



“ETH Zurich is a leading Swiss science and technology university that is an innovation and knowledge center both in Switzerland and globally. ETH turned to Varnish Enterprise to solve their complex caching needs & Varnish Professional Services for in-depth Varnish training”

Case Study:

ETH
Zurich

ETH turned to Varnish Enterprise to solve their complex caching needs

Background

Much like the structure of Switzerland and the university itself, the IT services department at the ETH Zurich is built in a federated way: the university departments each have a high degree of autonomy in developing and publishing their own webpages. This freedom means that the IT department supports 600 different sites in the corporate environment, each with its own content and requirements. For comparison, a typical corporate organization only has one website per country, meaning that ETH IT services manage a much wider web landscape punctuated by fragmentation.

The Challenge:

The ETH web landscape is such that a web content management solution with a robust and flexible enough caching mechanism supporting high-performance content delivery and availability is required but difficult to achieve, particularly given the complexity of the setup. Caching challenges are wide in this context. The sheer number of sites and varied content means that the long tail of content is a majority of the content requested. The probability that one user will request the same content as another is relatively small.

The IT department used Adobe AEM as its content management system and its built-in Adobe Dispatcher for deploying caching methodology in front of two publishing servers. Because of ETH's requirements and settings, Adobe Dispatcher did not offer the flexibility or performance required. For example, the dispatcher invalidated too much content - that is, almost an entire site's worth of content when only one page had been changed. This inefficiency slowed things down and ultimately meant that the IT department could not fulfil its 99.99% availability/uptime SLA with its customer (the university's corporate communications department).

Recognizing the untenable nature of the Adobe Dispatcher issue, the ETH IT department sought a new caching solution. They found Varnish Cache, the open-source version of Varnish, and placed it in front of Adobe AEM as a replacement for Adobe Dispatcher. The overarching ETH corporate web design in which all the many ETH sites exist allowed Varnish to cache all design elements in one place, immediately improving performance. With Adobe Dispatcher, this was not possible at all. In the year ETH used Varnish Cache, performance improved significantly, but it was still not quite enough and there was still greater efficiency to achieve.

ETH Zurich at a glance

Company

- ETH Zurich, a major science and technology university in Switzerland

Size

- Replace Adobe Dispatcher with faster, more flexible and granular caching solution in front of Adobe AEM for network of over 600 websites
- Ensure performance to comply with 99.99% availability SLA
- Gain internal Varnish expertise within IT department

Varnish API and Web Acceleration and Varnish Professional Services

- Replace Adobe Dispatcher with faster, more flexible and granular caching solution in front of Adobe AEM for network of over 600 websites
- Professional expertise/training from Varnish Professional Services
- 2 Varnish nodes in front of 2 publishing servers

The Solution: High availability, redundancy and granular caching: Achieving availability goals and making users happy - Varnish Enterprise for high availability and redundancy

With open-source Varnish Cache placed in front of each e-publish server in the Adobe AEM environment, caching became more efficient than before but was not taking full advantage of what Varnish can do. With the community version of Varnish, the two caches in front of AEM were independent of each other, so content was cached in each of the two caching instances, and these two Varnish instances were not talking to each other. This was duplicating effort needlessly.

Varnish Enterprise offers Varnish High Availability, which eliminates this extra level of duplication and instead lets the two caches talk to each other, ensuring efficient redundancy. Once ETH adopted Varnish Enterprise, their content could be stored more or less only once, with the two instances helping each other deliver content that is already cached. Finally with Varnish Enterprise, the IT department could exceed its 99.99% availability SLA.

The ETH IT team found Varnish Cache easy to implement and to learn fairly quickly, and when moving from the community to commercial version of Varnish, they report a straightforward process without any problems.

Results: The ETH Zurich IT hosting team has been able to realize not only the efficiencies and redundancies described, but has also realized:

Faster page load speeds:

The average load time for Adobe Dispatcher cached content was about 2.5 seconds, which was quite high. With Varnish this was reduced to under 1 second.

Increased server capacity:

Without quoting exact figures, Adobe Dispatcher struggled on its two publish instances. With Varnish the load on the publish servers decreased by about 12 times, and has never struggled to publish again.

Freeing up time/resources:

Two full-time employees work on the web content management system. Before Varnish, these resources were not able to do anything else but keep the system alive/running. With Varnish, these resources were able to focus on deepening their knowledge of Varnish and work on other projects and services.

“When we searched for a new caching solution, Varnish Cache was the first and only solution we tried. The open-source Varnish Cache solution was a big improvement over Adobe Dispatcher. To reach our SLA, we came nowhere close with Adobe Dispatcher, got very close with Varnish Cache and realized we needed that little bit more to fulfill the availability SLA, which led us to Varnish Enterprise.”

-Cristian Tuduca, ETH IT Services

Varnish Professional Services: Support and training

After working with Varnish Enterprise for about a year, ETH employed Varnish Professional Services to deliver in-house training to learn more about how to get the most from their Varnish subscription.

ETH Zurich on Varnish: Caching is king

ETH found in the process of implementing and getting to know Varnish that they could learn a lot about how to keep content in cache for as long as possible and achieve new efficiencies this way. In other words, ETH's work with Varnish helped to put the power of caching front and center again, showing what caching can do when it's done right.

"We replaced one piece of software with the other and it just worked. Then slowly through the process, we looked at what Varnish Enterprise brings to the table beyond what Varnish Cache could do. How could we simplify configuration, for example, thanks to the functionality of Varnish modules (VMODs)? For example, here the management of cookies can be mentioned: with Varnish Enterprise, handling is far more elegant, and simpler. Varnish Enterprise is filled with this kind of added value."

-Cristian Tuduce, ETH IT Services

"We like the concept of the Grace feature in Varnish; we can keep content in cache beyond its defined validity and put it to use while fresh content is fetched from the backend, which is a great way to relieve pressure on the backend. This attention to detail and experiencing more generally the thought that went into developing Varnish and ensuring that it generates high performance in implementation was a genuine and pleasant surprise after working with Adobe Dispatcher."

-Cristian Tuduce, ETH IT Services

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