up to 19 nines. In addition, BitDynamics™ provides high data integrity with continuous data monitoring, repair and verification. Object versioning enhances data durability by enabling you to easily recover data from user errors or security threats. Together, these advanced technologies facilitate a highly available Data Forever architecture.

Revolutionizing the Economics of Storage

Vertical integration and innovation – from silicon to systems – enables the ActiveScale X100 to slash CapEx and deliver cloud-scale capacity at a fraction of the cost of DIY systems. Patented helium-filled hard drives help drive down power and cooling costs and overall OpEx compared to systems that use traditional disk drives. ActiveScale solutions are also available with Pay-as-you-Grow pricing, so you can align IT budgets with capacity requirements and avoid wasted resources. Unprecedented economic value and data durability, combined with outstanding scalability and ease-of-use make the ActiveScale X100 a solution of choice for large scale object storage.

Specifications

	Base Configuration	Scale-Up Module	Standard Instance (base+6 scale-up modules)
Capacity[1]			
Configuration capacity (raw/usable) 12TB HDDs	1,008TB/707–783TB	1,008TB/707–783TB	7.05PB/4.94–5.48PB
Maximum Namespace (raw/usable) 12TB HDDs		63.50PB/44.53–49.32PB	
Maximum number of objects	0.7B	0.7B	45B
Maximum multi-part object size		50TB	
Software			
Operating system software		ActiveScale OS 5.x	
Management interfaces		Real-time System Management Web UI, CLI, RESTful API	
System analytics		ActiveScale CM, a cloud-based storage analytics service	
Security		Data encryption in flight SSL/TLS using AES-256, Data encryption at rest (AES-256)	
Data protection		BitSpread: Advanced Erasure Coding and Dynamic Data Placement	
SW/FW upgrades		Nondisruptive rolling upgrades	
Characteristics			
Performance		Client throughput performance up to 8GB/sec[2]	
Data durability		Up to 19 nines (99.99999999999999999%)	
Connectivity			
Protocols		RESTful S3, NFSv3	
Client connectivity		60Gbps/base (6×10Gb/sec) Maximum connectivity of 120Gbps with Advanced System Scale-out	
Physical size			
Rack dimensions (mm/in)		2060 × 600 × 1200 mm (81 × 23.6 × 52.6 in)	
Configuration weight (kg/lbs)	713 kg/1572 lbs		1010kg/2227 lbs
Power			
Power consumption – typical/max (W)	2.5/3.3 KW		6.4/7.4 KW
Power consumption – typical/max (KVA)	2.6/3.4 KVA		6.6/7.6 KVA
Power characteristics		Preconfigured system options for 200–415V, single-phase or three-phase with redundancy and intelligent power	
Environmental[3]			
Cooling		Redundant high efficiency fans	
Temperature range- operating (C, F)		10°C to 35°C (50°F to 95°F) derated 1°C per 300m over 950m altitude increase	
Temperature range- non-operating		-40°C to 66°C (-40°F to 151°F) derated 1°C per 300m over 3000m altitude increase	
Humidity-operating		20–85% relative humidity	
Compliance		FCC/ICES-003, CE, VCCI, CISPR 22, CISPR 24, KN22, KN24, EN60950–1 2nd edition, UL60950–1 2nd edition	
BTUs/hr (typical/max)	8.53/11.26 K BTU/h		21.83/25.25 K BTU/h
Carbon footprint	0.001 Metric Tons		0.003 Metric Tons

[1] One megabyte (MB) is equal to one million bytes, one gigabyte (GB) is equal to one billion bytes, one terabyte (TB) equals 1,000GB (one trillion bytes) and one petabyte (PB) equals 1,000TB when referring to storage capacity. Usable capacity will vary from the raw capacity due to object storage methodologies and other factors.

[2] Performance may vary based on network conditions, system configuration, workload, and other factors.

[3] Environmental data shown is for the full configuration only.

Western Digital.