

Case Study



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Torben Frølund
Senior Manager
Telenor Denmark



NCache Provides Fast Customer Response and Website Stability To Telenor Denmark



Country or Region:

Scandinavian countries
Norway, Sweden, Denmark & Asia

Industry:

Telecommunications

Customer Profile:

Telenor's wholly owned subsidiary, Telenor Denmark, is the second largest mobile operator and the second largest fixed broadband operator in Denmark. It's service portfolio in Denmark includes mobile, fixed and broadband services.

In Denmark, Telenor has about 2,000 employees and 15,000 customers. Telenor Denmark is part of the Telenor Group with more than 40,000 employees operating in 13 countries.

Telenor Denmark Holding A/S owns and is the parent company for several operating companies:

- Telenor A/S holds the licenses for the GSM900 and the GSM1800 mobile telephone network.
- Telenor Butikken A/S is a procurement and marketing company. It also administers its network of dealerships. Telenor has the greatest network of sales outlets in Denmark.
- CBB Mobil A/S offers mobile telephony under its own brand to consumer and business markets. Founded October 2000 under the name of Clubblablablah. However, two years later it changed the name to CBB Mobil. Telenor's acquisition of CBB took place in April 2004.

Telenor's motto is to help customers achieve the full benefits of communications services in their daily lives. As for their employees, the company states that its vision and values define a common embodying approach when dealing with customers. Those Telenor values give employees fundamental guidelines for providing excellent service to its customers.



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Business Value Summary

The business value Telenor in Denmark promotes is inextricably intertwined to the caliber and level of its customer service. As the company has clearly stated, "Telenor values give employees the fundamental guidelines for providing excellent service to its customers."

However, unfortunately, at times, a relatively new IT stack can introduce technical issues that severely impact customer service. In Telenor Denmark's case, the IT stack included their CRM and middleware to help support the telecom business. Complementing that arrangement, Telenor Denmark created in-house a large ASP.NET MVC web application around the IT stack. They call this web application "One Screen App," and it's used by 1,500 to 2,000 internal agents and two million external users.

However, there was a time in the not too distant past when its website experienced issues to the point customers were getting slow responses. This created considerable concern – enough that it's technical leadership moved expeditiously to resolve it in order to substantially elevate the key business value of this company – "providing excellent service to its customers."

Challenge: Extremely Slow Displayed Data

The architecture of Telenor's ASP.NET MVC web application or One Screen App comprises a total of eight web servers, formulated into two tiers with each tier composed of a set of four web servers. One tier is used for external customers; the second tier for internal agents. Out of four web servers, only two are active in the load balancer for each tier at a given time. Two are inactive and used as backup servers for maintenance and upgrade for each tier.

Included here is a Java-based middleware, and the Telenor web application calls the middleware via REST (Representative State Transfer) application programming interfaces or APIs. In turn, these REST APIs help to process end user requests and data source related calls.

Telenor soon learned that this telecommunications platform arrangement posed a major issue. That issue centered on slow response times on some important APIs.

Torben Frølund, Senior Manager at Telenor Denmark, says, “Here’s an example of that problem. You go to our Telenor.dk website. You want to buy a phone and you press the link with all the mobile phones. The next thing is you get a list of 30 to 40 different phone models. That listing is shown with prices, subscription rates, etc. However, all that data – the phones, the products, the prices. They all come from our back-end and that data shows up on the screen in a very, very slow manner. This is completely not acceptable and is not in line with our mission for excellent customer service.”

In effect, Telenor Denmark was experiencing an overall performance problem. “It would take a lot of time and money to fix our backend,” he says.

NCache & Cost Effective 100% Uptime

NCache with its wealth of key features and benefits provided the cost-effective answer to Telenor Denmark’s problem. They’re caching frequently used application data, so they don’t have to go to their database or their Java based “middle tier” which is very slow to access. This greatly speeds up their website response time.

Frølund says, “Previously, if we asked the backend every time for this data, it presented a terrible time lapse for our customers, and they were very displeased. Now, we cache some of that information in NCache and very rapidly show product pages. Plus, we maintain 100% uptime with NCache when we do maintenance on the servers.”

Since Telenor runs a web farm, he says he has to take down individual servers for maintenance without losing any user sessions. “That feature alone is very important, and NCache ensures we don’t lose user sessions. This means our users can continue using their website without any interruptions. The beauty of NCache is whenever we’re doing something on the website, each and every customer request coming to our website isn’t lost but goes to different servers. So, we maintain high performance and stability on our website.”

In this setup, two NCache servers are on dedicated machines using POR async caching topology without client cache. The company created two caches, one for data caching, the other for sessions caching.

As Frølund notes, NCache eliminates the need to go to their middleware. Telenor Denmark is caching serialized responses in NCache, thus significantly improving performance by not going to middleware. It uses basic NCache APIs without any features from the server, and Telenor Denmark implemented an NCache wrapper, which it calls before calling the middleware REST API. If responses aren’t cached in NCache, then Telenor calls the middleware and caches it for next time usage.

Alachisoft Product:

NCache

Customer Needs Met:

- High Availability
- Consistency
- Stability
- Reliability

For session caching, NCache distributed cache is used as ASP.NET session storage, thus removing the middleware bottleneck and the earlier slow responses. Fig. 1 shows similar bottlenecks.

