ArcherOS安超®

ArcherOS Cloud Operating System

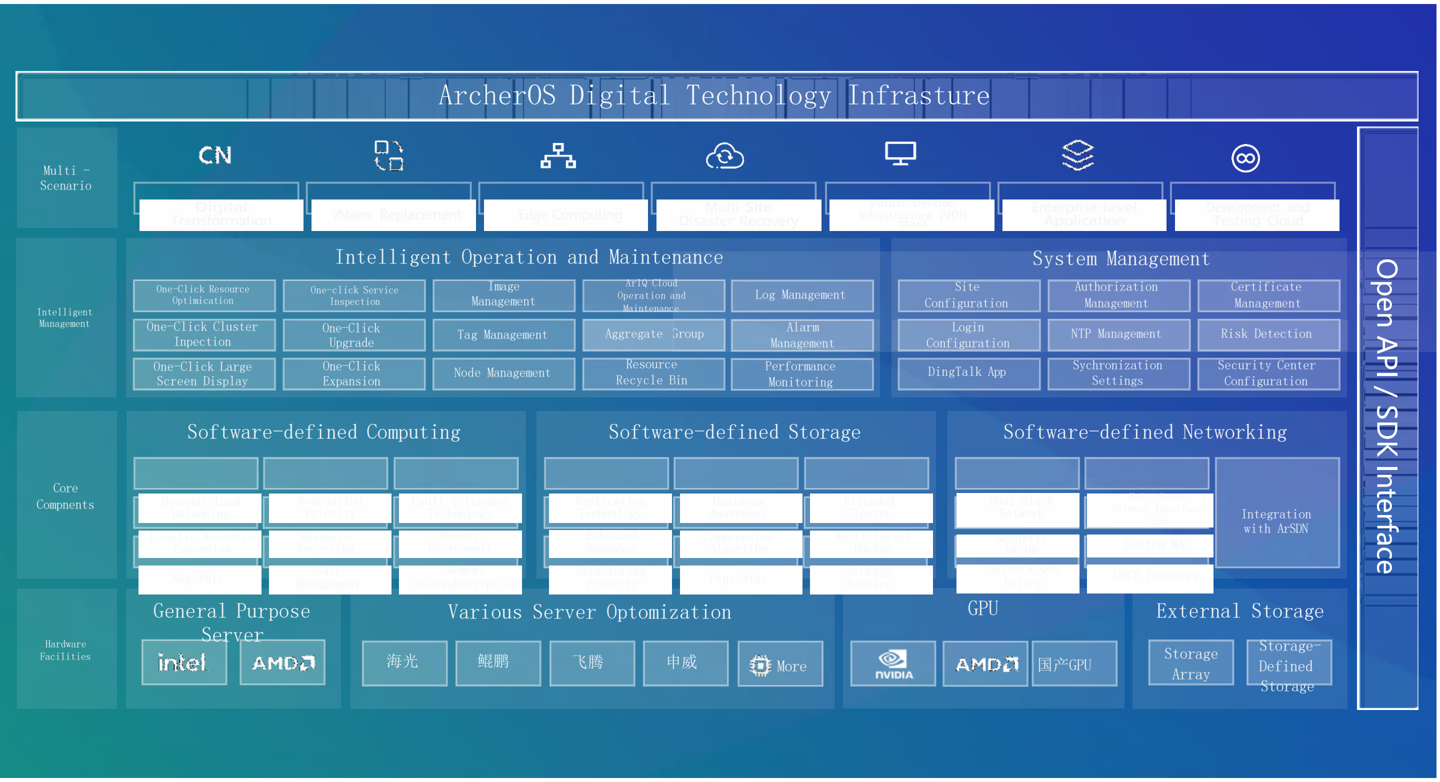
"Full-stack hyper-converged that is ready for digital creation and application perception"

Product Overview

AcherOS Operating System(hereinafter refered to as AcherOS Hyper-Converged) is a digital creation cloud-ready hyper-converged product that features resource elastic expansion, application perception, and support for mixed business loads. It provides users with high performance, high availability, high efficiency, and easy-to-install and maintain IT infrastructure, enabling rapid cloud adoption for governments and enterprises, and providing comprehensive domestic replacement and transformation solutions for government and enterprise users. ArcherOS Hyper-Converged has served more than 10,000 enterprise-level customers. spanning industries such as government, finance, healthcare, education, transporation, energy, and construction, has won customer trust with its advanced technology and high-quality services.

Product Architecture

ArcherOS Operating System helps users achieve software and hardware management for hyper-converged, providing rich and easy-to-use functions. It consists of key components such as software-defined computing (ArStack), software-defined storage (ArStor), and software-defined network (ArNet). In addition, relying on the unified management platform components (ArManager), it further provides basic operations and maintenance capabilities and advanced network functions. ArcherOS Hyper-Converged adopts a software-defined data center architecture, abstracting and pooling hardware resources into virtual resources, and dynamically allocating them to businesses running in cloud hosts or cloud containers.


