



“In the future, we will have a much higher adoption rate of our cloud services. The F5 solution helped us create the hybrid platform we needed to meet our customers’ requests.”

Toby Owen, Product Manager, Hybrid Hosting, Rackspace

Rackspace Hosting Links Dedicated Servers to Cloud for Maximum Scalability and Flexibility

Rackspace® Hosting, the world’s leading specialist in the hosting and cloud computing industry, wanted to broaden its product portfolio by offering customers an easy way to link dedicated managed servers to cloud-based servers. The company used Application Delivery Networking devices from F5 to help build a hybrid service called Cloud Connect.

Now, Rackspace customers can mix and match dedicated managed and cloud hosting platforms for ultimate scalability, flexibility, efficiency, and lower costs. Customers can dynamically provision resources, manage web and application traffic, and load balance in real time among the two environments. F5® technology helped enable a rapid time-to-market for Cloud Connect, and it also helps the company expand the benefits of its cloud by simplifying customers’ migration.

Business Challenges

Rackspace, based in San Antonio, Texas, provides hosting solutions to businesses of all sizes, across a portfolio of IT services, including managed and cloud hosting. The company operates nine data centers worldwide, and it offers fully managed hosting and cloud computing options on dedicated and virtualized servers in Rackspace data centers. The company’s 3,000 employees serve more than 100,000 hosting customers, many of whom rely on the cloud for some segment of their hosting needs.

Rackspace wanted to offer its customers a hybrid hosting solution so that they could take advantage of both dedicated and cloud hosting and connect the two environments over the Rackspace network. But the company wanted to provide more than just a physical connection, explains Toby Owen, Product Manager for Hybrid Hosting at Rackspace. “Our goal is to offer customers the performance and security of dedicated network servers, and also allow the customer to automatically jump to the cloud to scale an application up and down, in minutes.”

Overview

Industry

Hosting Provider

Challenges

- Link customers’ dedicated servers to the cloud
- Intelligently manage traffic between environments
- Use preexisting assets
- Deliver optimal performance with automated provisioning

Solution

- BIG-IP® Local Traffic Manager™
- Enterprise Manager™
- iControl® API

Benefits

- Meets customers’ needs
- Facilitates adoption of cloud services
- Meets stringent security requirements
- Enhances scalability, lowers costs
- Speeds time to market
- Helps expand market share

Cloud hosting resources can prove economical for companies with erratic or unpredictable traffic loads because the service is based on a pay-as-you-go model, unlike managed physical servers, which require upfront investment and manual setup.

“A customer may invest in more dedicated resources than they normally need, just to cover occasional traffic peaks. These servers may sit idle for much of the year,” says Owen. “The cloud gives these customers a cost-efficient way to scale rapidly. They can burst through to the cloud when traffic loads go above the average load that their dedicated servers can handle.”

Rackspace believed that many customers, including those who experience predictable fluctuations in traffic, could benefit from this cloud-bursting model—from a cost-efficiency and performance perspective. For instance, an e-commerce company could manage its transactional payment card information on dedicated servers but also take advantage of cloud resources during peak traffic times such as holidays or sale events. Online gaming companies could take advantage of the cloud during competitive gaming events, and companies re-broadcasting sports events—such as World Cup Soccer—could handle extreme traffic spikes with ease.

Previously, Rackspace offered a virtual private network (VPN) connection between the two environments. However, the VPN was software-based, had performance challenges, and because it connected over the public Internet, customers were charged for bandwidth consumption. “We needed to create a solution that is fast, seamless, has built-in automation, and eliminates bandwidth costs,” says Owen.

Solution

Rackspace evaluated several options for connecting the two environments, including an open source software solution. “The open source option couldn’t provide the scalability we needed,” says Owen. The company also wanted to use

“With F5 devices in place, dedicated managed and cloud servers talk to each other at wire speed, with the added security of never leaving the Rackspace network.”

equipment that already existed in its data centers, rather than require customers to invest in a new, specialized device.