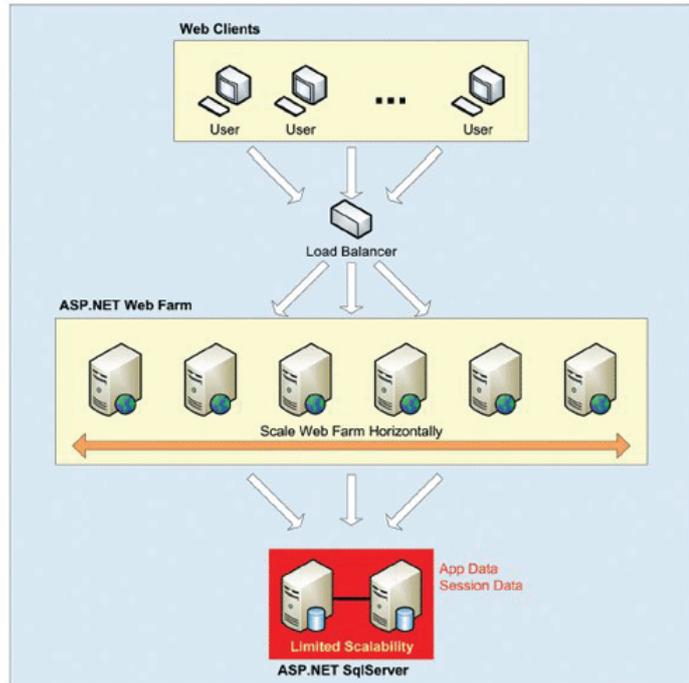


Figure 1 - The database becomes a bottleneck as the Web farm grows

Fig. 2 explains how NCache is used as a session state provider to store all the sessions. The key benefits it provides Telenor is speed and scalability. Plus, NCache performs reliable session replication across multiple servers.

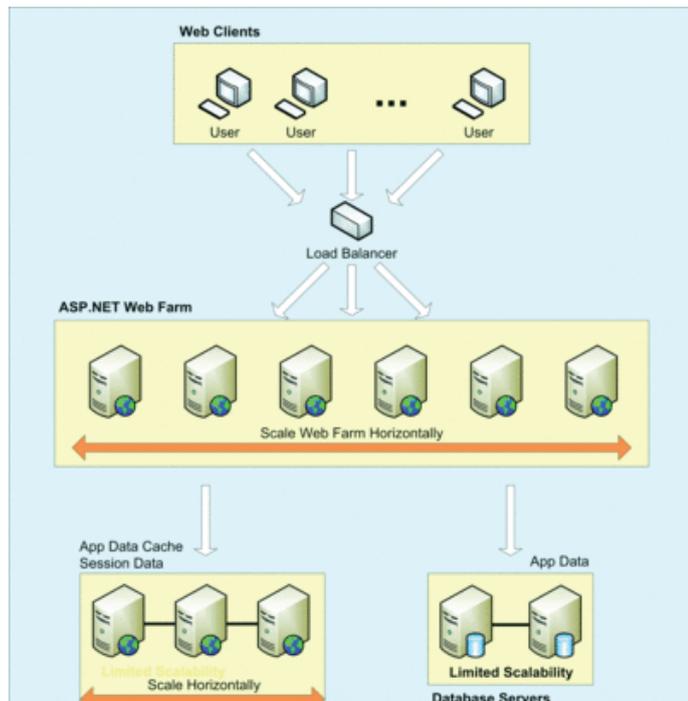


Figure 2 - Distributed cache relieving pressure on the database server

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Exploiting Output Caching

Output caching is the latest NCache feature Telenor Denmark uses, and they're getting a further boost by using output cache. "This allows us to serve our customers superfast on some key pages," he says.

NCache's Enterprise edition provides an extremely fast and reliable output caching feature for ASP.NET applications like Telenor's running in a web farm. In effect, it caches different versions of pages' content depending on the various parameters such as query string parameters and browser type.

Citing another example to describe output caching, Frølund says, "Let's take all that product information I discussed earlier that builds up our page. We cache that, but we need other data. We need to build the page with picture and text and everything we get from our CMS system. Combining all that data takes considerable time. But with output caching, we cache all that data the customer is requesting, and we just show it directly from the cache. All of this makes it super snappy."

In summary, NCache is able to provide strategic benefits to our web applications in the following areas:

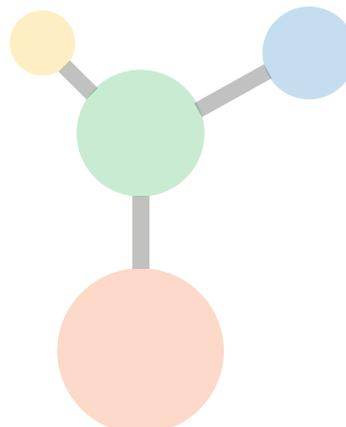
1. Excellent response time in building very complex data requirement web pages. Our internal and external users are pleased with the response times across the network.
2. The ability to offer 100% uptime across all user communities. With NCache's features that provide replicated caching to scale based on user demands, and redundancy for server availability.

About Alachisoft:

Alachisoft provides a popular high performance in-memory distributed cache called NCache. NCache is an Open Source middleware that runs in production environment and boosts performance and scalability of .NET web apps, SOA service apps, and general high traffic server apps. NCache has a 12 year proven track record with hundreds of customers all over the world and specially in US, UK, and Western Europe.

Visit our website at www.alachisoft.com or send email at sales@alachisoft.com

You can download a free 60 days fully working trial of NCache from here: www.alachisoft.com/ncache



Alachisoft
Corporate Headquarters
12005 Ford Road, Suite 520
Dallas, TX 75234

US: +1 (214) 764-6933
UK: +44 207 993-8327
Fax: +1 (925) 886 8361

Sales Email:
sales@alachisoft.com
Technical Support:
support@alachisoft.com