Data Sheet

Huawei FusionStorage Cloud Storage

Reliable • Efficient • Elastic

Highlights

- Massive scale-out storage designed for cloud architectures
- On-demand provisioning of block, file, or object storage
- Scale out to performance and capacity on demand, rich set of enterprise-grade features
- Standard x86 hardware
- Open architecture integrates into OpenStack and Hadoop ecosystems
- Automated data services and operation & management

Challenges

Big Data, the Internet of Things (IoT), cloud computing, mobile social networks are driving IT to even higher levels and have in-ignorable impact on enterprise business development. The moves to X-as-a-Platform, resource sharing, and on-demand scale-ups made possible with cloud computing place the tech in the pole position to support new innovations in IT, becoming the overwhelming choice for enterprises in their digital transformations. Cloud computing offers an all new approach in managing storage resources to replace the traditional storage models that are simply unable to satisfy the increasingly complex service requirements. Modern enterprises face the following issues in data access:

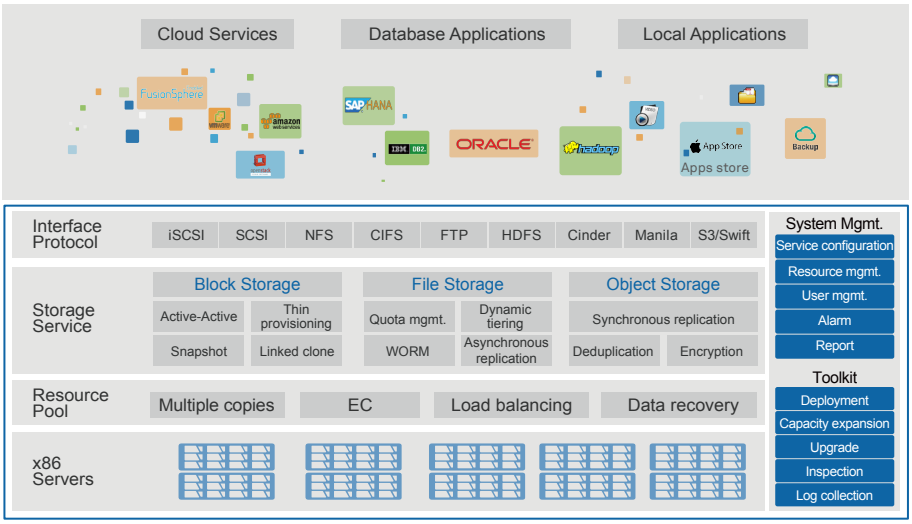
- A variety of data types such as structured, unstructured, and semi-structured data, and siloed block, file, and object storage form data islands, which lead to non-optimal use of resources.
- Changing data access requirements that are difficult to pinpoint, effective management of hot and cold data become an issue.
- Uncertainty of capacity requirements from growth in data, storage systems must be able to handle the explosive growth in data volumes at the most cost-effective price point.
- Enterprises also have differing cloud transformation strategies. They are selecting different starting points in their platforms with the availability of private, public, and hybrid cloud options. How does storage support smooth transformations from traditional data centers to the cloud?

Huawei FusionStorage, the new cloud-based storage platform, helps enterprises gear up for the massive data processing and elastic storage requirements of cloud environments with robust reliability, high efficiency, and on-demand flexibility.

Huawei FusionStorage Overview

Huawei FusionStorage fully distributed cloud storage features massive scale-out capability designed for cloud-based architectures. The on-board storage system software combines the local storage resources of standard x86 servers into fully distributed storage pools, providing block, object, or file storage services to the upper layer. FusionStorage provides the needed IOPS, bandwidth, and massive expansion capabilities for structured, unstructured, and semi-structured data. The impressive product provides active-active, snapshot, thin provisioning, remote replication, and other feature-rich utilities forming the complete catalog of enterprise-grade data services. Enterprise can easily obtain the needed flexibility and reliability in data storage to roll with the ever-changing dynamics of business. The product provides open APIs that fit standardized protocols, interfacing seamlessly into Open-Stack cloud-based architectures and Hadoop Big Data ecosystems.

