



“Using Varnish DIY CDN  
we can deliver on our 100%  
customer SLA.”

Case Study:

CacheFly

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# CacheFly uses Varnish to seamlessly deliver massive volumes of data to customers

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## Background

Founded in 2002, CacheNetworks was spun off from the successful Downloadhosting.com property to deliver a global footprint for its customers.

As CacheNetworks, the company worked with customers to create the world's first TCP, Anycast-based content delivery network (CDN) built primarily for throughput. Once reliability and performance goals were surpassed, the company introduced the CacheFly service in 2005. Ever since, CacheFly has delivered on its 100 percent service level agreement to thousands of customers in over 80 countries globally, its differentiator, according to CacheFly, is

in its commitment to throughput. Other CDNs will deliver fast, but as CacheFly promises, they will deliver fastest.

Built on a mix of proprietary and open source solutions, CacheFly has used both nginx and Squid for caching since 2005. Over time, rapid growth made it essential for CacheFly to find a caching solution that supported scalability at its performance level as well as providing the stability required for deploying in-demand new features.

## The challenge: Deliver massive amounts of content with no disruption

As CacheFly grew, many patches were required to keep its two caching solutions, nginx and Squid, moving. Almost any change to the caching layer required new binaries to be built, distributed and restarted. While this setup enabled CacheFly to become the highest throughput CDN in the world, it held them back from deploying new, in-demand features.

Caught between the demand for stability and performance in delivery and the need to offer new features to customers, CacheFly needed a new way to future-proof development without hampering performance and end-user satisfaction. by offering their CDN solution to their own customers as a package solution.

## CacheFly at a glance

### Company

- CacheFly service founded 2005, as only network built for throughput

### Size

- Large caches (100TB+) with tens of millions of object sizes across all ranges

### Varnish DIY CDN for CacheFly

- Availability: No customer impact
- Drastically reduced sysadmin time
- Improved cache hit rate
- Massively improved performance on "in-flight" objects
- More granular control over caching
- New features added quickly and flexibly with VCL



100  
TB+



DIY  
CDN

## The solution: Varnish DIY CDN

In 2015, in order to meet customer demand for new features and to gain operational efficiencies, CacheFly dropped its legacy platform and deployed Varnish DIY CDN. Although CacheFly had considered the open source Varnish Cache for three or four years, its storage engine was insufficient to support its workload. Varnish DIY CDN and its Massive Storage Engine, however, delivered what CacheFly required.

In May 2015, CacheFly replaced their mid and edge-tier CDN caches with Varnish DIY CDN. By year-end the project was fully rolled out.

“Using Varnish DIY CDN we are able to deliver hundreds of terabytes of content seamlessly as well as deliver on our 100 percent SLA to our customers,”

– *Matt Levine, founder and CTO.*

## Varnish DIY CDN solves CacheFly's unique challenges with:

### Caching

Enables CacheFly to migrate caches in a production CDN. This allows CacheFly to “paint a moving train” while maintaining 100 percent SLA to customers.

### Size and scale

Supports massive caches (100 TB+) with tens of millions of object sizes across all ranges so that end users can scale work seamlessly without interruptions.

### Origins

Assists hundreds of origins from both HTTP and HTTPS, and mixed based on edge request.

### Custom modules

Meets the demand for handling a wide range of customer scenarios.

### Flexibility

Varnish Configuration Language (VCL) enables CacheFly to easily develop and customize new features and modules in response to customer demand. VCL gave CacheFly a flexible, scalable tool that is, easy to use, explain, share and gain efficiencies – while saving capital in human time.”

# Varnish Configuration Language (VCL)

CacheFly was able to handle 90% of its requirements in VCL with additional C as needed. Varnish Software provided specific modules for the remaining 10 percent.

## Results

### No service interruptions: Availability

While moving to Varnish DIY CDN, CacheFly has maintained 100 percent transparency and availability for all its customers, ensuring that all existing CDN functionality was preserved. Additional caching functionality was deployed without interruption to service.

### Improved cache hit rate

With CacheFly's ability to tweak edge cases in VCL, cache hit rate has significantly improved.

### Massively Improved performance

For in-flight objects, which had previously been bottlenecks, particularly when coupled with poor or low cache hit rates for customers.

### Reduced need for sysadmin time

Drastically reduced when pushing out new HTTP-level features and functions.

### Return on investment

There are clear gains in manpower and performance.

### Cache control

Provided CacheFly with more granular control over caching.

### Fast, future-proof deployments

with VCL CacheFly can add or change features within minutes – not days -- ensuring that functionality is maintained in a timely fashion. This also contributes to saved hours in manpower and gained efficiencies."

## The future

CacheFly plans to implement more Varnish features in the coming year:

- Leveraging Varnish in their non-caching environment (dynamic/SaaS acceleration)
- Evaluating Varnish for use in their 'load balancing'/client-facing infrastructure tier."

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