iTernity iCAS Whitepaper
Reference Architectures
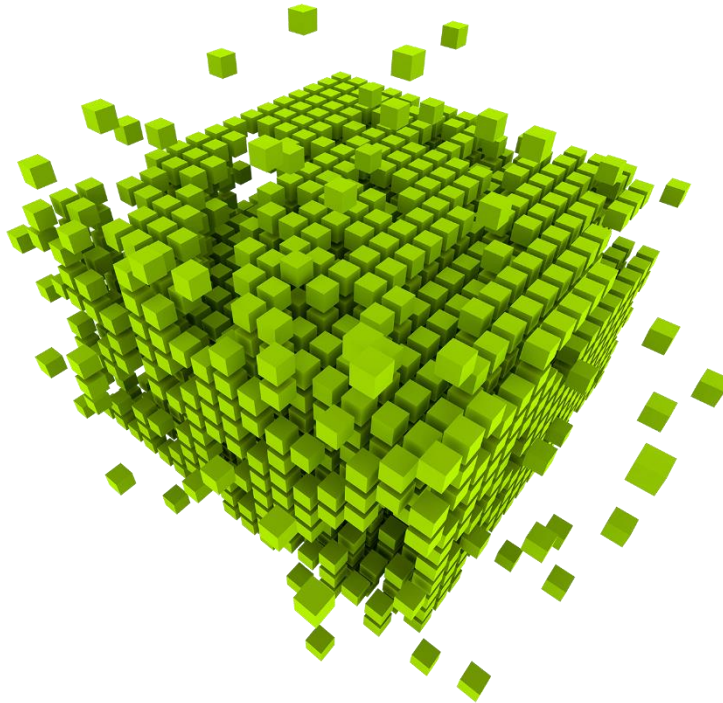
Software-defined archiving

Content

1. OVERVIEW

This whitepaper presents an overview of iTernity supported iCAS reference architectures and is intended for IT professionals, solution architects, sales engineers and consultants.

A table with the key parameters of the supported iCAS configurations can be mapped to customer requirements and conditions in order to define the appropriate architecture.

2. iCAS IN A NUTSHELL

iCAS' software defined architecture enables the flexible implementation of scalable, compliance-ready archives, ranging from the terabyte size up to petabyte sized archives. In addition to the latest European Data Protection Regulation (GDPR), iCAS is compatible with industry-specific regulations, including as SEC Rule 17a-4(f) and CFTC Rule 1.31, HIPAA, SOX, GoBD. iCAS has been audited and certified by KPMG.
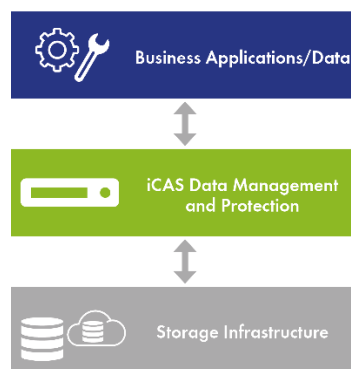
iCAS architecture

iCAS acts as a central platform between your applications (ECM, DMS, ERP, E-Mail, customer-specific systems) and the storage infrastructure – regardless of the hardware in use. In this way, iCAS ensures long-term data integrity and availability, even if storage technologies and applications change in the future.

WORM functionality, AE256 encryption and Self-Healing of archiving objects are additional key advantages of using iCAS.

3. iCAS REFERENCE ARCHITECTURES

The following chapters present the iCAS scenarios that have been approved by iTernity so far and that represent, as well, the most common iCAS setups used by iTernity customers.

> **Please note:**
> Support is granted only for scenarios and setups presented in this paper or that have been approved by iTernity. If a different architecture is required, please contact iTernity presales for assistance (presales@iternity.com).

The following table presents an overview of the key parameters of the iCAS reference architectures described in this paper. For more details, please refer to the corresponding chapters.

iCAS platform	MS Failover Cluster		Single Node
Storage	NAS, SAN, or VHD Refer to 3.1	DAS Refer to 3.2	NAS, SAN, DAS or VHD Refer to 3.3
Infrastructure complexity	***	**	Depending on storage
Availability	***	**	*
Cost efficiency	*	**	***

Legend: *** high, ** medium, * low

Performance of the different iCAS setups depends on the infrastructure (storage, network). For further details, please contact iTernity presales (presales@iternity.com).

For iCAS implementations requiring automatic failover of the service, a Microsoft Failover Cluster is recommended. It is possible to implement iCAS on a Microsoft Failover Cluster with physical or virtual servers.

Under normal operation, iCAS writes on *the* active node. If iCAS replication of data is used (*Additional Write* functionality), data are written simultaneously on a second storage path during archive operation. If the active node is down, the MS cluster moves the services to the passive node.

Please note, that if a storage system becomes unavailable, iCAS will only allow read access on the affected Repositories. As soon as the storage is available again, the activated *Self-Healing* functionality will start an automatic resynchronization of the existing archives. As this synchronization is done in the background, it does not affect simultaneous archiving or read access.

