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Slapd Performance With Indexing

Test Background

Creating The Indexes

The following list shows examples for the from a 6h logging statistics from one BDII instance at CERN:

Occurence	Filter
13805	(&(objectClass=GlueCluster)(GlueClusterUniqueID=Some_host))
5505	(GlueSEUniqueID=Some_host)
5310	(&(GlueServiceURI=*Some_host*)(GlueServiceType=srm_v1))
2503	(&(objectClass=GlueSA)(GlueSAAccessControlBaseRule=Some_VO))
2047	(&(objectClass=GlueCE)(!(GlueCEAccessControlBaseRule=VO:Some_VO)(GlueCEAccessControlBaseRule=VO:Some_VO))
1396	(&(&(objectClass=GlueVOView)(GlueChunkKey=GlueCEUniqueID=Some_CE_unique_ID)(GlueCEAccessControlBaseRule=Some_VO))
1383	(!(objectClass=GlueCESEBindGroup)(objectClass=GlueCESEBind))
1243	(&(objectClass=GlueSubCluster))
1047	(&(GlueServiceType=*)(GlueServiceAccessControlRule=Some_VO))
571	(GlueCEUniqueID=Some_CE_unique_ID)

This list was generated by a script, provided by Valentin Vidic and attached (see below), which parses the slapd log file.

From analysis of the above list the following indexes are required:

```
ObjectClass
GlueSEUniqueID
GlueCEUniqueID
GlueSAAccessControlBaseRule
GlueCESEBindCEUniqueID
GlueSubClusterUniqueID
GlueCEAccessControlBaseRule
```

Configuring Indexes for the slapd

Indexes are configuration for the slapd server by appending the indexes to the *slapd.conf* file.

```
...
database          ldbm
cachesize         30000
dbcachesize       30000000
dbnosync
suffix            "o=grid"
rootdn            "o=grid"
rootpw            secret
defaultaccess     read
directory         /opt/bdii/var/2171

index ObjectClass eq
index GlueSEUniqueID eq
index GlueCEUniqueID eq
index GlueSAAccessControlBaseRule eq
index GlueCESEBindCEUniqueID eq
index GlueSubClusterUniqueID eq
index GlueCEAccessControlBaseRule eq
```

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The index files are created by the running the command *slapdindex* and the following files are created in the database directory:

```
-rw----- 1 root root 1069056 Mar 22 17:01 objectClass.dbb
-rw----- 1 root root 151552 Mar 21 16:16 GlueSEUniqueID.dbb
-rw----- 1 root root 151552 Mar 21 16:16 GlueCEUniqueID.dbb
-rw----- 1 root root 61440 Mar 21 16:16 GlueSAAccessControlBaseRule.dbb
-rw----- 1 root root 151552 Mar 21 10:28 GlueCESEBindCEUniqueID.dbb
-rw----- 1 root root 24576 Mar 21 16:16 GlueSubClusterUniqueID.dbb
-rw----- 1 root root 61440 Mar 21 16:16 GlueCEAccessControlBaseRule.dbb
```

Test Environment

OpenLDAP server (slapd V 2.0.27) installed on a Dual Intel(R) Xeon(TM) CPU 2.40GHz with 1GB of RAM running Scientific Linux 3. The size of the LDAP database is 20MB.

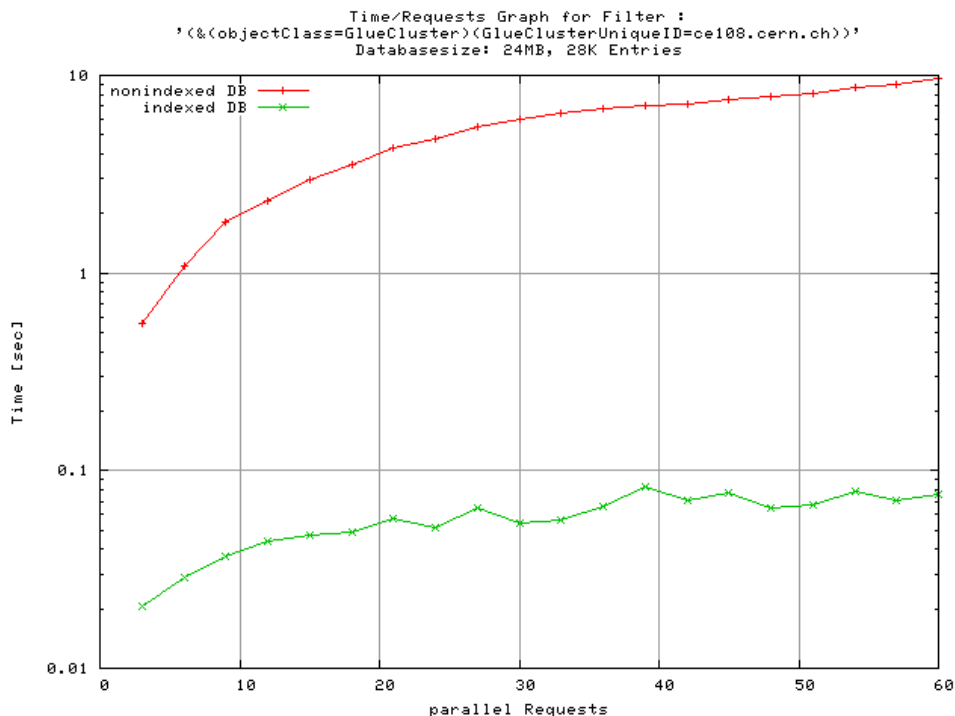
Test Description

The slapd was configured with indexing and the query filter (&(objectClass=GlueCluster)(GlueClusterUniqueID=ce108.cern.ch)) was used.

Test Results

- non-indexed DB

- non-indexed DB



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