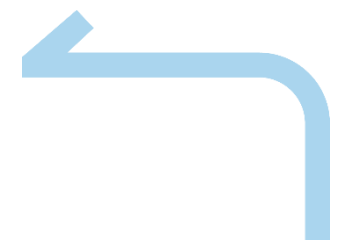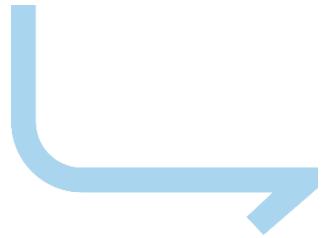# The Dilemma of High Availability

Date

Presenters:

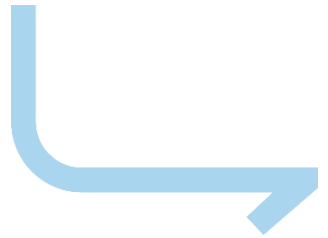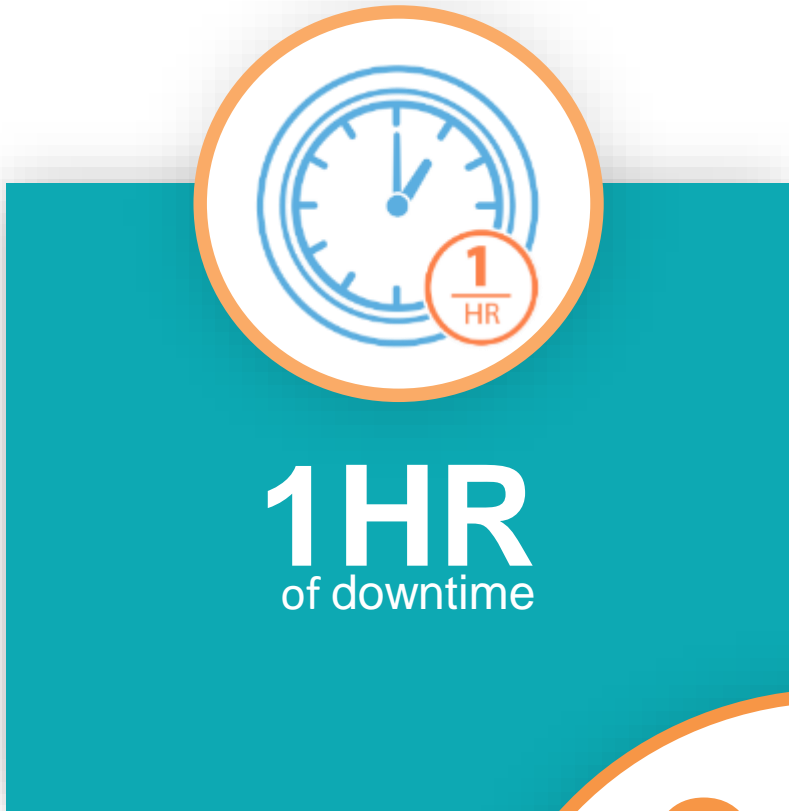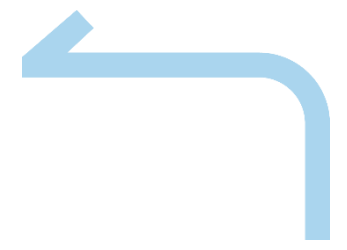**High availability of applications and databases**

is critical for many organizations

Downtime is expensive

1HR
of downtime

$300K
lost business, productivity disruptions and remediation efforts

1HR
of downtime

$1- 4M
lost business, productivity disruptions and remediation efforts

91%
of organizations

44%
of organizations
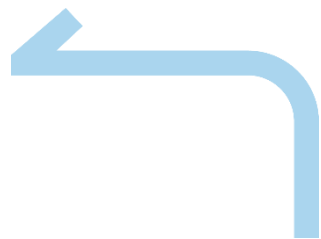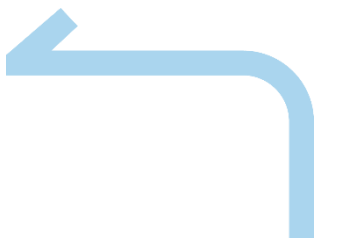
Data courtesy of ITIC 2021Global Server Hardware, Server OS Reliability Survey

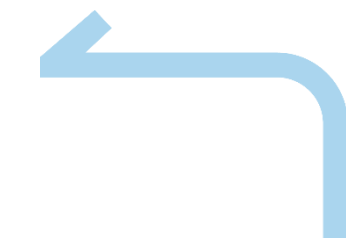**and affects many industries**

But downtime costs more than just $$$

If supply chains fail
- Supermarket shelves are empty
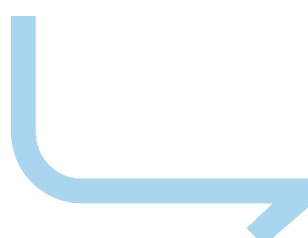- Gas stations run dry
- Deliveries are not made

If FinServ systems fail
- ATMs won't dispense cash
- Online purchasing is not possible
- Stock markets react impacting portfolios, pensions, and more

