

RocksDB Festival

Supported by IITP, StarLab.

July 19, 2021
강정현, 김산, 허진

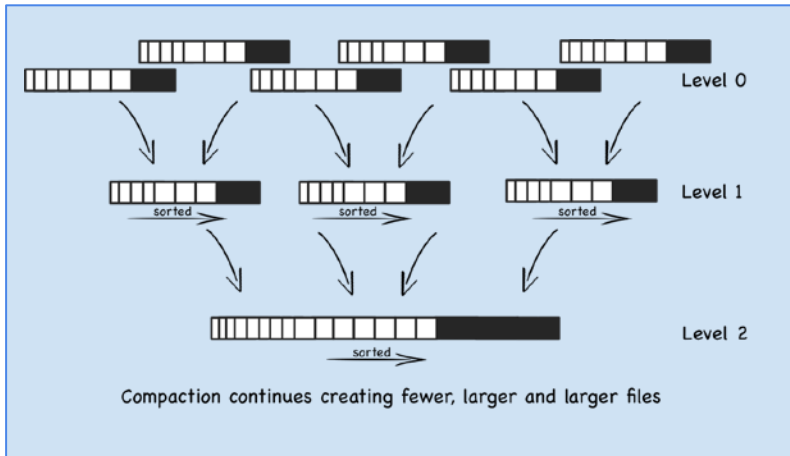
rilac1@naver.com, waterfog9580@gmail.com, jinh2352@gmail.com

Team: JSJ

RocksDB Festival

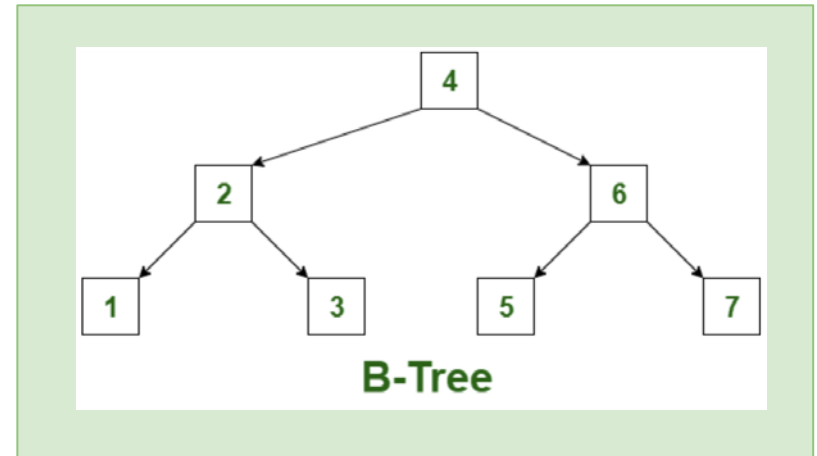
- RocksDB vs MongoDB
 - ✓ Data Structure

Rocks DB



LSM-Tree
(out-place update)
-> Write Good!

