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SysAid Cloud Architecture Including Security and Disaster Recovery Plan

This document covers three aspects of SysAid Cloud:
- Datacenters
- Network, Hardware, and Software Components
- Disaster Recovery Plan

The technical details in this document refer specifically to SysAid Cloud in Europe.

SysAid - Your Sensible Cloud Solution

SysAid Cloud is your sensible cloud solution. We've got every scenario covered! SysAid takes customer data recovery very seriously. We minimize risk, ensure business continuity and carefully select a hosting plan to ensure the highest standards on our DRP plans. We have datacenters on all 4 corners of the Earth - USA, Europe, Australia and the Middle East. Your data is always protected by firewalls that adhere to the highest standards. Our disaster recovery plan gives you the peace of mind that your business requires.

Datacenters

SysAid Cloud is available in four different regions, hosted in third-party state-of-the-art datacenters.
The SysAid Cloud regions are:

USA

- **US-P1** is hosted in Atlanta, Georgia with PEER 1 Hosting (SSAE-16 TYPE II certified and PCI compliant)
- **US-AWS** is hosted on three availability zones in Virginia with Amazon Web Services (SSAE-16 TYPE II certified, ISO 27001 compliant, HIPAA compliant, PCI compliant, **and more**)

Europe

- **EU-AWS** is hosted on three availability zones in Ireland with Amazon Web Services (SSAE-16 TYPE II certified, ISO 27001 compliant, HIPAA compliant, PCI compliant, **and more**)

Australia

- **AU-AWS** is hosted in Sydney with Amazon Web Services (SSAE-16 TYPE II certified, ISO 27001 compliant, HIPAA compliant, PCI compliant, **and more**)