If Healthcare systems fail
- People miss appointments and operations
- Patient are put at risk
- People die
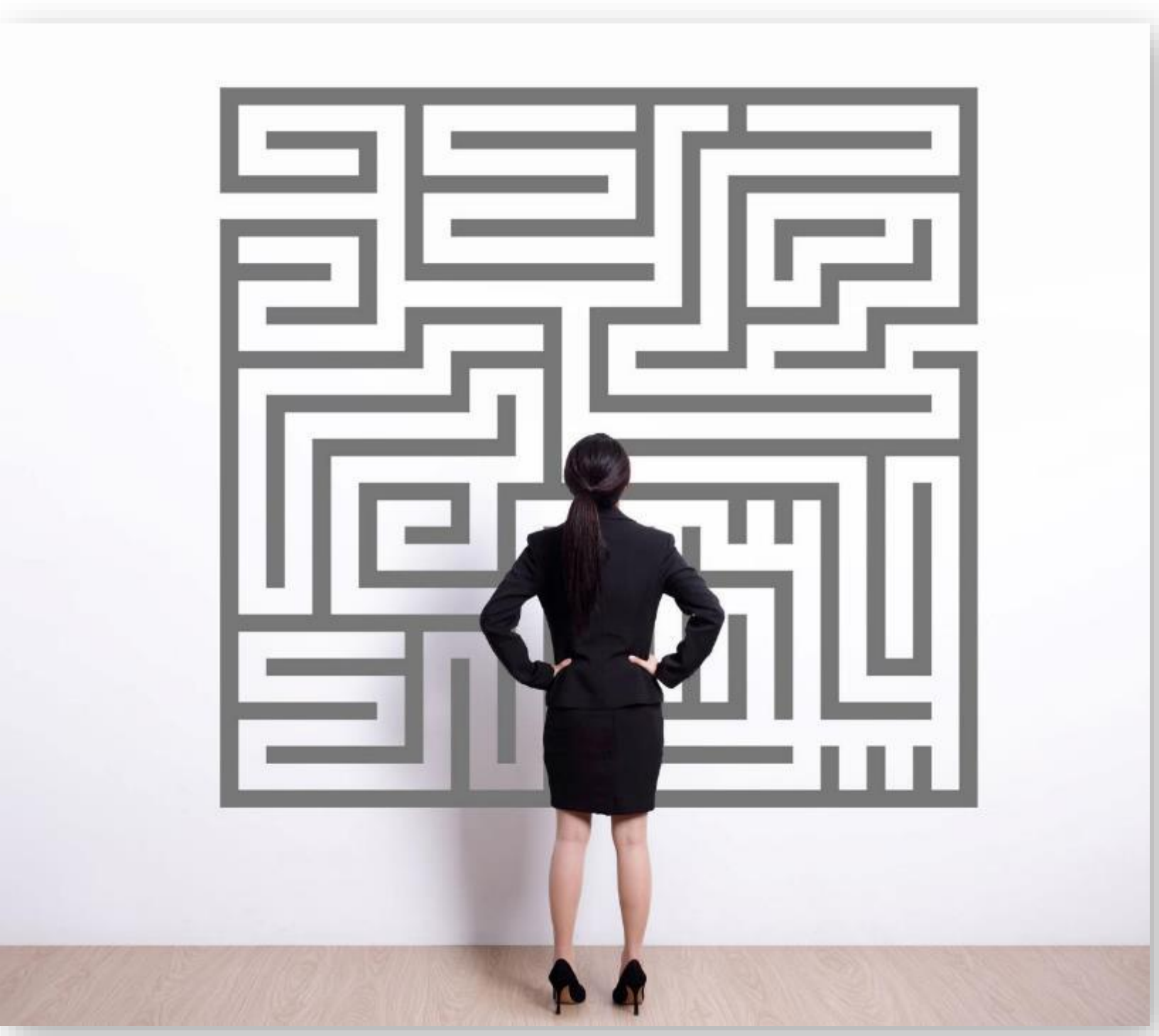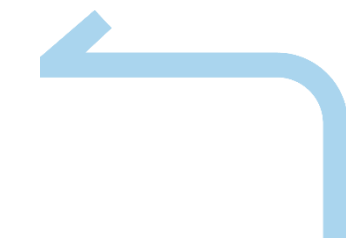
Ensuring the High Availability of systems is complicated
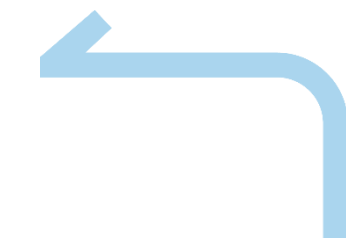
Some OS Vendors Offer HA

But HA offered by Linux vendors is....

Complex & manual

Notoriously unreliable & unstable

Costly & time consuming to keep up with changes
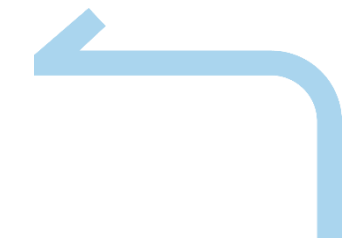
And Windows HA…

May require costly application upgrades

May limit disaster recovery protection

Clouds Offer
HA SLAs

- **99.94% Server Uptime**
- **Managed Services**

aws

Microsoft Azure

Google Cloud
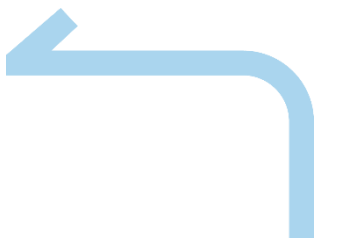
But Cloud SLAs
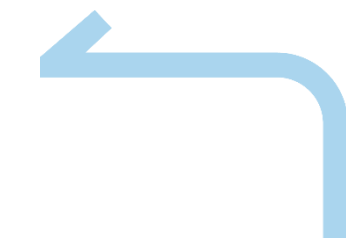
Don't protect against software failures

Don't enable DR protection across cloud availability zones and regions
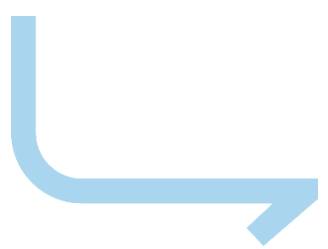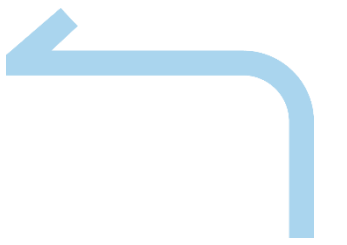
Applications Add More Complexity

Essential applications - SAP, HANA, Oracle and SQL Server to run their operations.