FusionStorage provides compelling advantages in terms of capacity, performance, and scalability, which makes the product the perfect fit for deployments in development and test clouds, government clouds, public security clouds, carrier public clouds, and other data center layouts requiring converged storage capabilities.



FusionStorage system architecture

Product Highlights

Convergence of multiple storage services – Get the resources you need

FusionStorage uses distributed technology to combine HDDs and SSDs into large storage resource pools. Standard industrial interfaces at the upper layer help solve the problem of uneven utilization of hardware resources in traditional data centers due to the various types of storage systems deployed in silo-like manner. Block, object, or file storage services are now provided on demand.

- **Block storage service:** Storage virtualization technologies operating on local servers connect resources as a SAN and provide block access over SCSI and iSCSI ports. Support for a wide range of virtualization platforms and database applications adds further room for boosts in performance and capacity to meet virtual resource pool, desktop cloud, development and test cloud, and database storage requirements.
- **Object storage service:** Compatible with Amazon S3 and OpenStack Swift, able to integrate into mainstream cloud computing ecosystems, and able to satisfy cloud backup, cloud archiving, IoT and cloud storage services.
- **File storage service:** The ultra-large single file systems provide NFS, CIFS, FTP, HDFS and other types of standard ports, as well as superior performance and massive scale-out capacities. Therefore, the systems provide the capabilities needed to share unstructured data resources in use cases requiring Big Data analytics, storage and processing of video and audio data, and similar service scenarios.

You can deploy one or more storage services to suit the particulars of your service requirements.

Elasticity in data access both now and into the future

FusionStorage uses a fully distributed architecture that enables linear increase in capacity and performance as hardware nodes are added. Needed provisioning of block, object, and file resources is now predictable, eliminating the complications with planning of fixed storage requirements unable to keep pace with changing service dynamics. The system can be easily expanded to include thousands of nodes to yield EB-range capacity, satisfying your at-scale cloud expansions.

Automatic load balancing policies evenly distribute data across each node, eliminating bottlenecks in metadata access and maintaining high levels of system performance even when considerable expansions are undertaken.

Highly effective distributed hash algorithms, IO parallel processing and distributed cache technology, PCIe accelerator cards, and NVMe SSDs produce the needed optimizations in node performance.

These optimizations help achieve up to 200,000 IOPS on a single node, which in turn provides better support for SAP HANA and other mission-critical businesses. With up to 1.6 GB/s in bandwidth for each node, video and processing of other types of massive file content becomes more efficient. No matter what your data center needs may be in the future, FusionStorage is able to meet all I/O-intensive, bandwidth-intensive, and capacity-intensive requirements.

Rich enterprise-class features building HA data centers

FusionStorage provides a full set of enterprise-class features to meet the various application requirements of block, object, and file storage. Active-active, snapshot, remote replication, and error correction help you formulate the most effective data protection mechanisms at the solution level for your data centers. Thin provisioning and deduplication help you make much better use of hardware resources. Quota and user management functions help you develop flexible and efficient storage resource allocation policies within your clouds.

FusionStorage block storage now provides the fully distributed active-active feature to help you build active-active systems that ensure zero RPO and close-to-zero RTO in Oracle RAC or VMware virtualization scenarios. It also delivers 99.9999% solution-level availability, ensuring always-on critical business. Meanwhile, FusionStorage block storage offers active-active storage services based on volume- or VM-level granularity to help you flexibly configure active-active resources based on business requirements, effectively reducing your investments.

Compatibility making FusionStorage the compelling choice

Compatible with OpenStack Cinder, Manila, and Swift interfaces, as well as a wide range of computing virtualization platforms, the open architecture gives customers a great deal of freedom and provides the needed lateral expansion capabilities at the data storage layer for private cloud, public, and hybrid cloud layouts. You do not need to worry about vendor lock-in when selecting infrastructure after adopting the open cloud platform.