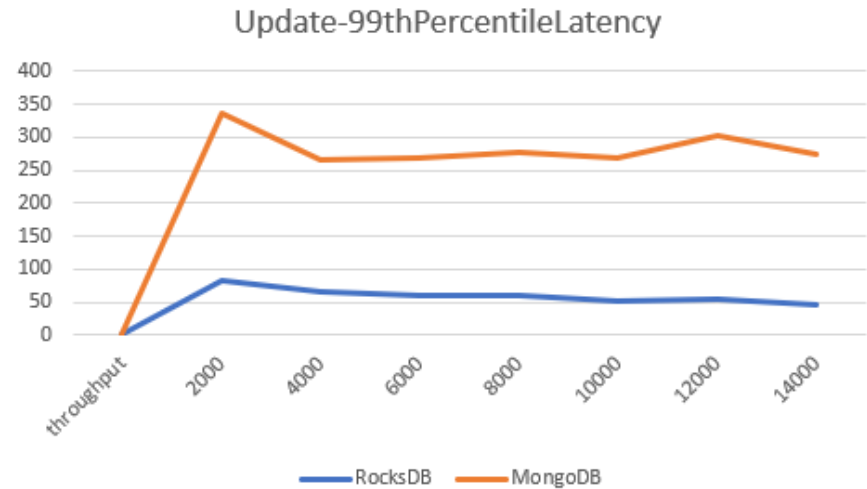
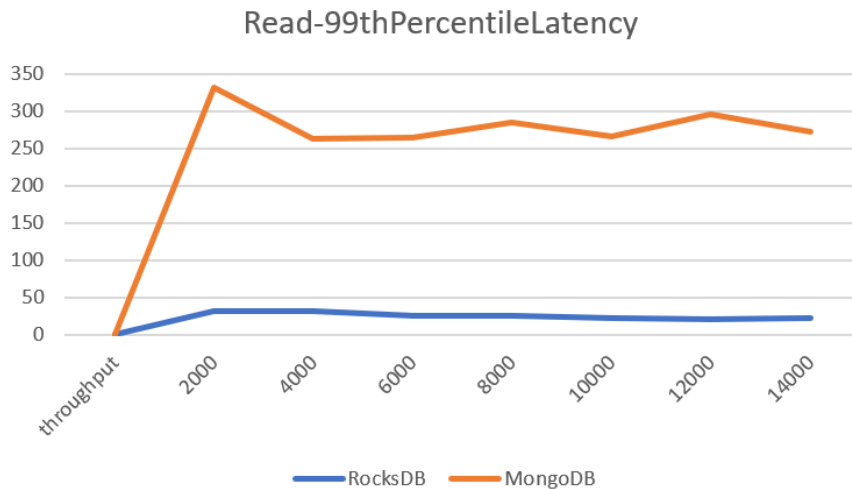
Mongo DB



B-Tree
(in-place update)
-> Read Good!

