

Deployment Options and Considerations for the Barracuda Load Balancer

Introduction

Many organizations rely on the Barracuda Load Balancers to scale their IT infrastructure by distributing the incoming traffic among multiple, physical, or virtual servers. The Barracuda Load Balancer can load balance a wide variety of servers such as Web servers, database servers, email servers, DNS servers, streaming media servers, and even the servers hosting VoIP applications.

Deployment Options

The Barracuda Load Balancer can be deployed in the network multiple modes based on the requirements of the network and the application to be load balanced.

The deployment modes supported by the Barracuda Load Balancer are:

- **Route Path:** This deployment mode provides the most flexibility, allowing load balancing of servers that are downstream from the Barracuda Load Balancer. In this configuration, the WAN and LAN interfaces of the Barracuda Load Balancer must be on separate logical networks.
- **Bridge Path:** This is the simplest deployment to configure. Users may place the Barracuda Load Balancer in line with their existing IP infrastructure, and add load balanced servers as required without changing IP addresses. With this type of deployment, the WAN and LAN interfaces must be on physically separate networks, with the LAN interface on the same logical switch as the servers that are being load balanced.

Direct Server Return is an option that works in parallel with Route Path and Bridge Path modes of deployment. In this mode, requests come through the WAN interface of the Barracuda Load Balancer and are handed off directly to the real servers via the WAN port, while the servers respond directly to the request through their own interfaces. This implementation requires the use of a Loopback adapter placed on the load balanced servers.

Monitoring Specific Services Deployed on the Server: When a load balancer checks for the health of a server, it is not sufficient to only check whether the server is reachable via a ping type of test. It is important to determine whether the actual service deployed on that machine is responding or not. For example, while distributing traffic to DNS servers, it is important to check if each server is responding to DNS queries. The Barracuda Load Balancer provides multiple server monitors like the DNS monitor, SMTP monitor, and HTTP monitor to check that the actual services that are being load balanced.

Deployment Considerations

The type of application or service to be load balanced determines the deployment mode of the Barracuda Load Balancer. Some of the basic considerations are discussed here.

- **Web Servers / Application Servers / Database Servers:** Here the connection is mostly initiated from the clients and these servers process the incoming request and return with the response. The Route Path mode is ideally suited for these situations.
- **Email Servers:** While email servers can be load balanced by specifying multiple email servers in the DNS, the recommended approach is to use a load balancer with adaptive scheduling to ensure speedy delivery of email, while reducing the exposure of IP address to spammers.

In this case the clients establish the connections to the email servers to send emails to it, while the email server establishes the connection to send out or forward the emails. Here the recommended option is to deploy the Barracuda Load Balancer in Route Path mode.

- **Networking Services:** In case infrastructure services such as DNS need to be load balanced, the Barracuda Load Balancer can be deployed in the Route Path mode, as DNS servers are queried for information and they do not establish a connection from their side. In case the DNS servers are configured to do zone transfers, then static routes on the Barracuda Load Balancer would have to be configured so that the DNS servers may reach out to the other DNS servers.

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The **Barracuda Load Balancer** is designed to provide fast and comprehensive IP load balancing capabilities to any IP-based application, including:

- HTTP
- HTTPS (SSL)
- SSH
- SMTP
- IMAP
- RDP (Terminal Services)
- POP3
- NTP
- ASP
- Streaming Media
- DNS
- LDAP
- RADIUS
- TFTP
- Other TCP/UDP based services

Barracuda Networks also offers the **Barracuda Web Application Firewall**, which is a complete Web application delivery platform. The Barracuda Web Application Firewall has a Layer 4 and Layer 7 load balancer with integrated caching, compression, and SSL offloading capabilities required for accelerating application delivery. The Layer 7 Web application firewall provides protection against Web attacks such as cross site scripting, SQL injection, and Cross Site Request Forgery. In addition, the product also has an authentication and authorization module for validating clients against LDAP or RADIUS servers.

Barracuda Spam & Virus Firewalls also support Direct Server Return via the loop back adaptor.

- **FTP Servers:** While transferring data to or from a FTP server, there are two connections that come into play. The first connection is known as the control connection and is initiated by the client. This connection is used by the client to send various FTP commands to the FTP server. The second connection is normally initiated by the FTP server to the client, and is known as the data connection, to transfer data to or from the client.

While deploying a load balancer to scale the FTP server farm, a Route Path configuration with Direct Server Return is the recommended option. This allows the control connection to come in via the Barracuda Load Balancer; however, the data connection is established directly from the server to the client.

- **Windows Remote Desktop Services / Windows Terminal Services:** The Barracuda Load Balancer has native integration of Windows Remote Desktop services. This integration enables the Barracuda Load Balancer to track active user sessions for each server. To scale Windows Remote Desktop Services, the Barracuda Load Balancer should be deployed in Route Path mode and utilize the adaptive scheduling algorithm to forward new connection servers with the least number of active user sessions, thus ensuring optimal traffic distribution.
- **Streaming Media Applications:** For scaling streaming media within the content delivery infrastructure, the preferred mode of deployment is Route Path in combination with Direct Server Return setup, which distributes traffic to the servers hosting the streaming content. Due to the Direct Server Return setup, the server will send media content directly to the client, bypassing the Barracuda Load Balancer, thus optimizing the appliance to handle more incoming traffic.
- **Voice Over IP (VoIP) Applications:** For most of the VoIP applications a Route Path deployment is recommended. VoIP applications normally utilize TCP protocol for control channel, while the actual voice data is sent via the UDP protocol. The Barracuda Load Balancer supports both these protocols and can be utilized to load balance VoIP connections.

For questions about the Barracuda Load Balancer, please visit <http://www.barracuda.com/load> or call Barracuda Networks for a free 30-day evaluation at 1-888-ANTI-SPAM or +1 408-342-5400. For more information on our other security and productivity solutions, please visit <http://www.barracuda.com/products>.

About Barracuda Networks Inc.

Barracuda Networks Inc. combines premise-based gateways and software, cloud services, and sophisticated remote support to deliver comprehensive security, networking and storage solutions. The company's expansive product portfolio includes offerings for protection against email, Web and IM threats as well as products that improve application delivery and network access, message archiving, backup and data protection.

Coca-Cola, FedEx, Harvard University, IBM, L'Oreal, and Europcar are among the more than 100,000 organizations protecting their IT infrastructures with Barracuda Networks' range of affordable, easy-to-deploy and manage solutions. Barracuda Networks is privately held with its International headquarters in Campbell, Calif. For more information, please visit www.barracudanetworks.com.



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