

An Introduction to Reverse Proxies on BusinessObjects XI 3.0



Applies to:

BusinessObjects Enterprise XI 3.0

Summary

The objective of this white paper is to provide an introduction to reverse proxy servers and to describe the most common scenarios supported by the BusinessObjects XI 3.0 suite of products.

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Table of Contents

What is a reverse proxy?.....	3
Common Reverse Proxies Scenarios	4
Reverse Proxy in Single Layer Environment	4
Reverse Proxy in Dual Layer Environment.....	4
Differences from Previous Releases.....	5
Important notes and limitations.....	5
Related Content.....	5
References	5
Copyright	6

What is a reverse proxy?

A reverse proxy is a software application that acts on behalf of a network server. The most common usage of a reverse proxy is to protect a web server by 'hiding' internal servers from the outside world. In its typical usage, when a user on the Internet requests information from a web server protected by a reverse proxy, the reverse proxy intercepts the request and verifies that the data contained in the request is acceptable.

Its job is to sit in the Internet/Extranet receiving requests for internal resources and to proxy those requests onto the relevant machines internally. If the data is deemed acceptable, the reverse proxy will receive the requested content from the web server and forward it on to the original user [Lavigne 2003]. In this way, users on the Internet never directly access your internal web servers.

Reverse proxies provide a series of advantages to the organization. From a security perspective, they hide internal network information, such as IPs and server names, from malicious attacks. From a performance perspective, reverse proxy servers can be combined with security modules to accelerate SSL and encryption algorithms in order to improve request response time. Finally, from a web content management perspective, this type of server can be used to improve performance by caching static content, thereby improving the end-user web experience.

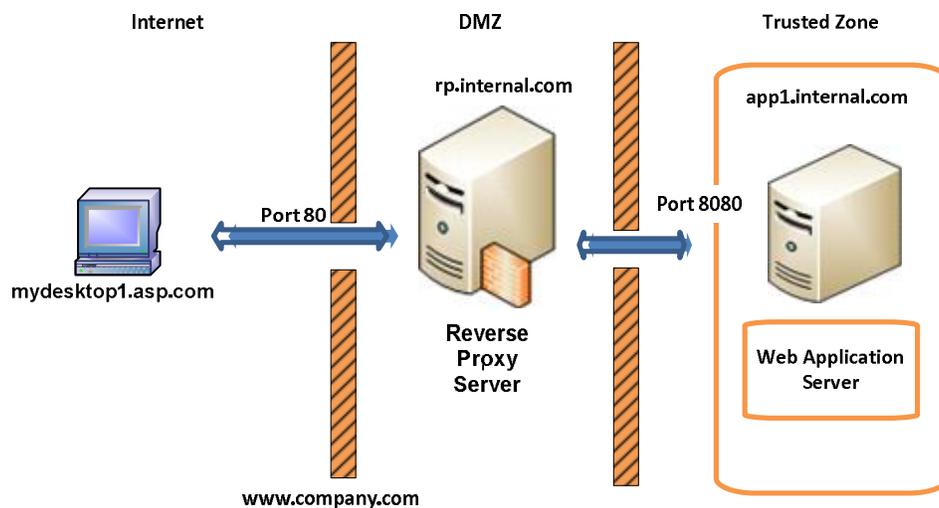


Figure 1 - Reverse Proxy in Action

Figure 1 above illustrates a simple reverse proxy server configuration. In this example, the reverse proxy server *rp.internal.com* is located in a DMZ (De-militarized Zone) with limited access to the internal servers. Surrounded by firewalls, this reverse proxy server can only receive requests from the external world over port 80 and can only submit requests to internal servers using port 8080 (for http traffic). This configuration guarantees that, if the reverse proxy is compromised by a malicious attack, the internal servers are not compromised.

Using the Internet, an end-user can access the web application by submitting an http request to the URL *www.company.com*. Next, the reverse proxy receives the user request and translates the URL *www.company.com* to *internal.myserver.company.com:8080*, and forwards the request to the internal server *app1.internal.com*. The internal server responds back to the reverse proxy using the internal URL and, finally, the reverse proxy converts the internal response back to externally readable URLs. All these transformations are transparent for the end user on *mydesktop1.asp.com* who does not have any knowledge of the internal translation.

Common Reverse Proxies Scenarios

There are some typical usages of reverse proxies in the organization. In this section we have provided some common scenarios on how reverse proxies can be deployed.