RocksDB Festival

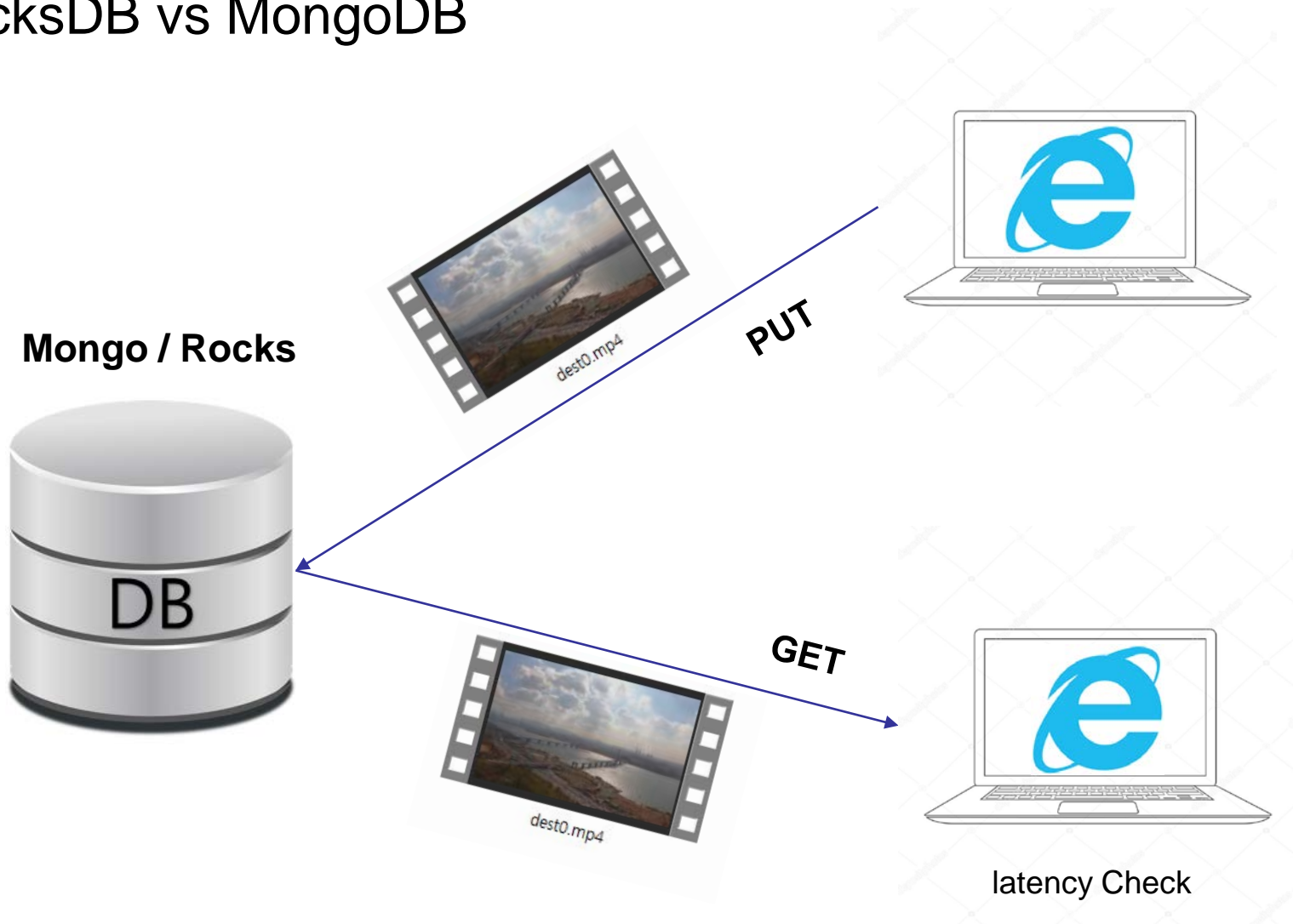
- RocksDB vs MongoDB
 - ✓ YCSB Bench



Latency : 99thPercentile Latency
Throughput : Operation/sec (YCSB의 target 옵션을 통해 제한하면서 실험 진행)
Record : 100,000
Workload : Read(50%), Write(50%)

RocksDB Festival

- RocksDB vs MongoDB



RocksDB Festival

- RocksDB PUT & GET API

RocksDB API only supports std::string types.

```
template<typename T, typename... Args>
unique_ptr<T> make_unique(Args&&... args) {
    return unique_ptr<T>(new T(forward<Args>(args)...));
}

template <typename T>
string Pack(const T* data, int _size)
{
    string d(_size, L'\0');
    memcpy(&d[0], data, d.size());
    return d;
}

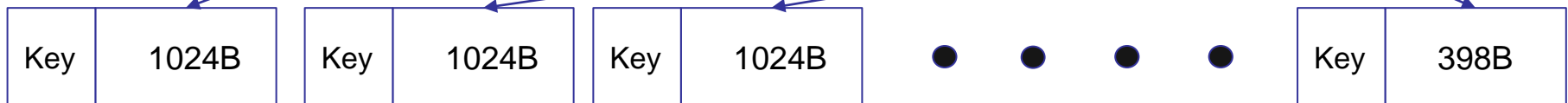
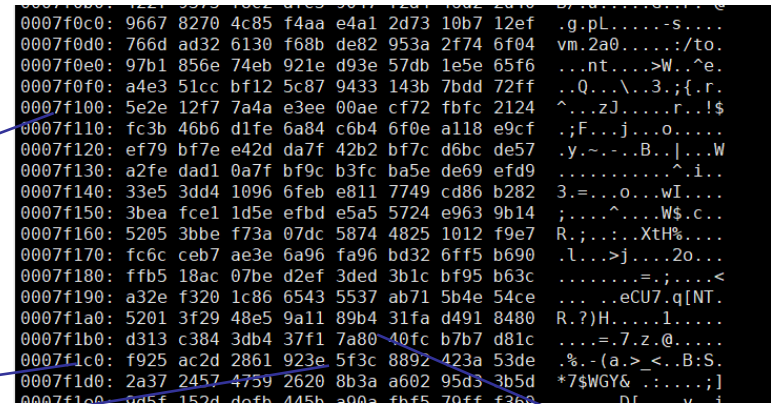
template <typename T>
unique_ptr<T> Unpack(const string& data)
{
    if (data.size() != sizeof(T))
        return nullptr;

    auto d = make_unique<T>();
    memcpy(d.get(), data.data(), data.size());
    return d;
}
```