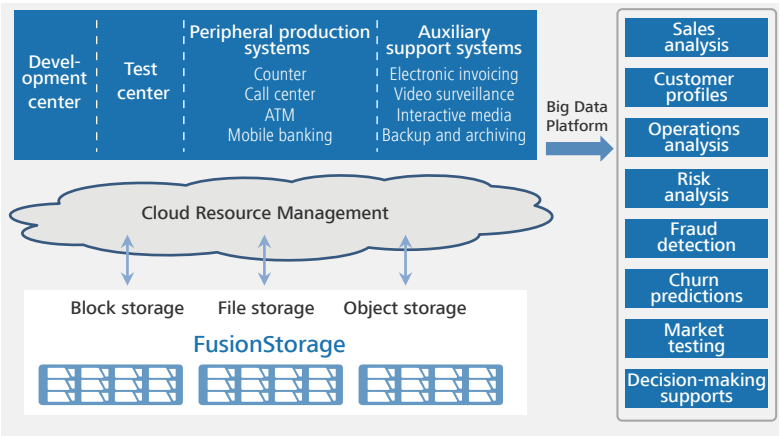
Being compatible with Hadoop HDFS standard interface for Big Data analysis and applications provides the high throughput in data access for the cloud data center, empowering enterprises to build up applications able to handle large data sets and fully tap into the value of information.

Automated data services and O&M

The system management platform comprises a data service subsystem and Operation & Maintenance subsystem. The data service subsystem of distributed block, object, or file storage provides fine-grained storage resource management and automated resource provisioning features. The Operation & Maintenance subsystem provides alarm, topology, and performance reports and other feature-rich hardware platform monitoring and management functions. Automation and the enhancements in system management free up data center personnel from complicated software and hardware resource management. Services can now be placed online quickly, significantly shortening TTM.

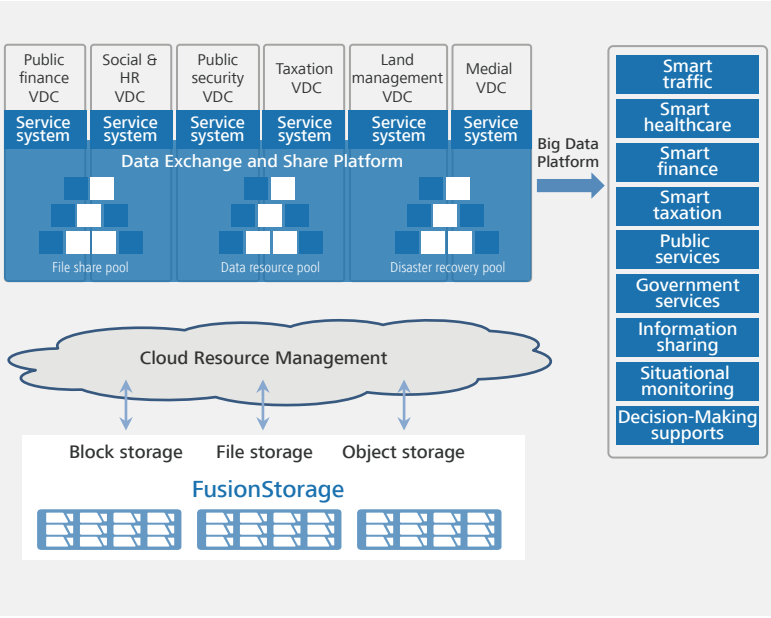
Typical Application Scenarios

Development and test cloud



On-demand resource deployments and simplified management enable ease of frequent updates to development and test clouds. Financial institutions, telecom carriers, and other organizations can now innovate and place products online at even faster speeds to widen their trade and business channels, further refine their precision marketing strategies, and maximize the value of their data.