Every Application is Different
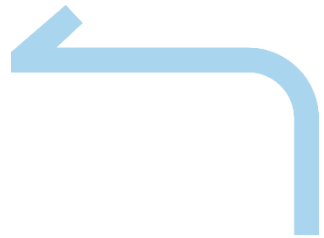
Specific configurations, boot orders, and settings that need to be applied for them to operate successfully

Require HA expertise to ensure reliable protection

Microsoft® SQL Server™

ORACLE® DATABASE

SAP HANA
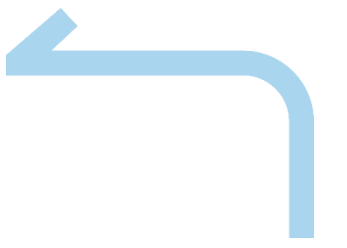
High Availability Presents a Dilemma

We need to ensure high availability

But the environments we want to protect are incredibly complex

And while the cloud seems like the perfect solution, it just adds even more complexity.
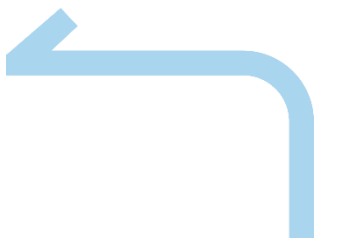
SIOS Solutions

SIOS Solutions
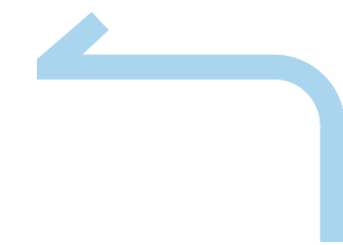
Protect essential business applications & databases

Remove the complexity of High Availability and Disaster Recovery

Enable the power of the cloud without the risks

The SIOS approach

SIOS orchestrates the seamless transition of application operation to secondary or remote systems in the case of hardware failure, power loss, or other unforeseen circumstances.
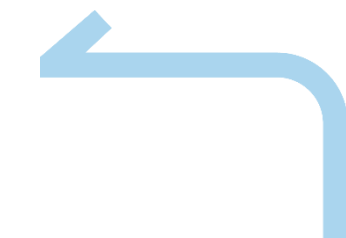
Typical High Availability Clustering

- Redundant server nodes ready in case of failure
- Shared storage - for low RPO
- Generic failover process

Failover

Primary Node

Redundant Node

Shared Storage
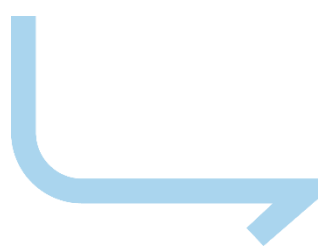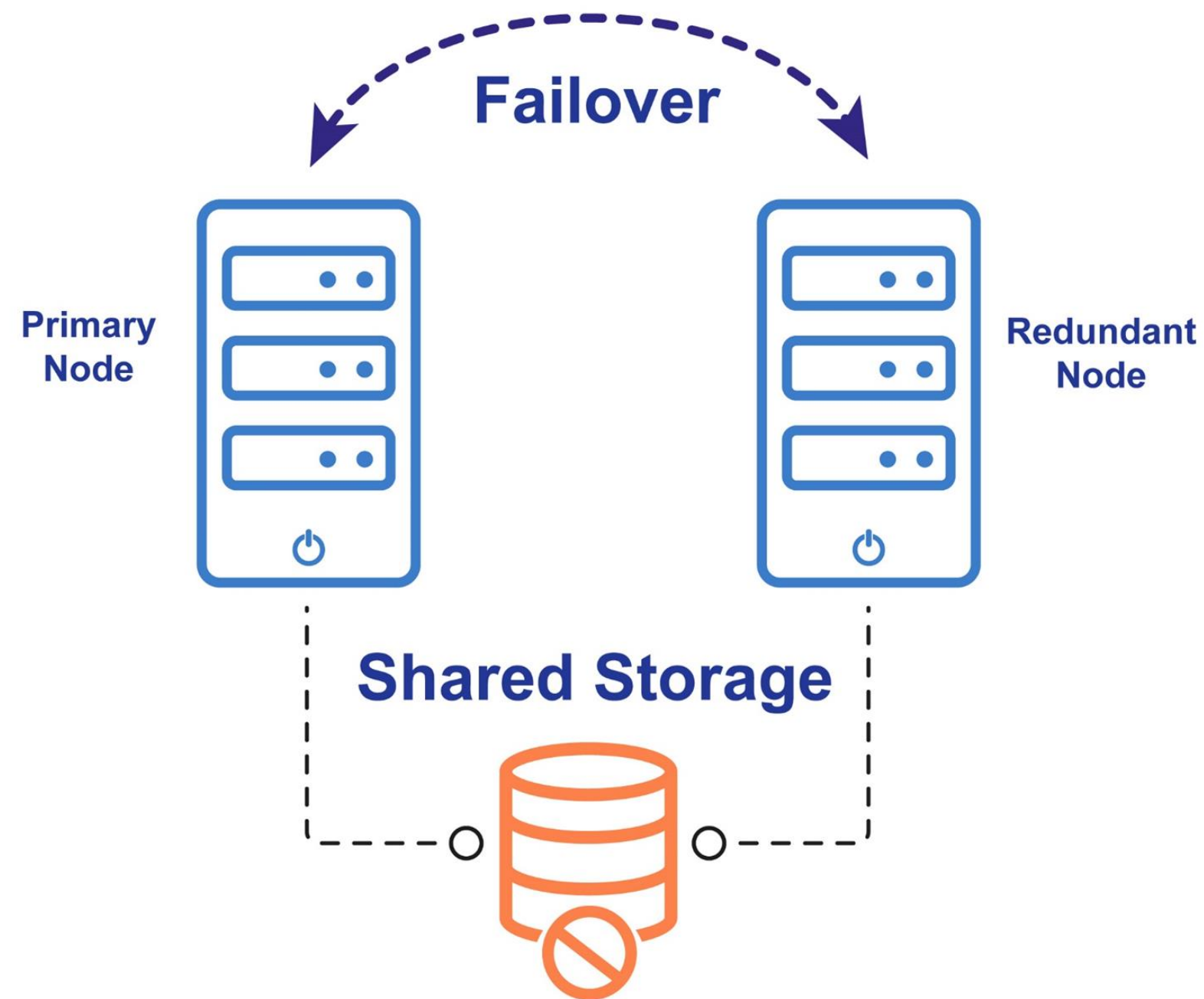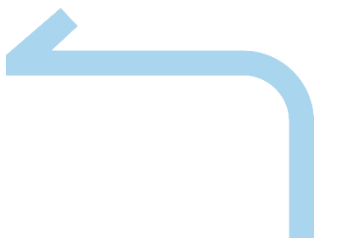
Typical High Availability Clustering