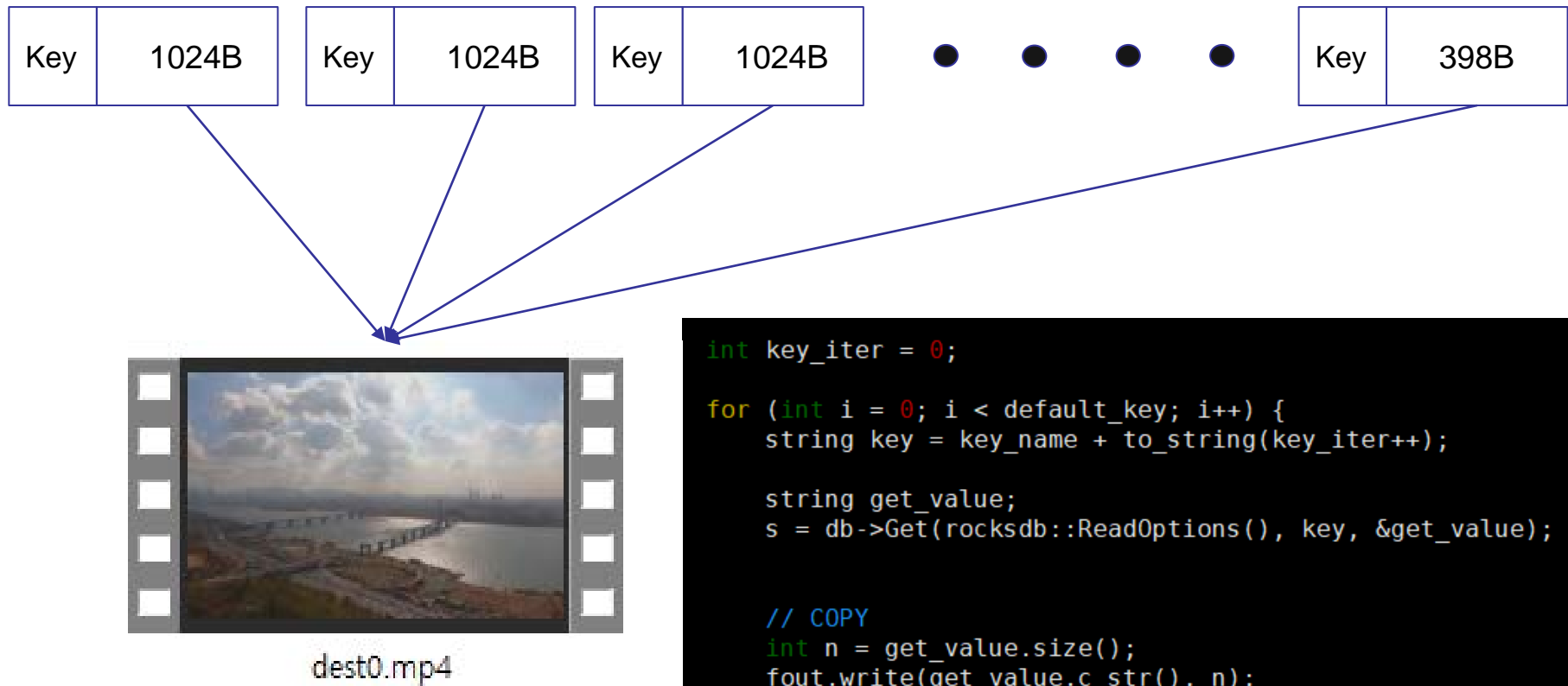
Need to pack
input string(binary)

SW스타랩

 Dankook University
Embedded System



RocksDB Festival



```
int key_iter = 0;

for (int i = 0; i < default_key; i++) {
    string key = key_name + to_string(key_iter++);

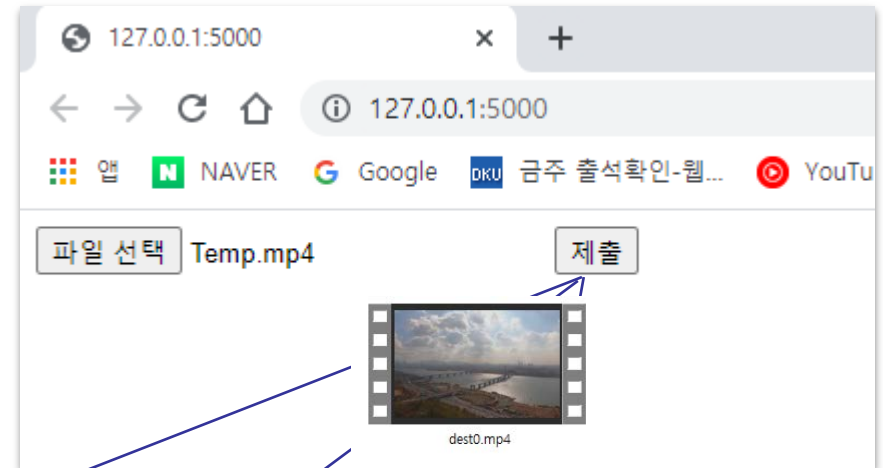
    string get_value;
    s = db->Get(rocksdb::ReadOptions(), key, &get_value);

    // COPY
    int n = get_value.size();
    fout.write(get_value.c_str(), n);
}
```

