



Couchbase

Mobile demo Raspberry PI & Capella

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1 Concepts & architecture

Time series concept

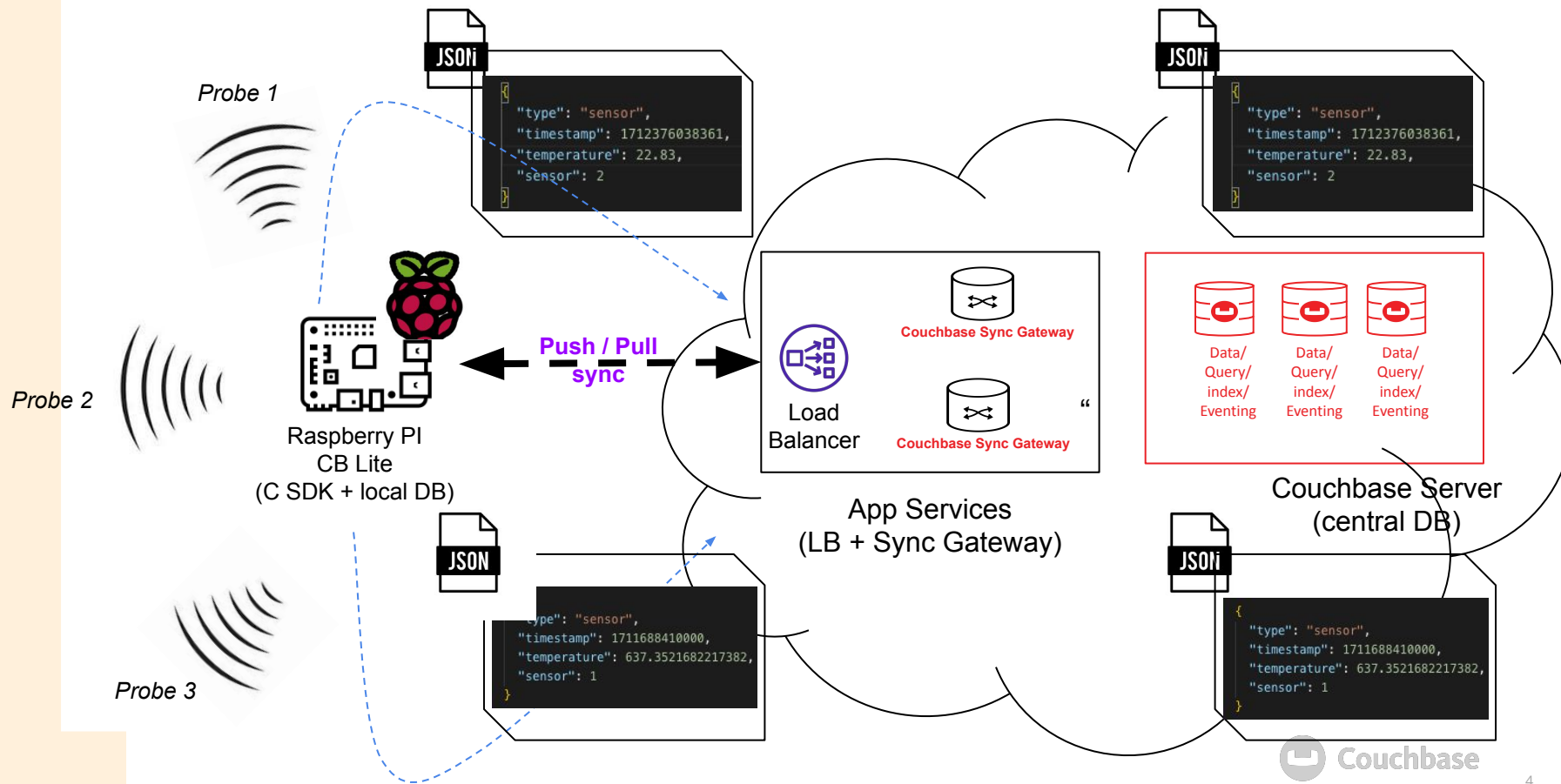
- Collect data with associated a *timestamp*
- Need to be stored in a specific time series data structure, i.e:

```
{
  "ts_start": 1712370847125,
  "ts_end": 1712370899658,
  "device": 1,
  "ts_data": [
    [
      1712370847125,
      23.01
    ],
    [
      1712370864636,
      24.36
    ]
  ]
}
```

- Can be queried using the new **_timeseries** function to UNNEST the data points arrays
- More information inside Couchbase [documentation pages](#).

Architecture overview

Couchbase Capella + AppServices



Concept : Data aggregation as time series Documents using Eventing function

Input probe: "raw" data

```
{
  "type": "sensor",
  "timestamp": 1712370847125,
  "temperature": 23.01,
  "sensor": 1
}
```

```
{
  "type": "sensor",
  "timestamp": 1712370864636,
  "temperature": 24.36,
  "sensor": 1
}
```

```
function OnUpdate(doc, meta) {
  log("New data insertion", meta.id)
  var id = doc.sensor + ":" + Math.trunc(doc.timestamp / 60000)
  if(tgt[id]){
    var agg = tgt[id]

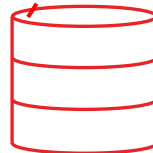
    if(doc.timestamp > agg.ts_end){
      agg.ts_end = doc.timestamp
    } else if(doc.timestamp < agg.ts_start){
      agg.ts_start = doc.timestamp
    }

    agg.ts_data.push([doc.timestamp, doc.temperature])

    tgt[id] = agg
  } else {
    tgt[id] = {
      "ts_start": doc.timestamp,
      "ts_end": doc.timestamp,
      // "ts_interval" : 10,
      "device": doc.sensor,
      "ts_data": [[doc.timestamp, doc.temperature]]
    }
  }
}
```

Eventing API

Cleanse, Normalize,
Aggregate



Raw Data
"Probes"
bucket



Aggregated data
"Probes_aggregated"
bucket

Aggregated *queryable*
"time series" data

```
{
  "ts_start": 1712370847125,
  "ts_end": 1712370899658,
  "device": 1,
  "ts_data": [
    [
      1712370847125,
      23.01
    ],
    [
      1712370864636,
      24.36
    ]
  ]
}
```

2 Demo