

Tilaa client case

Dutchdrops

A clustered platform:
goodbye down time

Dutchdrops

For many of our customers, like Dutchdrops, continuity is crucial. A very high service availability can be realized by using a clustered platform. In this case we explain what a cluster is and how we designed and built one for our customer Dutchdrops.

About Dutchdrops

Oilily, Mr. Swim NY, Claesen's children's clothing, you might be familiar with them. Top fashion brands with great e-commerce. But did you know that the driving power behind the online presence of these brands is the Haarlem-based Dutchdrops? Dutchdrops has been successful in creating and hosting worldwide e-commerce solutions, web shops and web applications for the fashion and retail industry since 2003. They have been our customer since 2013.



Robbert de Smit
Founder and owner Dutchdrops

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We have chosen Tilaa for our worldwide CDN platform.

This means that all data for our servers, which are spread all over the world, is fed to them by servers hosted by Tilaa. Every day our platform turns over about two hundred fifty thousand euros. I don't like to think about what happens when that all goes down. Choosing a cluster was a no-brainer for me: Failure of a single server in this day and age is really not an option anymore.

What is clustering?

Clustering of servers means that multiple (virtual) servers are deployed to perform the same task. Failover and/or load balancing software prevents non-availability of the service due to failure of one or more of the individual servers in the cluster. The software also makes it possible to do maintenance on the servers without interruptions.

dutch.drops

Some of the e-commerce projects
out of Dutch Drops' portfolio

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The Request

Maximum availability, cost efficient and flexible. Dutchdrops sees peaks of an enormous amount of concurrent visitors to its websites, for example during sale. The cluster needs to be up to this task. That high availability is important speaks for itself; with customers like ours we can't permit a minute of downtime.

The Solution

Tilaa has designed a cost efficient and reliable web hosting platform, based on the requirements of Dutchdrops. Potential downtime is minimized by having each task within the cluster assigned to a minimum of two servers. Cost efficiency is achieved by giving each server just a single task, so that its capacity can be fine-tuned to perform exactly that one single task. Dutchdrops can resize all individual servers without help from Tilaa. This takes care of the necessary flexibility.