RocksDB Festival

- MongoDB
 - ✓ GridFS

```
15 @app.route('/upload', methods=['POST'])
16 def upload():
17     file = request.files.get("file")
18     file_name = request.form.get("file_name")
19     data = file.read()
20     content_type = file.content_type
21     insertimg = gfs.put(data, content_type=content_type, filename=file_name)
22     return str(insertimg)
23
```



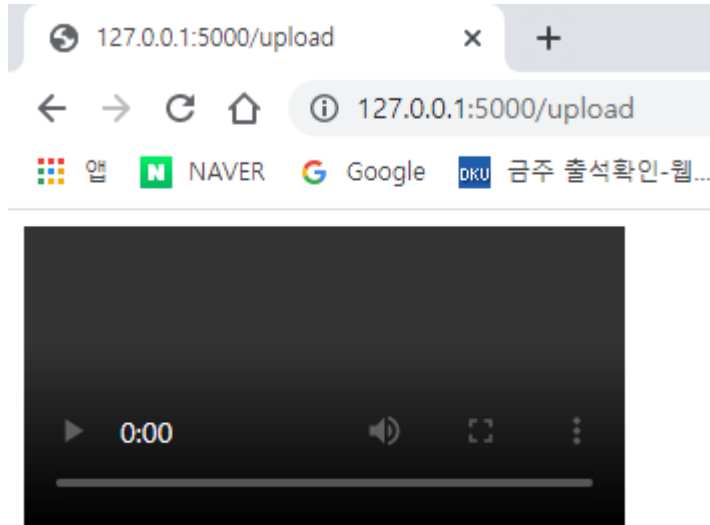
```
{
  "_id": {
    "$oid": "60f3fb9ab4bcbc98a6b8b00a"
  },
  "files_id": {
    "$oid": "60f3fb9ab4bcbc98a6b8b009"
  },
  "n": 0,
  "data": {
    "$binary": {
      "base64": "AAAAIGZ0eXBpc29tAAACAGlzb21pc28yYXZjMW1wAAAAADGAAA7pwAAQAAAAQAAAAAAAAAAAAAAAAAAAAAAEAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAwAA
AAAAAAAA7pwAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA"
    }
  }
}
```

```
{
  "_id": {
    "$oid": "60f3fb9ab4bcbc98a6b8b00b"
  },
  "files_id": {
    "$oid": "60f3fb9ab4bcbc98a6b8b009"
  },
  "n": 1,
  "data": {
    "$binary": {
      "base64": "40tkNZbKaf3deWle+zXvrtldlEukWF79vnqG6yy1vNL8vSyd1y31W33VgnJrX2bCTmnzm0G11duLrmpBZv0usycFPqu+ED+zKgT4n5jd0Rh94pCyCYZcnu+KxBud+axrDQkIGVBev+vItTpRDP0vJWSeTh0/xbMEbc"
    }
  }
}
```

```
{
  "_id": {
    "$oid": "60f3fb9ab4bcbc98a6b8b00c"
  },
  "files_id": {
    "$oid": "60f3fb9ab4bcbc98a6b8b009"
  },
  "n": 2,
  "data": {
    "$binary": {
      "base64": "eKF64960QzjCVgEy1CDEJHXWmGSS1AKA+TvX5tcveQ0Y5OUFKSt1BYCx2BIGVAAuFS4sAMkAAIcgXE6nPnflvn418gADyJXnQJ54GhN6xD2/RX1Huh0Q4Kpm+L5JVCKbkvIrMaeSevIQCdHBrPZ8UelqnVHMUASJ0QwARAe8AIiIVSmFbzKX6TAAARvE3iwBv70IRqPU7/6f"
    }
  }
}
```


RocksDB Festival

- MongoDB
 - ✓ Video Upload



```
<html>  
  <body>  
    <video src="" controls></video>  
  </body>  
</html>
```

???

Discussion

