
NetIQ® LDAP Proxy 1.6

Sizing Guide

February 2021

Legal Notice

For information about legal notices, trademarks, disclaimers, warranties, export and other use restrictions, U.S. Government rights, patent policy, and FIPS compliance, see <https://www.netiq.com/company/legal/>.

Copyright © 2021 NetIQ Corporation, a Micro Focus company. All Rights Reserved.

1 Introduction	5
Get Started With Sizing Estimation	5
2 Sizing Guidance for Deploying LDAP Proxy On-Premise	7
Scenario # 1 - Read Intensive Operations	7
Scenario # 2 - Write Intensive Operations	9
3 Sizing Guidance for Deploying LDAP Proxy On AWS	11
Scenario # 1 - Read Intensive Operations with Default Policy	11
Scenario # 2 - Read Intensive Operations with Custom Policies	13
Scenario # 3 - Write Intensive Operations with Default Policy	15
Scenario # 4 - Write Intensive Operations with Custom Policies	17

1 Introduction

This guide helps estimating the software and hardware requirements for deploying NetIQ LDAP Proxy along with eDirectory as back-end server. To help you estimate your sizing requirements, we have provided the most useful estimation factors along with various performance scenarios, which are tested under the controlled lab environment with specific configuration parameters in place.

Get Started With Sizing Estimation

Before deploying LDAP Proxy, you must estimate the hardware requirements for achieving the optimal performance out of your Proxy setup. The performance of LDAP Proxy depends on multiple factors regarding how an enterprise plans to use it. Some of the factors to take into consideration for your estimation are:

- ◆ Number and type of concurrent LDAP operations to be performed
- ◆ Type of policies going to be configured for LDAP Proxy
- ◆ Type of hardware (for both LDAP Proxy server and Back-end server):
 - ◆ Processor
 - ◆ RAM
 - ◆ Number of CPU

Once you have gathered the above mentioned information, you can refer to [Chapter 2, “Sizing Guidance for Deploying LDAP Proxy On-Premise,”](#) on page 7.

2 Sizing Guidance for Deploying LDAP Proxy On-Premise

In this chapter, we present our recommendations based on performance data for commonly used scenarios. This data will help you to determine the optimal hardware for your environment. Our recommendation is based on 500 milliseconds as acceptable response time. We have also fine tuned the eDirectory back-end servers for optimal performance and creating indexes. For more information, see [eDirectory Tuning Guide](#).

The following sections explain the test scenarios considered for sizing estimation:

- ◆ “Scenario # 1 - Read Intensive Operations” on page 7
- ◆ “Scenario # 2 - Write Intensive Operations” on page 9

Scenario # 1 - Read Intensive Operations

This read intensive operation is a combination of read/write operations with majority of **LDAP search user** operation. We have considered the following hardware and configuration parameters for this test:

- ◆ **Product Version:**
 - ◆ eDirectory 9.1 SP3
 - ◆ LDAP Proxy 1.5 SP3
- ◆ **Policy Configured:**
 - ◆ Connection Route Policy
- ◆ **Number of Servers**
 - ◆ eDirectory: 2
 - ◆ LDAP Proxy: 1
- ◆ **Operations Performed:**