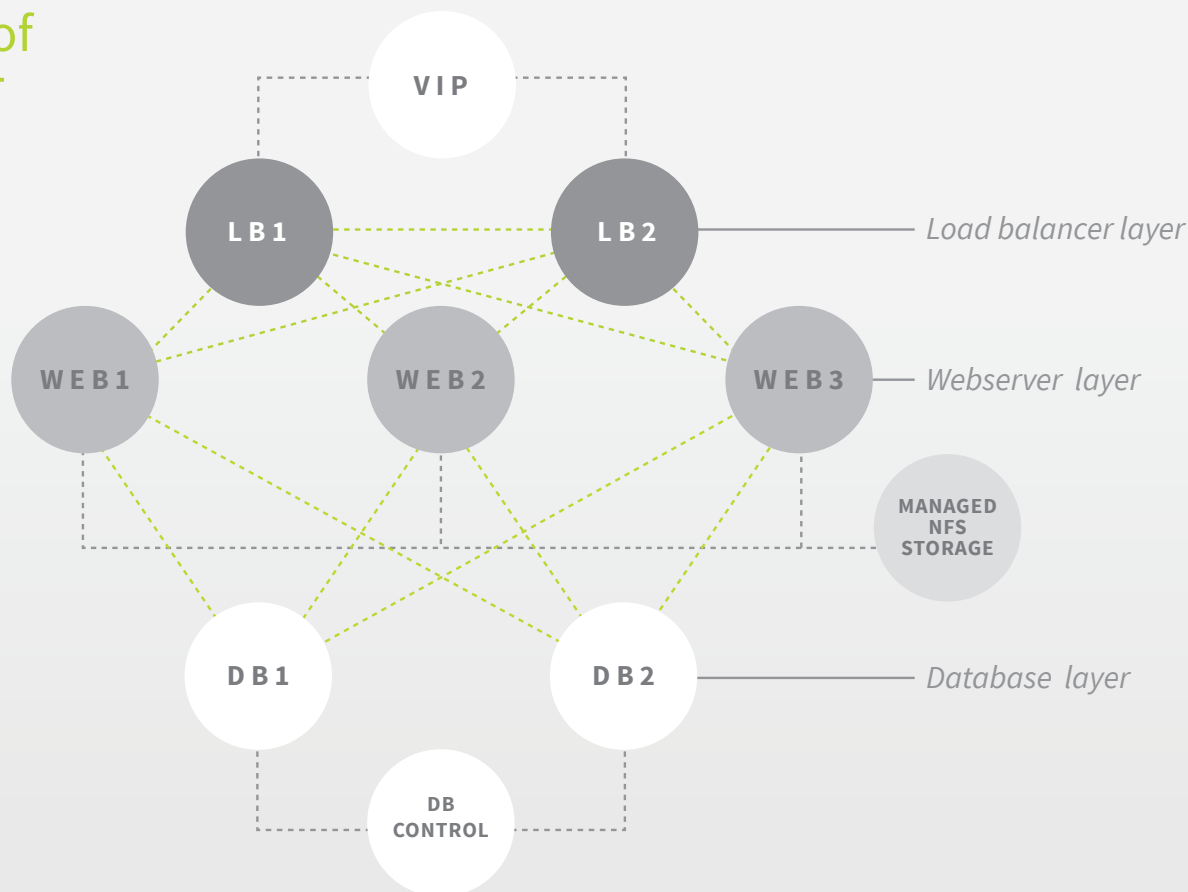
Gerben van de Ven
Co-owner Tilaa

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For the Dutchdrops platform we chose to use two load balancers to balance the traffic to three webservers. They also serve as firewalls. The contents of the website change continuously, this is why we store all the website data on centralized storage reachable by all webservers. Orders, customer data and invoices are stored in a database. We used two active database servers which are kept in sync and are monitored by a third server.

Structure of the cluster by section



Load balancer

All traffic for the Dutchdrops cluster enters via an IP address that is not assigned to a single server. This is called a Virtual IP (VIP). Behind this VIP there are two load balancers that balance the traffic permitted by its firewall rules. When one of the load balancers fails, the other takes over without the website visitors noticing. Since the load balancers have but one job, sending traffic to the various web servers, they need very little memory, disk space and cpu capacity. All in all, they are cheap servers that ensure the more expensive web servers need much less overcapacity. They essentially pay for themselves.

Webservers

The load balancing layer offers the traffic to the web servers. The web server layer is responsible for showing the websites to the visitors. Of course one needs to take failure of a single web server into account, so you need a little bit of overcapacity. Together with Dutchdrops we chose to setup three servers of which one is allowed to fail. When one server fails the others have to take over. Therefore, we need 33% overcapacity. Without load balancers this would have to be 50%. The web server layer can be scaled both horizontally and vertically. Horizontally by adding an extra web server, vertically by increasing the capacity per individual server. By playing with these properties one can create an ideal mix of capacity, failure tolerance and costs. When demand changes capacity can be quickly adjusted by Dutchdrops via the Tilaa Dashboard.

Central storage

To prevent that we need to synchronize all data on the web servers, we used highly available centralized storage. We designed our centralized storage platform so that individual components are allowed to fail without reducing service availability. The centralized storage stores the web sites including images, but also sessions. This ensures that the end user doesn't have to login again when the load balancer redirects him to another web server on a return visit.

Database cluster

The last component that Tilaa has clustered for Dutchdrops is the database. We work with two active, individual database servers that can take over each others tasks when one of them fails. They are kept in sync and are monitored by a small third server. This third server also ensures that you can not write to both databases at the same time.

Tilaa platform

Tilaa has equipped the physical servers on which the virtual servers in the Tilaa cloud are running with local storage. This prevents platform-wide interruptions. When a physical server fails unexpectedly the virtual servers running on it will be unavailable, but all other physical servers will keep running. An automated provisioning algorithm ensures that two virtual server that are part of the same cluster never run on the same physical server. This way hardware failure can never lead to unavailability of a clustered environment. Besides, Tilaa has hot standby servers in its racks that can be deployed immediately in the event of a defect, so hardware failures are solved in the blink of an eye.



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"I sleep much better at night since we've let Tilaa build our fully redundant cluster. We haven't had a single second of downtime since 2013." A tip from Robbert for those who consider a cluster: "Even if you think you know how you want to design your cluster, like us when we first started, I advise you to ask your hosting provider to think along with you about the architecture and have them make you a customized offer. It is a specialty after all and in the end it has provided us with a clearer idea and a more reliable cluster."

*Curious about the possibilities for your organization?
Contact us for additional information or an offer,
without any obligations sales@tilaa.com or +31 85- 210 05 00*