SPDX: The Lingua Franca of Open Source Governance

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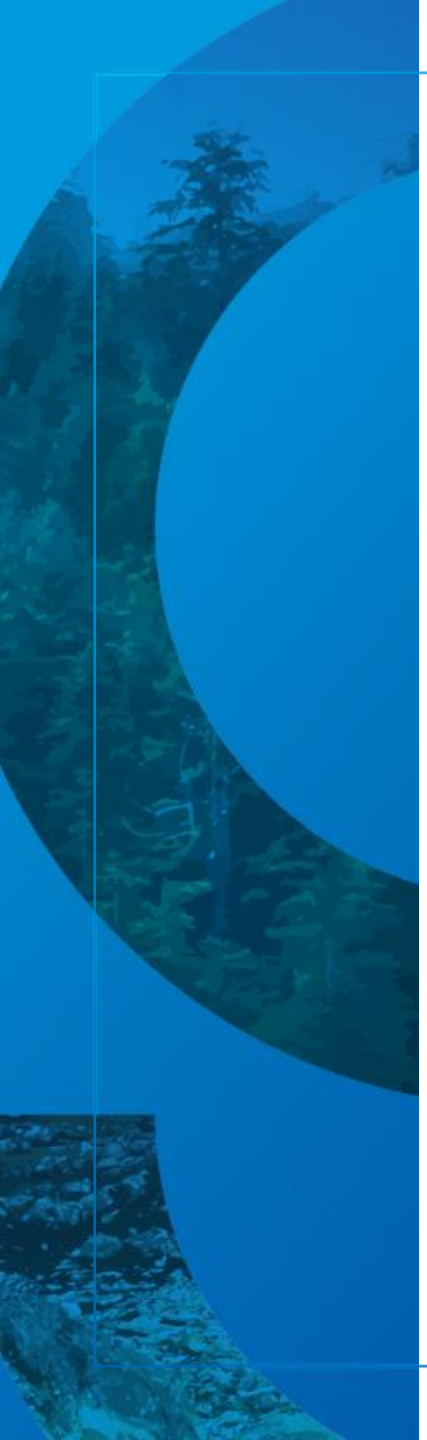

License (mis-)management

Stories from 15 years of Open Source analysis

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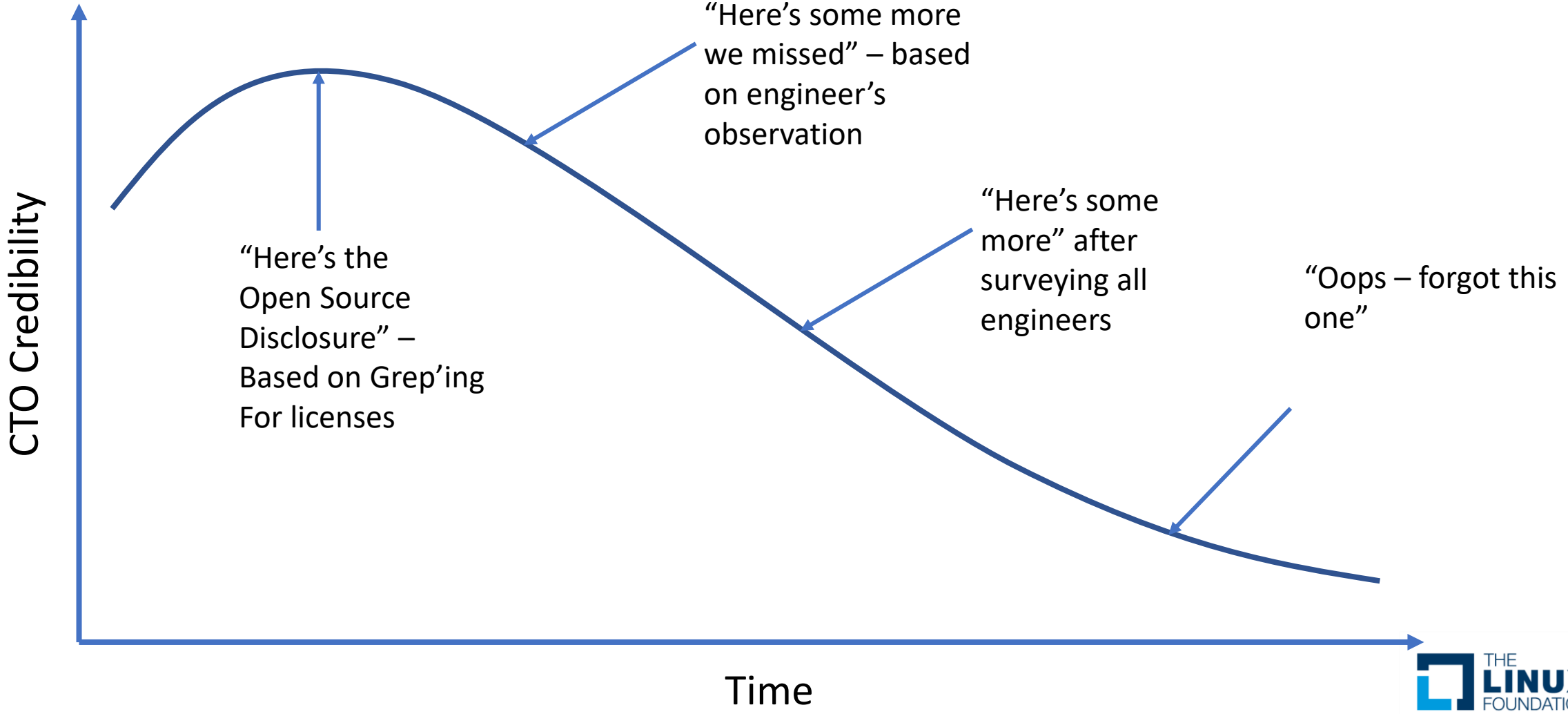
Microsoft Acquisition of a SaaS Company



