

Case Study



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Martin Nygard
MIS Manager
Ryanair



With three geographic data centers, a load balanced web farm of over 40 servers, Ryanair is handling 1.3 million daily visitors, 15.5 million page views, and 30,000 orders per hour during peak times, all with the help of NCache.



Country or Region:
Europe

Industry:
Commercial Airline

Customer Profile:

Ryanair Ltd., headquartered in Dublin, Ireland, has grown from a modest regional airline in 1985 into a major airline company with 8,000 employees, 44 bases, flying 1,100 routes to 157 airports in 26 countries. Ryanair operates a fleet of 250 new Boeing 737-800 aircraft with firm orders for another 64 new aircraft planned for delivery over the next two years. Ryanair is the first airline in Europe to carry more than seven million passengers in one month. Each day, 1.3 million airline travelers visit Ryanair's Website and conduct 15.5 million page views. The airline sells 30,000 seats an hour at peak evening times and sells on average about 12,000 seats per hour. Bookings are growing at about 12 percent per year with 71 million seats sold in the last 12 months. Ryanair earned 2.99 billion Euros revenue at the end of the last fiscal year, ending March 2010.

Alachisoft Product:
NCache

Customer Needs Met:

- Sessions support for multi-site configuration
- High Availability
- Ease of Maintenance



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THE CHALLENGE

Ryanair deployed the Navitaire system together with a HP 2000 time-sharing minicomputer arrangement to support its multi-site configuration. Subsequently, Navitaire moved to the .NET environment, and Ryanair moved their Website to ASP.NET. However, session storage issues emerged because Microsoft .NET session storage doesn't support a multi-site configuration.

Martin Nygard, Ryanair's MIS Manager, said, “To keep our multi-site configuration in the .NET environment, it was vital for us to find a solution for session handling and storage. Microsoft doesn't take into account multi-site configurations and neither did Alachisoft competitors who indicated no interest in developing our Website like we wanted to do it.”

On top of the issues associated with session storage in a multi-site configuration, Ryanair also had a special need for session locking, which was a deviation from the Microsoft specification for session locking. The airline was overwhelmed with robots that were accessing their site to get flight information but issuing numerous parallel calls against same ASP.NET sessions. Due to these parallel calls against the same session, session locking kicked and locks were taking a long time to expire and all this time thousands of robot calls kept waiting and keep network connections opened. This was overwhelming the number of available network connections and considerably slowing down the Ryanair website.

NCache Solution

Alachisoft was sufficiently flexible to offer Ryanair a customized version of ASP.NET Session locking capability in NCache to handle their situation. Today, the airline has a multi-site installation of NCache at the London, Dublin, and Frankfurt data centers.

Nygaard said, "We found NCache to be the one that responded best to our request for customization of the product to suit our requirements. I like the fact NCache looks after itself; I like the easy configuration; and I like the good support I get from the Alachisoft team."

Nygaard said, "We use NCache for our booking site. That is where people do their transactions, where they look up flights. They look at flight details, get the pricing, and purchase the flights. To do all that we are being hosted in three different locations around Europe where we have around 16 servers in each of the sites and each can operate as a completely independent booking site."

Ryanair's customized "session site remembrance" feature of NCache allows the airline company to operate the three active sites with the ability to transparently overflow traffic from one site to another and still maintain the same .NET sessions. For example, when a customer overflows from London to Dublin, the Dublin site knows he or she came from London and the associated session is actually located in London. But NCache automatically moves the session data from London to Dublin, and the customer doesn't experience any downtime.