ArcherOS Digital Technology Infrasture
Multi - Scenario
Digital Transformation
VMware Replacement
Edge Computing
Multi-Site Disaster Recovery
Virtual Desktop Infrastructure (VDI) cloud
Enterprise-level Application
Development and Testing Cloud
Intelligent Management
Intelligent Operation and Maintenance
One-Click Resource Optimication
One-click Service Inspection
Image Management
ArIQ Cloud Operation and Maintenance
Log Management
One-Click Cluster Inpection
One-Click Upgrade
Tag Management
Aggregate Group
Alarm Management
One-Click Large Screen Display
One-Click Expansion
Node Management
Resource Recycle Bin
Performance Monitoring
System Management
Site Configuration
Authorization Management
Certificate Management
Login Configuration
NTP Management
Risk Detection
DingTalk App
Sychronization Settings
Security Center Configuration
Core Compnents
Software-defined Computing
Dynamic Load Balancing
Evacuation Priority
Fault Tolerance Technology
Elastic Resource Expansion
Resource Recycling
Memory Overcommit
Key Pair
GPU Management
Memory Oversubscription
Software-defined Storage
Replication Technology
Business Awareness
Extended Cluster
Enhanced Snapshot
Compression Algorithm
Multi-Target Backup
Refactoring Priority
Page Size
Storage Service
Software-defined Networking
Dual-Stack Network
Multi-Queue Network Interface Card
Integration with ArSDN
Security Group
Custom MAC
Network QoS Policy
DHCP Features
Hardware Facilities
General Purpose Server
intel
AMD
Various Server Optomization
海光
鲲鹏
飞腾
申威
More
GPU
NVIDIA
AMD
国产GPU
External Storage
Storage Array
Storage-Defined Storage
Open API / SDK Interface

Key Technology Components

Software-Defined Computing Components (ArStack)

By virtualizing servers with multi-brand chips, standard virtual machines are presented to end users, allowing for quick and convenient migration of the entire system, including virtual hardware, operating systems, and fully-configured applications, between nodes of the same architecture but different servers without impacting normal virtual machine operations. The high availability of business applications is achieved through features such as fault evacuation and FT fault tolerance.

Software-Defined Storage Components (ArStor)

By aggregating the local hard disk storage resources of multiple server nodes into a dynamically scalable global storage resource pool, software-defined storage component provides storage space for business virtual machines. It utilizes flash storage resources (such as NVMe or SATA solid-state drives) as cache space to improve storage performance, while using SATA or SAS hard disk drives to provide storage capacity, and optimizing storage for business needs, providing the best storage operating environment for business applications in the cluster.

Software-Defined Netwroking (ArNet)

Provides a pure software-based unified network and security solution that can utilize overlay networks to achieve a unified coverage of heterogeneous underlying hardware, different virtualization architectures, and multiple networks without binding to hardware. It supports efficient forwarding and powerful network functions, simplifying cloud networking. It also offers flexible and diverse traffic policy scheduling, integrates rich third-party network security ecology, and provides a complete security solution.

Unified Management Platform Components (ArManager)

In the same management platform, unified management is provided for the cluster’s physical hardware resources and virtualization resources. Physical hardware resources include node operation, CPU/GPU, memory, disk status and usage, while virtualization resources include virtual machines, virtual networks, virtual storage, and their status and usage. A unified user policy and log alarm platform is provided, and the one-click inspection function is supported to understand the overall health status of the platform resources at any time.

Open API/SDK Interface

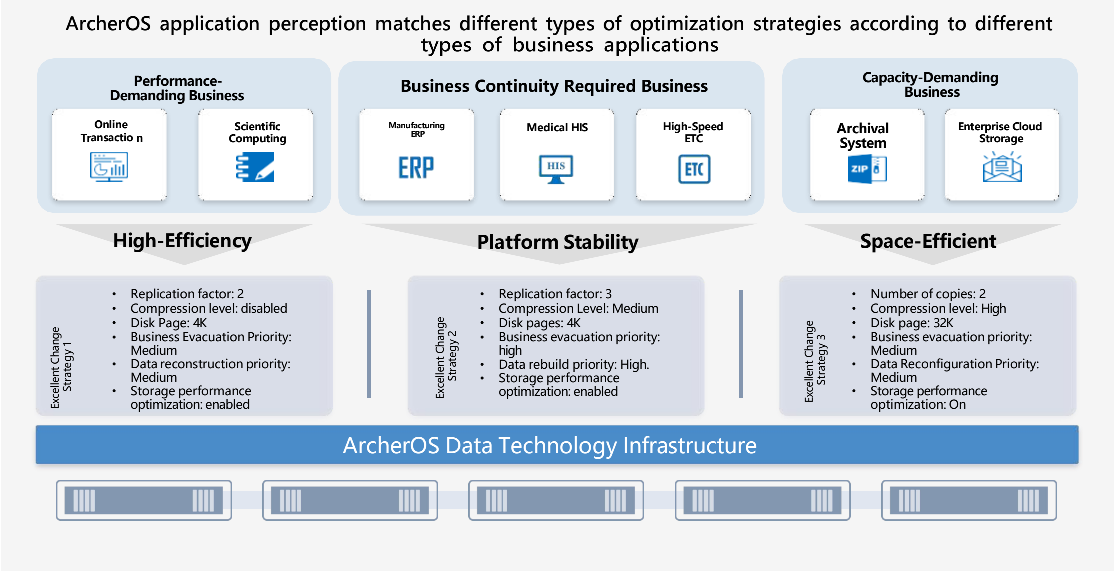
Ancher provides open access to all its API interfaces, offering Open API and Java SDK, and providing API documentation manuals. It integrates with third-party systems, supports access to the platform via API keys, and collaborates with ecosystem partners to build professional solutions.