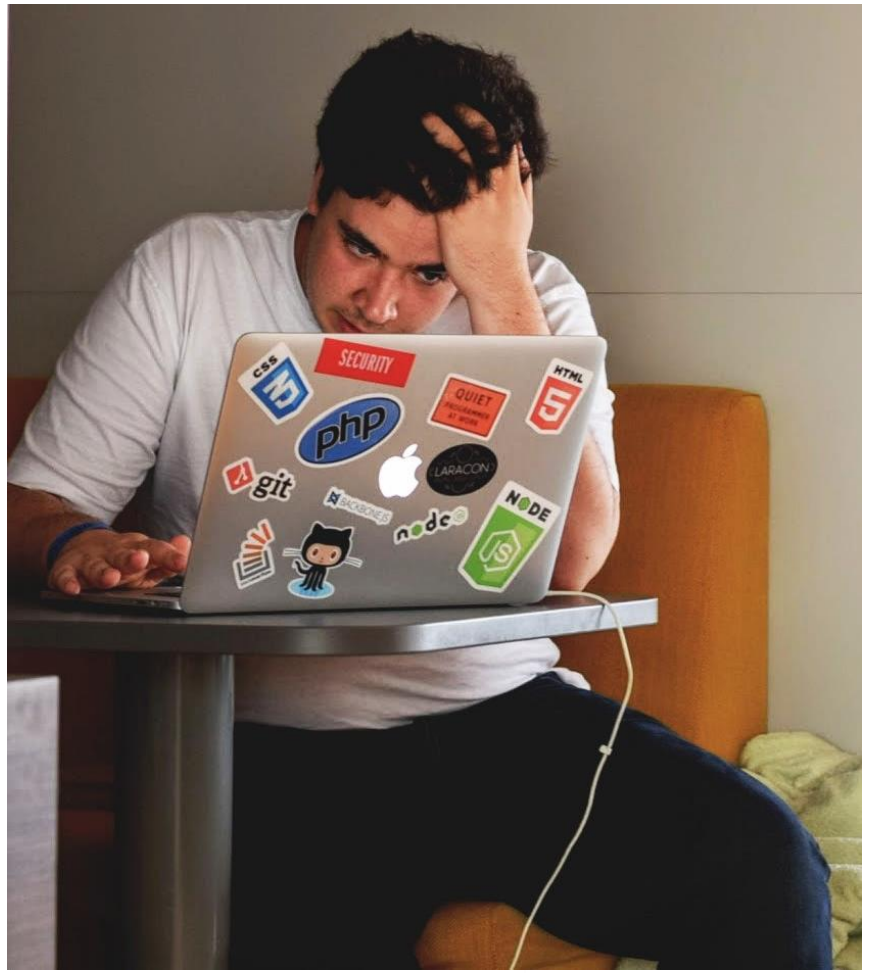
Large Software Supplier using Apache MQ

Large Software Supplier using Apache MQ

- LGPL Library inside another open source package inside a large app
- Found and fixed by Apache, but already out there
- The original source was removed by Apache – makes it hard to meet the source distribution obligations
- Would have been easy to update the versions if they knew of the issue
- Apache could have probably avoided the issue if they had tooling in place to maintain the embedded licenses (partially addressed by RAT)

Audits for Inbound Software

- Large corporation which embeds software in devices
- Very concerned about compliance
- Most inbound software suppliers' disclosure is incorrect
- Hires external software auditors
  - Cost of audits
  - Concerns about confidentiality
  - Just doing a 3 way NDA is a challenge



GhostScript and iText – version caution!

