



“CBC used Varnish Plus to reduce capital and operating expenses over five years by 30%”

Case Study:

# Canadian Broadcasting Corporation

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# With Varnish CBC can seamlessly deliver its digital content at any scale, even in times of outages

*-Massimo Mollica, Manager at CBC/Radio-Canada*

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## The Varnish Award

In addition to helping to keep CBC.ca running in a crisis as well as under normal conditions, CBC.ca's implementation has won the Varnish Award for the value CBC's engineers have managed to create for their organization using Varnish. With their Varnish Plus subscription, CBC.ca was able to extend the benefits they received from Varnish Cache and get the expertise of Varnish engineers in configuring and tuning Varnish Plus for maximum results.

## Background

Performance - speed and instantaneous, reliable delivery of fresh content - is key to CBC's survival as a major media outlet. Delivering this content no matter the scale can become expensive and resource intensive, all at a time when media companies face belt tightening and the introduction of new business and monetization models. Looking at tools to mitigate growing costs and solve different technical challenges, the CBC adopted Varnish.

CBC, Canada's public broadcaster, and its website, CBC.ca, face the same challenges as most world-leading media properties in the current digital landscape: changing consumption patterns and modalities coupled with increasing user demand for speed, real-time content updates and seamless live streaming. The expectation is that CBC.ca will be available 24/7, no exception. CBC.ca delivers on this expectation, but it is not without its challenges.

## Challenges

CBC.ca manages a torrent of everyday technical challenges, such as ensuring performance even during big events and traffic peaks and ensuring availability of content even during an outage.

CBC.ca is the biggest website in Canada, with upwards of six million unique visitors ( in the neighborhood of 30 million page views) visiting the site per day. Keeping this machinery up, running and humming along does not happen by accident.

### **Outage: Avoiding catastrophe with Varnish Plus**

CBC.ca suffered two brief storage outages, both of which were mitigated by using Varnish Plus to serve cached content to users. That is, despite server outages that meant that content was not refreshing in real-time on the site, the website still functioned and was browseable at about 95 percent. These outages were not noticeable from the outside.

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“Our CBC team found it incredible to see breaking news go live with virtually no web server in action.”

*-Massimo Mollica, Manager at CBC/Radio-Canada*

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Using Varnish Administration Console (VAC), a component of Varnish Plus, CBC was able to capture graphs that illustrate how everything was working well even about two hours into the outage. At the time, the publishing tool was still available and responding with fresh content. Even as the responsible origin domain and content were offline, Varnish still assembled pages for the end user, mixing stale and fresh content as it was available.

#### **Increasing value from decreasing resources**

The old adage “do more with less” sounds tired and unrealistic, but this is exactly what CBC achieved with their Varnish installation.

#### **Decreased CAPEX and OPEX**

- By introducing Varnish into their website environment, CBC was able to reduce the number of servers that deliver their website to two Varnish servers. As a result the reduction in CAPEX equalled approximately 30 percent over five years. CBC also observed a reduction of approximately 30 percent in OPEX in the same period. Additionally, after implementing Varnish in front of their Apache servers, the number of servers needed was reduced from 12 to just six.

#### **Performance increase**

- On average, object delivery is anywhere from about 10 to 100 times faster with Varnish than with Apache alone. Of course this depends on the size of the object and how long it takes for the backend to deliver the content (and whether any of the content is cached already).
- With Varnish, CBC was able to tackle traffic challenges, such as peaks during the Canadian elections in October 2015. The CBC CDN saw up to 110,000 concurrent connections, and the backend did not notice at all.