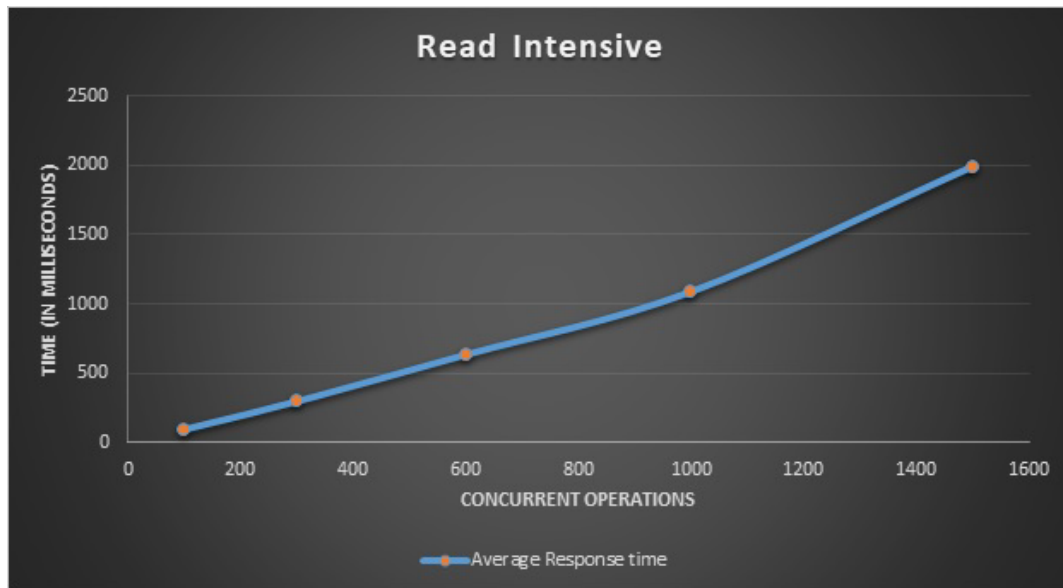
Operations	Operation Distribution by Users	Operation Details
Add Users	5%	This adds users with DN, such as <code>cn=userX</code> . Each object has only <code>sn</code> attribute defined.
Delete Users	5%	This deletes users with DN, such as <code>cn=userX</code> .
Modify Users	20%	This modifies user object such as <code>cn=userX</code> with the following attribute modified: <code>replace => [title => "EngineerX"]</code>
Search Users	70%	This performs a search operation for <code>cn</code> .

◆ **Hardware Used:**

	Server (LDAP and eDirectory)	Client (JMeter)
Make	Dell	Dell
Model	PowerEdge R710	PowerEdge R710
Processor	Intel Xeon CPU X5670 @2.93GHz	Intel Xeon CPU X5670 @2.93GHz
Operating System	Linux – SLE12SP2	Linux – SLE12SP2
RAM	16 GB	16 GB
CPU	4x2	4x2

The following graphical representation shows how average response time change while performing the above-mentioned operations concurrently:

Figure 2-1 Change in average response time based on number of operations performed concurrently



Recommendation

As per this read intensive test, the specified hardware can be used for optimal performance if 0 - 300 concurrent operations are performed. This hardware can also support up to 500 concurrent operations. As the average response time increases with load, we recommend you to choose a better hardware for concurrent operations beyond 500.

Scenario # 2 - Write Intensive Operations

This write intensive operation is a combination of read/write operations with majority of **LDAP modify user** operation. We have considered the following hardware and configuration parameters for this test:

- ◆ **Product Version:**
 - ◆ eDirectory 9.1 SP3
 - ◆ LDAP Proxy 1.5 SP3
- ◆ **Policy Configured:**
 - ◆ Connection Route Policy
- ◆ **Number of Servers**
 - ◆ eDirectory: 2
 - ◆ LDAP Proxy: 1
- ◆ **Operations Performed:**

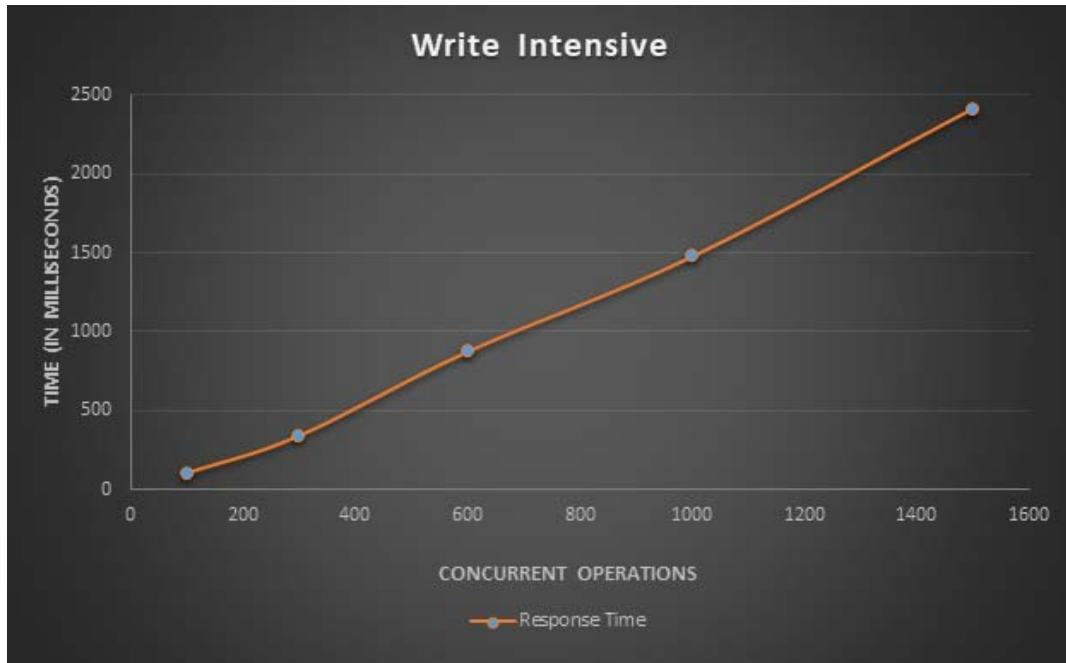
Operations	Operation Distribution by Users	Operation Details
Add Users	15%	This adds users with DN, such as cn=userX. Each object has only sn attribute defined.
Delete Users	15%	This deletes users with DN, such as cn=userX.
Modify Users	40%	This modifies user object such as cn=userX with the following attribute modified: <code>replace => [title => "EngineerX"]</code>
Search Users	30%	This performs a search operation for cn.

