



Sizing Guide for Deploying NGINX Plus on Bare Metal Servers

NGINX Plus is the only all-in-one load balancer, content cache, and web server. It's built on NGINX Open Source which powers over 400 million websites. NGINX Plus runs on bare metal x86 servers for maximum performance and incredible cost savings compared to hardware application delivery controllers (ADCs).

The table below outlines the performance levels you can achieve with NGINX Plus running on specific server sizes. Each row details the specifications of the hardware you will need to achieve each level of performance, along with the typical cost for that hardware.

Hardware Cost ¹	Hardware Specs	Expected Performance
\$750	2 CPU cores ² 4 GB RAM 2x1 Gbe NIC 500 GB HDD	90,000 Requests/Second ³ 4,000 RSA SSL TPS ⁴ 4,500 ECC SSL TPS ⁵ 1 Gbps Throughput ⁶
\$1,100	2 CPU cores ² 4 GB RAM 2x10 Gbe NIC 500 GB HDD	90,000 Requests/Second ³ 4,000 RSA SSL TPS ⁴ 4,500 ECC SSL TPS ⁵ 10 Gbps Throughput ⁶
\$1,300	4 CPU cores ² 4 GB RAM 2x40 Gbe NIC 500 GB HDD	175,000 Requests/Second ³ 7,500 RSA SSL TPS ⁴ 8,500 ECC SSL TPS ⁵ 25 Gbps Throughput ⁶
\$2,200	8 CPU cores ² 4 GB RAM 2x40 Gbe NIC 1 TB HDD	350,000 Requests/Second ³ 14,000 RSA SSL TPS ⁴ 16,000 ECC SSL TPS ⁵ 40 Gbps Throughput ⁶
\$3,500	16 CPU cores ² 8 GB RAM 2x40 Gbe NIC 1 TB HDD	650,000 Requests/Second ³ 27,000 RSA SSL TPS ⁴ 30,000 ECC SSL TPS ⁵ 40 Gbps Throughput ⁶
\$6,000	32 CPU cores ² 8 GB RAM 4x40 Gbe NIC 1 TB HDD	1,000,000 Requests/Second ³ 48,000 RSA SSL TPS ⁴ 52,000 ECC SSL TPS ⁵ 70 Gbps Throughput ⁶
\$10,000	44 CPU cores ² 16 GB RAM 4x40 Gbe NIC 1 TB HDD	1,200,000 Requests/Second ³ 61,000 RSA SSL TPS ⁴ 64,000 ECC SSL TPS ⁵ 70 Gbps Throughput ⁶

1. Prices are based on Dell PowerEdge servers with Intel NICs

2. Testing done with Intel Xeon E5-2699 v4 CPUs @ 2.2 GHz

3. 1 KB response size with keepalive connection

4. RSA 2048 bit, ECDHE-RSA-AES256-GCM-SHA384, OpenSSL 1.0.2

5. ECC 256 bit, ECDHE-ECDSA-AES256-GCM-SHA384, OpenSSL 1.0.2

6. 1 MB response size

NOTE: NGINX Inc. doesn't sell hardware; the costs presented are typical costs when purchasing from a reseller.

About the Tests

Requests/Second - Measures the ability of NGINX Plus to process HTTP Requests. The client sends requests down keepalive connections. NGINX Plus processes each request and forwards it on to a web server over another keepalive connection.

SSL TPS - SSL Transactions per Second (TPS) measures the ability of NGINX Plus to process new SSL connections. Clients send a series of HTTPS requests, each on a new connection. NGINX Plus parses the requests and forwards them onto a web server using an established keepalive connection. The web server sends back a 0 byte response for each request.

Throughput - The throughput that NGINX Plus can sustain when serving large files over HTTP.

Memory Sizing

NGINX Plus memory usage grows slowly with the number of concurrently active connections. Though dependent on the configuration, it is typically less than 10 - 20 Kb per connection.

When caching content in NGINX Plus, additional memory may be needed. Size the memory so that there is sufficient unused memory to store the hot cached content in the operating system page cache.

Perfect Forward Secrecy

The SSL TPS numbers presented above are for SSL with Perfect Forward Secrecy (PFS). PFS ensures that encrypted traffic captured now can't be decrypted at a later time, even if the private key is compromised. PFS is recommended to provide maximum protection and user privacy in the current security climate.

PFS is more computationally expensive and as a result gives lower overall Transactions Per Second (TPS). Other vendors do not publish PFS performance; readers should keep this in mind when doing comparisons.

About NGINX PLUS

NGINX Plus helps you achieve performance, reliability, security, and scale by providing a complete application delivery platform by combining load balancing, content caching, web serving, security controls, and monitoring in one easy-to-use software package.

NGINX Plus ensures maximum performance and flawless delivery for almost any application (whether a legacy application, traditional web app, or interconnected microservices) and equally for all types of infrastructure (bare metal, the cloud, or in containers).

Try NGINX Plus for free today: nginx.com/free-trial-request