After a careful evaluation, Rackspace concluded that it could use BIG-IP Local Traffic Manager (LTM) Application Delivery Networking (ADN) devices from F5, which it already used in its data centers, to deliver the ideal solution. “We found that we could use BIG-IP LTM to connect the dedicated managed and cloud hosting environments for a seamless compute solution,” says Owen. “The BIG-IP devices had the intelligence we needed to direct traffic, already built-in.”

As part of its standard hosting infrastructure, Rackspace uses BIG-IP devices to accomplish a number of tasks. BIG-IP LTM automatically directs customers’ traffic among web and application servers. It offloads CPU-intensive content caching and TCP connections from the servers to the BIG-IP devices to boost server performance. It also monitors application health and seamlessly redirects traffic away from potentially problematic servers or network components.

The company also takes advantage of F5 Enterprise Manager to centralize management of multiple BIG-IP devices in its network through a single interface, significantly reducing the amount of time spent administering devices. Enterprise Manager helps Rackspace monitor system capacity and traffic flowing through its network in order to prevent performance

degradation. It also provides the ability for administrators to set thresholds and alerts and review graphs and reports for trending and analysis of physical resource usage and traffic flows and patterns.

Rackspace worked with F5 engineers to automate the connections between the dedicated and cloud environments. Rackspace did this using the F5 open application programming interface (API) called iControl. “iControl made the development effort fast and straightforward,” says Owen.

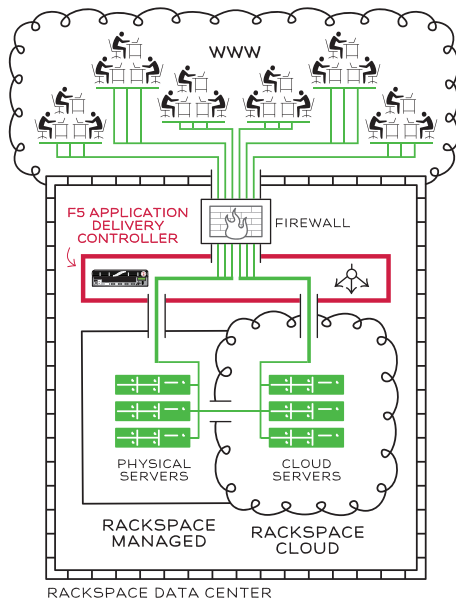
The Rackspace hybrid dedicated hosting and cloud computing solution is called Cloud Connect. When a customer selects the Cloud Connect service, Rackspace performs an initial setup process to connect the customer’s dedicated servers to its cloud account. This enables the BIG-IP device to act as a router between the environments, directing traffic to the appropriate application and web pools. As customers spin cloud servers up and down at-will, BIG-IP LTM automatically adds and removes these resources to and from the available resource pool.

The BIG-IP devices add packet filters to allow access to a customer’s dedicated servers only from that customer’s cloud environment. “This way, we can protect their dedicated environment and also automate which application pools those devices are put into,” says Owen.

In addition, Rackspace can perform wild card pattern matching based on server name or metadata assigned to the cloud servers, and then add the cloud resource appropriately to the BIG-IP device configuration. For instance, if a customer’s cloud server has “app” in the name, it is directed to the “Application Pool” of dedicated server resources, or if it has “web” in the name, it is sent to the “Web Pool” of resources. Owen says, “The BIG-IP devices give us the flexibility to build routines for identifying the server and putting it in the right use case to meet each customer’s specific needs.”

Owen adds, "The connection between the environments stays within the Rackspace data center. With F5 devices in place, dedicated and cloud servers talk to each other at wire speed, with the added security of never leaving the Rackspace network."

BIG-IP LTM manages connections between dedicated managed and cloud environments in Cloud Connect.



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BIG-IP LTM managing connections between dedicated managed and cloud environments.

In Spring 2010, Rackspace conducted a private beta of its Cloud Connect service. "We ran the beta for two months, with great success," says Owen. The company removed the beta, publicly, in November 2010.

