

lightblue:

Enterprise Data Services in the Cloud with MongoDB

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Where is this slide deck?

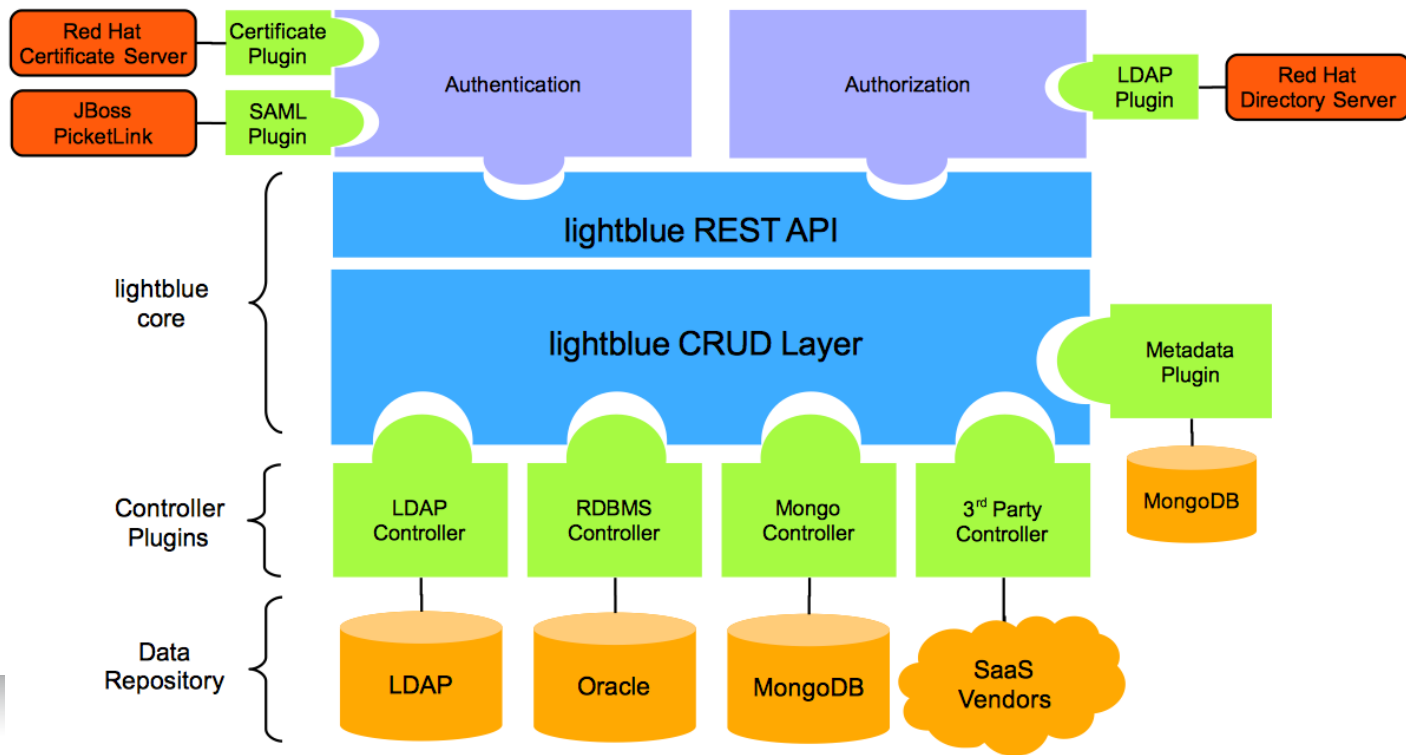


Introduction

- Naveen Malik
- @jewzaam
- Goals:
 - Share project lightblue.
 - Learn what you find interesting.
 - Get new ideas.
- Please interrupt for questions, comments, ideas, etc.

What is lightblue?

Cloud focused data services with dynamic querying, versioned schemas, and robust security.



Why Open Source?

- Code Quality
 - More eyes, more ideas, better code.
- Better Architecture
 - More mindful of separation of concerns
- Giving back!
 - Not a unique problem, others can benefit and contribute.
 - Contributors bring ideas, testers, developers, and more!

