

# Case Study



By installing NCache, we achieved the stability and reliability that MIDAS demanded. And, these improvements translated into a better overall user experience for our customers.”

**Kevin Dees**  
IT Team Lead  
DOB Systems



**NCache Provides High Availability and Consistency to DOB Systems Business Model**



**Country or Region:**

United States and Other Countries

**Industry:**

Airline Business Intelligence

**Customer Profile:**

DOB Systems (DOB) provides unique and comprehensive business intelligence (BI) solutions for the travel industry. Airline companies team up with DOB to maximize revenue from their data investments. Many of them are the world's largest carriers. The company pioneered the use of travel industry's Global Distributed Systems (GDS) Marketing Information Data (MIDT) for BI over 30 years ago.

Today, DOB's premier BI suite MIDAS incorporates data from various sources including MIDT, industry data and airline internal data. DOB also provides dedicated training, consulting and support of its product line.

DOB helps airlines to understand market sizes and market shares in the global aviation industry. This data allows them to plan more efficient route networks and improve the effectiveness of their sales teams.

The information the company provides is critical for airlines to understand the total marketplace and make intelligent decisions to maximize their revenues and profitability. Airline company departments benefiting from DOB's BI data include Sales, Marketing, Network Planning, Alliances, Pricing, and Revenue Management.



We concentrate on delivering accurate, tailored, and timely competitive information to our customers. NCache increases our uptime to 99.9%. That translates to an overall increase in customer satisfaction.

**Kevin Dees**  
IT Team Lead  
DOB Systems

## Business Value Summary

Customers use the MIDAS BI web portal as part of their day-to-day operations. With over 87,000 user transactions per month, significant application downtime is not something that these customers can afford. The reliability and robustness of NCache's in-memory caching solution has become a vital component in providing a well-performing and consistent user experience to meet end user demands, according to Dees.

He says, "Prior to implementing NCache, we were maintaining approximately 95% uptime on a weekly basis. At the time, if one of our web servers went down, it could have resulted in a 10 to 15-minute outage for our customers, in addition to data loss. The intelligent replication of NCache's cache cluster allows session and application data to be seamlessly retrieved, with virtually no impact to the end user. This has allowed us to increase our uptime to 99.9% and that translates to an overall customer satisfaction increase for us".

Today, DOB Systems' customers demand an application that is reliable and responsive. NCache has immediately brought improved reliability and performance to the MIDAS BI web portal. As a result, DOB Systems is able to spend less time triaging application issues and spending more time creating new features that allow our product to stand out in the marketplace.

## Challenges facing MIDAS

Initially, DOB Systems used Microsoft's InProc ASP.NET Session State management with its flagship BI web application called MIDAS. This meant session and object cache items were stored locally to whichever of the two web servers that the users had been routed to.

DOB Systems was therefore limited to maintaining session and application data objects directly on their web servers. This architecture exposed them to the risk of users losing their sessions in case of a web server failure. As a result, consistency and reliability also became major challenges due to DOB Systems dependence on ASP.NET InProc Session storage option, which means all sessions are stored within the ASP.NET application process.

Although, ASP.NET InProc is very fast to fetch sessions from the same worker process that the ASP.NET application is running, it poses other challenges. Dees says, "Our web server load balancing model had to be set to 'sticky sessions' forcing the users to always be routed to the same web server. This prevented effective load balancing for true scalability. The reason is if the one web server where a user is routed fails, there is no way to recover the user session data and continue allowing them access to the application." In addition to session data loss problem, the sticky sessions limited us in truly doing load balancing based on customer load on the web servers.

"Anytime, there was an application issue, the web application would crash due to everything running on one server," Dees notes. In this situation, he says, "We had issues with customers who weren't able to log in and use our website on the specific server that was impacted. We had to quickly turn off load balancing and re-route these users over to a working web server. And, after the affected server was back up, we would have to turn on load balancing and add it to the web farm. And, all of this required manual intervention from our staff that was painful."

## NCache Solution

### Linchpin for MIDAS' Consistency and Reliability

"We make a promise to our customers that we'll have 99.9% uptime in our service agreements. With that said, we needed a solution that allowed us to have that uptime and meet our SLA," Dees says.

After carefully evaluating competitive solutions, DOB Systems selected NCache as the most suitable solution for their MIDAS issues. DOB Systems had four (4) critical requirements in selecting NCache:

- 1- High Availability
- 2- Scalability
- 3- Ease of Application Integration with .NET applications and
- 4- Cost

Plus, the session data loss issue in case of a failure scenario brought on by sticky sessions had to be addressed. Dees says, "NCache allowed us to store ASP.NET Session State out-of-process on a separate set of redundant servers. This helped us to add a level of critical reliability and scalability to our application architecture, which we didn't previously have, and resolved our 'session data loss' issue."

#### Alachisoft Product:

NCache

#### Customer Needs Met:

- High Availability
- Consistency
- Reliability
- Multiple Cache Topologies
- Ability to Create Application Specific Session and Object Caches
- Ability to affect cached objects based on changes to underlying database tables.

## 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](http://www.alachisoft.com) or send email at [sales@alachisoft.com](mailto:sales@alachisoft.com)

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

DOB Systems stated that other competitors of NCache did not meet their required criteria. And they failed in the areas of high availability or scalability. "NCache was the only solution that met all of our needs," according to Dees.

"We have NCache set up as an enterprise solution. Two separate servers host NCache with replication, and they are load balanced at the web server level. Basically, NCache is called from within our applications to store any of our application and session data," he explains.