Benefits

Rackspace built its connected hybrid offering using infrastructure from F5. Now, the company can offer its customers the ability to easily mix and match dedicated and cloud hosting options. The flexible solution helps customers speed their adoption of cloud services to reap the benefits sooner.

Rackspace took advantage of F5 technology to bring Cloud Connect to market rapidly.

The company is hopeful that the service, which provides customers with greater flexibility and higher cost-efficiency, will further extend the benefits of hybrid hosting and the company's award-winning customer service, called Fanatical Support®.

Meets customers' needs

Rackspace wanted to develop a hosting solution that was a mix of its managed and cloud hosting offerings to better meet its customers' needs. Because its primary focus is providing the best service and support for its customers, Rackspace wanted to work with a company that would help meet their customers' expectations.

F5 was able to deliver a high-quality product and great solution to help Rackspace develop its Cloud Connect product. Now, Rackspace has a robust, enterprise-quality hosting solution that combines the security of dedicated hosting with the flexibility of cloud computing.

Facilitates adoption of cloud services

With many applications designed, built, and optimized for physical servers, rewriting and migrating an application to the cloud can be time intensive and costly. With Cloud Connect, Rackspace customers can move to the cloud in increments, "rather than in one big, expensive step," says Owen.

"With Cloud Connect and the F5 solution, we can help customers move just a piece of their infrastructure at a time because BIG-IP LTM enables the different parts to continue to talk to each other," Owen explains.

A customer can also elect to move only certain parts of its application to the cloud. For instance, without extensive recoding, an e-commerce customer can burst segments of its operations (such as its web catalog traffic) through to the cloud while keeping other parts of its application infrastructure (such as payment card data) isolated on highly secure, dedicated servers in Rackspace data centers.

Owen adds, "Hybrid platforms will be the norm for some time, while the cloud

model matures and more applications are developed with cloud-based architectures in mind."

Accommodates security requirements

Cloud Connect is also designed to serve customers whose security requirements are more advanced, such as an e-commerce company that handles payment card data.

The F5 iControl API enables communication from the customer's cloud to the managed environment, while preventing unauthorized access from the cloud. All user connections, data packets, and application data are routed through the BIG-IP device to the cloud environment, according to each customer's specific traffic management and security policies. This ensures that confidential data is isolated on dedicated managed database servers.

Further, cloud resources are provisioned on demand, and they are de-provisioned and inaccessible when the customer no longer needs them. "Many companies aren't comfortable moving everything to the public cloud today," says Owen. "With the F5 devices, we can give them the ability to move parts of their site to the cloud, and that is a great advantage."

Enhances scalability, lowers costs

Customers also reduce administration and manage their costs more easily with Cloud Connect. "The pay-as-you-go model is important," says Owen. "With Cloud Connect, companies only pay for the cloud resources they use."

Server administration and management is also reduced because the BIG-IP devices automate traffic management between dedicated managed and cloud hosting environments. "We chose F5 products because we can use them to continue to automate more and more of our customers' deployment and ongoing maintenance. This really helps reduce customers' administrative costs because they no longer need to actively monitor their traffic loads. The BIG-IP devices do it for them."

For some customers, however, cost is a secondary concern. For instance, for an online gaming company or a media provider, performance is the top priority. "These companies need to be able to scale rapidly to avoid application crashes and accommodate their customers' needs. Cloud Connect, with BIG-IP LTM, gives them access to the resources they need, instantly," says Owen.

Speeds time to market

With the help of F5, Rackspace was able to use its existing equipment to deploy a new offering to customers in a very short time. Owen says, "Our time-to-market for Cloud Connect was less than three months, and this was largely due to iControl."

Owen explains, "The solution allows us to take advantage of existing capabilities. We built this technology on a platform that was designed to perform traffic management. We just took it a step further and used it to bridge the gap between dedicated and cloud servers."

Schroepfer adds, "We used the F5 solution to give customers a head start on moving to the cloud. Cloud Connect is the perfect path for them to begin leveraging the cloud today."

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