Why was lightblue created?

- Provide clients standard API for any CRUD operations.
- Enable deployment anywhere with robust security.
- Rapid response to changing business needs.
- Stability for existing consumers.

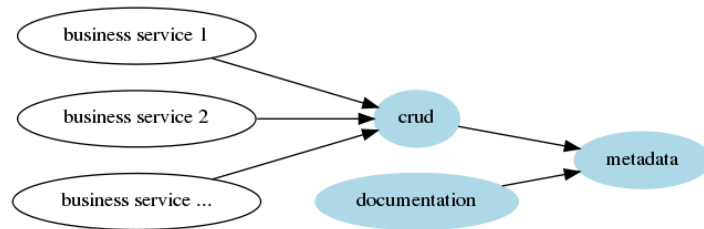
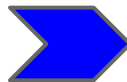
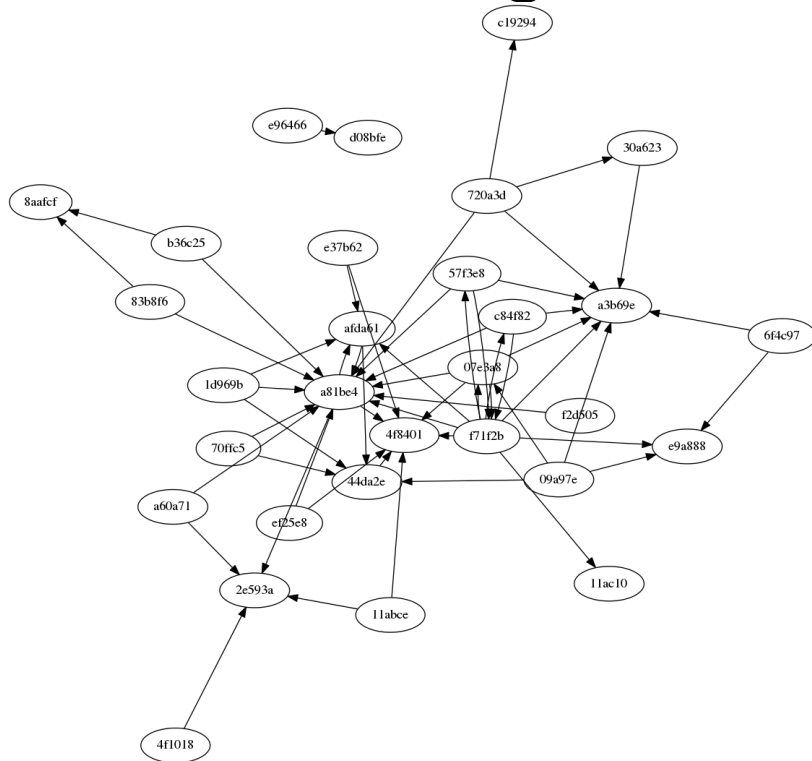
How does lightblue benefit developers?

- Applications have a robust lightblue API
- Versioned metadata allows changes without breaking existing applications
 - clients see their own version of data
 - different clients operate on same object with different versions
 - backwards compatibility of minor changes guaranteed

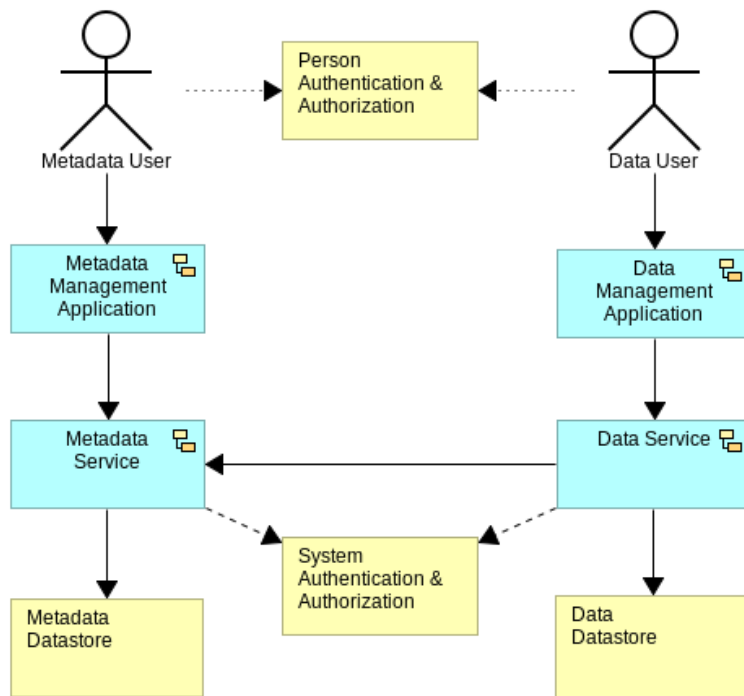
How does lightblue benefit operations?