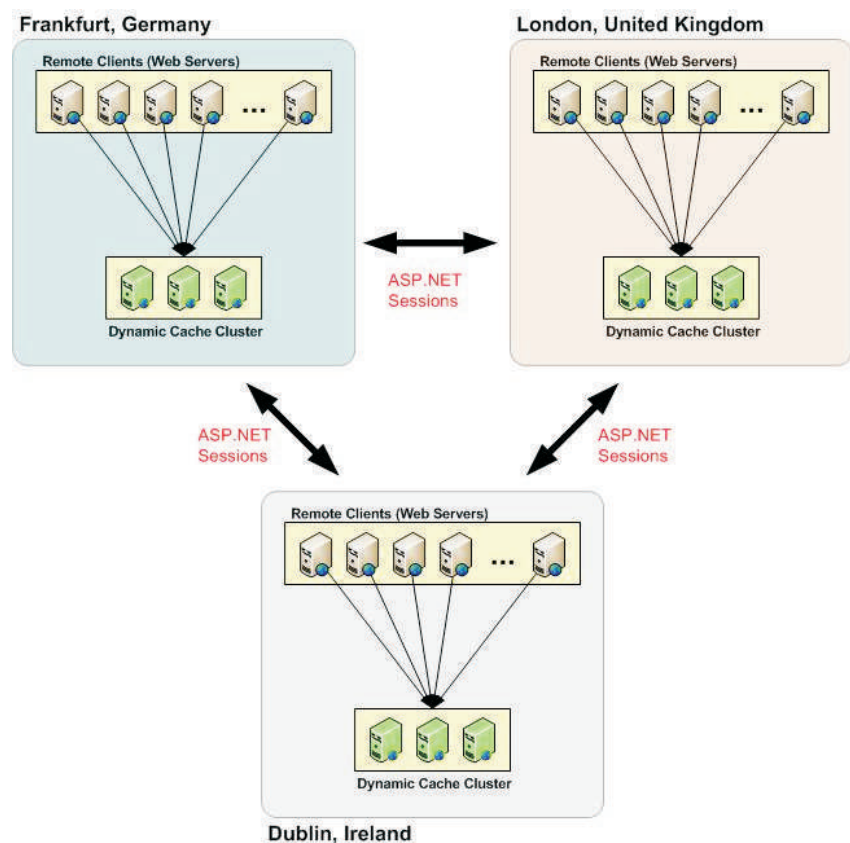


Figure 1: Ryanair Multi-Site Configuration for Sessions

"A certain amount of customers will wander from site-to-site," according to Nygaard. "Originally we calculated about 10 to 20 percent constantly wandering from site-to-site. With the sessioning, if you follow the rules and if you had sessioning only at one site, the site-to-site traffic between our own servers would be enormous."

About Alachisoft:

Alachisoft, a California based company provides NCache and StorageEdge. NCache is an in-memory distributed data cache that lets you cache application data and ASP.NET Session State to boost your application performance and scalability. StorageEdge speeds up SharePoint by externalizing BLOBs and caching BLOB and list data.

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

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He added, "The NCache session site remembrance feature bases the session to a particular site a customer is on. That way all session traffic doesn't have to go to another site. It only needs to go to the other site if the session were still on that site. In practice that reduced our internal bandwidth traffic 90 percent compared to other solutions."

NCache was the basis for developing not only a multi-site session storage mechanism for Ryanair, but also a special enhancement to the Microsoft specification. This feature allowed their session locking to timeout quickly and avoid from slowing down their Web site.

Nygaard said, "A locked session deals with a customer accessing a session and then another one tries to access the same session. The standard Microsoft session tries for 30 seconds before it fails. Basically that's what you get with Microsoft session handling. But now we have an added NCache feature that quickly sets the session in the state so the entire session handling goes much faster. That was actually vital for the site. Before that there would be so many processes just sitting and waiting for 30 seconds that all our servers just locked up."

Aside from providing Ryanair the speed and ability to efficiently handle large amounts of sessions, NCache allows the airline Web site to operate without any downtime or loss of session data, thanks to NCache's replication technology. Its replicated cache copies the entire cache on each cache server in a cache cluster, thus providing Ryanair high availability. If one cache server goes down or needs updating, the airline company doesn't lose any data in the cache because another copy is instantly available to the application.

"NCache allows us to shut down one of our three sites for maintenance, meaning if we want to do an upgrade, we can take a site off line," Nygaard said. "All the traffic moves over to another site. It doesn't kill our bandwidth traffic when the traffic moves over and it continues running. Plus, we get individual service. We can take down individual servers and it has no effect on the other customers. So with this solution it enables us to upgrade the site. Sometimes we upgrade it twice a week to add or change features, add languages, that sort of thing without any downtime required."

Moving Forward

Like the innovative contribution NCache is making to faster, more efficient flight booking, Ryanair is pioneering newer, more modern ways to better serve its flying public, and at the same time sustaining its business leadership. Since its entry into commercial aviation in 1985, Ryanair has maintained steady growth outpacing many leading European airline companies. Over the past 10 years, while worldwide commercial carriers lost billions of dollars, Ryanair has achieved healthy net profits in nine out of the 10 years—most recently earning \$431 million in the fiscal year ended in March 2010.