Cloud Hosting System Architecture

A trusted e-commerce hosting platform for Assured Uptime and security

When it comes to an online store, it should never be closed

Key Benefits

- *Peace of Mind*
- *Secure*
- *System Backups*
- *System Monitoring 24/7/365*
- *Geographically Redundant Disaster Recovery*
- *Hardware Maintenance*
- *Performance Monitoring*
- *Fault Tolerance*

To be successful and attract more visitors, your website needs to always be up and running. Whenever a webstore is down or slow, it's like putting a closed sign in the window. Zoovy's 24/7/365 hosting and monitoring system ensures minimal downtime and our platform coordinates planned downtime for off-peak hours so there will be little to no impact when maintenance is required. If the site is temporarily down, Zoovy notifies all merchants and works vigorously to get sites back online. Our network uptime target is 99.99%.

System Backups

Incremental "snapshot" backups are made at least every 14 hours, and archives securely off site which means you never have to worry about losing valuable data.

System Monitoring

Every 10 minutes, an active polling system monitors the health of every server as well as specific services, fan speeds, hard disks faults, ECC memory errors, disk space, database queries and a handful of other metrics. This is followed with an instant report back to a central monitoring system that classifies events by severity and pages the appropriate people for troubleshooting. Based on the duration of the problem, additional people may be paged, including members of the management team at Zoovy. These pages continue until the problem is resolved or is acknowledged by our staff.

In addition, each webserver checks its own health every two minutes through an in-house application called "Kevorkian." When a webserver can self-detect a correctable fault (non-hardware related), it notifies the load balancer to stop sending additional traffic to the server. This is useful in cases where a server is experiencing high load or other "correctable" issues. The server remains out until the system's health is re-established, then the server is brought back in. It's also important to note that the load balancer actively polls each server every three seconds via an ICMP ping. If a server

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fails (typically for hardware reasons), it's removed from the rotation and all sessions (e.g. shopping carts) are seamlessly relocated to another server. Zoovy's ISP also monitors our interfaces to ensure that we are up. Finally, we use a variety of outside systems in various data centers around the country to monitor the availability of our system and verify that we are in fact serving "well known" pages and images. Any change in the output response of a key image or webpage also generates a notification as does a lack of response.

Fault Tolerance

Network load balancing is handled by a pair of Cisco CSS11150 series content switches. We use an adaptive algorithm to send traffic to the "least busy" server which is determined by the content switches based on the number of sessions and the average latency of those sessions. The Cisco routers and subsequent content switches also do the first line of packet filtering.

All systems – including webservers – have at least 0+1 mirrored disks and redundant power supplies, ECC memory and environmental monitoring (temperature, fan speed, bus errors). In addition, each front-end webserver is capable of serving any page, although our software is divided into seven core services, so each cluster can be independently tuned and scaled based on the requirements. We maintain limited support contracts with each vendor and choose to be self-sufficient by stocking all spare parts for our entire infrastructure. Based on past experience, we've found that this enables us to respond more quickly to service disruptions. All spare equipment and small parts – fiber optic cables, disks and power supplies, etc. – are kept in cabinets at the facility. In many cases we stock nt2 or nt3. Standby spare servers are mounted in the rack configured in a cold state and additional spare parts are also kept at the Zoovy office.

Run Time Environment

The Zoovy system is designed on a Solaris back-end with a SCSI-320 SAN storage array that uses RAID 56 mirrored disks. On the front end for web servers, we use a customized and hardened version of Linux which is based on the Red Hat distribution. We have limited vendors of core equipment: Cisco, Sun, Dell and HP. The performance characteristics of this equipment are well known and the parts are fully serviceable. We never use non-branded equipment. And we stock our own spare equipment on site so we are not subject to vendor delays.

To ensure smooth operations, we have multiple levels of fault tolerance in our network architecture. The application architecture is written primarily in Perl and it has been designed from the ground up with both performance and security in mind.

Business Continuance / Disaster Recovery

Zoovy operations automatically send snapshot copies to the Amazon elastic compute cloud as well as copies of the current configuration files. These copies are no more than 14 hours out of sync with the master.
For your protection, our data system is earthquake reinforced, VESDA monitored and fire and gas resistant. But, in the unlikely event that circumstances render it unusable, DNS and other services are automatically brought up in the EC cloud. These are kept on an encrypted disk and considered a "cold" backup and our staff routinely runs data integrity tests by performing periodic data recoveries several times a week. However, we don't actively test cut-over scenarios because these would cause unnecessary business disruption for problems that we simply feel are unlikely to occur. Following such a devastating event, we anticipate 24 to 48 hours before service will be fully restored.

Zoovy's offices are located approximately 35 miles from the data center.

For Further Information on Zoovy System Architecture : **http://webdoc.zoovy.com/doc/51338**

This document is intended as a summary of possible configuration options which may not be available in all scenarios. Please refer to the online documentation for full product configuration detail.