- Designed to be deployed anywhere
 - AWS
 - Rackspace
 - OpenShift
 - Embedded as a library in other applications
- Flexible component architecture
 - Deploy and scale components independently
- Latency and fault tolerance
- Robust security

How does lightblue benefit SOA teams?



What about support and development tools?



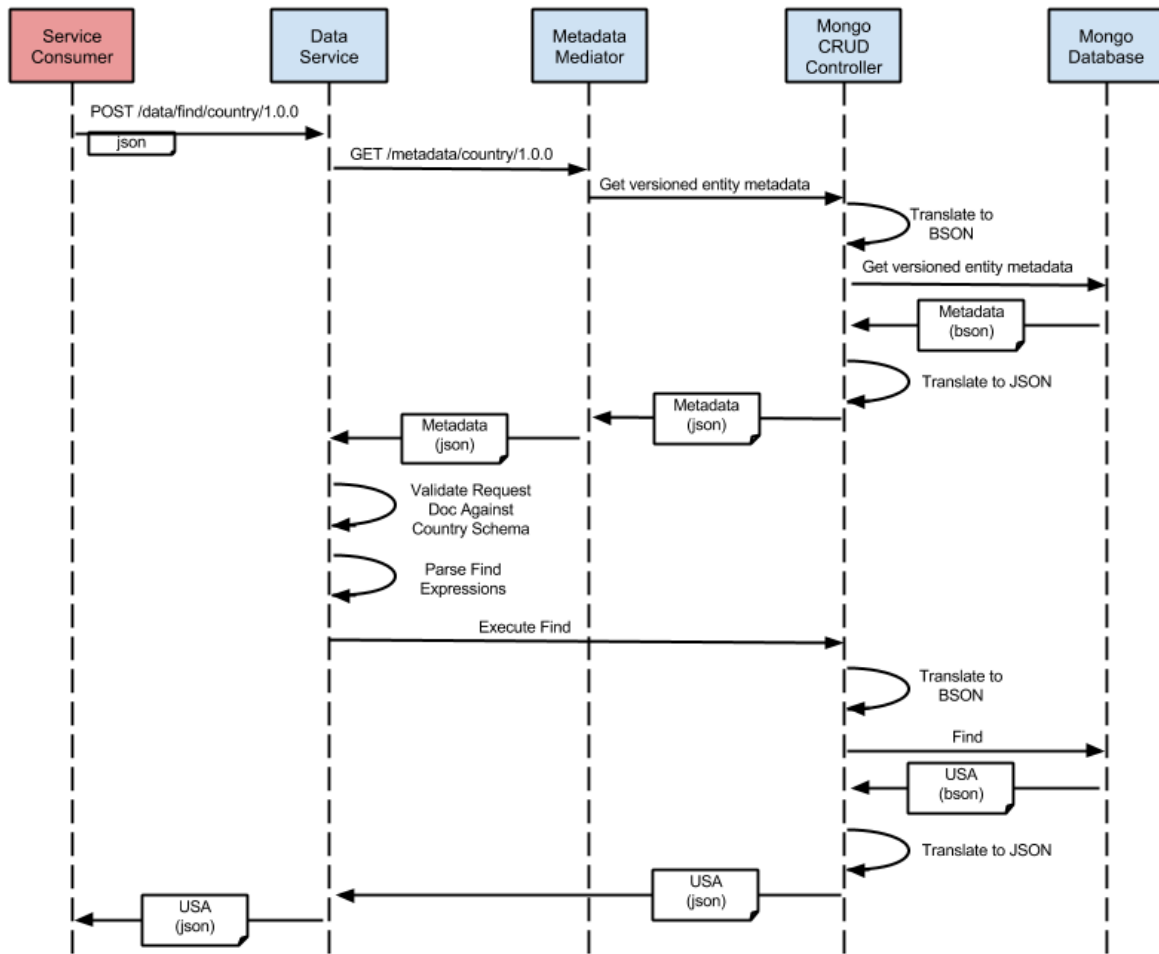
Why MongoDB?

