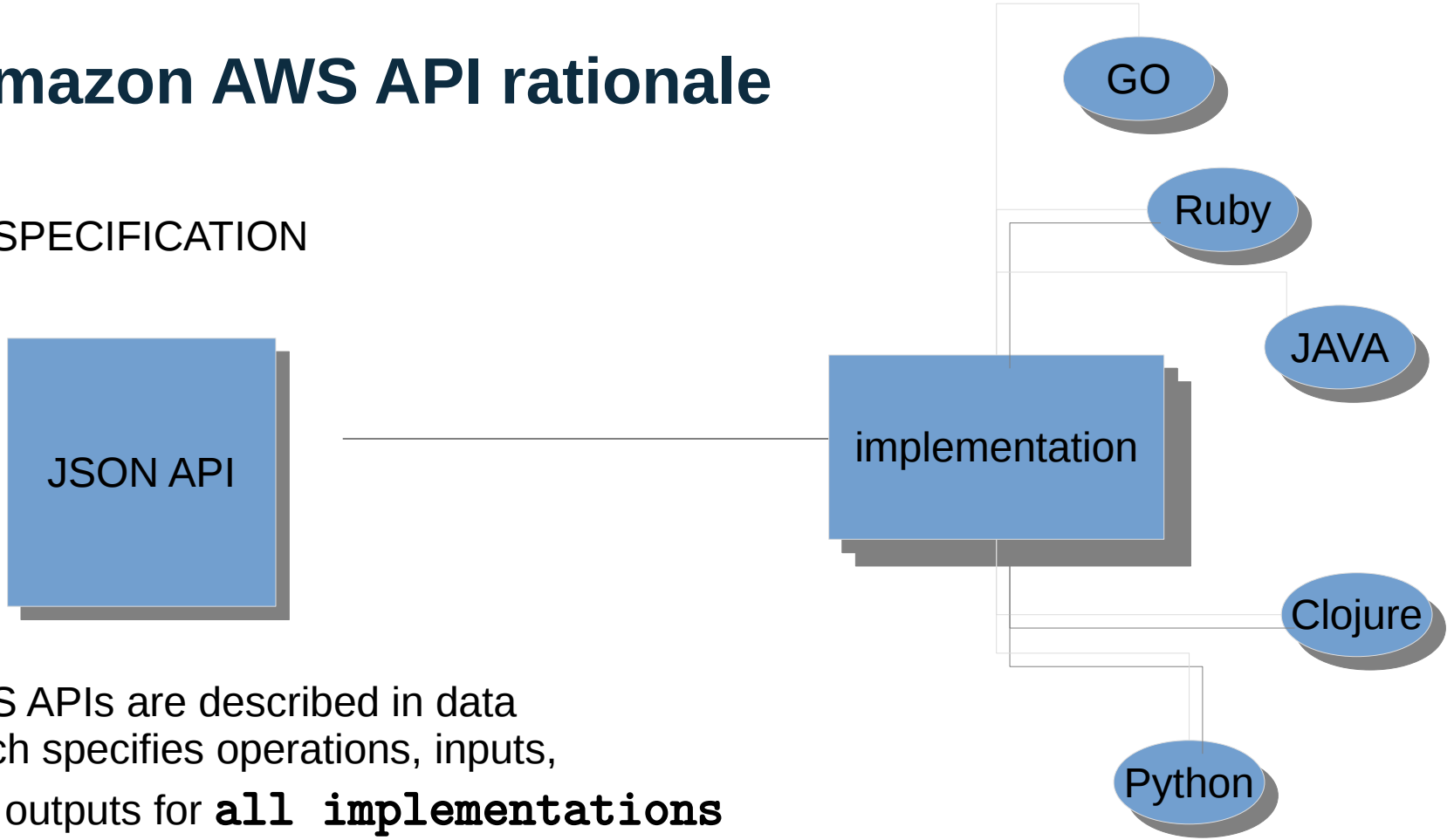
WHAT IS AN API?