Product Highlights

AncherOS Hyper-Converged is based on general servers and KVM virtualization technology, as well as self-developed enterprise-level distributed storage, providing a reliable and efficient technology foundation. It has built-in rich functional features that accelerate customer business management and platform maintenance, and provides efficient, high-performance, highly available, and all-around secure enterprise-level cloud products and services for government and enterprise users.

Application-Awareness Integrated with Business

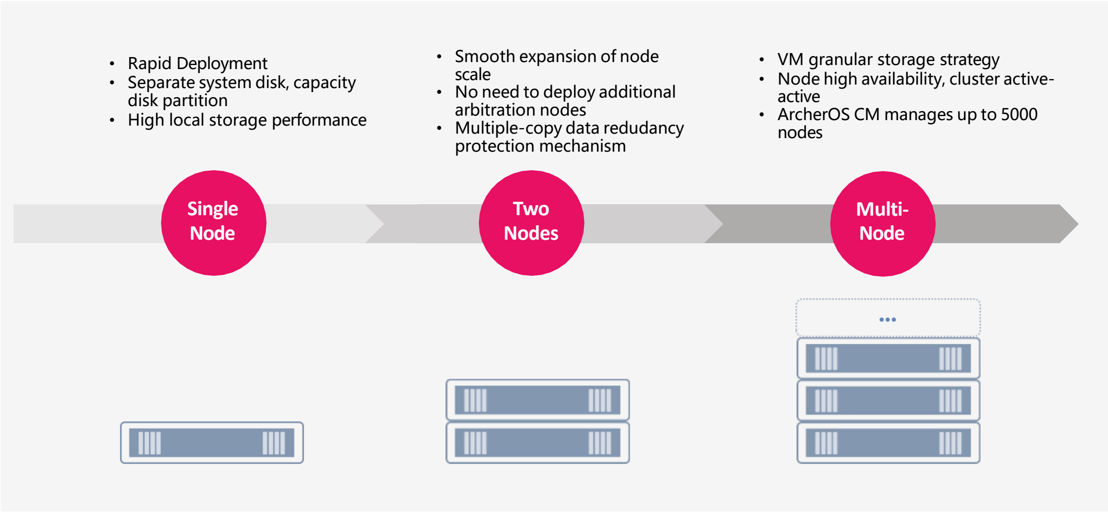
ArcherOS application perception can combine different types of business applications, match different types of optimization strategies, and customize the index level of each strategy. For example, disk pages can match the size of application data blocks to obtain the best performance; a higher number of copies can obtain Higher security; use different compression levels for application data types to obtain more available storage space; reconstruct data priority and business priority according to application perception, such as automatically recovering data with high priority to ensure data security , automatically restore business applications with high evacuation priority to ensure business continuity; enable storage performance optimization to obtain higher storage performance. Through ArcherOS application awareness, the data layout and quality of service (QoS) of customer business can be optimized, and business efficiency, availability and security can be improved.


ArcherOS application perception matches different types of optimization strategies according to different types of business applications

Performance-Demanding Business
Online Transactio n
Scientific Computing
Business Continuity Required Business
Manufacturing ERP
ERP
Medical HIS
HIS
High-Speed ETC
ETC
Capacity-Demanding Business
Archival System
ZIP
Enterprise Cloud Strorage
High-Efficiency
Platform Stability
Space-Efficient
Excellent Change Strategy 1
Replication factor: 2
Compression level: disabled
Disk Page: 4K
Business Evacuation Priority: Medium
Data reconstruction priority: Medium
Storage performance optimization: enabled
Excellent Change Strategy 2
Replication factor: 3
Compression Level: Medium
Disk pages: 4K
Business evacuation priority: high
Data rebuild priority: High.
Storage performance optimization: enabled
Excellent Change Strategy 3
Number of copies: 2
Compression level: High
Disk page: 32K
Business evacuation priority: Medium
Data Reconfiguration Priority: Medium
Storage performance optimization: On
ArcherOS Data Technology Infrastructure