◆ **Hardware Used:**

	Server (LDAP and eDirectory)	Client (JMeter)
Make	Dell	Dell
Model	PowerEdge R710	PowerEdge R710
Processor	Intel Xeon CPU X5670 @2.93GHz	Intel Xeon CPU X5670 @2.93GHz
Operating System	Linux – SLE12SP2	Linux – SLE12SP2
RAM	16 GB	16 GB
CPU	4x2	4x2

The following graphical representation shows how the average response time change while performing the above-mentioned operations concurrently:

Figure 2-2 Change in average response time based on number of operations performed concurrently



Recommendation

As per this write intensive test, the specified hardware can be used for optimal performance if 0 - 300 concurrent operations are performed. This hardware can also support up to 500 concurrent operations. As the average response time increases with load, we recommend you to choose a better hardware for concurrent operations beyond 500.

3 Sizing Guidance for Deploying LDAP Proxy On AWS

In this chapter, we present our recommendations based on performance data for deploying LDAP Proxy on Amazon Web Services (AWS). This data will help you to determine the optimal hardware for your environment. Our recommendation is based on 500 milliseconds as acceptable response time. We have also fine tuned the eDirectory back-end servers for optimal performance and creating indexes. For more information, see [eDirectory Tuning Guide](#).

The following sections explain the test scenarios considered for sizing estimation:

- ◆ “Scenario # 1 - Read Intensive Operations with Default Policy” on page 11
- ◆ “Scenario # 2 - Read Intensive Operations with Custom Policies” on page 13
- ◆ “Scenario # 3 - Write Intensive Operations with Default Policy” on page 15
- ◆ “Scenario # 4 - Write Intensive Operations with Custom Policies” on page 17

Scenario # 1 - Read Intensive Operations with Default Policy

This read intensive operation is a combination of read/write operations with majority of **LDAP search user** operation. We have considered the following hardware and configuration parameters for this test:

- ◆ **Product Version:**
 - ◆ eDirectory 9.1 SP3
 - ◆ LDAP Proxy 1.5 SP3
- ◆ **Policy Configured:**
 - ◆ Connection Route Policy
- ◆ **Number of Servers**
 - ◆ eDirectory: 2
 - ◆ LDAP Proxy: 1
- ◆ **Operations Performed:**

Operations	Operation Distribution by Users	Operation Details
Add Users	5%	This adds users with DN, such as <code>cn=userX</code> . Each object has only <code>sn</code> attribute defined.
Delete Users	5%	This deletes users with DN, such as <code>cn=userX</code> .