- Depending on version and which fork, Ghostscript may be under GPL, Aladdin Free Public License (which forbids commercial distribution), or AGPL
  - Recently, a Ghostscript litigation tested the enforceability of open source licenses (reference https://qz.com/981029/a-federal-court-has-ruled-that-an-open-source-license-is-an-enforceable-contract/)
- Versions of iText prior to 5.0 use a choice of Mozilla Public License or the GPL license. Versions 5.0 and later use the AGPL license.

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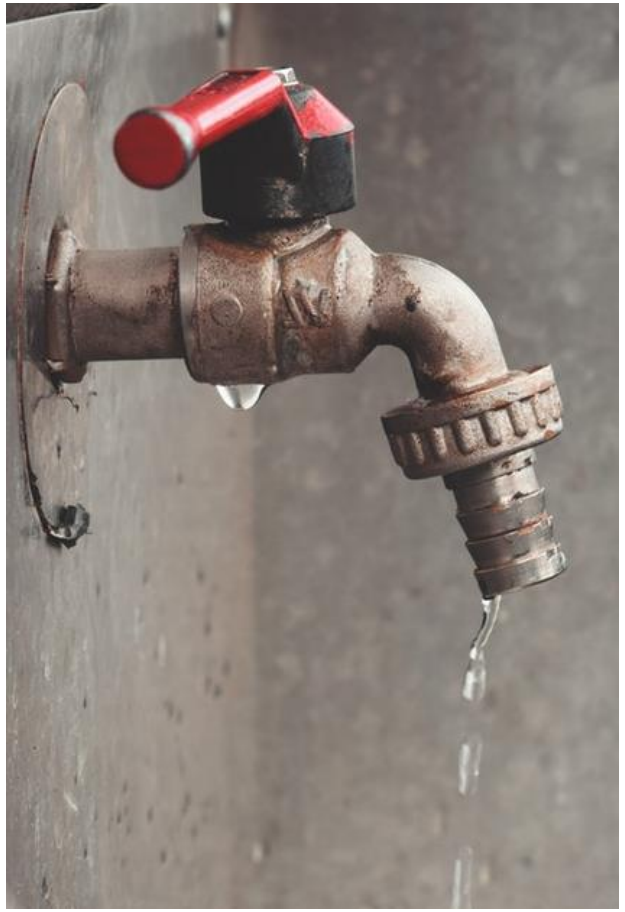
Unnecessary scares

- GPL in contrib directories – zLib
  contrib/ada/zlib.ads “…under the terms of the GNU General Public License …”
- GPL build tools
- Lawyers looking at the list of all identified licenses without additional info can get quite (unnecessarily) concerned
- Takes some time during analysis to determine how the GPL code is used

Did we really distribute this?