- Has a single point of failure
- Not available in some clouds, costly and complex in others

And every application is different

Failover

Primary Node

Redundant Node
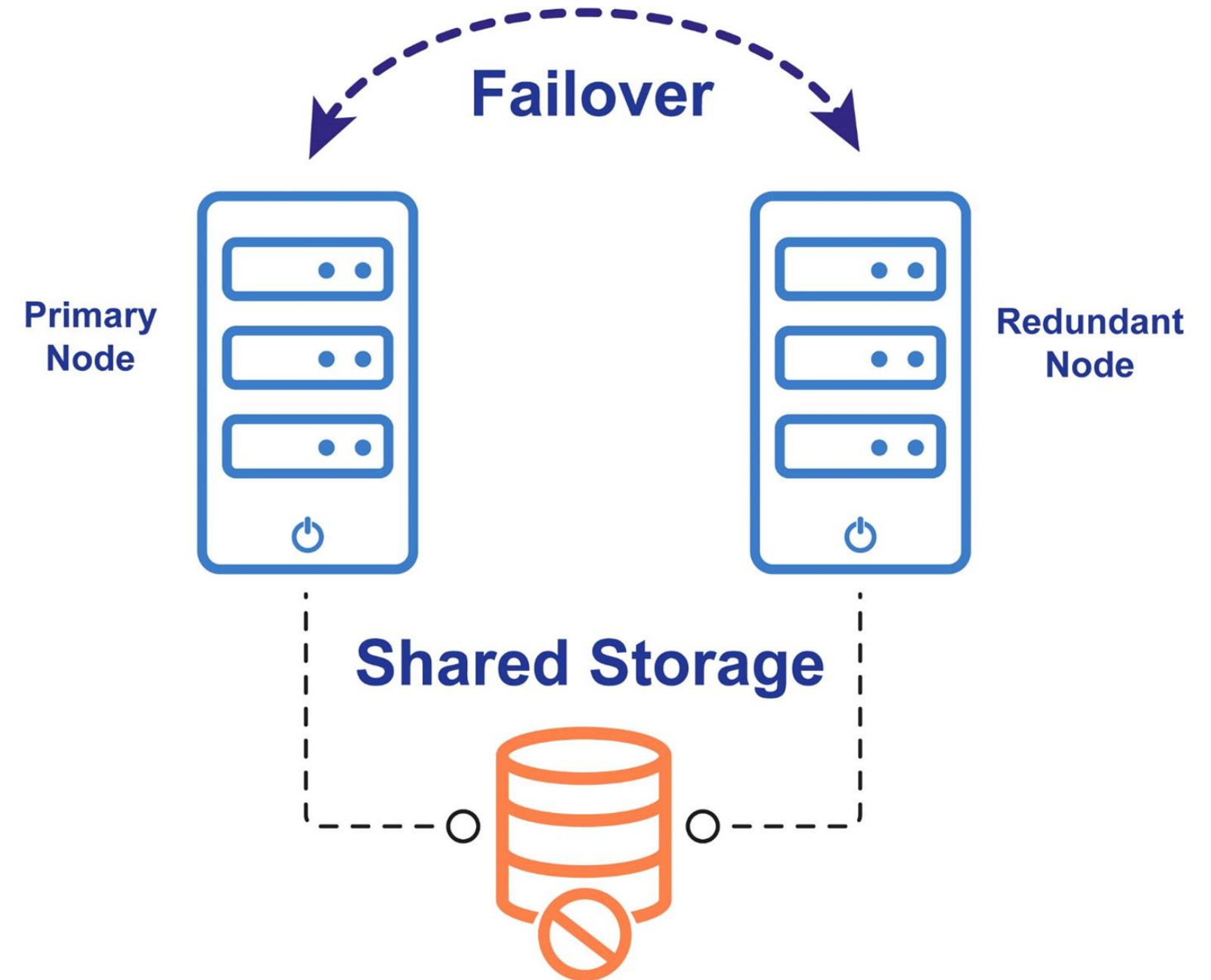
Shared Storage

SIOS Simplifies Cluster Complexity

Reliable

- Application-aware failover

Flexible

- Synchronized local storage or traditional shared storage
- On premises, cloud, hybrid cloud