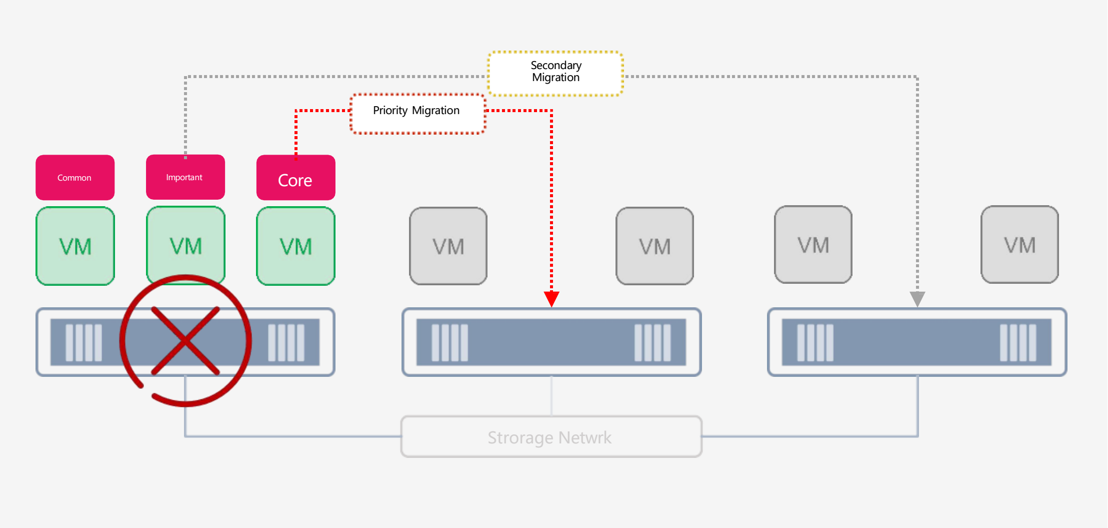
From small-scale deployment to comprehensive cloud-based operations

ArcherOS hyper-converged supports flexible cluster deployment scales (single-node, two-node, multi-node) to meet customers' different needs for cloud migration and scenario use, and supports flexible and smooth node scale expansion. ArcherOS's integrated two-node solution does not require additional deployment of arbitration nodes, which improves the security and flexibility of the arbitration mechanism and supports smooth expansion to multiple nodes; with the help of ArcherOS CM, multi-cluster management is used to achieve large-scale deployment.


Rapid Deployment
Separate system disk, capacity disk partition
High local storage performance
Smooth expansion of node scale
No need to deploy additional arbitration nodes
Multiple-copy data redudancy protection mechanism
VM granular storage strategy
Node high availability, cluster active-active
ArcherOS CM manages up to 5000 nodes
Single Node
Two Nodes
Multi-Node
...

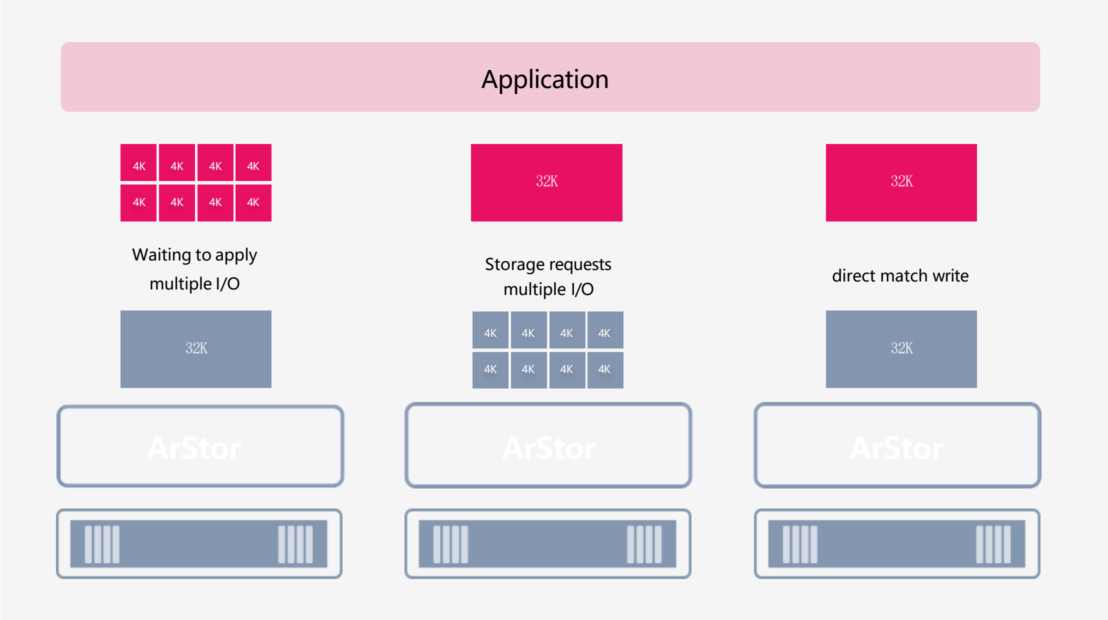
High-priority application has priority for fault recovery to ensure production stability

ArcherOS Hyper-Converged has the ability to set fault evacuation priorities based on the importance of business. In this way, when a host node fails, virtual machines running on the failed host will be recovered on a healthy host node in the cluster, ensuring the shortest possible downtime for high-priority business. Provides application-level HA function, automatically detecting and repairing application faults on virtual machines.