- Leaking tools as part of the distribution
  - Testing tools – some GPL with redistribution requirements
  - Build environment tooling



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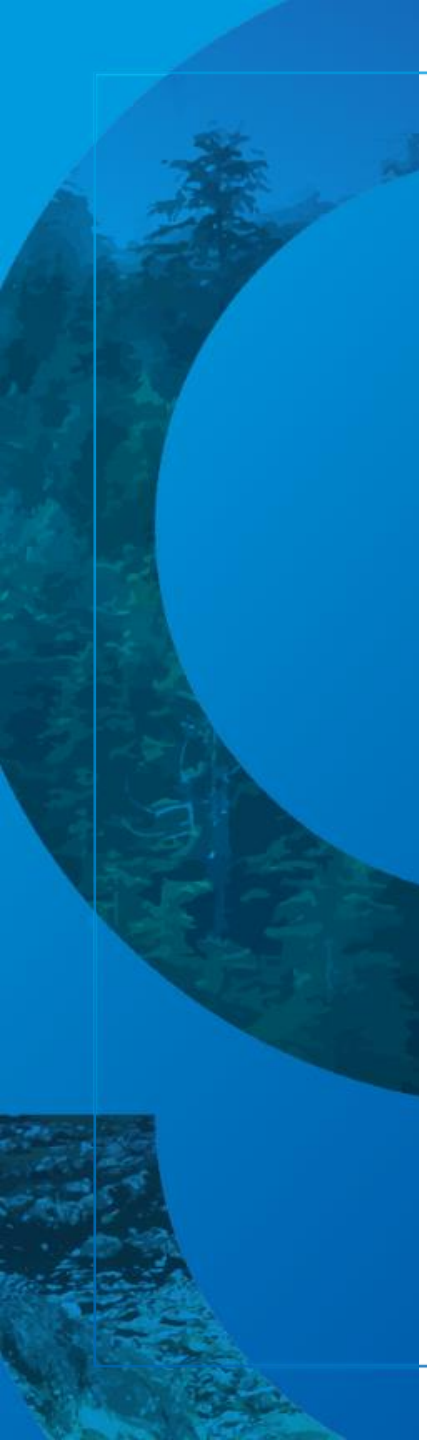

So what's this SPDX thing?