3.1   iCAS on Microsoft Failover Cluster with SAN, NAS or VHD

iCAS on a Microsoft Failover Cluster with physical SAN or NAS servers, or on a virtual hard disk, is the choice for enterprise customers and customers in general that need high availability and performance.
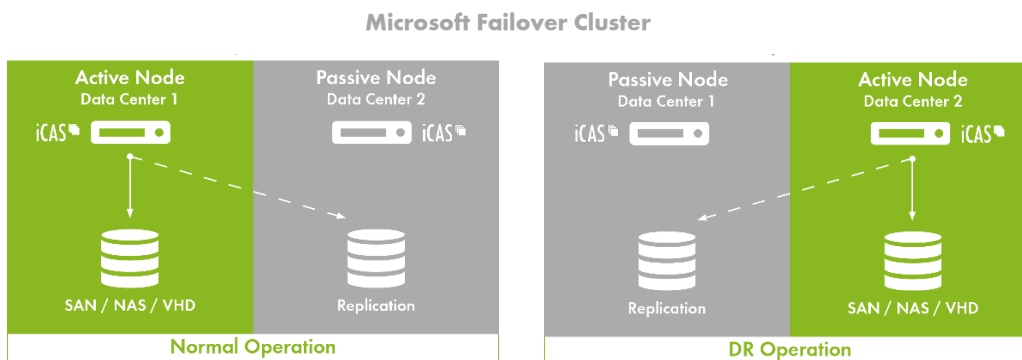
Key aspects and main advantages:

- High availability for the iCAS services

- Easily expandable by adding more storage capacity

- Easy to maintain as each iCAS node can have a separate downtime

- iTernity service will switch automatically to secondary node in case of a failover

- Synchronous data replication (iCAS *Additional Write Path*) and consistency check (iCAS *Self-Healing*) possible

- Alternatively, replication can be done via storage vendor functionalities

- Backup of data can be performed on top by integrating archive related data to your backup solution

Drawbacks:

- Complex infrastructure and subsequent higher TCO

- If NAS is used as storage target, extra DAS (or SAN) storage is required for *iFSG BasePath* to ensure sufficient system performance

Please note:
For very high availability requirements, please contact iTernity presales team (presales@iternity.com).

3.2 iCAS on Microsoft Failover Cluster with DAS

iCAS on a Microsoft Failover Cluster with direct attached storage (DAS) is the choice for customers in general for whom high availability and performance are important, but not essential.
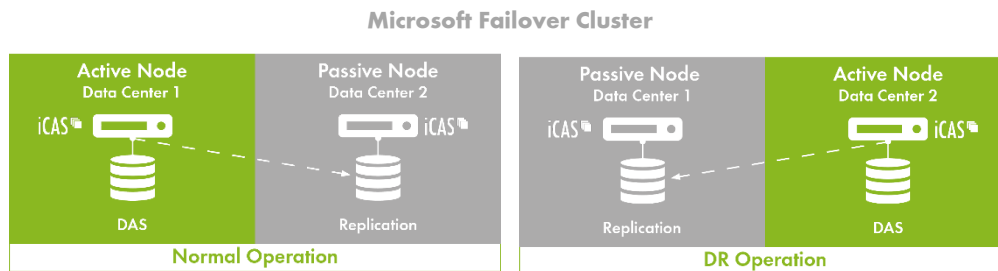
Key aspects and main advantages:

- Cost efficient solution

- High availability for the iCAS services

- Easily expandable by adding more storage capacity

- iTernity service will switch automatically to secondary node in case of a failover (read-only access to the archived data)

- Synchronous data replication (iCAS *Additional Write Path*) and consistency check (iCAS *Self-Healing*) possible

- Backup of data can be performed on top by integrating archive related data to your backup solution

Drawbacks:

- With direct attached storage, a node failure implies a storage failure. Node failure can be caused by storage or server outage, or due to maintenance. This means that in case of a failover, only read-access to the archived data is possible.

3.3 iCAS on Single Node

When using a single node, iCAS will write to the chosen storage targets (SAN, NAS, DAS or VHD) using two archiving paths. This is the solution of choice for customers where service availability is not essential or service availability is secured through virtual environment features (e.g. VMotion).
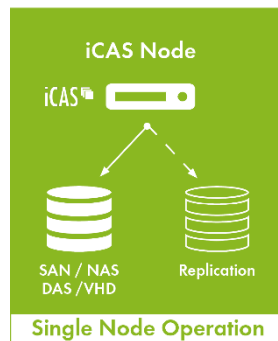
Key aspects and main advantages:

- Highly cost efficient

- Data replicated synchronously by iCAS *Additional Write Path* functionality to a different/second storage

- Backup of data can be performed on top by integrating archive-related data to your backup solution

Drawbacks:

- High availability cannot be achieved with one physical server

- Backup of data is mandatory if *Additional Write Path* is not in place

- If NAS is used as storage target, extra DAS (or SAN) storage is required for *iFSG BasePath* to ensure sufficient system performance

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