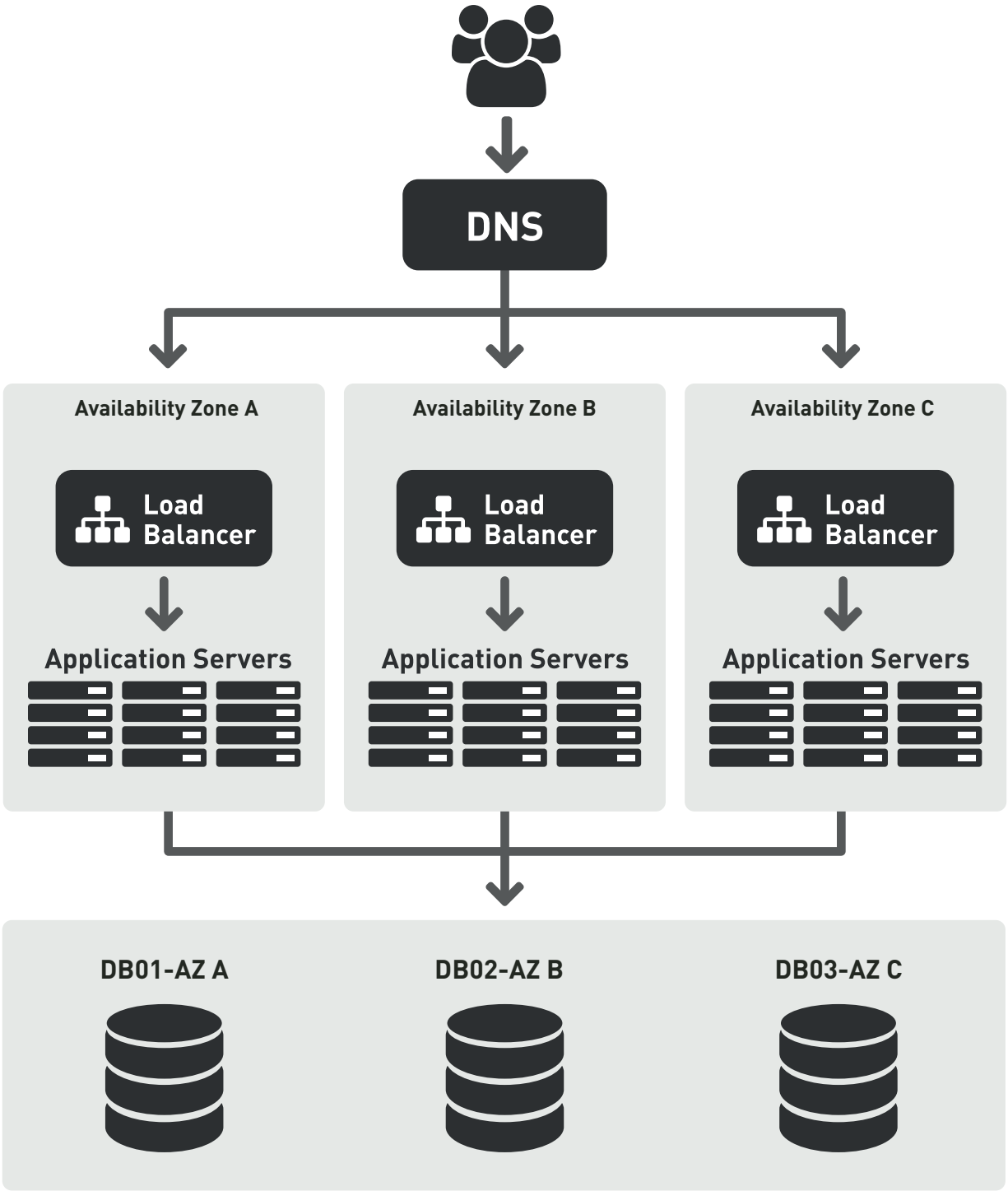
Middle East

- **IL-TC** is hosted in Petah-Tikva, Israel with Triple-C

Each datacenter may have a slightly different architecture. **This document relates to EU-AWS.**

Network, Hardware, and Software Components

Environment Diagram



DNS
Using AWS (Amazon Web Services) Route 53, we are able to point requests to three load balancers (located in different availability zone) in Active-Passive-Passive mode. Each account points to the same load balancer as long as it operates properly and will automatically fail over to any of the other two load balancers in case the primary one fails.

Firewalls
All servers are protected by strict security policies defined in AWS. In addition, each server is also protected with another layer of the software firewall.

Load Balancers
Using high-availability load balancing technology, we are continuously checking application servers' health and are forwarding requests to the least busy application server at a given time. In case an application server fails, the load balancer is configured to alert our team of engineers and prevent forwarding any request to the downed application server.

Application Servers
The application servers that are used to operate SysAid run on Apache Tomcat. Each instance runs N+1 application server nodes, which are spread across three availability zones so that the instance can remain operational even if any application node or availability zone is failing.

Database Servers
SysAid is storing most data (except some configuration and attached files) in a MySQL database. The environment runs on a Percona XtraDB cluster with three servers in master mode (running in three different availability zones). This allows the data to be replicated in real-time to multiple nodes, which then allows the database cluster to continue to function properly even in the event of one or even two database servers failing, with zero data loss.

Shared Storage
A designated server is used to manage the shared storage for all the servers in the environment. It holds all files uploaded to the application (attachments) and some configuration files (customized reports, translation, customized HTML files, images, etc). These shared files are replicated every 15 minutes to a second server, so at worst case scenario 15 minutes of data loss may occur (while a more realistic scenario is that the lost data should be recoverable at a later time).

Host Hardware
SysAid Cloud is running on virtual machines running 64-bit Amazon Linux AMI (based on Red Hat Enterprise Linux). Each guest is made with enough resources to fulfil its purpose (e.g. database servers are running with plenty of CPU power and high-speed SSD hard drives). All components are redundant in three availability zones, so even if Amazon is experiencing complete datacenter failure, the remaining two availability zones should remain functional and no disturbance should be noticed.

SysAid Cloud Security
ISO 27001 dictates that AWS data centers are secured with the highest standards and monitored regularly. To read more about Amazon's security, please refer to **AWS Security Center**.

Network Security
- Data servers are protected by a firewall to ensure that no unauthorized traffic can reach the servers.
- Access to the servers is restricted to approved IP addresses and requires a private key authentication.

Server OS Security

- All OS or other back-end patches are applied immediately for security patches and in 1–5 days for non-security patches.
- Full security audits of the server logs are performed on a periodic basis.

Application Security

- SysAid is (optionally or forcibly) accessible via HTTPS to ensure that data in-transit is secure.
- Regular and thorough application security testing is performed at all stages of development to ensure that the application interface can't be exploited.
- A complete vulnerability assessment (including penetration tests) on the live environment is periodically performed by external security experts.
- Data for each customer is stored in its own database, ensuring that there is no data leakage.

Human Factor Security

- Access to the servers is restricted to the server administrators, an approved representative of the support team, and an approved representative of the development team (access is revoked if no longer necessary).
- In no cases do any of these administrators look at actual customer-entered data without the express written consent of the customer.
- Server logins are reviewed daily.
- Any changes made to the cloud environment follow a predefined change process, including approvals, as specified by ITIL best practices.

