instinctools

Delivering the future. Now
We **advance** and **innovate**
your business with digital
transformation

ONLINE WEBSITE BUILDER

SAITODROM
ONLINE WEBSITE BUILDER

Saitodrom is a modern website builder which allows
people without knowledge of programming languages
creating professional websites in less than 10 minutes.

Business needs

Online website builder Saitodrom required new software and
hardware architecture to support growth requirements. Old platform
couldn't handle increased number of users, websites and huge traffic.

New platform should ensure:

**High performance
under high load**

**Easy-to-Scale solution to
support further growth**

**High availability
(99,95% SLA)**

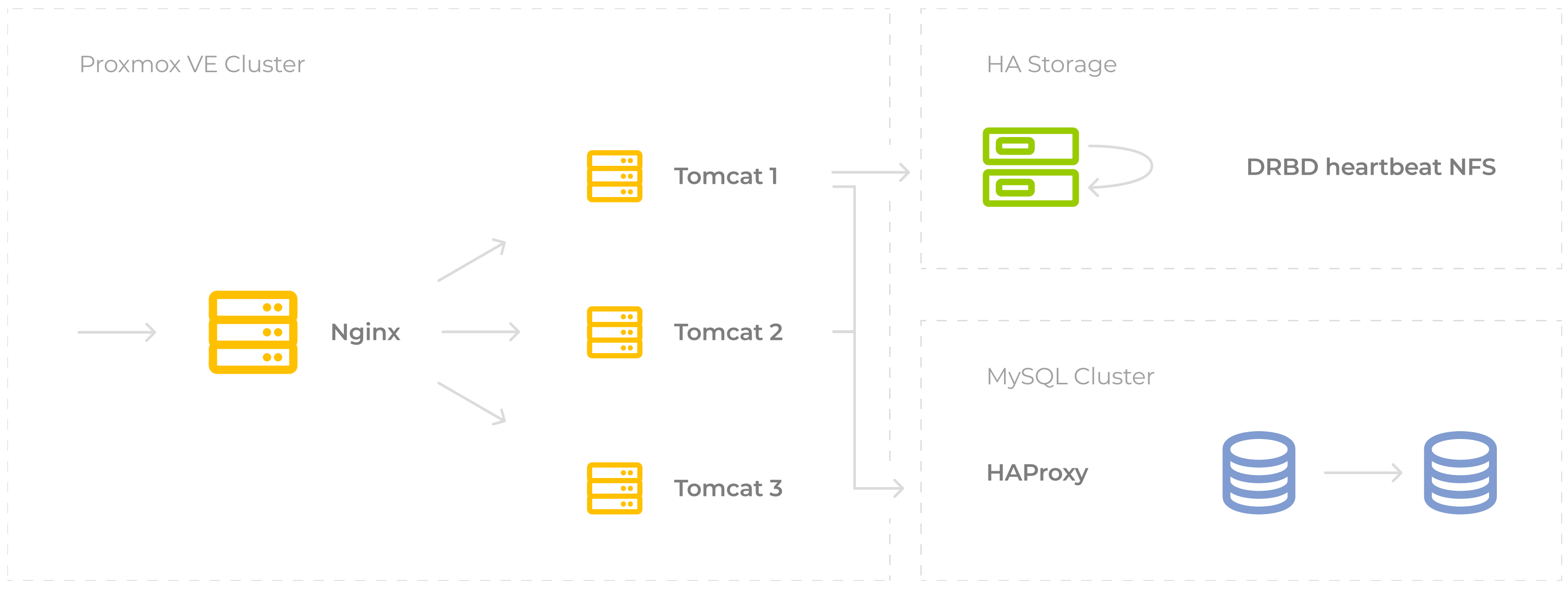Other crucial requirement included preserving the core architecture based on Java.

Challenge

The old platform was single host oriented and reached its maximum capacity.
The new platform should be based on a distributed architecture to meet load
requirements and should be highly available with downtimes avoidance.

The main challenges:

- Enable distributed
  architecture preserving
  the core

- Build highly available
  platform

- Avoid downtimes during
  updates and unexpected
  failures

Solution

Proxmox VE Cluster

Nginx → Tomcat 1 / Tomcat 2 / Tomcat 3

HA Storage — DRBD heartbeat NFS

MySQL Cluster — HAProxy

Proxmox High Availability Cluster

Proxmox Cluster is built on 3 physical hosts and
ensures high availability functioning of virtual
machines. If the physical host fails the virtual
machines running on it are automatically started
on one of the remaining cluster nodes

Highly Available Storage

Highly available shared storage is built on 2 physical hosts
using **DRBD, heartbeat and NFS technologies.** Only one host
acts as an active storage providing read/write access to data
that is replicated to the second passive host by using **DRBD**. If
the active host fails it is detected by hearbeat and access to
the storage is switched to passive host transparently.

Highly Available Database

Highly available database is organized by using two
physical hosts and **MySQL** cluster with replication.
Interaction with database is performed through
HAProxy that provides access to and checks
availability of the master database. If the master
database fails **HAProxy** automatically switches to
the second database

Application Cluster

To support increasing number of users instinctools has built
application cluster based on **Nginx** load balancer and **Tomcat**
web servers. Nginx is used as a high performance reverse
proxy, HTTP cache and load balancer. It is based on
event-driven, asynchronous architecture that makes it fast,
lightweight and robust under high load

The following features of
Tomcat Cluster are used
to avoid downtime:

- **Session In Memory Replication**
  By using in memory replication session information is synchronized
  across cluster nodes allowing users to continue work transparently
  even if one of the web servers fails

- **Parallel Deployment**
  Effective zero-downtime solution for deploying new version of the
  system. Users with active sessions can continue to use the old version
  and new users will be routed to the new one

To ensure overall high
availability of the system:

- single points of failure are eliminated by adding redundancy

- Zabbix monitoring system is used to monitor the system,
  detect failures and apply automatic recovery

Results

New scalable and fault tolerant platform allowed the customer to:

- **serve growing demands** (new users, websites)

- **increase overall performance** (especially under high load)

- **ihave almost zero-downtime service** (essential for providing
  high quality service)

Hardware infrastructure was implemented by using **Hetzner**
hosting provider.