Reverse Proxy in Single Layer Environment

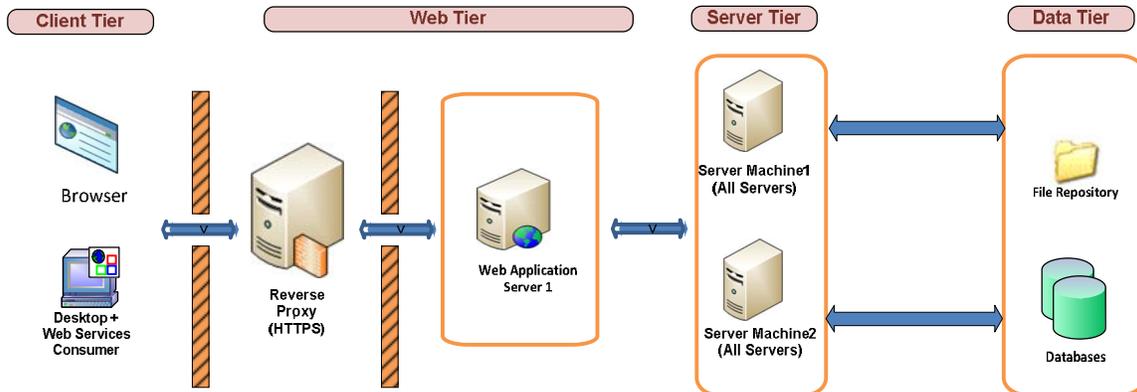


Figure 2 - Simple Reverse Proxy Layer

In this scenario, there is only one reverse proxy in front of the internal server infrastructure. The reverse proxy serves internet requests, filters acceptable requests, and forwards them to internal servers.

Reverse Proxy in Dual Layer Environment

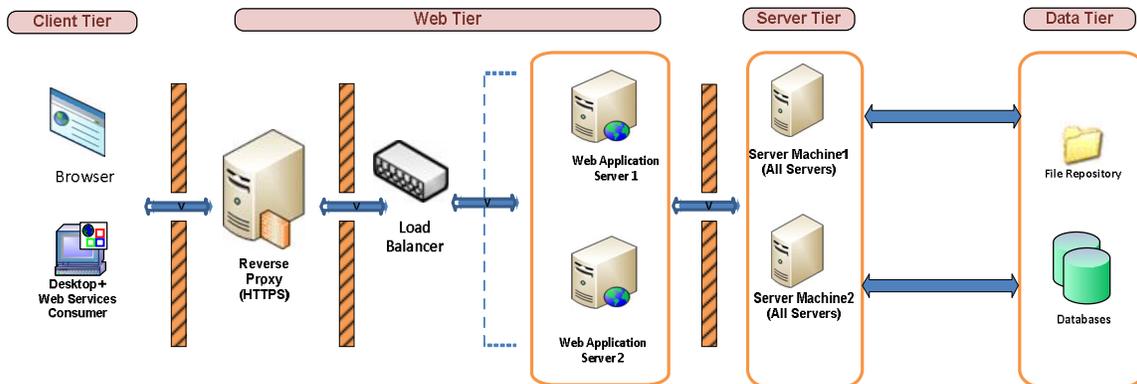


Figure 3 - Reverse Proxy in a Dual Layer Network Topology

In enterprise environments, Reverse Proxy servers can be deployed in combination with hardware and software load balancers. In other words, a possible configuration would be to have client requests going through the reverse proxy server, then going through a load balancer and finally reaching the BOE servers. Typically, the hardware/software load balancer in this scenario is configured to act as a secondary reverse proxy in order to provide an additional layer of security.

Differences from Previous Releases

The major difference from previous releases is on the approach used in XI 3.0 to test reverse proxy scenarios. On the XI 3.0, a coordinated engineering effort took place to make sure that suite products were consistently tested using common scenarios and approaches. In previous releases, each team did their own testing and products were tested independently throughout the product development cycle.

Another relevant difference in XI 3.0 relates to how the web application deployment files are structured in InfoView. This is an evolutionary change where the original desktop.war file containing the InfoView application is now separated into multiple war files. The configuration for reverse proxy is done considering these separate war files.

Important notes and limitations

This section provides some information related to the main issue issues found while testing our software:

- Some additional considerations are required in order to deploy web services using reverse proxies. The procedure on how to do that is documented on the release notes documentation, under the section “Web services with reverse proxy”.
- For the Performance Manager, some workflows for strategy builder may not work using reverse proxy. Refer to the release notes for more details.

Related Content

Detailed information regarding reverse proxies can be found in the following links:

Business Objects XI 3.0 Release Notes

http://support.businessobjects.com/documentation/product_guides/default.asp

Business Objects XI 3.0 Enterprise Deployment Planning Guide

http://support.businessobjects.com/documentation/product_guides/default.asp

Business Objects XI 3.0 Enterprise Administrator’s Guide, under the chapter 9 “Modifying default security behavior”

http://support.businessobjects.com/documentation/product_guides/default.asp

Deployments information in PGWiki (*Internal* to engineering only)

<http://pgwiki/display/trans/Deployment>

References

[Lavigne 2003] http://www.onlamp.com/pub/a/bsd/2003/06/19/FreeBSD_Basics.html

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