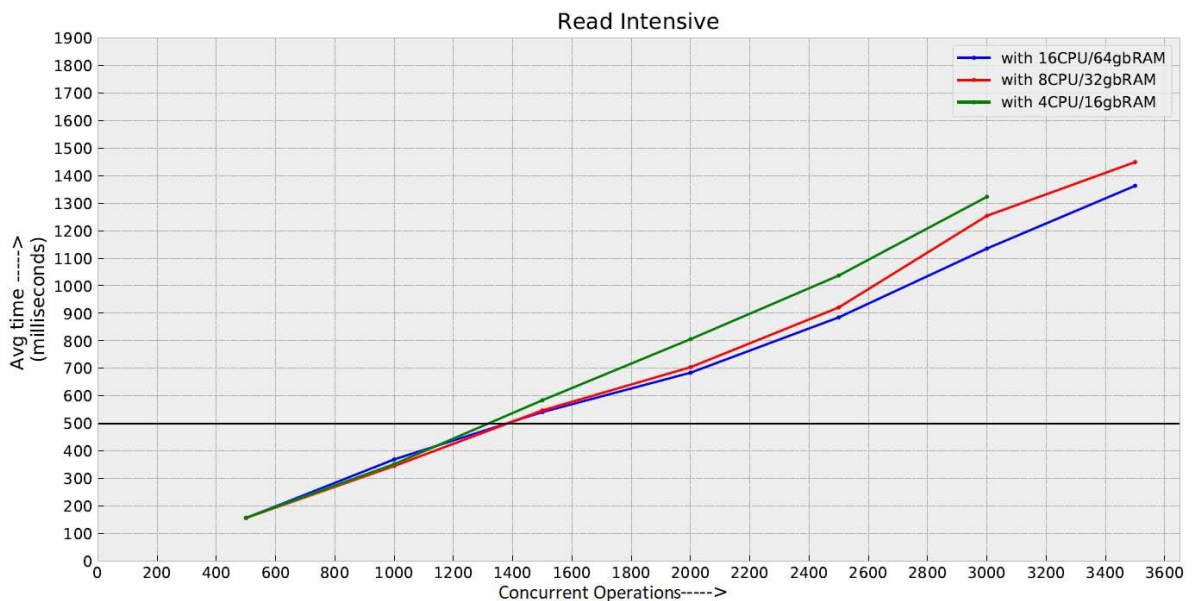
Operations	Operation Distribution by Users	Operation Details
Modify Users	20%	This modifies user object such as cn=userX with the following attribute modified: replace => [title => "EngineerX"]
Search Users	70%	This performs a search operation for cn.

◆ **Hardware Used:**

	Server for eDirectory	Server for LDAP Proxy	Client (JMeter)
Make	Dell	Dell	Dell
Model	PowerEdge R710	PowerEdge R710	PowerEdge R710
Processor	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors
Operating System	Linux – SLE12SP2	Linux – SLE12SP2	Linux – SLE12SP2
RAM (in GB)	64	16/32/64	16 GB
CPU	4x4	4x1/4x2/4x4	4x2

The following graphical representation shows how average response time change while performing the above-mentioned operations concurrently:

Figure 3-1 Change in average response time based on number of operations performed concurrently



Recommendation

As per this read intensive test, the specified hardware can be used for the following concurrent operations:

RAM of LDAP Proxy Server	No. of LDAP Proxy CPU	No. of Optimal Concurrent Operations
16GB	4	0 - 500
32 GB	4x2	500 - 1000
64 GB	4x4	1000 - 1500

As the average response time increases with load, we recommend you to choose a better hardware for concurrent operations beyond every 500.

Scenario # 2 - Read Intensive Operations with Custom Policies

This read intensive operation is a combination of read/write operations with majority of **LDAP search user** operation. We have considered the following hardware and configuration parameters for this test:

- ◆ **Product Version:**
 - ◆ eDirectory 9.1 SP3
 - ◆ LDAP Proxy 1.5 SP3
- ◆ **Policy Configured:**
 - ◆ Connection Route Policy
 - ◆ Map Schema Policy
 - ◆ Replace String Policy
 - ◆ Search Request Policy
- ◆ **Number of Servers**
 - ◆ eDirectory: 2
 - ◆ LDAP Proxy: 1
- ◆ **Operations Performed:**

