

WiredTiger Backend for OpenLDAP



OSSTech

Open Source Solution Technology Corporation

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About OSSTech

- ID Management market dominant in Japan.
- Storage Solution
- Open Source Contribution



About back-wt



About WiredTiger

- Embedded database
- High performance
- High scalable



Lock Free



bdb_next_id()

```
int bdb_next_id( BackendDB *be, ID *out )
{
    struct bdb_info *bdb=(struct bdb_info*)be->be_private;
    ldap_pvt_thread_mutex_lock(&bdb->bi_lastid_mutex);
    *out = ++bdb->bi_lastid;
    ldap_pvt_thread_mutex_unlock(&bdb->bi_lastid_mutex);
    return 0;
}
```

wt_next_id()

```
int wt_next_id(BackendDB *be, ID *out){  
    struct wt_info *wi = (struct wt_info *)be->be_private;  
    *out = __sync_add_and_fetch(&wi->wi_lastid, 1);  
    return 0;  
}
```

fsync(2) is slow

- Group commit

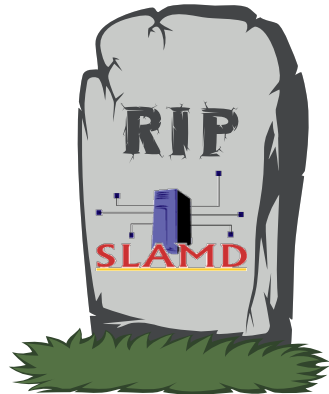


Durability Level

- in-memory txn log – fastest but no durability
- write txn log file, no sync
- write txn log file, sync per every commit

New Benchmark Tool - Ib

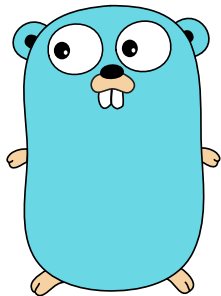
- SLAMD is dead
- Command line interface
- Written by Go



Installation of lb

```
$ export GOPATH=~/go
```

```
$ go get github.com/hamano/lb
```



Usage of lb

\$ lb -c concurrency -n requests

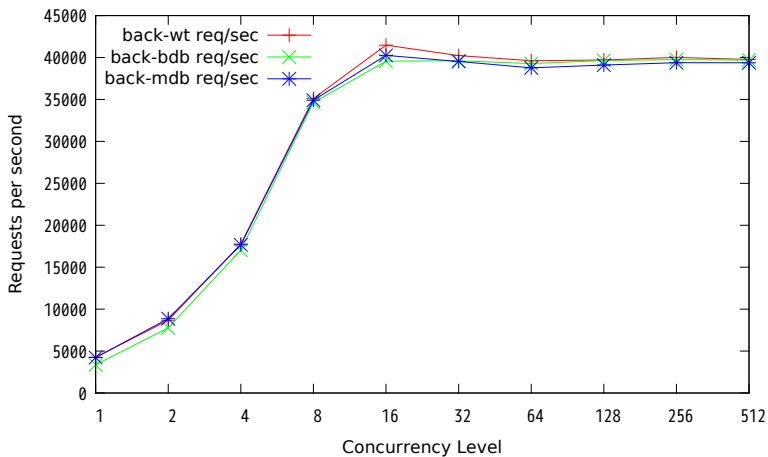
Benchmark Environment

- 12 Core CPU
- No RAID Card
- SAS Disk

BIND Benchmark Script

```
for c in 1 2 4 8 16 32 64 128 256 512; do
  lb bind -c $c -n 100000 \
    -D "cn=user%d,dc=example,dc=com" -w secret \
    --last 10000 ldap://targethost/
done
```