You will understand this image later on

Amazon AWS API rationale

SPECIFICATION



AWS APIs are described in data
which specifies operations, inputs,
and outputs for **`all implementations`**

Specification with versioning


```
{
  "version": "2.0",
  "metadata": {
    "apiVersion": "2006-03-01",
    "checksumFormat": "md5",
    "endpointPrefix": "s3",
    "globalEndpoint": "s3.amazonaws.com",
    "protocol": "rest-xml",
    "serviceAbbreviation": "Amazon S3",
    "serviceFullName": "Amazon Simple Storage Service",
    "serviceId": "S3",
    "signatureVersion": "s3",
    "uid": "s3-2006-03-01"
  },
  "operations": {
    "AbortMultipartUpload": {
      "name": "AbortMultipartUpload",
      "http": {
        "method": "DELETE",
        "requestUri": "/{Bucket}/{Key+}",
        "responseCode": 204
      },
      "input": {
        "shape": "AbortMultipartUploadRequest"
      },
      "output": {
        "shape": "AbortMultipartUploadOutput"
      },
      "errors": [
        {
          "shape": "NoSuchUpload"
        }
      ],
      "documentationUrl": "http://docs.amazonwebservices.com/AmazonS3/latest/API/mpUploadAbort.html",
      "documentation": "<p>Aborts a multipart upload.</p> <p>To verify that all parts have been removed, so you don't get charged for th
    },
```

References:

* Interesting GitHub Projects:

https://github.com/weavejester/integrant

* Video talks:

- Cognitech Clojure aws-api https://www.youtube.com/watch?v=ppDtDP0Rntw

- Data Driven https://www.youtube.com/watch?v=zznwKCifC1A

* AWS JSON: API

https://github.com/aws/aws-sdk-js/blob/master/apis/s3-2006-03-01.normal.json

An API for prometheus exporters for hanadb

2 Differents entry-points:

- metrics.json (most important about metrics)

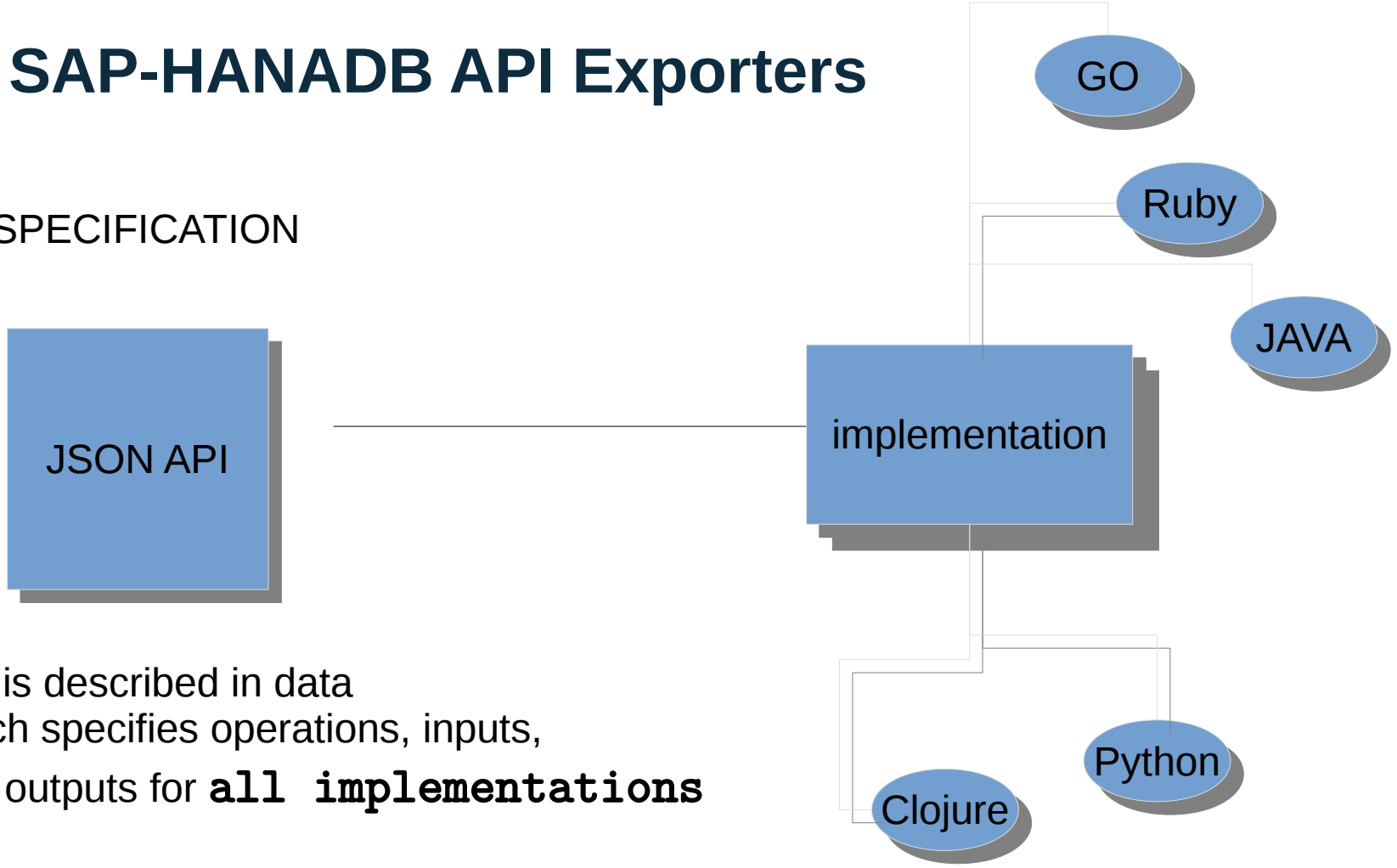
- config.json (configuration of exporter and database)

