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The Zero Outage Industry Standard Association

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The Zero Outage Industry Standard Association (ZOISA) (https://www.zero-outage.com) is focused on minimizing the risk of users suffering from IT outages. It is creating IT standards that will help users to confidently make use of systems and services that are less likely to be affected by crashes and outages. As one who deals extensively with highly available systems, it is clear to me that a standards organization that deals in reducing outages is sorely needed by the industry. However, I am not sure that this association is going to achieve its goals. At least so far, its outlook is much too generic.

Launched in November, 2016, the association is headquartered in London, United Kingdom. Its founding members include Brocade, Cisco, Dell EMC, Hitachi Data Systems, Hewlett-Packard Enterprise, Juniper, NetApp, SAP, SUSE, T-Systems, and IBM. There are many other large organizations with a stake in IT availability, and I wonder why they are not cooperating in ZOISA.

Zero Outage is currently in the process of defining what is required to achieve a zero-outage IT environment. IT failures can result from technical defect, human error, or flawed, inconsistent, or ineffective organizational processes. ZOISA seeks to standardize the quality of IT platforms, people, processes and security throughout the IT life cycle.

ZOISA's zero outage industry standards reflect several parallel trends:

- The ongoing digitalization of the enterprise.
- The growing importance to businesses of being able to maintain uninterruptible services to their customers.
- The real cost to businesses caused by service interruptions and outages.
- The desire among industry manufacturers to find new commercial opportunities and ways of boosting productivity in an increasingly competitive marketplace.

ZOISA

As ZOISA points out,

> "Digitization is in full swing: Machines communicate with each other, processes are becoming more efficient, and automation is an integral part of the process. But this can only work if the IT behind it runs smoothly. A failure, even for a few minutes, can have fatal consequences. If production bands are stopped due to IT problems, companies are threatened with image losses and costs of millions."

The digital world is increasingly dependent on IT. A technical defect, human error, or erroneous process execution can be a threat to a company's everyday operations. In order to enable highly stable operations, companies need to be able to control the quality of platforms, people, processes, and security throughout the entire supply chain. ZOISA intends to specify consistent error response times, employee qualification levels, and asset security and platform requirements in order to help companies minimize errors, increase availability, ensure security, and operate cost-effectively.

ZOISA is providing a Zero Outage framework of best practices and standards to enable the delivery of secure, reliable, and highly available end-to-end services and solutions. The goal is to develop a common standard for IT processes, platforms, people, and security to safeguard quality and reliability at all levels and to maximize the availability and customer satisfaction with IT services by improving stability and security.

ZOISA intends to focus on:

- Establishing consistent error response times.
- Improving security and platform guidelines.
- Specifying training and qualification requirements for IT personnel.

From my own personal experience in dealing with highly available systems, I think that ZOISA should focus on additional items such as:

- The quality of devices in redundant systems.
- The proper architecture of redundant systems.
- Proper failover procedures.
- Failover testing (often not done or done only partially by organizations).
- The frequency of failover testing (many organizations rely on faith and hope rather than on proper testing).

Stephan Kasulke, senior vice-president of global quality at IT service provider T-Systems, is the chairman of ZOISA. He stated:

> "As an organization's IT infrastructure can involve a complex ecosystem of technologies from a variety of vendors, there are often differing levels of service-level agreements in place which can lead to critical defaults and security issues."

ZOISA's IT standards will help to standardize the requirements of SLAs from different vendors.

Zero Outage Design Principles

ZOISA's focus is on existing technologies, not new technologies. In order to create a Zero Outage framework, it is important to establish agreement on what Zero Outage Design Principles mean. This has been the initial focus of ZOISA. ZOISA's current positions on this topic are as follows:

What do Zero Outage Design Principles mean?

ZOISA must describe the necessary combination of features and services in conjunction with IT-elements in order to contribute to a Zero Outage service. These include the Zero Outage Design Principles needed in order to achieve the ZOISA standard. For instance, principles will be compiled for becoming a Zero Outage cloud environment.

Two varying perspectives on Zero Outage Design Principles

Two types of Zero Outage Design Principles exist:

- General Zero Outage Design Principles that suit all IT-elements, such as the high availability of power supplies.

- Specific Zero Outage Design Principles for specific IT elements, such as LAN storage devices.

Zero Outage Design Principle Phases

Within each Zero Outage Design Principle, there are three phases:

The Plan Phase:

During the Plan phase, Zero Outage requirements that are to be met by all platforms, such as redundant design, are established. A Validation Plan to ensure that these requirements are met is prepared.

The Build Phase:

The Build Phase follows a deployment plan that must be prepared. Proper tests at the end of the deployment are specified to ensure that the introduction to service has been correct. Support is provided for a period after the Build Phase to ensure that systems continue to operate properly. (It is here that the failover procedures should be specified and tested.)

The Run Phase:

The Run Phase includes normal life-cycle management activities, such as update, change, and patch management.

Design Principles for the Run Phase

It is during the Run Phase that test procedures can be provided to certify compliance with the Zero Outage Design Principles. Zero Outage Design Principles include:

Zero Outage Design Principles for IT Elements:

Redundant power supplies and interfaces with battery back-ups
Non-disruptive upgrades, patches, and changes
A health-check procedure for providing system status
Online replacements without disruption
Redundant cable paths, virtual paths, and drive paths
Redundancy and resiliency checks
Absence of single point of failures in the architecture
Failover procedures and tests

Zero Outage Design Principles for Storage Devices:

Online procedures for hardware replacement
Up and down capacity scaling
Online implementation of updates, patches, and changes
Check procedure for missing data replication or backup
Securing traceable purging data from replaced disks

Zero Outage Design Principles for Network Elements:

Redundant routing engines
Redundant cards and ports
Redundant links
Geo-redundancy via WAN
In-building redundancy (e.g., fire protection)

Summary

The Zero Outage Industry Standards Association is a work in progress. The major companies involved have been active in ZOISA only for a few months as of this writing. At this point, they are still in the process of defining Zero Outage Design Principles. However, the goal of ZOISA is

impressive. If it can produce reasonable standards for zero outage IT systems, businesses and consumers will have scored a major win against the costs and inconvenience of IT failures.

Acknowledgements

Information for this article was taken from the following sources:

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ZOISA Web Site (https://www.zero-outage.com)