Secondary Migration
Priority Migration
Common
Important
Core
VM
VM
VM
VM
VM
VM
VM
Strorage Netwrk

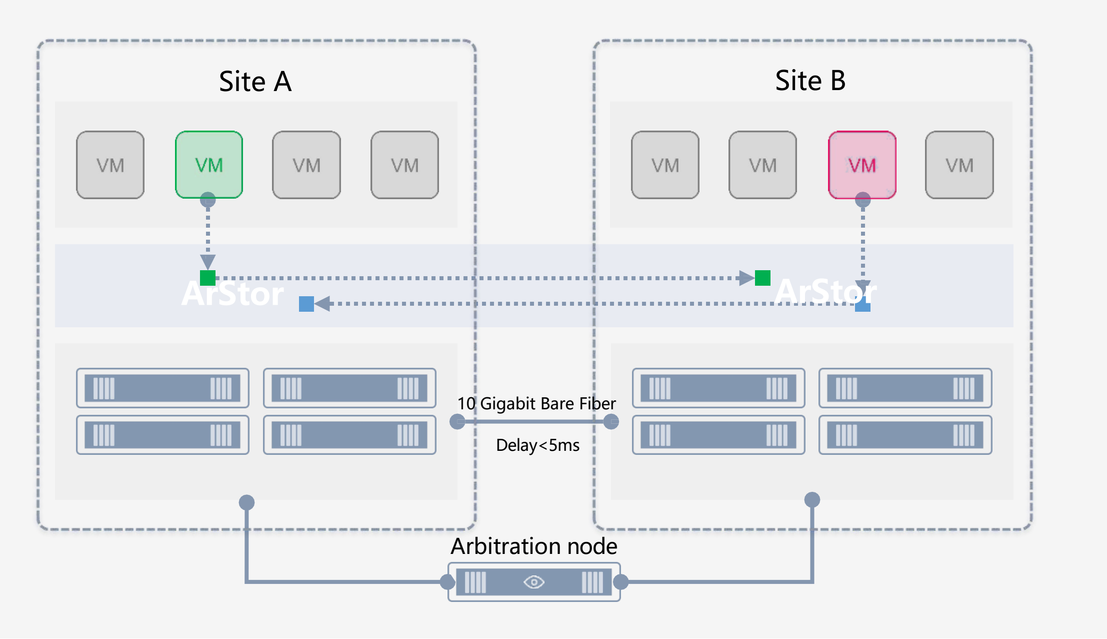
Aligning storage pages with applications improves business efficiency

Usually, distributed storage systems use fixed and unchangeable storage page sizes, which can result in a mismatch between storage page size and application software data block size (scenarios one and two in the figure below), thus affecting storage performance. The ArcherOS Hyper-Converged solution provides the ability to customize storage page size, setting it in units of virtual disks with values of 4K, 8K, 16K, and 32K (scenario three in the figure below). This way, when the storage page size matches the application software data block size, the best storage performance can be achieved.


Application
4K 4K 4K 4K
4K 4K 4K 4K
32K
32K
Waiting to apply
multiple I/O
Storage requests
multiple I/O
direct match write
32K
4K 4K 4K 4K
4K 4K 4K 4K
32K
ArStor
ArStor
ArStor

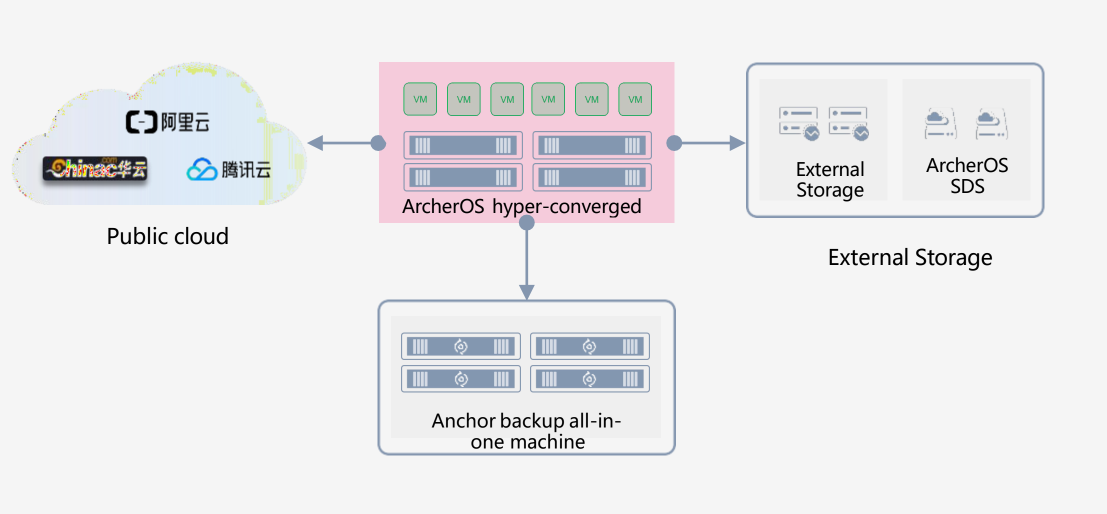
Extended cluster to achieve multi-site disaster recovery protection

ArcherOS hyper-converged extended cluster function realizes site active-active by combining copy technology and fault recovery capabilities, so that multiple copies of virtual machines are distributed in different sites (fault domains) at the same time, and if one of the sites (fault domains) fails, The protected virtual machine can be quickly pulled up at another site, ensuring zero data loss, business interruption at the minute level, and comprehensive protection of user data security and continuous business operation.