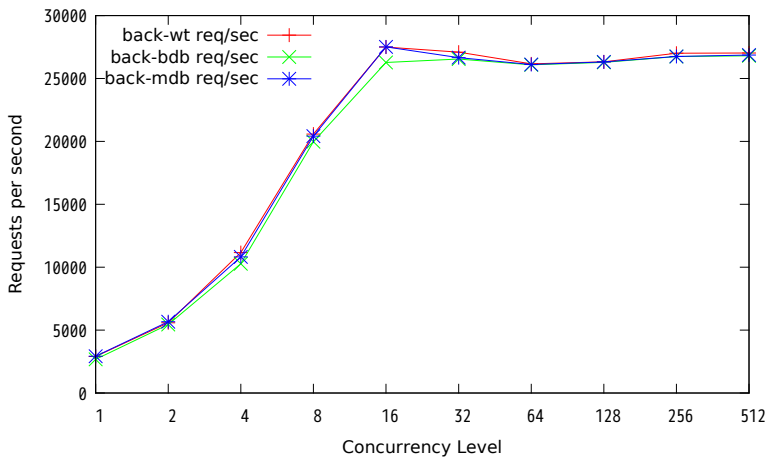
BIND Benchmark Result



SEARCH Benchmark Script

```
for c in 1 2 4 8 16 32 64 128 256 512; do
  lb search -c $c -n 100000 \
    -a "(cn=user%d)" \
    --last 10000 ldap://targethost/
done
```

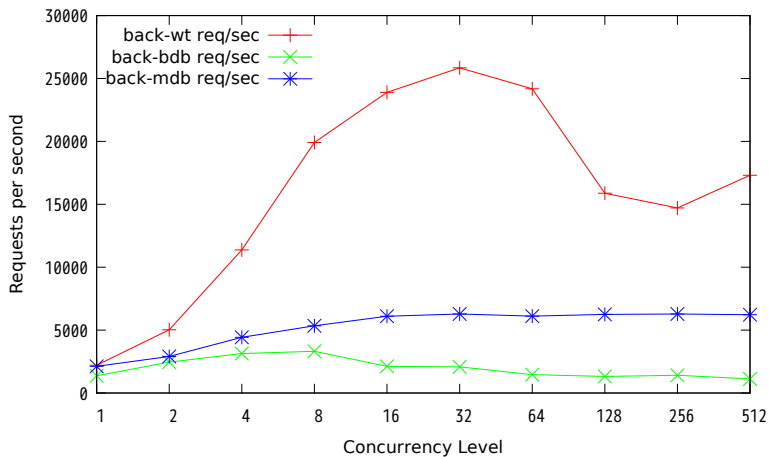

SEARCH Benchmark Result



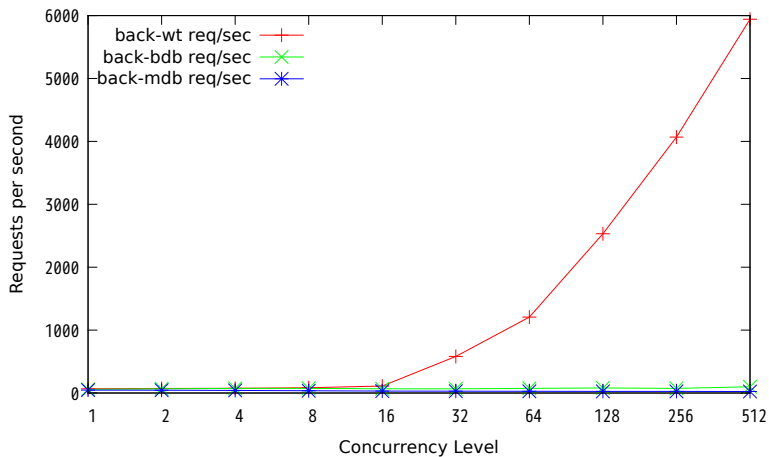
ADD Benchmark Script

```
for c in 1 2 4 8 16 32 64 128 256 512; do
    lb add -c $c -n 10000 --uuid ldap://targethost/
done
```

ADD (nosync) Benchmarks



ADD (sync) Benchmarks



Tests

\$ make -C tests wt

$\frac{54}{65}$ Succeed

Tasks

- Hot-backup
- alias and glue entry

Questions?

