



# Selecting a NoSQL database

for a sensor-based system.

# Document based

- Scalability
- JSON (BSON) format
- Java drivers
- Eventual Consistency is enough
  - provide both availability and partition tolerance

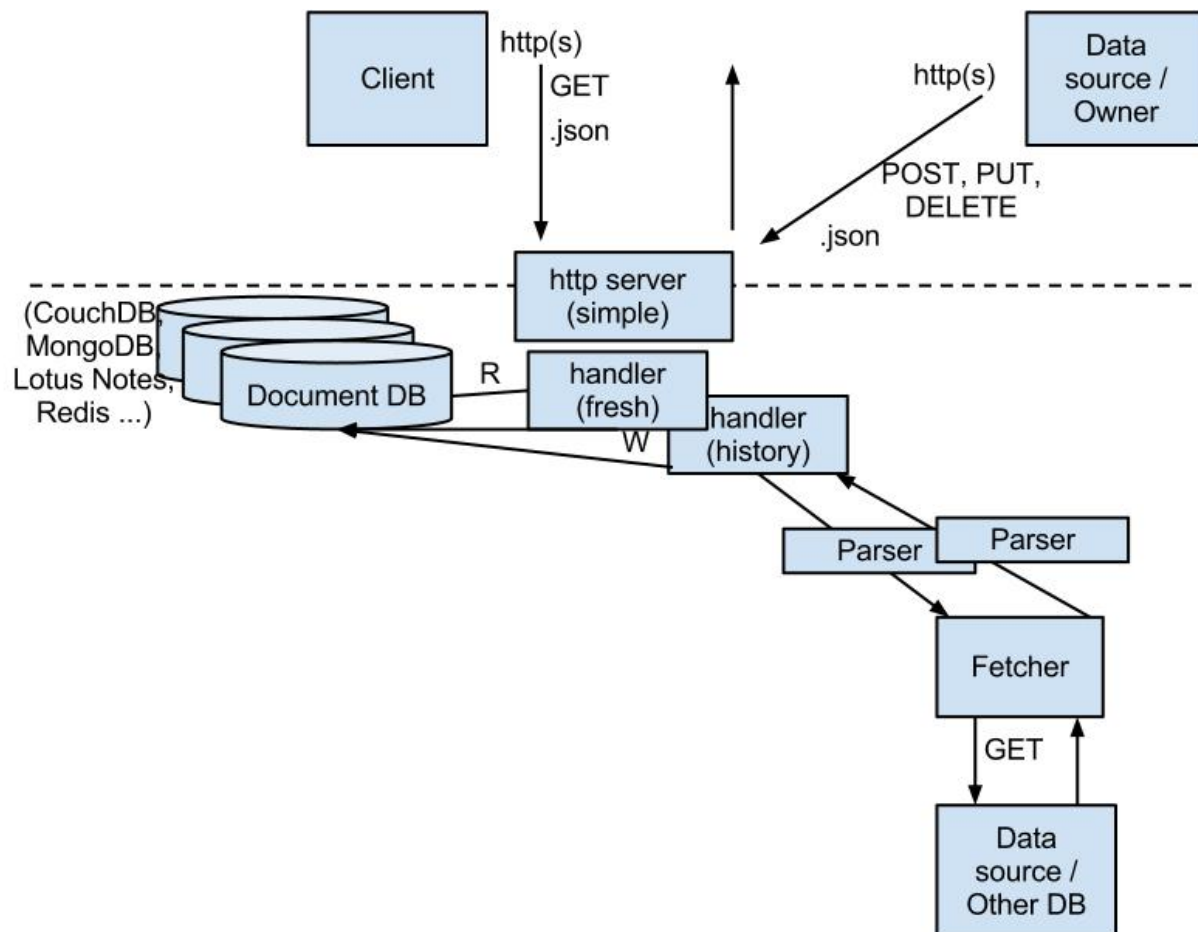
## Data hierarchy:

Feed >> Datastreams >> Datapoints

Not too tight fixed schema for metadata fields.



# Overview



# Overview of the design approach

Simple HTTP RESTful API “frontend”

GET, POST, PUT, DELETE

Parsed JSON data.

Location based services. Eg. Return nearest Feed.

>>Double key indexes needed



```

{
  "title": "Demo feed",
  "id": 1,
  "tags": [
    "tut",
    "lab",
    "json",
    "api"
  ],
  "version": "1.0.0",
  "created": "2012-10-01T15:23:44.149+03:00",
  "updated": "2012-10-01T15:28:52.261+03:00",
  "status": "live",
  "location": {
    "lat": 28799,
    "lon": 4968888,
    "domain": "physical",
    "exposure": "outdoor",
    "disposition": "mobile"
  },
  "datastreams": [
    {
      "id": "usage",
      "current_value": "23",
      "max_value": "100.0",
      "min_value": "0.0",
      "tags": [
        "apple",
        "cpu",
        "i5",
        "lag"
      ],
      "unit": {
        "type": "basicSI",
        "label": "percent",
        "symbol": "%"
      },
      "id": "core1",
      "at": "2012-10-01T15:28:52.261+03:00"
    },
    {
      "id": "core2",
      "current_value": "13",
      "at": "2012-10-01T15:28:52.261+03:00"
    }
  ]
}

```

```

waypoints: [
  {
    "lat": 28799,
    "lon": 4968888,
    "at": "2012-10-01T15:28:52.261+03:00"
  }
]

datapoints: [
  {
    "value": "23",
    "at": "2012-10-01T15:28:52.261+03:00"
  }
]

```

per Feed

per Datastream

# Small examples

- curl
- browser



# Walkthrough

- Walkthrough of a more complete example illustrating the use of the technology
- \*keys
- \*parser
- \*datetime



# Evaluation MongoDB

- Well documented
- Source of drivers available for many languages
- BSON, JSON-style documents





# Evaluation CouchDB

- Well documented
- Java drivers available
- BSON, JSON
- REST API
  - All items have a unique URI that gets exposed via HTTP similar to the service build.
    - Chaining http requests.
- ACID Semantics



# Summary

- Went a bit coding first and implemented mongoDB.
- CouchDB looked anyhow so promising, that it will be partially implemented behind same interface and tested.



# next

- Saira Shaheen: MongoDB.