Site A
VM
VM
VM
VM
ArStor
Site B
VM
VM
VM
VM
ArStor
10 Gigabit Bare Fiber
Delay<5ms
Arbitration node

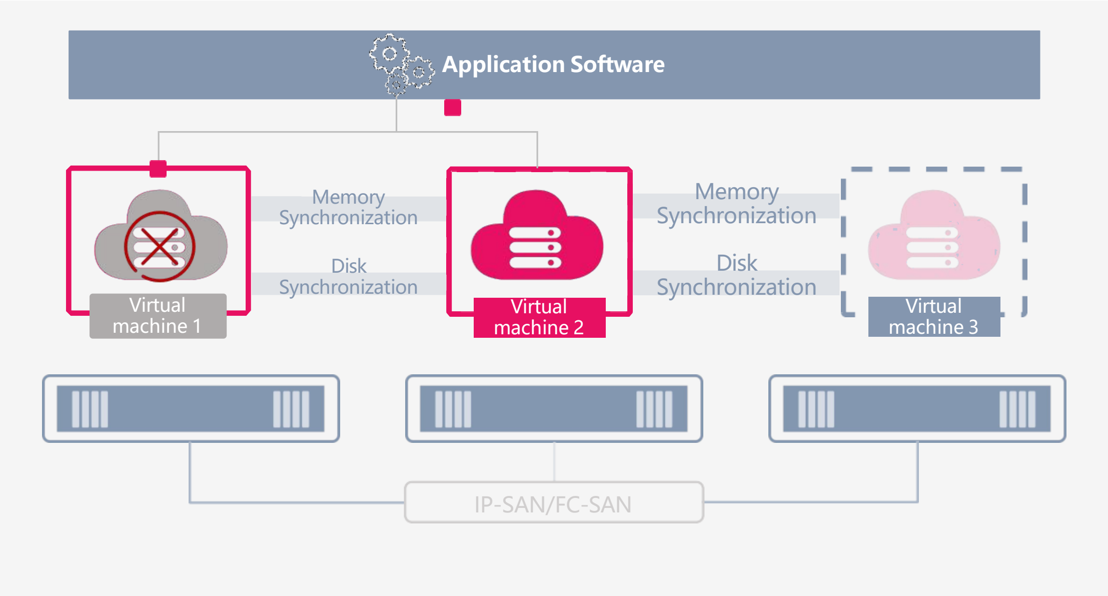
Multi-target data backup to ensure data redundancy and security

ArcherOS hyper-converged supports a variety of data backup methods to ensure data security, supports backup to public clouds through object targets, and also supports backup to external storage through NFS targets. Backup and business disaster recovery protection. ArcherOS hyper-converged also cooperates with many professional disaster recovery manufacturers in world to provide professional backup solutions.


阿里云
Chinac华云
腾讯云
Public cloud
VM
ArcherOS hyper-converged
External Storage
ArcherOS SDS
External Storage
Anchor backup all-in-one machine

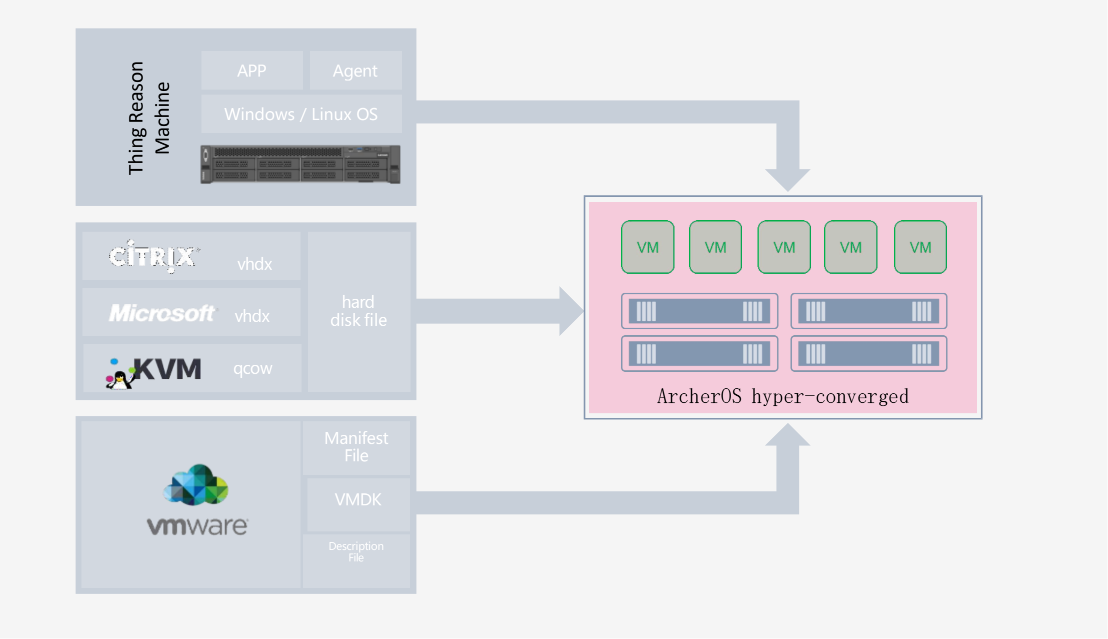
FT (fault tolerance) technology ensures continuous operation of the business

ArcherOS hyper-converged FT fault-tolerant technology can achieve a higher level of business protection, achieve "zero" business interruption, and "zero" data loss. After the FT fault tolerance function is enabled, the system will automatically create a standby virtual machine (virtual machine 2) with the same configuration as the primary virtual machine (virtual machine 1) on other nodes. The standby virtual machine does not provide external services. The storage data is synchronized in real time. When the primary virtual machine (virtual machine 1) fails, the standby virtual machine immediately switches to the primary (virtual machine 2 is converted to primary) to take over, and at the same time establishes the primary-standby relationship again (generates the standby virtual machine 3), and continues Stay protected. Provides application-level HA function, automatically detecting and repairing application faults on virtual machines.