An API for prometheus exporters for hanadb

```
{
  "SELECT host, ROUND(SUM(memory_size_in_total)/1024/1024) column_tables_used_mb FROM sys.m_cs_tables GROUP BY host;":
  {
    "enabled": true,
    "hana_version_range": ["1.0.0", "3.0.0"],
    "metrics": [
      {
        "name": "hanadb_column_tables_used_memory",
        "description": "Column tables total memory used in MB",
        "labels": ["HOST"],
        "value": "COLUMN_TABLES_USED_MB",
        "unit": "mb",
        "type": "gauge"
      }
    ]
  },
```

SAP-HANADB API Exporters

SPECIFICATION



API is described in data
which specifies operations, inputs,
and outputs for **`all implementations`**

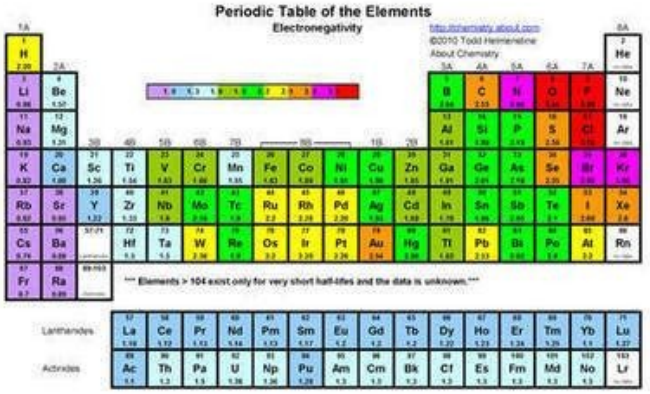
RATIONALE:

Having different exporter implementations, allow us to examining the current API , and examine an exporter from a different point of view. (from API and implementation pov)

GOOD NEWS:

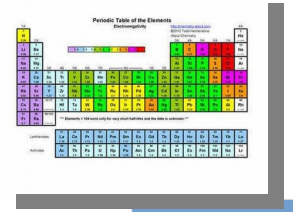
Most of the current API can be implemented from other sap-hanadb exporters.

An Application:



SAP-HANADB CLOJURE architecture

SPECIFICATION



Metrics.json

Config.json

libraries/dependencies

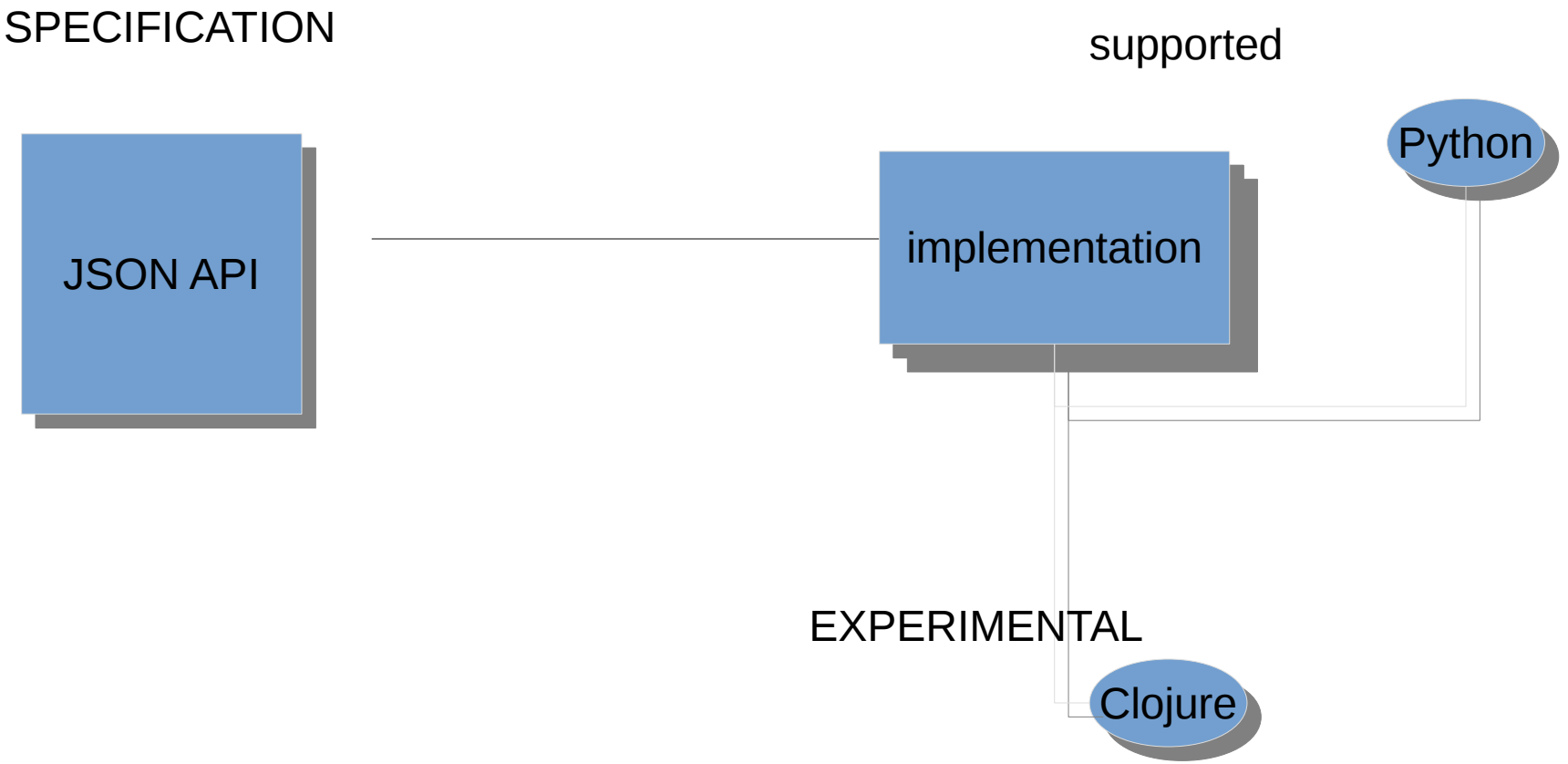
Official Hana driver.jar

Clojure codebase

Prometheus clojure lib

metrics

An idea of short-term roadmap suggestion



DEMO: 01: interacting with driver.jar sap-hana

https://asciinema.org/a/i7FYRET7wN1QKzocgzxWo9xSO

Demo 02:

Clojure (https://clojure.org/about/rationale) :

Ecosystem in HANA-SAP

+ Dependencies mgmt is more advanced and professional

+ multi-arch testing in JVM isn’t needed (see SUMA 0 bugs in different archs). JVM is a virtual machine so that’s explain why

+ Immutable data + first-class functions

+ concurrency by design (immutable data, no locking/mutex)

+ interactive language (REPL) = unique interactive programming exp

+ declarative code is more readable. Less code then imperative.

+ %50, less bug in immutable, data-driven functional languages.

+ %20 less bug due to libraries bugs and JVM archs.

References:

https://clojure.org/about/rationale

REPL vs world:
https://docs.cider.mx/cider/usage/interactive_programming.html

Recommended videos:

GOTO 2018 • Functional Programming in 40 Minutes • Russ Olsen
https://www.youtube.com/watch?v=0if71HOyVjY

WHAT IS A REPL vs programming SHELLS:
https://www.youtube.com/watch?v=Qx0-pViyIDU