Deep Expertise

- End-to-end guidance and support

Add Flexibility to Windows Server Failover Clustering
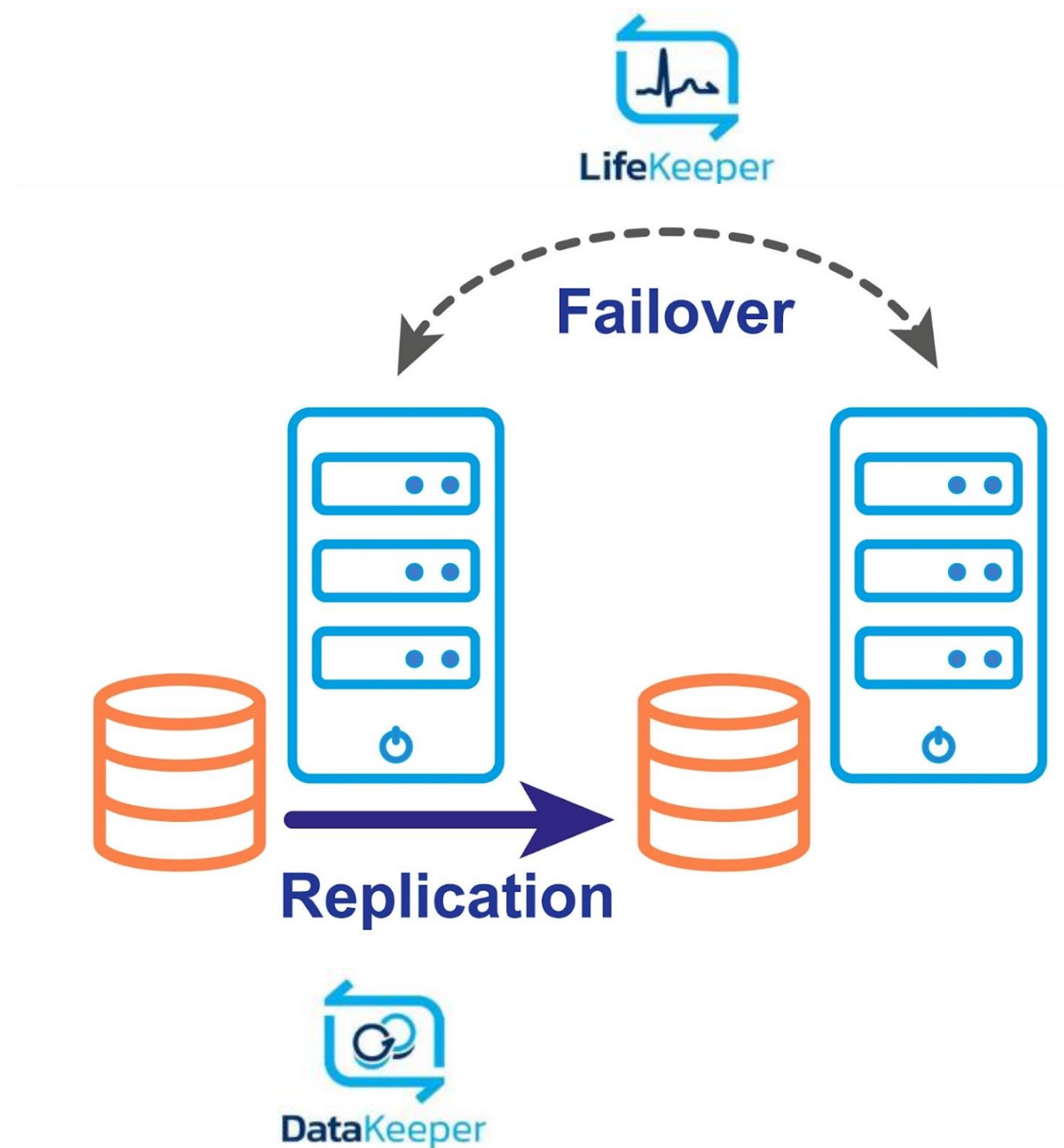
DataKeeper Cluster Edition

- Block-level data replication
- Clustering without shared storage
- Synchronous or asynchronous modes
- Works across cloud-regions and availability zones

✓ **Delivers advanced cluster protection for 70% less cost**
  - ○ Eliminates costly upgrades to SQL Server or Oracle
  - ○ Enterprise Edition just for HA

✓ **Widest support for SQL Server versions**

✓ **Enables WSFC in Cloud without Complex Shared Storage**

Simplifying Linux Clustering

- **Out of the box stability and tuning**
- Installs in less than 1 hour - 5x faster than SUSE HAE
- **Reduces maintenance and failover testing by up to 3 days**
  - per cluster
  - per year

LifeKeeper

- High-availability failover clustering
- Single - or multi-site configs
- Any backend storage
- Automatic or push-button failover

Unparalleled Reliability

SIOS LifeKeeper Clustering Software Includes Application-specific Recovery Kits (ARKs)

- Wizard-driven configuration **for 5X faster deployment** than open source clusters
- Input validation for **configuration accuracy**
- Application-awareness ensures application best practices are maintained **for reliable HA**

Unique Application Recovery Kits

Services

- Apache
- Samba
- NFS
- LVM
- SW Raid (md)

Applications

- SAP
- WebSphere MQ
- Any Custom App

Databases

- Oracle
- MySQL
- PostgreSQL
- DB2
- SAP
- Skybase
- MaxDB

Storage

- Data Replication
- Hitachi HDLM
- EMC PowerPath
- DMMP
- NAS
- IBM SDD
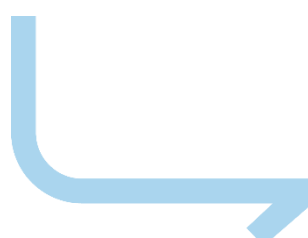
SIOS Protection Suite
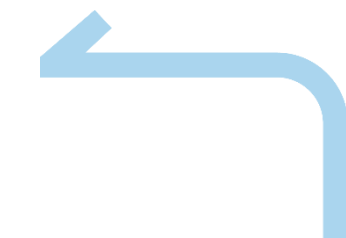
DataKeeper

