Comparison of Different Web Servers

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Abstract: A web server is central nervous system of a website. If one has to develop a website or to make an ambitious project that involves the Internet then knowledge of which web server need to be used is important. In this paper, we compare different web servers on different bases. There are both open source and proprietary web servers that have different framework and run on different platform. In this research paper, we compare Apache tomcat, GlassF ish, IBM Http server and Nginx web servers. Web servers are compared on different bases such as support, cost, capabilities and the active sites uses the servers. When comparing these web servers we arrive at different conclusions.

1. Introduction

Web servers are primarily used to store process and deliver the pages of a web site to users. A Web Server hosts both the components of a Web page such as the actual Web page HTML files, CSS files and templates and all other essential technologies that make a Web site function the way it does. Although all Web servers function similarly, the set up and the way a server could be set can vary drastically.

In this research paper we have compared web servers on different bases-

1. Operating system support
2. Software or platform support
3. Cost
4. Capabilities
5. Percentage of active sites uses the server.

Cost and support tend to go hand in hand. While one may choose a web server because it is open source, there may be hidden costs associated with it like many open source may charge for professional support. The capabilities one desire in a web server also determines which web server one should use.

It is important to carefully weigh all of the options, balancing cost and support with the features and capabilities one require.

1.1. Apache Tomcat

Apache Tomcat, often referred to as Tomcat, is an open-source Java Servlet Container developed by the Apache Software Foundation (ASF). Tomcat implements several java EE specifications including Java Servlet, Java Server Pages (JSP), JavaJL, and Web socket, and provides a "pure Java " HTTP web servers environment in which Java code can run.[1][7]

Tomcat is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation, released under the Apache License 2.0 license, and is open-source software. It supports many operating systems like Windows, Linux, OSX, BSD, Solaris, Open VMS, AIX, IBMi, z/OS, HP-UX. It is supported by Cand Java platform.

It has several advantages like, it is flexible because of ability to pick and choose various modules, it has enhanced security and has strong user-community support.[7]

It has some disadvantages also like, it is process-based server, which means each simultaneous connection requires a thread that incurs significant overhead and it is a servlet container i.e. it implements only servlets and JSP specifications.[1]

Percentage of active sites using apache server is 49.16%.[2] (like Wikipedia, PayPal, Apple)

1.2. GlassFish

GlassFish is a cost free and open source application server project started by Sun Microsystems for the Java EE platform and now sponsored by Oracle Corporation. The supported version is called Oracle GlassFish Server. GlassFish is free software, dual-licensed under two free software licenses CDDL and GPL. It supports operating systems like Solaris, AIX,
Linux Windows, Mac OSX. It is supported only by Java platform.[8]

It has several advantages like, it supports technologies such as Servlets, EJBs, JPA, JSF, JMS. It comes bundled by default with the Java EE SDK, it possesses production reliability and it is lightweight i.e. starts in few seconds.[9]

Its disadvantages are that it needs to be configured by hand.[6]

Percentage of active sites uses GlassFish server is less than 0.1%.[5]

1.3. IBM HTTP Server

IBM HTTP Server (IHS) is a free of cost web server based on the Apache Software Foundation’s Apache HTTP Server that supports Windows, Linux, Solaris, AIX, IBMi, z/OS, HP-UX operating systems. It is supported by C and Java platform. It is software licensed by IBM.[10]

It has some advantages like it can be remotely administrated using IBM WebSphere administrative consoles, it includes a graphical certificate management tool, it provides integrated support to help secure HTTPS transactions and it can authenticate web requests.[1,3,10]

Its disadvantage is Apachectl command is the only supported command to start IBM HTTP server.[1]

Percentage of active sites using IBM http server is less than 0.1%.[2]

1.4. Nginx

Nginx is software to provide a cost free and open source web server. It can act as a reverse proxy server for TCP, UDP, HTTP, HTTPS, SMTP, POP3, and IMAP protocols, as well as a load balancer and an HTTP cache. It supports Windows, Linux, OSX, BSD, Solaris, AIX, HP-UX operating systems. It is supported only by C platform. It is software licensed by BSD variant.[1]

Its advantages are that it is known for speed and for being a reverse proxy server, it is an event-based server, which enables high performance and scale and it is potentially better for a VPS (virtual private sector) environment.[1,4]

Some of its disadvantages are that there are difficulties in module creation and in supporting HTTP/1.0 with backend communication.[1,4]

Percentage of active sites using Nginx server is 27.6%[5] (like Instagram, Tumblr, Weibo).

![Figure 1. Percentage of active sites uses web servers](image)

<table>
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<th>Table 1. Tabular comparison</th>
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<td>IBM HTTP Server</td>
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2. Conclusion

This research paper presents a comparison of web servers on different bases. It compares Apache, GlassFish, IBM HTTP server and Nginx on the bases of support, cost, and capabilities. By comparison we conclude that Apache is the most popular web server as it works on almost all type of Operating System and works on both C and Java enabled platform. Nginx is an extremely popular alternative as it is very fast and very lightweight. Also almost half of the websites uses Apache web server.

While choosing the more popular server (Apache and Nginx) may make sense, each choice truly depends on what to accomplish within ones hosting environment. Like according to our study one can also use Glassfish if its project is complete java enabled as Glassfish server provide complete java EE SDK and have two license support.
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4. References


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