"By installing NCache, we achieved the consistency, stability, and reliability MIDAS demanded. Moreover, these improvements translated into a better overall user experience for our customers."

Overall, NCache has contributed to a 65% reduction in application-related errors, while the addition of out-of-process caching has enabled us to increase overall application performance by 30%. Dees adds that storing data in the cache or reading information from it is very quick. The programming and logic to implement NCache was easy and required limited coding.

"NCache is very clean and efficient in loading the cache data. There is not any lag. That's been key to our implementation. These improvements lead to a well-performing application suite, which has helped us garner new customers," he says.

## DOB Customer Growth

How has NCache helped DOB Systems garner new customers? "Because we perform very well in terms of reliability and efficiency within the application, itself," Dees says. He adds that customers like the speed of their application and how they're able to triage and efficiently get data they need on a timely basis.

"NCache is the backbone of how our application is working under the covers. That helps to position our application as one of the top tier applications in use among all of our competitors. Our customers are more excited to come to DOB Systems to use our product, as a result," he proclaims.

In effect, he says, "NCache allows us to 'round robin' between our web servers so we can effectively load balance the web server environment. It's given us a lot of flexibility within our process."

## Partition-Replica Caching Topology

Using Partition-Replica Cache, an NCache high-availability caching topology, plays a major role to assure MIDAS has the required reliability and consistency. Partition-Replica is one of several caching topologies that NCache offers. This caching topology, as the name implies, combines the benefits of data partitioning and balancing the work load, and data replication for high availability.

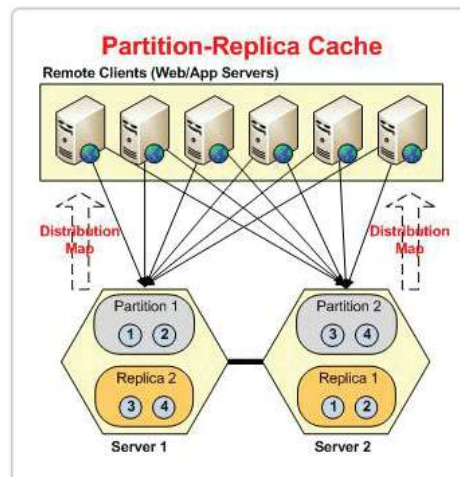


Fig: 1

Partition-Replica Cache, which is extremely fast and scalable, divides the entire cache into partitions. Every cache server has one partition. It's scalable as far as transaction capacity is concerned because as more servers are added, more transaction capacity becomes available. It's also scalable when it comes to storage capacity because as more servers are added, more partitions become available to store more data.

For MIDAS, the Partition-Replica Cache topology combines the benefits of partitioning along with the benefits of reliability. This topology is the same as Partition cache except that every partition is also replicated onto a different server. So, if any one cache server goes down, no data is lost.

Dees stated, "This topology offered us the best of both worlds, one, reliability through replication and two, scalability through partitioning."

The replication occurring in the background for NCache ensures that any data added to one NCache server is automatically replicated to the other. This NCache topology is seamless to users, seamless to the application. "Frankly, it just works," Dees explains.

Thanks to NCache, Dees reports his customers are able to use MIDAS to more efficiently find answers to solve their business problems. And DOB Systems can relax in knowing that their solution is now highly available and highly scalable.



### About MIDAS by DOB Systems:

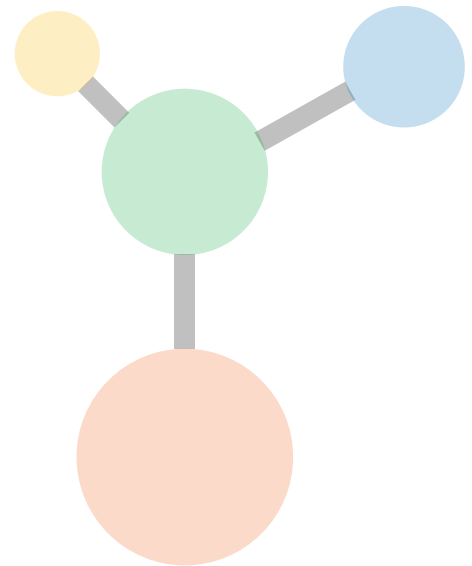
DOB's premier BI suite MIDAS is comprised of a number of web-based modules that provide business services to its airline customers. This ASP.NET application framework is designed from the ground up as a strong foundation on which to build secure, robust, and high-performance web applications. MIDAS incorporates data from various sources including MIDT, industry data and airline internal data. DOB also provides dedicated training, consulting and support of its product line.

## Future Plans for MIDAS and NCache

Later this year, DOB Systems plans to perform upgrades to MIDAS, so it can take advantage of NCache's newer versions and features. For example, it's interested in version 4.9, released in Spring 2018, which has the ability to directly refresh the cache if changes occur in the database.

"Instead of having to drop the cached data from the cache and then reload it via the application, NCache has the capability to automatically refresh the cache. That's a nice feature, meaning there is less work on the application side, offloading more of that to NCache.

"We also have enhancements and upgrades that we're currently working in new modules that we're currently adding to our website, which we'll also take advantage of NCache under the covers," Dees notes.



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

Intl: +1 (214) 764-6933  
UK: +44 20 7993 8327  
Fax: +1 (925) 886 8361

Sales Email:  
[sales@alachisoft.com](mailto:sales@alachisoft.com)  
Technical Support:  
[support@alachisoft.com](mailto:support@alachisoft.com)