Simple High Availability for Any Application in Cloud or On-Premises

Clusters Your Way™
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The Traditional Data Center No Longer Exists
Critical Applications Have Service Level Agreements
Goals
- Keep the business running
  - Minimize downtime
  - Eliminate data loss
  - Maintain data integrity

Techniques
- Build HA into the application
- Build redundancy into the infrastructure
  - Transparent application recovery
  - Transparent data replication
Achieving Availability

Managing Failures

Detect | Recover | Continue

----------  Recovery Time Objective  ---------

1  2

SIOS
Measuring Availability

RTO, RPO, Nines

- **RTO**
- **RPO**
- **99.99%**
Availability Basics

AL0: Unprotected Servers
All service stops

Source: IDC
Clustering – The “Go-To” HA Solution
High availability and Disaster Protection

- **Protect** mission-critical applications – SQL Server, SAP, Oracle

- **Failover** for high availability
  - Moves operation of application to a standby server

- **High Availability & Disaster Recovery**
The New Data Center Needs High Availability
Without Depending on Shared Storage
Anatomy of a Flexible HA Cluster Solution
SANless or SAN - Based

Physical, Virtual, Cloud, or Any Combination

Application Recovery Kit (ARK)
Recovery Orchestration

Data Redundancy

SAN and SANless Clusters

Discover
Recover
Continue

Physical
Cloud
Hybrid

Data Plane

RPO

RTO
SIOS SANLess Clusters – High Availability & Disaster Recovery

- **Out-of-the-box cluster solution, for any platform, OS, application comprehensive coverage, reliable availability**
- **Multi-node, Active Standby Failover Clustering and GEO-Clustering**
- **True “4 9’s” Availability (<60 minutes downtime/year)**
- **Wide RPO, some automation (eg. Replication, Recovery, DR)**
Our Products – Clusters Your Way
SAN & SANless Clusters for Physical, Virtual, and Cloud Environments

DataKeeper Cluster Edition
Enhancing Windows Failover Clustering

SIOS Protection Suite
Enterprise-Ready Linux Clusters
SIOS High Availability Clustering

High availability for mission critical environments

Platforms
- EC2
- Windows Azure
- Google Cloud Platform
- VMware
- Windows Server
- Hyper-V

OS
- SUSE
- Red Hat Linux
- Windows
- CentOS
- Linux

Applications
- SAP
- SQL Server
- IBM DB2
- Oracle
- PostgreSQL
SIOS Protection Suite For Linux
Technical Overview
SANLess Clustering in Amazon AWS

US-East

Availability Zone 1

Failover

Replication Across Availability Zones

Availability Zone 3

EC2 Instance 1

SAP

EC2 Instance 2

EC2 File Share Witness

Availability Zone 3
SANLess Clustering in Azure

Azure-West

Failover

Replication Across Fault Domains

Fault Domain

Fault Domain

SAP1

SAP2

DC2

File Share

Witness
SANLess Clustering in Google Cloud

Failover

Replication Across Fault Zones

US-West
SPS for Linux - Overview

**SIOS Protection Suite for Linux**

- **LifeKeeper**
  - High Availability Failover Clustering
  - Supports Single or Multi-Site Configs
  - Leverage any backend storage (FC SAN, iSCSI, NAS, etc)
  - Automatic or Push Button failover

- **SIOS DataKeeper**
  - Host Based, block level replication
  - Enables Clustering without shared Storage
  - Synchronous or Asynchronous modes

- **Application Recovery Kits**
  - Application level monitoring/failover
  - Out of the box, Wizard based setup
SIOS DataKeeper Replication

- Key Features:
  - Host-based data replication leveraging existing LAN/WAN
    - Multi-target Replication
    - Automatic reversal of source/target during failover
  - Block-Level, Volume/LUN replication
    - Change-only replication
    - Very low overhead
  - Modes: Synchronous or Asynchronous
  - Prevents full re-syncs via bitmap file
Recovery Kit Overview

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

- **Applications**
  - SAP
  - WebSphere MQ
  - Any Custom App

- **Databases**
  - Oracle
  - MySQL
  - PostgreSQL
  - DB2
  - SAP HANA
  - Sybase
  - MaxDB

- **Storage**
  - DMMP
  - NAS
  - EMC PowerPath
  - Hitachi HDLM
  - IBM SDD
  - Data Replication

- **Protect Any Application**
SIOS Protection Suite for Linux

SAP® Certified
Integration with SAP NetWeaver®
SIOS Protection Suite for Linux - Overview

- Protection for key SAP components:
  - Primary Application Server (PAS)
  - ABAP SAP Central Service (ASCS)
  - SAP Central Services (SCS)
  - Enqueue and message servers
  - Enqueue Replication Server (ERS)
  - Database (Oracle, Sybase, MaxDB, HANA, etc)
  - Shared and/or Replicated File Systems
  - Logical Volumes (LVM)
  - NFS Mounts and Exports
  - Virtual IPs
SAP HANA DB - Overview

• SPS provides protection for key SAP HANA DB components:
  • SAP HANA Host Agent
  • SAP HANA sapstartsrv
  • SAP HANA Replication
  • Enables automated SAP HANA replication takeover
  • Verifies and monitors that the HANA DB is running
High Availability SAP in Cloud

Application Servers
SAP Central Services
ASCS/SCS/PAS/ERS

Database Servers
Availability Zone
Availability Zone
2nd Region DR Site

3 Node configuration to manage Regional Disasters
**RPO+Zero Recovery Point Objective**

Data Protection

*Out of the box protection for SAP, Oracle and more. Protect all layers of the stack (HW, OS, Network, DB, Apps)*

**RPO is about how much data you can afford to lose before it impacts business operations often used in defining SLA’s**
SIOS Protection Suite for SAP with MaxDB

AZURE

ILB or VIP MGMNT

SAP SIOS Cluster

MaxDB SIOS Cluster

SPS and SAP, ARKs

SPS and MaxDB, ARKs

State: Active
State: Stand-by
Database
SAP Central Instance
SAP Central Server Services
Application Server

SAP Certified Integration with SAP NetWeaver

SIOS
Easy to Deploy and Use

- Simple User Interface
- Monitor and Administer your clusters via a single, intuitive interface
- Accessible via a web browser, or native X11 Linux application
- Command Line Interface (CLI) also provided
- Dependencies
- Hierarchy
SPS for Linux - Summary

Best-In-Class Solution for High Availability and Data Replication

**Application Aware**
- Out of the box protection for SAP, Oracle and more
- Protect all layers of the stack (HW, OS, Network, DB, Apps)
- No scripting required

**Flexible Storage Options**
- FC SAN, iSCSI, NAS, Local Storage, etc

**Easy to Setup and Manage**
- Intuitive, Wizard based GUI for full cluster setup and management

**Cost Effective and Fast to Deploy**
- Use existing server and storage infrastructure
THANK YOU!

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