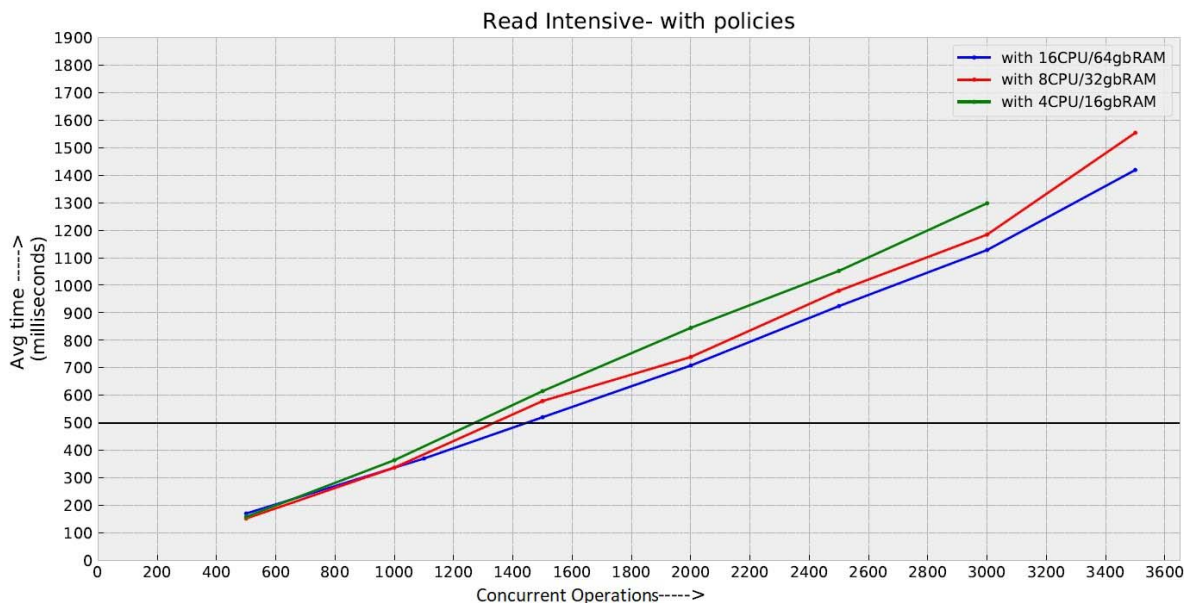
Operations	Operation Distribution by Users	Policy Used	Operation Details
Add Users	5%	Replace String Policy and Map Schema Policy	This adds users with DN, such as <code>cn=userX</code> . Each object has only <code>sn</code> attribute defined.
Delete Users	5%	Replace String Policy	This deletes users with DN, such as <code>cn=userX</code> .
Modify Users	20%	Replace String Policy and Map Schema Policy	This modifies user object such as <code>cn=userX</code> with the following attribute modified: <code>replace => [title => "EngineerX"]</code>
Search Users	70%	Replace String Policy, Map Schema Policy and Search Request Policy	This performs a search operation for <code>cn</code> .

◆ **Hardware Used:**

	Server for eDirectory	Server for LDAP Proxy	Client (JMeter)
Make	Dell	Dell	Dell
Model	PowerEdge R710	PowerEdge R710	PowerEdge R710
Processor	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors
Operating System	Linux – RHEL 8.0	Linux – RHEL 8.0	Linux – RHEL 8.0
RAM (in GB)	64	16/32/64	16 GB
CPU	4x4	4x1/4x2/4x4	4x2

The following graphical representation shows how average response time change while performing the above-mentioned operations concurrently:

Figure 3-2 Change in average response time based on number of operations performed concurrently



Recommendation

As per this read intensive test, the specified hardware can be used for the following concurrent operations:

RAM of LDAP Proxy Server	No. of LDAP Proxy CPU	No. of Optimal Concurrent Operations
16GB	4	0 - 500
32 GB	4x2	500 - 1000
64 GB	4x4	1000 - 1500

As the average response time increases with load, we recommend you to choose a better hardware for concurrent operations beyond every 500.

Scenario # 3 - Write Intensive Operations with Default Policy

This write intensive operation is a combination of read/write operations with majority of **LDAP modify user** operation. We have considered the following hardware and configuration parameters for this test:

- ◆ **Product Version:**
 - ◆ eDirectory 9.1 SP3
 - ◆ LDAP Proxy 1.5 SP3
- ◆ **Policy Configured:**
 - ◆ Connection Route Policy