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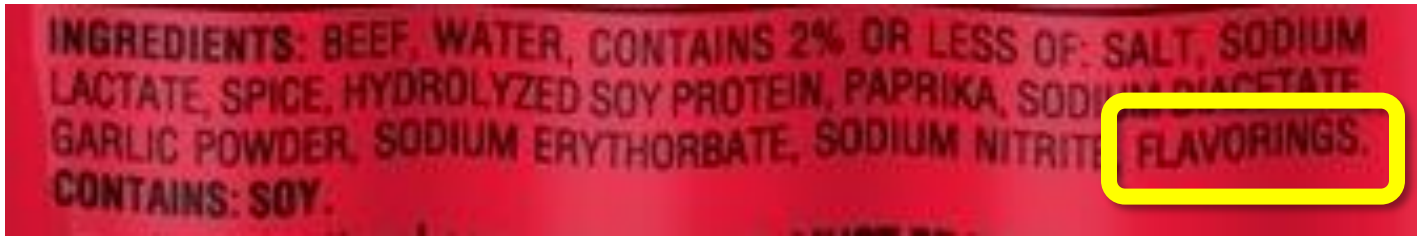
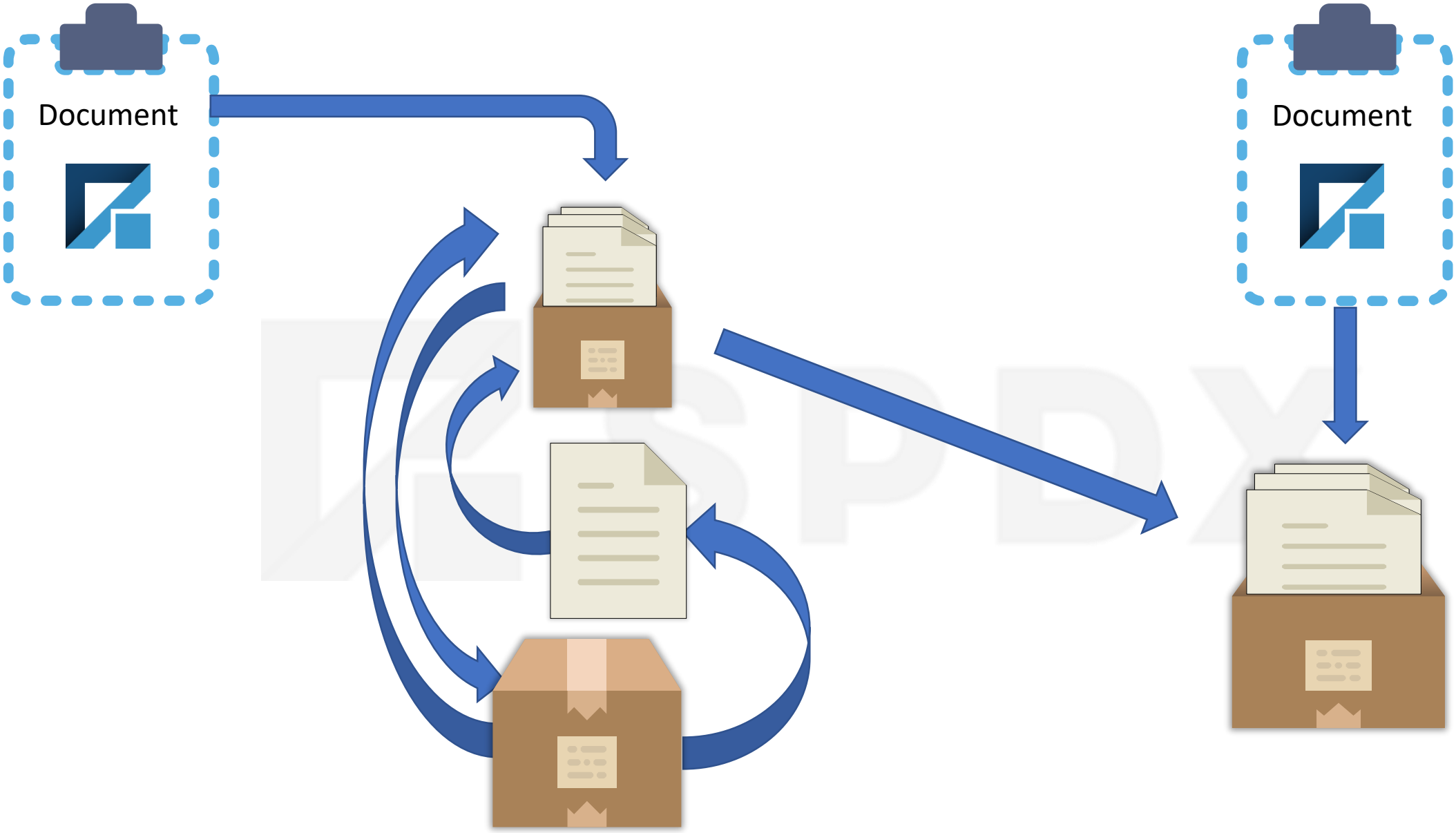
What's in your software?