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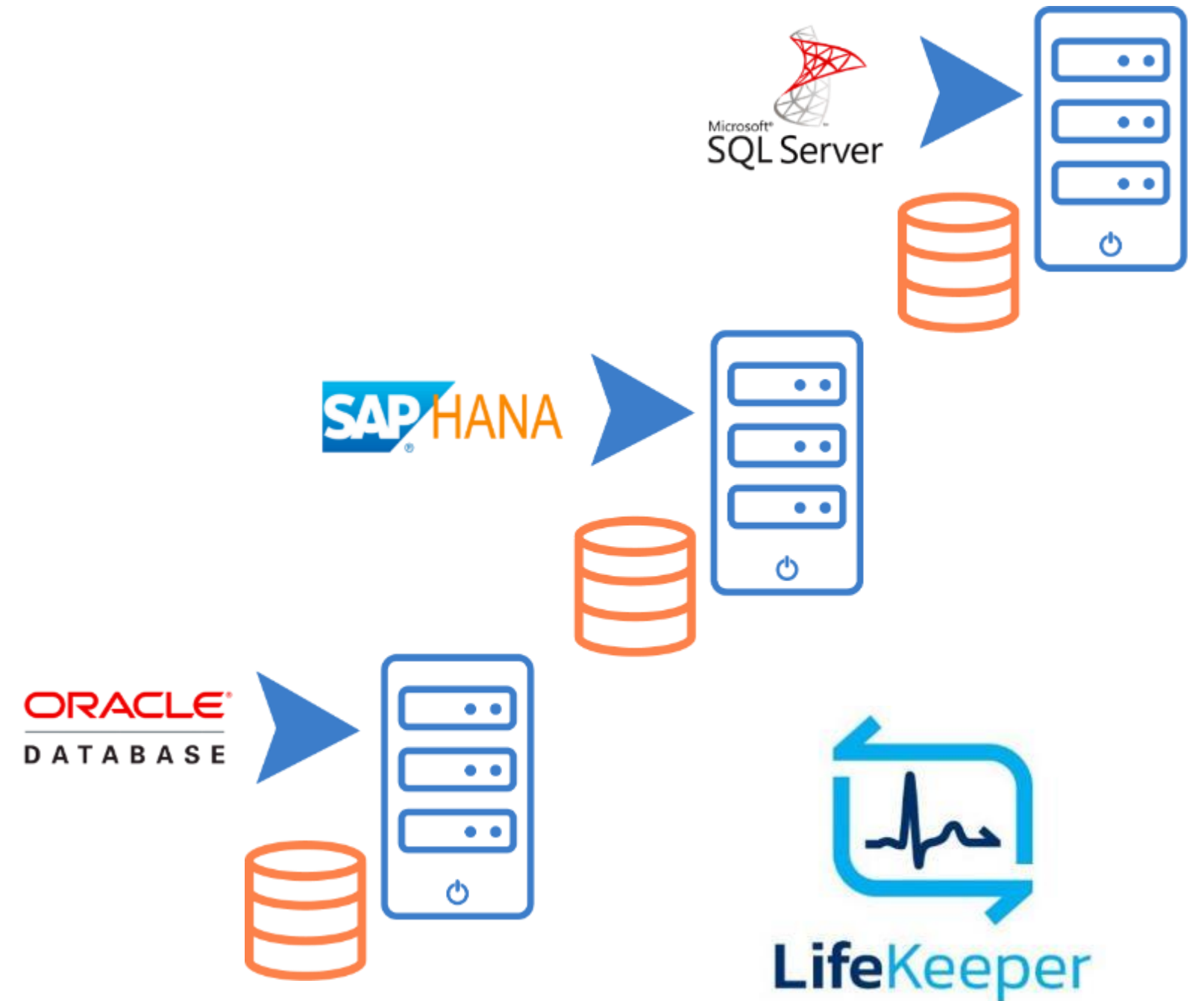- Works across cloud-regions & availability zones

\+

LifeKeeper

- High-availability failover clustering
- Single- or multi-site configurations
- Any backend storage
- Automatic or push-button failover

SUSE   RedHat   Microsoft   aws   Microsoft Azure   Google Cloud   ORACLE DATABASE   SAP HANA   Microsoft SQL Server

SIOS Protection Suite
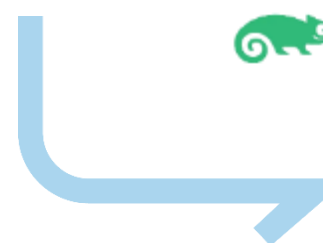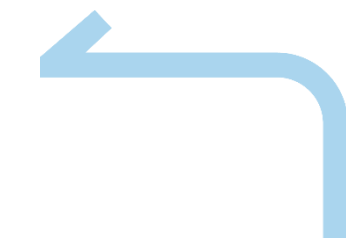
Application Recovery Kits
provide predefined configuration
for rapid deployment and complete protection

DataKeeper

- Block-level data replication
- Clustering without shared storage
- Synchronous or asynchronous modes
- Works across cloud-regions & availability zones

LifeKeeper

- High-availability failover clustering
- Single- or multi-site configurations
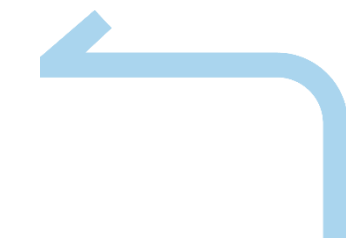- Any backend storage
- Automatic or push-button failover

Single Solution

SIOS provides a consistent and complete clustering and failover solution to enable **high availability and disaster protection** for Essential **Applications and Databases across on-premises, cloud, and hybrid** environments
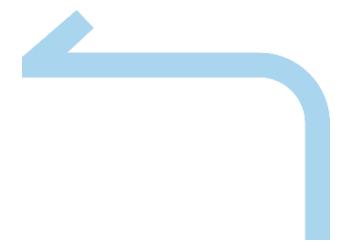
SIOS Use Cases