- ◆ **Number of Servers**

- ◆ eDirectory: 2
- ◆ LDAP Proxy: 1

- ◆ **Operations Performed:**

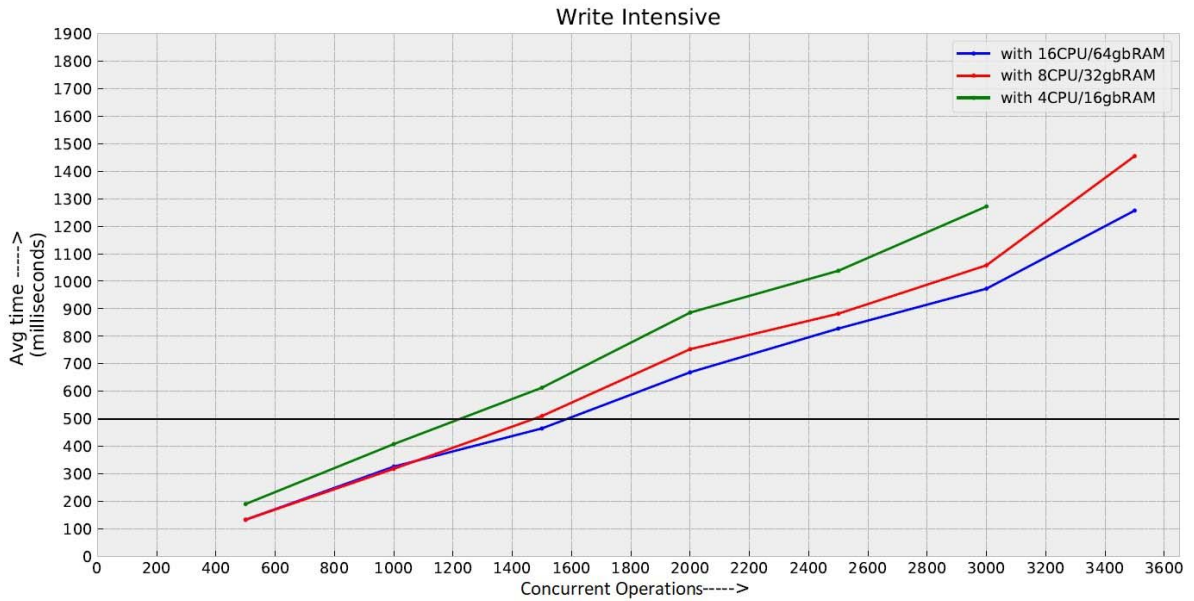
Operations	Operation Distribution by Users	Operation Details
Add Users	15%	This adds users with DN, such as <code>cn=userX</code> . Each object has only <code>sn</code> attribute defined.
Delete Users	15%	This deletes users with DN, such as <code>cn=userX</code> .
Modify Users	40%	This modifies user object such as <code>cn=userX</code> with the following attribute modified: <code>replace => [title => "EngineerX"]</code>
Search Users	30%	This performs a search operation for <code>cn</code> .

- ◆ **Hardware Used:**

	Server for eDirectory	Server for LDAP Proxy	Client (JMeter)
Make	Dell	Dell	Dell
Model	PowerEdge R710	PowerEdge R710	PowerEdge R710
Processor	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors
Operating System	Linux – RHEL 8.0	Linux – RHEL 8.0	Linux – RHEL 8.0
RAM (in GB)	64	16/32/64	16 GB
CPU	4x4	4x1/4x2/4x4	4x2

The following graphical representation shows how the average response time change while performing the above-mentioned operations concurrently:

Figure 3-3 Change in average response time based on number of operations performed concurrently



Recommendation

As per this read intensive test, the specified hardware can be used for the following concurrent operations:

RAM of LDAP Proxy Server	No. of LDAP Proxy CPU	No. of Optimal Concurrent Operations
16GB	4	0 - 500
32 GB	4x2	500 - 1000
64 GB	4x4	1000 - 1500

As the average response time increases with load, we recommend you to choose a better hardware for concurrent operations beyond every 500.