Application Software
Memory Synchronization
Disk Synchronization
Memory Synchronization
Disk Synchronization
Virtual machine 1
Virtual machine 2
Virtual machine 3
IP-SAN/FC-SAN

Cloud migration tool to ensure smooth migration across multiple platforms

ArcherOS provides a convenient cloud migration tool, which supports the migration from the physical platform to the ArcherOS hyper-converged platform, and from the virtualization platform to the ArcherOS hyper-converged platform. It is convenient for customers to migrate business systems of different platforms to the Anchor platform. Offline migration is convenient and efficient. It is used in scenarios such as virtualization construction, virtualization platform replacement, and localization transformation.


Thing Reason Machine
APP
Agent
Windows / Linux OS
CITRIX
vhdx
Microsoft
vhdx
KVM
qcow
hard disk file
vmware
Manifest File
VMDK
Description File
VM
VM
VM
VM
VM
ArcherOS hyper-converged

Customer Benefits

Core business priority protection

ArcherOS hyper-converged integration guarantees the operation of core business in an all-round way at multiple levels of computing, storage, and network: custom evacuation priority, the core business virtual machine will be evacuated first in the event of a failure; custom reconstruction priority, the copy data of the core business virtual machine will be prioritized in the event of a failure Reconstruction; distinguish important business traffic through the traffic marking and coloring function; realize business-level and cluster-level active-active protection through FT fault tolerance and cluster active-active.

Service Quality Level Guarantee

ArcherOS hyper-converged can set CPU QoS for virtual machines of different importance to avoid resource grabbing capabilities; provide memory exclusive and memory recycling functions to optimize the memory allocation mechanism; define disk QoS for different business virtual machines to eliminate the disadvantages of adjacent interference Impact; use network QoS to provide higher priority scheduling for important services in different applications; support intelligent storage data synchronization and manual data synchronization Qos.

Continuous and efficient resource supply

ArcherOS hyper-convergence provides a more efficient data storage read and write path and a hierarchical mechanism for cold and hot data; provides the best storage performance by flexibly controlling the ratio of read and write caches; supports single NUMA and multi-NUMA technologies, and provides better performance High-demand applications (high-frequency trading, etc.) optimize memory access efficiency; solve the bottleneck of the Linux storage system through SPDK technology, avoid performance loss caused by complex system calls, and effectively improve storage system performance.

Intelligent and convenient management, significant cost optimization

ArcherOS integration always adheres to the concept of "simplification", and the platform delivery achieves "hour-level" online; node expansion supports automatic discovery and "one-click" addition; software upgrades are performed automatically, and the business is "zero-perception"; the platform has built-in multiple "One-click" operation and maintenance tools: one-click cluster operation and maintenance, one-click resource optimization, one-click large-screen display, etc., which not only simplifies the difficulty of operation and maintenance, but also improves the efficient and reasonable allocation of platform resources, and optimizes the input-output ratio .

Comprehensive support for innovation in trust and credit, assisting domestic transformation

ArcherOS has built a comprehensive adaptation from chip, operating system, middleware, database, application, security, and industry application, and has completed adaptation and verification work with nearly 300 domestic and foreign IT enterprises. It has jointly launched industry solutions with ecosystem partners, providing professional domestic innovation trust and credit substitution solutions and services, and jointly helping customers smoothly transition to innovation and trust.

Delivery Method

One Machine

- Cloud-ready all-in-one computer platform
- Pre-installed and test with ArcherOS hyper-converged software at the factory
- Ready for cloud use out of the box, enabling fast business deployment
- Better software and hardware compatibility
- Cooperation with multiple server brand manufacturers

Pure software

- Compatible with X86 platform and domestic chip platform
- Widely compatible with third-party hardware servers
- Support for customers to use existing server equipment
- Node-based authorization without hardware restrictions
- License authorization not bound to hardware

Qualifications and Honors

- Have a number of ISO system certification ISO9001, ISO27001, ISO20000, ISO14001, ISO45001
- Possess more than 180 Chinese patents and many international patents for product technology
- Participated in the development of more than 10 national standards and industry standards
- Shortlisted as a typical case in the Network Security Industry Development Center of the Ministry of Industry and Information Technology
- 2019 - 2021 Selected in the global authority Gartner Magic Quadrant for 3 consecutive years
- Awarded "Customer Preferred" service provider in hyper-converged infrastructure-Gartner Asia Pacific for 2 consecutive years
- Selected by Gartner as a representative of hyper-converged market vendors in China in 2022
- Listed in Gigaom 2022 Enterprise Hyper-converged Infrastructure Radar Report, Top 9 Global Hyperconverged Vendors
- Passed the software capability maturity model CMMI-5 assessment
- Received the Gold Award in the 2019 World IoT Expo-New Technologies, New Products, New Applications Awards
- Received Top 100 China IT Service Innovation Technology Solution 2020
- Received the 2020 Best Cintron Cloud Product Award
- Awarded 2020-2021 New Generation Information Technology Innovation Product
- Outstanding Software Product of 2021
- Shortlisted as a typical solution of information technology application innovation in Fujian Province in 2021
- Passed the 2022 Trusted Cloud Virtualization Cloud Platform Grading Complete Assessment
- Passing the complete assessment of 2022 Trusted Cloud hyper-converged solutions and cloud desktop solutions