Financial Services

Call Center & Emergency CADD

Healthcare

Manufacturing

Building Management & Security

Retail

HA for SAP on Azure
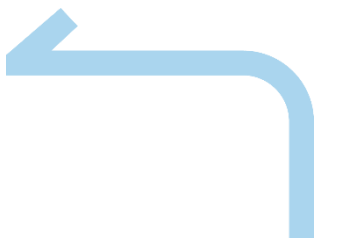
Manufacturing

The Environment
- Moving all Windows systems to server 2019
- Expanding SAP infrastructure with SAP HANA

The Challenge
- Required cost-effective SAP-Certified HA solution
- Ensure High Availability Solution in Azure is as robust as their on-premises infrastructure

The Solution
- SIOS DataKeeper Cluster Edition software to WSFC to build 2-node failover clusters Azure

The Results
- Fast, Efficient Implementation
- SAP Azure environment needed to expand by an additional 25 Clusters / 50 SIOS DKCE licenses
- Robust, SAP-Certified High Availability Protection

HA for SAP on AWS

Manufacturing

The Environment
- 50 complex SAP workloads, over 200 Servers
- Had on-premises SAP Linux
- Migrating to SAP ERP SUSE SLES Linux on AWS

The Challenge
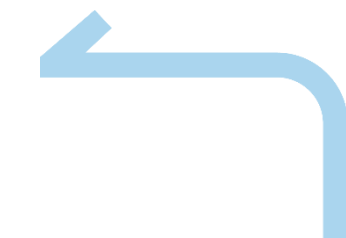- Required cost-effective SAP-Certified HA solution
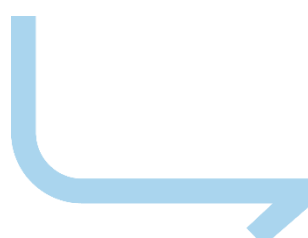- Ensure HA in AWS is as robust as on-premises infrastructure
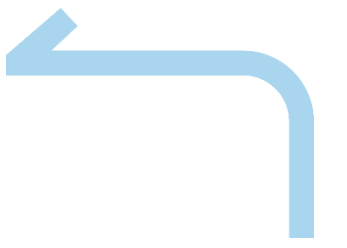- Short timeframe for migration

The Solution
- SIOS Protection Suite in AWS on SAP Linux Enterprise

The Results
- Fast, Efficient Implementation
- Significant overall cost reduction
- Configuration Wizards met short timeframe requirement
- Robust, SAP-Certified High Availability Protection

SUSE

aws

HA for SAP on Oracle

The Environment
- 30+ SAP Systems
- End of support hardware environment
- On-premise SAP on AIX + Oracle
- Migrating to Red Hat Enterprise Linux (RHEL)
- Adaptive Server Enterprise (ASE) on AWS

The Challenge
- SAP-Certified HA solution required
- Ensure HA in AWS is as robust as on-premises infrastructure

The Solution
- SIOS DataKeeper for SANless Clusters in AWS on Red Hat Linux Enterprise

The Results
- Fast, Efficient Implementation using configuration Wizards
- Robust, SAP-Certified High Availability Protection

Manufacturing

Enabling the World's Largest SAP Deployment in Azure

The Environment

- Largest SAP deployments in Azure worldwide
- 32+ nodes running large MS SQL server databases

The Challenge

- Bit Level replication to DR site flooding bandwidth and reducing reliability
- Needed reliable, efficient High Availability solution for Improved (RPO/RTO)
- Existing replication software had minimal features for bandwidth throttling etc.
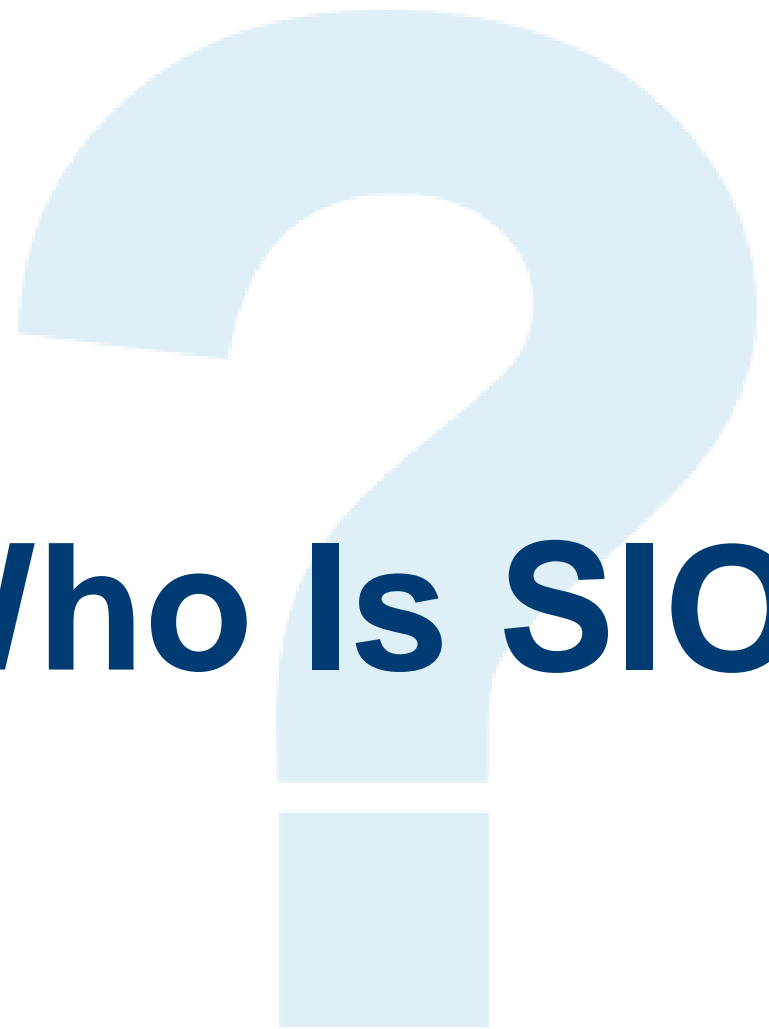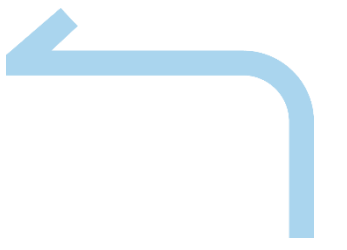
The Solution

- SIOS DataKeeper enabled the use of MS Windows Failover Clustering without a SAN

The Results

- Delivered HA and DR protection of critical SAP Central Services servers across MS Azure Fault Domains

Who Is SIOS?