Data Integrity and Continuity

- All components of the system are redundant, so that no single component is a single-point-of-failure.
- All data is continuously replicated between the three availability zones, to ensure that your data is always safe and that your business processes can continue uninterrupted even in the midst of a crisis.
- All data is backed up on a daily basis. Backups are stored at a remote site within the European Union.
- The DRP is fully tested on a periodic basis to ensure successful failover upon request.
- SysAid follows ITIL best practices for problem management to ensure than any incidents that affect service are thoroughly investigated and don't recur.

Disaster Recovery Plan

SysAid Cloud is hosted on three different availability zones within Amazon's region. With almost all components available on each availability zone, most failures should go unnoticed to the users.

Scenario 1 **Load Balancer Failure**

Description:
The load balancer terminates or loses connection to the network or application.

Actions:
The DNS monitoring the load balancers will identify that the load balancer is failing and will automatically redirect all users to one of the other two load balancers. Aside from the automated procedure, the Cloud Infrastructure Team will be notified and will focus on fixing the failing load balancer.

Potential Downtime:
Between none and 300 seconds (local DNS cache).

Potential Loss of Data:
None. No data is stored on the load balancer, except the users' sessions (loss of users' sessions may require users to authenticate again).

Scenario 2 Application Server Failure

Description:
The application server terminates or loses connection to the database.

Actions:
All load balancers will identify that the application server is failing and will automatically remove it from the application cluster. All other application servers should continue serving users' requests. Aside from the automated procedure, the Cloud Infrastructure Team will be notified and will focus on fixing the failing application server.

Potential Downtime:
Between none and 30 seconds. Downtime applies only to some of the users (the ones that were redirected to the failing application server).

Potential Loss of Data:
None. No data is stored on the application server, except the users' sessions (loss of users' sessions may require users to authenticate again).

Scenario 3 Database Server Failure

Description:
The database server terminates or loses connection to the rest of the database cluster.

Actions:
The database cluster will identify that the database server is failing and will automatically redirect connections from the application server to one of the remaining two database servers. Aside from the automated procedure, the Cloud Infrastructure Team will be notified and will focus on fixing the failing database server.

Potential Downtime:
Between none and 1 second.

Potential Loss of Data:
Data entered during the time it took the cluster to realize the database server was down might be lost. In such a case, SysAid should show an error message indicating that the data was not saved.

Scenario 4 Complete Datacenter (Availability Zone) Failure

Description:
The entire datacenter (availability zone) terminates or loses connection to the other availability zones.

Actions:
In essence, even if all the above three scenarios occur simultaneously, the DNS will redirect all requests to a load balancer on the remaining availability zones. Then the load balancers will redirect all requests to the remaining application servers, and the database cluster will redirect all requests to a database server on one of the remaining availability zones. Aside from the automated procedure, the Cloud Infrastructure Team will be notified and will focus on fixing the failing application server.

Potential Downtime: Between none and 30 seconds.

Potential Loss of Data:
None. No data is stored on the application server, except the users' sessions (loss of users' sessions may require the users to authenticate again)

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About SysAid Technologies

SysAid Technologies Ltd. is a leading provider of IT Service Management (ITSM) solutions that integrate all of the essential IT tools into one service desk. Available as a cloud-based or on-premises solution, SysAid's ITIL-certified software streamlines day-to-day IT activities so that administrators can deliver fast and comprehensive support.

Founded in 2002 by Israel Lifshitz, SysAid Technologies serves a constantly growing user base of over 100,000 IT admins in more than 140 countries worldwide, and is available in 42 languages. With scalable solutions for organizations of all sizes, from SMBs to Fortune 500 corporations, SysAid is deployed at companies in multiple industries.

At the forefront of service excellence, SysAid is committed to delivering first-rate technical support, providing a wide range of services and training initiatives. Our customers, beginners and advanced users alike, benefit from personalized web demonstrations, free webinars, training programs, and onsite professional services.

We believe that keeping up with the times does not have to mean more complex or costly solutions. True to SysAid's trademark of simplicity, we guarantee to uphold our commitment of providing an ease-of-use experience that will simplify the ever-complicated tasks of the IT professional.

SysAid has offices in Israel, Australia, Brazil, and the United States. For more information, please visit **www.sysaid.com**