Typical construction scenarios

Digital transformation

Main customers: finance, government, education, healthcare, etc.
Typical business scenarios: e-government, enterprise OA, finance, email, asset management, human resources, online transactions, credit reporting, etc.
Business characteristics: domestic software and hardware substitution, independent controllability, all-chip and full-stack.

VMware alternative

Main customers: VMware users.
Typical business scenarios: running various critical, testing and R&D application systems using VMware vSphere virtualization and vSAN hyper-converged architecture. In addition, providing alternative products for centralized management of vCenter, disaster recovery and backup, NSX network, Operation monitoring and other operations. ArcherOS provides end-to-end migration and replacement solutions.

Edge Nodes

Main customers: Group branches, edge cloud, expressways, chain supermarkets, etc. Typical business scenarios: group branch data centers, edge data centers, ETC charges Business characteristics: There are many types of branch IT equipment, multiple purchases and multiple implementations, customers are concerned about the rapid launch of branch services, no operation and maintenance personnel in the branch, and difficult operation and maintenance, etc.

Multi-Site Disaster Recovery

Main customers: medical care, libraries, government, large and medium-sized enterprises, universities, etc. Typical business scenarios: local backup, remote backup, cross-computer room data backup, active-active computer room Business features: Disaster recovery level requirements are not high, only data-level backup disaster recovery is required, meeting planning requirements, cost-sensitive, and long-term data storage is required; data needs to be saved across computer rooms or offline backup; active-active data centers, data disaster recovery

Desktop Cloud

Main customers: education, healthcare, manufacturing, finance, etc.
Typical business scenarios: cloud classroom, cloud campus, doctor/nurse stations, bank teller counters, 3D design, animation, etc.
Business characteristics: quick and flexible business deployment; secure centralized management; data does not land; low power consumption and maintenance-free; demand for GPU and vGPU.

Enterprise Applications

Main customers: All industries
Typical business scenarios: Enterprise OA, finance, email, asset management, human resources, attendance, internal approval, ERP, etc.
Business characteristics: Multiple types of applications with high concurrency and stability requirements. Rapid growth of data volume with high demands for access speed and performance. Customers are concerned about business and data integration, intolerant of long-term interruptions, and expect cost-effectiveness and high availability of business construction.

Development and Testing Cloud

Main clients: Banks, securities, insurance, software development outsourcing, telecom operators, etc.
Typical business scenarios: Research and development centers of manufacturing companies, software outsourcing departments of banks, testing areas of telecom operator systems, etc.
Business characteristics: The testing environment needs to be built repeatedly, which is prone to errors, requires a large amount of work, and has a long testing cycle. The management of testing resources and equipment is complex and difficult to maintain.

Customer Cases

With advanced technology and excellent service, ArcherOS hyper-converged products have won the trust of numerous enterprise-level customers, covering various industries including government, finance, transportation, healthcare, education, energy, and construction.

Government	国家外汇管理局 State Administration of Foreign Exchange	江苏省公安厅	安徽省民政厅 Department of Civil Affairs Of Anhui Province	广东省水利厅
Finance	中国银行 BANK OF CHINA	东方证券 ORIENT SECURITIES	太平洋保险 CPIC	嘉实基金 Harvest Fund
Transportation	CICO 浙江交通集团	武汉市交通运输局 jtj.wuhan.gov.cn	中国民用航空局 空中交通管理局 Air Traffic Management Bureau.CAAC	中国铁路12306 12306 CHINA RAILWAY
Medical	华中科技大学同济医学院附属 協和醫院	上海市卫生健康委员会 Shanghai Municipal Health Commission	蘭州大學 第二醫院 第二臨床醫學院 Lanzhou University Second Hospital	北京市海淀医院
Education	天津大学 Tianjin University	蘇州大學 SOOCHOW UNIVERSITY	深圳大学 SHENZHEN UNIVERSITY	南京理工大学 NANJING UNIVERSITY OF SCIENCE & TECHNOLOGY
Electric Power	国家电网公司 STATE GRID CORPORATION OF CHINA	中国南方电网 CHINA SOUTHERN POWER GRID	CEEC 中国能建	華潤電力 CR POWER
Petroleum	SINOPEC 中国石化 中国石化中原石化	CNPC BGP 中国石油集团 东方地球物理勘探有限责任公司	中国海油 CNOOC	石化盈科 PCITC
Manufacturing	MELING 美菱	劲嘉集团 SHENZHEN JINJIA GROUP	JINGYAO GLASS 景耀玻璃	奥德集团 ORDER GROUP

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