- Lightweight and flexible
- Scale horizontally by adding nodes
- Replication out of the box
- Ability to shard (partition) out of the box

First controller implementation! RDBMS coming later.

How does it work?

- JSON in
- JSON to BSON
- BSON to JSON
- JSON out



Metadata

- Entity Info
 - not versioned
 - persistence information
 - indexes, enumerations
- Schema
 - versioned
 - fields
 - constraints
 - access rights

User Metadata - Entity Info

```
"entityInfo" : {
  "name": "user",
  "enums" : [{
    "name": "site_type_enum",
    "values": [ "billing", "marketing", "service", "shipping" ]
  }],
  "datastore": {
    "backend": "mongo",
    "datasource": "mongo",
    "collection": "user"
  }
}
```

User Metadata - Schema

```
"schema" : {  
  "name" : "user",  
  "version": { "value": "1.0.0", "changelog": "Test version" },  
  "status": {"value": "active"},  
  "access" : {  
    "insert": ["anyone"],  
    "find":["anyone"],  
    "update":["anyone"],  
    "delete":["anyone"]  
  },  
  "fields": {...}  
}
```

User Metadata - Fields and Objects

```
"fields": {  
  "object_type": {  
    "type": "string"  
  },  
  "login": {  
    "type": "string",  
    "constraints": {  
      "maxLength": 64,  
      "minLength": 1,  
      "required": true  
    }  
  },  
  ...  
}
```


Should we risk a live demo?

List all entities:

- `curl http://services-lightblue.rhcloud.com/rest/metadata/`

All versions for 'country':

- `curl http://services-lightblue.rhcloud.com/rest/metadata/country/`

Details of country with iso2Code of 'US':

- `curl http://services-lightblue.rhcloud.com/rest/data/find/country/1.0.0?Q=iso2Code:US`

How powerful is lightblue's query API?

- Queries:
 - "field"="value", "field1"="field2"
 - \$and, \$or, \$in, \$nin
 - Regular expressions
 - Array element searches
- Projections: Ability to get what you want
 - Include some fields
 - Exclude some fields
 - Array ranges
 - Return matching array elements

How does lightblue keep my data safe?

- Recommend encryption in transit and at rest
 - Container can terminate SSL from client
 - Support SSL communication with MongoDB
- Secure by design
 - Ability to control access to data at entity and field level
 - Data access controlled down to individual fields
- Authentication & authorization as plugin
 - JBoss EAP 6 with PicketLink and Login Modules
 - Authentication with SAML 2.0 (people) and Certificates (systems)
 - Authorization with LDAP

What's next for lightblue?

- Associations (joins) between entities
 - 1-1, 1-n, n-n associations defined in metadata
 - Different cascading options for insert/update/delete
 - Ad-hoc associations in queries
- Asynchronous processing
 - Call, receive a handle, don't wait for response to complete
 - Check handle to get status

Can I move existing data to lightblue?

YES!

Expect pattern for migration to be published soon.
And some utilities to make it easier...

Want more information?

- Source
 - <https://github.com/lightblue-platform/lightblue>
- Documentation
 - See gitbook links in lightblue README for overview, user guide, and developer manual.
- IRC: Freenode / #lightblue
- Forums:
 - [Developer Forum](#)
 - [User Forum](#)

What questions can I answer?