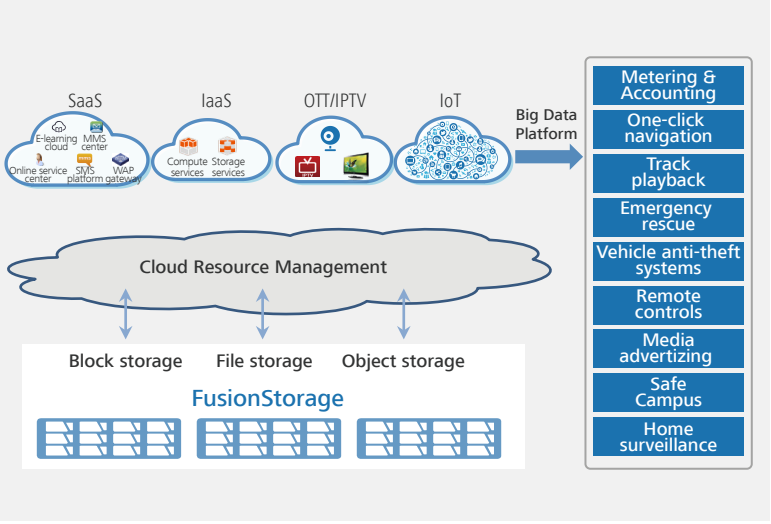
Government cloud



Government cloud systems advance IT-enablements for public agencies with all new ICT infrastructures purpose built for the public sector.

FusionStorage converges storage pools for government clouds, enabling sharing of data and providing one-stop storage services over one unified platform that eliminates resource islands spread across multi pools, reduces the number of unneeded copies across systems, and improves efficiency of data services. Wide support for various protocols makes deployments to multiple levels of government organizations and even more finely grained deployments down to the department level possible. Use of standard open interfaces in support of new integrations in cloud application and data analysis enhance the precision of decision-making as well as user satisfaction.

Carrier cloud



ICT infrastructure and content providers, especially Telecom carriers, are moving their infrastructures to the cloud to achieve their digital transformations.

FusionStorage delivers the linear-scale capabilities needed of massive cloud-based storage systems to support the IaaS and SaaS business models and to maximize return on investment. The data service system is able to automatically provision block, object, or file storage resources. This level of automation greatly shortens delivery cycles, and places content operations such as OTT and IPTV and internal operations and business systems online quicker.

Product Specifications

Item	Specifications		
General			
Maximum number of storage nodes in a cluster	4096		
Supported storage types	Block, file, object		
Compatible platforms	Huawei FusionSphere, VMware, OpenStack, Hadoop, and Amazon S3		
Storage medium	HDD, SSD		
Cache	SSD, NVDIMM, and RDIMM		
Network types	Ethernet, RoCE, and InfiniBand		
Detailed			
Storage types	Block	File	Object
Supported protocols	SCSI, iSCSI*, and OpenStack Cinder	NFS V3/V4, CIFS, SMB 1.0/2.0/3.0, FTP, HDFS, NDMP, NIS, Microsoft Active Directory, LDAP, and OpenStack Manila	Amazon S3 and OpenStack Swift
Enterprise-class functions	Active-active, snapshot, thin provisioning, linked clone, QoS, and automatic load balancing	Snapshot, quota management, dynamic storage tiering, WORM, asynchronous replication, and automatic load balancing	Quota management, deduplication, transmission encryption, synchronous replication, object versioning, and automatic load balancing
Data redundancy	2 or 3 copies	EC data protection	EC data protection
Recommended storage server	Huawei FusionServer RH2288H V3, FusionServer RH2288 V3, or FusionServer 5288 V3 in typical configuration	Huawei FusionServer RH2288 V3 or FusionServer 5288 V3 in typical configuration	

Note: *iSCSI can only be applied to VMware scenarios.

For More Information

To learn more about Huawei storage, please contact the local office or visit Huawei Enterprise website http://e.huawei.com.

Huawei Enterprise APP

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