



CombineNet Uses the BIG-IP Application Traffic Manager and iControl To Provide a Highly Available, Scalable, and Secure Solution

Customer Profile

Company Name:

CombineNet

Location:

Pittsburg, Pennsylvania

Industry:

Software and Services

Web site:

<http://www.combinenet.com/>

Company information:

- Approximately 65 employees in the US and Germany

About CombineNet

CombineNet™ targets and solves complex business allocation problems. Their flagship product, ClearBox™, provides a simple means for high-end corporate buyers to receive bids from multiple suppliers, and powers a new standard in solution discovery. It delivers all the relevant facts, quickly and in context, informing the complex decision process as never before.

CombineNet products and services are being applied in a number of different areas, including strategic sourcing, production planning, inbound supply chain, distribution, and strategic planning.

CombineNet sells software solutions and acts as an ASP, hosting their solution for customers. The solution is a 3-tier application architecture. The application is built on Open Source Apache Web servers, MySQL database, and a custom application server, ClearBox, as the heart of the solution.

Executive Summary

When CombineNet was searching for a comprehensive solution that could provide application security, enhance scalability, and directly integrate applications via open standards, they looked to the flexibility and power of F5 Networks BIG-IP® application traffic management product and the iControl® SDK/API, to increase network performance and substantially reduce costs.

Challenge

The CombineNet solution is derived from a complex application engine, ClearBox. The computational nature of the application requires special handling of the transaction.

"The application servers do the number crunching that allows us to find the optimal solutions for the purchasing problems and sourcing problems that our customers have," said Sean Everson, Senior Systems Administrator at CombineNet. "One of the interesting characteristics of our architecture is that [for] our application servers, these sourcing problems can be very complex and can take a long time to solve. Sometimes they can be only a couple of seconds, sometimes they can run for minutes and even up to hours."

This requires the applications to have direct control over which application servers are available for processing at any given time. CombineNet's applications utilize XML for messaging between the different tiers. CombineNet was looking for a solution that could provide application security, help inexpensively scale to meet any business size, and directly integrate the application, via open standards, with the traffic management device.

"As a result of our applications sometimes running seconds and sometimes running for minutes and hours, we have an interesting scalability problem," said Everson. "One of the things we were looking to a partner to solve for us was how we could add more machines quickly and easily to our back end for our application servers, for our database servers and for our Web front end."

Solution

CombineNet selected the BIG-IP, Application Traffic Manager version 4.5 because of its flexible and powerful features including the Universal Inspection Engine, iRules™, integrated security, and the iControl open XML/SOAP API.

Low cost scaling

Using the iControl SDK and iRules, CombineNet is integrating the application directly with version 4.5 of the BIG-IP product. The computational nature of ClearBox requires the application to have direct control over the traffic flow. This enables the application to act as a job scheduler, routing traffic only to servers with available resources. As more computational resources are required, more instances of the application are added to inexpensive servers. Resources can be automatically provisioned to the application tier. This automation can reduce from days to minutes the time required to add or scale the application. Application based routing enables scaling to meet any customer demand. Traditional traffic management devices do not have this flexibility.

"Because of the complex nature of the transactions that take place on our application servers, it's very difficult to predict load and capacity in advance,"



Everson stated. "One of the things that we're looking to do with iControl is to allow the app servers to dynamically update the BIG-IP with their health and state based on things such as memory usage, and CPU usage. With that information, the BIG-IP will allow us to direct new incoming transactions to the app server with the least load and the best ability to quickly handle the new transaction."

Additionally, BIG-IP 4.5 enables simple, low cost scaling of the database tier allowing read capacity to be scaled independently of write capacity. The master database server is in the write pool with all of the slaves in the read pool. Write requests go to the master only, and reads are sent back to the BIG-IP for load balancing to the read pool. Because the application is over 90% reads, this greatly enhances the scalability.

Everson realized the cost savings of adding the BIG-IP solution to the network. "One of the reasons we're going to use the BIG-IP for our database is because of the flexibility that the iRules give us. We'll be able to try out a number of techniques to direct traffic between the MySQL servers and we'll be able to go with the one that works the best for us."

This provides huge savings since the traditional way to scale a database is with "heavy iron", a big four-way or eight-way server. This traditional solution can quickly become very expensive, making the overall solution cost prohibitive. Using BIG-IP, the CombineNet solution uses high end commodity PC's with 2 CPU's and fast IDE disks for a fraction of the cost of the more traditional method.

Low cost management

CombineNet is adding a management module that will automate the process of updating or applying enhancements to the Web, application, or database tier. This management module will communicate via SOAP/XML to the BIG-IP product, and modify the available servers (by modifying the iRules for traffic routing), shutting down specific servers for maintenance, then automatically bringing them back online. This automated process will significantly reduce the cost of management for the CombineNet solution and simplify the application development process.

And with the BIG-IP product's advanced health checking features and load balancing algorithms, Everson said that "being able to use the BIG-IP to monitor the state of all the various app servers and to always find the app server that is best able to handle the new transaction is going to be a big help to us."

Protecting the customer

Any ASP application requires strong security measures. Protecting the customers business assets/information as well as the intellectual property of the application provider is key. The flexible yet powerful nature of the product's Dynamic Security Control Architecture (DSCA) enables a multi-layered approach to security. DSCA is used as a defense mechanism against malicious attacks from the outside. Client side SSL certificates authorize and authenticate customers to specific applications protecting sensitive data. The combined use of the Universal Inspection Engine and iRules can block the wrong information from ever leaving the protected confines of the data center.

Another primary consideration was the BIG-IP product's ease of SSL Certificate Management. The BIG-IP greatly reduces the number of certificates needed and simplifies certificate management. For the initial deployment CombineNet would need about 15 certificates, if deployed on the servers. With the BIG-IP solution, CombineNet only requires 3 certificates to accomplish the same thing. At \$500 per certificate, CombineNet saves \$6,000 per year.

"One of the major benefits of the BIG-IP for our Web front end is the ability to use the BIG-IP as an SSL end point," Everson stated. "All of our customers pretty much demand across the board that we use SSL to protect their business transactions. By using the SSL end point capabilities of the BIG-IP, we can offload the additional processing and complexity that SSL brings with it from our Web servers onto the BIG-IP."



Offloading all SSL processing onto the BIG-IP equates to about a 10-20% increase in overall capacity without purchasing any additional server hardware.

Results

The combined power of BIG-IP 4.5 and the CombineNet applications provide customers with a highly available, scalable, secure business-to-business solution that replaces guesswork and implementation politics with informed choices, supported by irrefutable evidence that ensures direct savings to the enterprise.

"The major benefits for CombineNet from the BIG-IP are going to be: one, being able to quickly and easily grow out our network architecture to handle customer demand, and secondly, we're going to be able to save our developers a lot of time by leveraging the feature set of the BIG-IP," Everson said. "iRules and iControl, these things are going to allow our developers to quickly and easily make our applications network aware without having to spend a lot of time in development."

About F5

As the pioneer and global leader in Application Traffic Management, F5 continues to lead the industry by driving more intelligence into the network to deliver advanced application agility. F5 products ensure the secure and optimized delivery of applications to any user - anywhere. Through its flexible and cohesive architecture, F5 delivers unmatched value by dramatically improving the way organizations serve their employees, customers and constituents, while lowering operational costs.