SIOS Technology Corp.

- Founded in 1999
- Headquarters in San Mateo, CA
- Offices in
  - Across US
  - United Kingdom
  - Germany
  - Singapore
  - Japan
- 2021 Cloud Computing Product of the Year

Leading Experts in High Availability and Disaster Recovery

- 20+ Years focused on HA/DR

- 80,000+ licenses installed globally

- Microsoft Partner Since 2007
  - Microsoft Azure Certified
  - Offerings in Azure Marketplace

- AWS Partner Since 2014
  - ISV-Accelerate
  - Strategic AWS Microsoft Workload Competency Partner
  - Offerings in AWS Marketplace

- SAP-Certified
 - SIOS Protection Suite for NetWeaver HA and S4/HANA HA

Award-winning Customer Service and Support

- 2022 Gold Stevie® Award - Customer Service Team of the Year

- 2022 Cloud Computing Excellence in Customer Service Award

- 2021 Silver Stevie® International Business Award - Customer Service Department of the Year

- Support and R&D Engineers in Columbia, SC

- Average 7 Years HA Support with SIOS

- Cloud Certification, Stringent, Ongoing Training

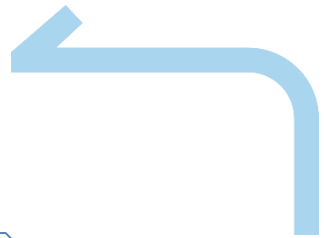- 24/7/365 Emergency Coverage Worldwide
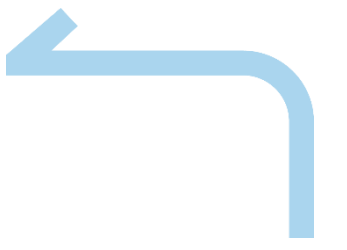
Expert Professional Services

- Services Packages to Meet Your Needs
- Configuration and Setup Assistance
- HA Health Checks and Best Practices
- Run Book Development and Management
- Custom Programs
- Trained, Certified HA/DR Specialists

End-to-End Expert Support
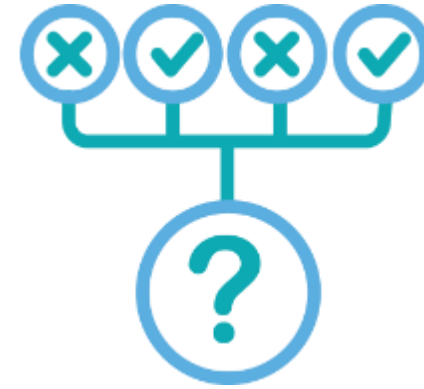
Professional Services Team

- POC Planning
- POC Setup and Testing
- Custom Services

- Installation Services

- Health Checks
- Training
  – Installation,
  – Troubleshooting
- Custom Services

Choose the right product

POC and Test

Configure and Go Live

and Maintain Reliable Protection
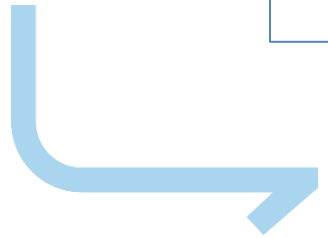
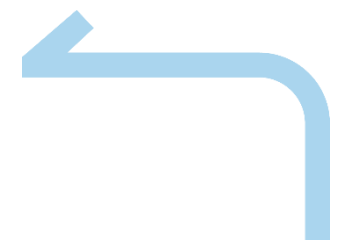## Customer Success Team

Product Recommendations

Sample Test Plans, Imp. Guides

High Level Q&A, Go Life Checklist

Support Team

Technical Support (TSA)

SIOS Use Cases

Financial Services

Call Center & Emergency CADD

Healthcare

Manufacturing

Building Management & Security

Retail
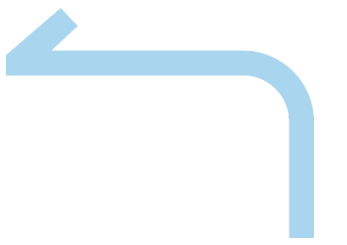
To learn more visit
us.SIOS.com
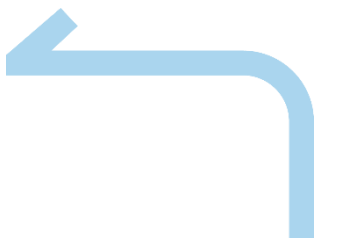
Microsoft Partnership

- **Strategic Partnership since 2007**
  - Silver Application Development
- **Marketplace, AMI for Windows**
  - Bring Your Own License and Pay-as-You-Go
  - [Azure Stack Market Place (BYOL) Windows](#)
  - Certified across multiple applications and OS
    - SAP, Oracle, SQL, Windows, Linux, etc.
- **100+ Joint Customers Marquee Accounts**
  - Rio Tinto, Mosaic, National Life Group, Atento, John Hancock Insurance, Mars, Arthex, Acco Brands, Zespri. (edited)

Azure Partnership

- **AWS Partner Since 2014**

- **Differentiated Software Partner**
  - Strategic AWS Microsoft Workload Competency Partner
  - ISV-Accelerate

- **Quickstarts and Offerings in AWS Marketplace**

- **Hundreds of Joint Customers**
  - NFL, Delmonte, Bose, Dept. of Justice, ESPN, Thermo-Fisher