Scenario # 4 - Write Intensive Operations with Custom Policies

This write intensive operation is a combination of read/write operations with majority of **LDAP modify user** operation. We have considered the following hardware and configuration parameters for this test:

- ◆ **Product Version:**
 - ◆ eDirectory 9.1 SP3
 - ◆ LDAP Proxy 1.5 SP3
- ◆ **Policy Configured:**
 - ◆ Connection Route Policy
 - ◆ Map Schema Policy

- ◆ Replace String Policy
- ◆ Search Request Policy
- ◆ **Number of Servers**
 - ◆ eDirectory: 2
 - ◆ LDAP Proxy: 1
- ◆ **Operations Performed:**

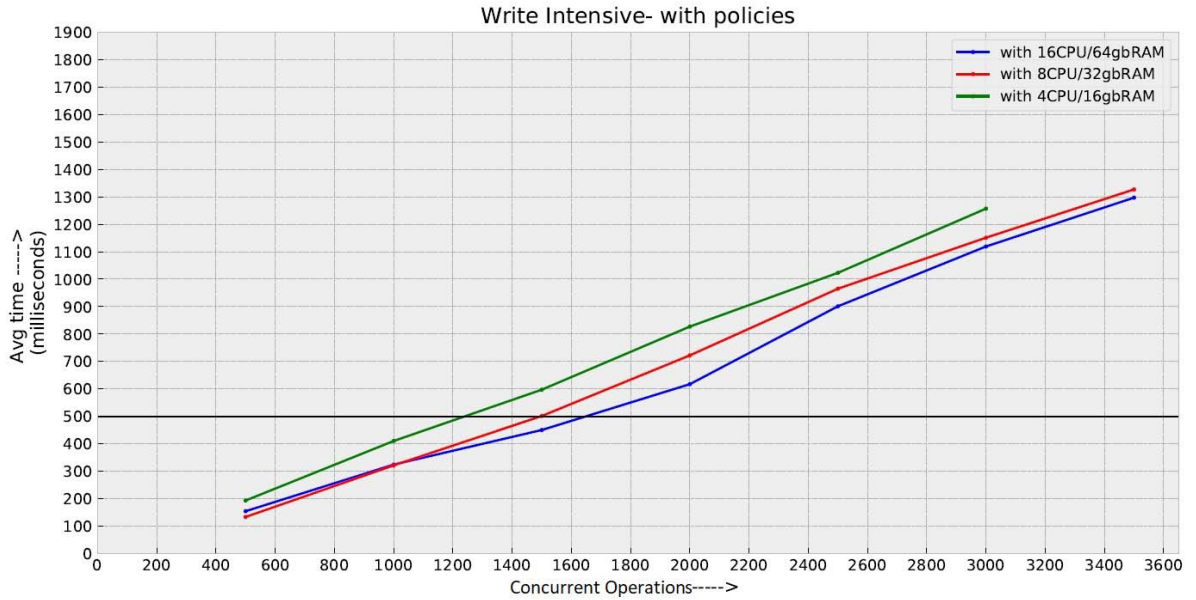
Operations	Operation Distribution by Users	Policy Used	Operation Details
Add Users	5%	Replace String Policy and Map Schema Policy	This adds users with DN, such as <code>cn=userX</code> . Each object has only <code>sn</code> attribute defined.
Delete Users	5%	Replace String Policy	This deletes users with DN, such as <code>cn=userX</code> .
Modify Users	20%	Replace String Policy and Map Schema Policy	This modifies user object such as <code>cn=userX</code> with the following attribute modified: <code>replace => [title => "EngineerX"]</code>
Search Users	70%	Replace String Policy, Map Schema Policy and Search Request Policy	This performs a search operation for <code>cn</code> .

◆ **Hardware Used:**

	Server for eDirectory	Server for LDAP Proxy	Client (JMeter)
Make	Dell	Dell	Dell
Model	PowerEdge R710	PowerEdge R710	PowerEdge R710
Processor	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors	Intel Xeon® Platinum 8175M processors
Operating System	Linux – RHEL 8.0	Linux – RHEL 8.0	Linux – RHEL 8.0
RAM (in GB)	64	16/32/64	16 GB
CPU	4x4	4x1/4x2/4x4	4x2

The following graphical representation shows how the average response time change while performing the above-mentioned operations concurrently:

Figure 3-4 Change in average response time based on number of operations performed concurrently



Recommendation

As per this read intensive test, the specified hardware can be used for the following concurrent operations:

RAM of LDAP Proxy Server	No. of LDAP Proxy CPU	No. of Optimal Concurrent Operations
16GB	4	0 - 500
32 GB	4x2	500 - 1000
64 GB	4x4	1000 - 1500

As the average response time increases with load, we recommend you to choose a better hardware for concurrent operations beyond every 500.