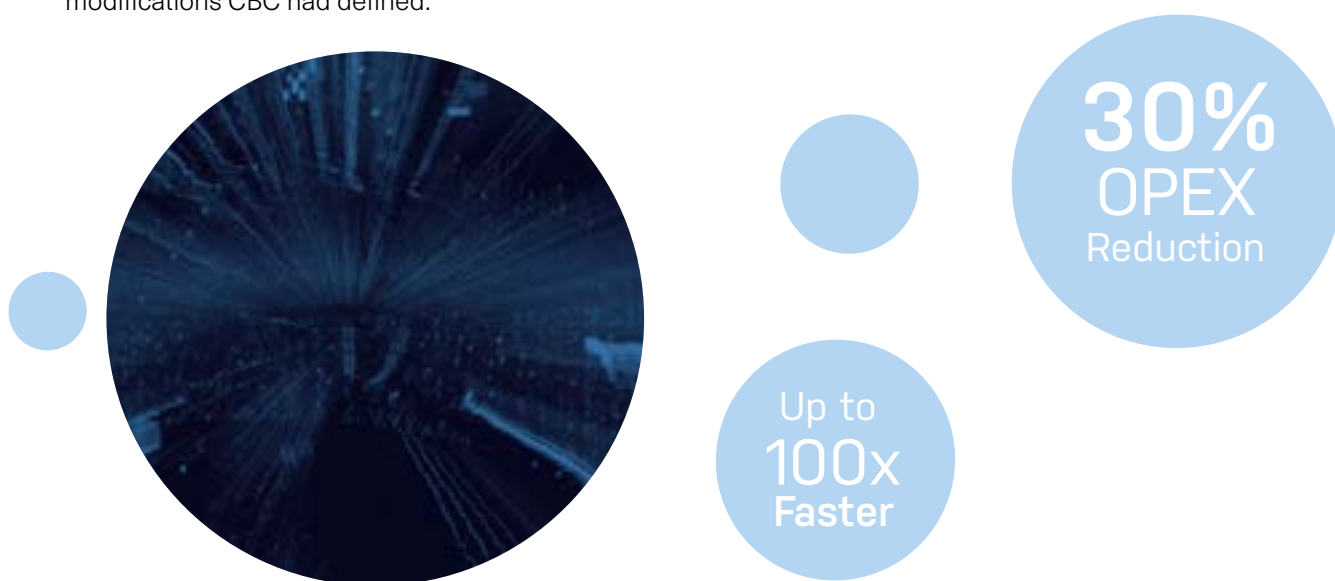
“In an outage situation, the whole site can be offline, and we still have a working website, thanks to Varnish technology. The CBC website could not do without it. Personally, I like it so much, I won't do anything without it.”

*- Massimo Mollica, Manager at CBC/  
Radio-Canada*

## The solution

For the CBC, Varnish Plus certainly proved its value. At the same time, CBC has put Varnish to work delivering value for them time and again, sculpting the flexibility of Varnish to claim additional advantage with every tweak and modification.

- **High Availability:** Outages be damned! CBC.ca kept serving content to users despite server outages on two separate occasions. Varnish helped CBC.ca deliver their content without interruption until they were able to complete repairs; about 95 percent of the website continued functioning, causing no external complaints or problems.
- **Performance boost and scalability:** Most Varnish users start with Varnish because of the immediate performance enhancement and scalability benefits. This is generally true of CBC as well. Putting Varnish in front of their Apache servers, has made object delivery ~10 to ~100 times faster.
- **Fine-tuning cache strategy:** CBC has implemented a cache strategy that includes one CDN cache and two Varnish caches. The CDN re-evaluates an object every 2 minutes or so, while the Varnish cache offers more flexibility, allowing for fine-tuning the cache strategy: dialing time-to-live for content up or down depending on backend-level stress, i.e. Varnish can refresh every five minutes or down to a minimum level (e.g., 30 seconds). By combining the strengths of the CDN and Varnish, fine-tuning everything is in CBC's control. They scale up while keeping their server count level very low, even during peak traffic loads.
- **Support:** When CBC subscribed to Varnish Plus in September 2013, the Varnish engineering team helped validate the CBC configuration and make sure that everything was working. In addition to being able to configure to their own specific needs with Varnish flexibility, CBC cited support as one of the major drivers for subscribing. Varnish engineers could help fix problems, validate configuration and fine-tune all the custom modifications CBC had defined.



“We’re excited to see companies big and small find more creative ways to get the most value from Varnish, and this is nowhere more apparent than with CBC reaping the rewards that this value fosters. Part of what Varnish offers is the opportunity to downsize server infrastructure, which leads to follow-on savings in maintenance and future hardware costs. CBC deserves accolades for how they have taken full advantage of the flexibility of Varnish Plus features to tailor and tune their caching strategy, which in turn matches traffic requests, keeping CBC.ca online and working no matter the demand or situation.”

*Per Buer, Varnish Software CTO & founder.*

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