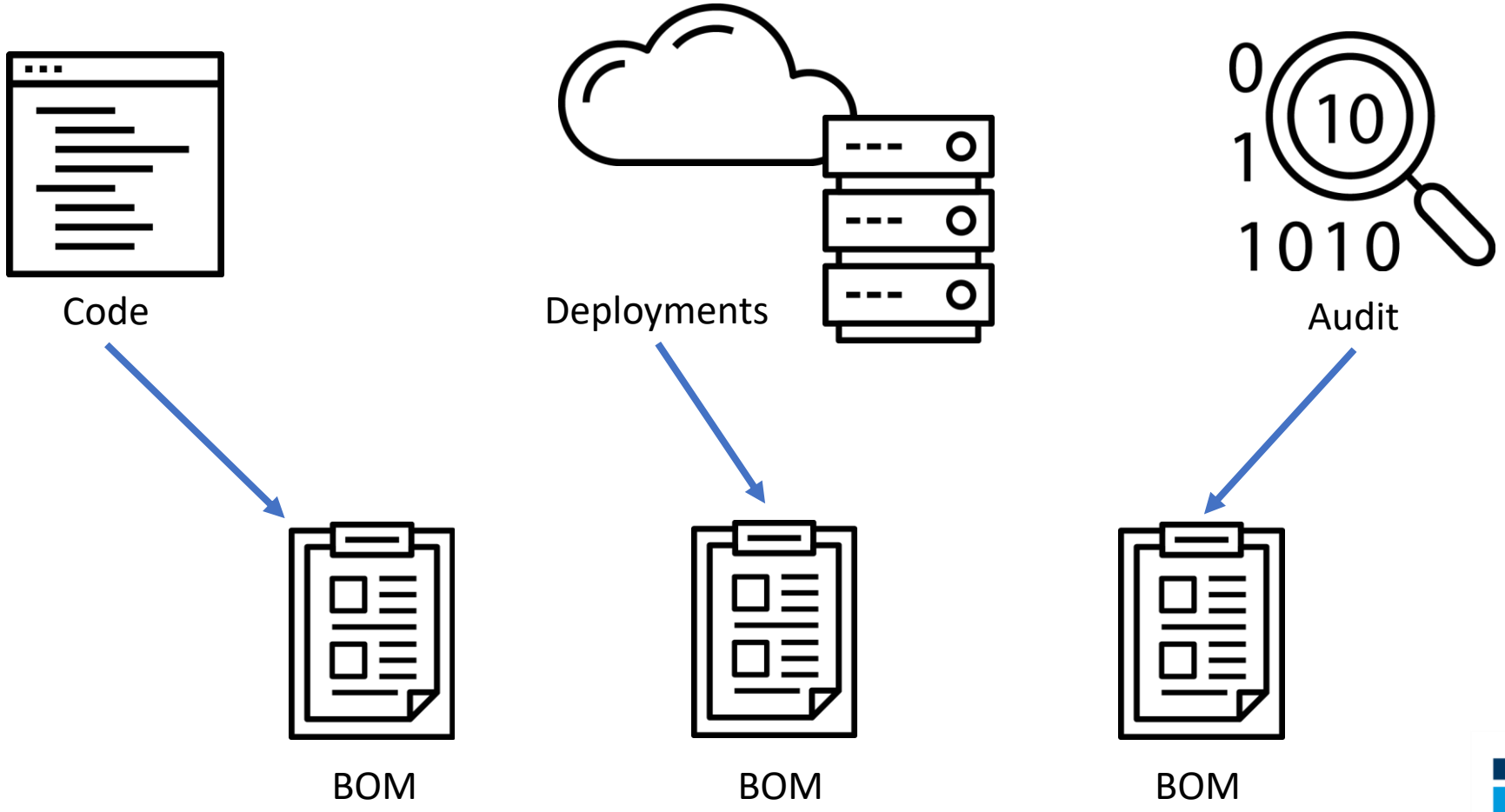
- What are the ingredients?
- How is each ingredient used?
  - License
  - Relationship to product
- What do we know about each ingredient?


Document
Document

SPDX for Governance

- Generate
- Store
- Aggregate
- Query

Governance Today



Governance Goals

Automate building a master BOM

Automate Reporting

Produce single aggregable output

Governance Challenges

Requires Manual Labor

- Keeping Spreadsheet updated

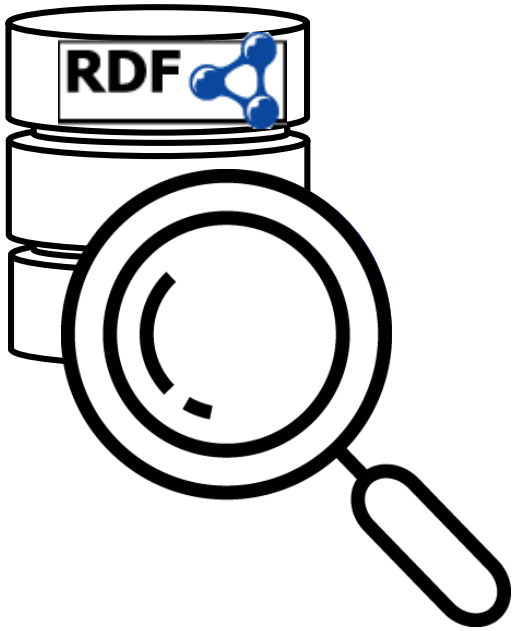
Requires Compliance

- Reporting usage
- Adherence to Policy

Hard to standardize tooling

- Require aggregation of diverse tool outputs

Governance with SPDX



sparql

sparql protocol and rdf query language

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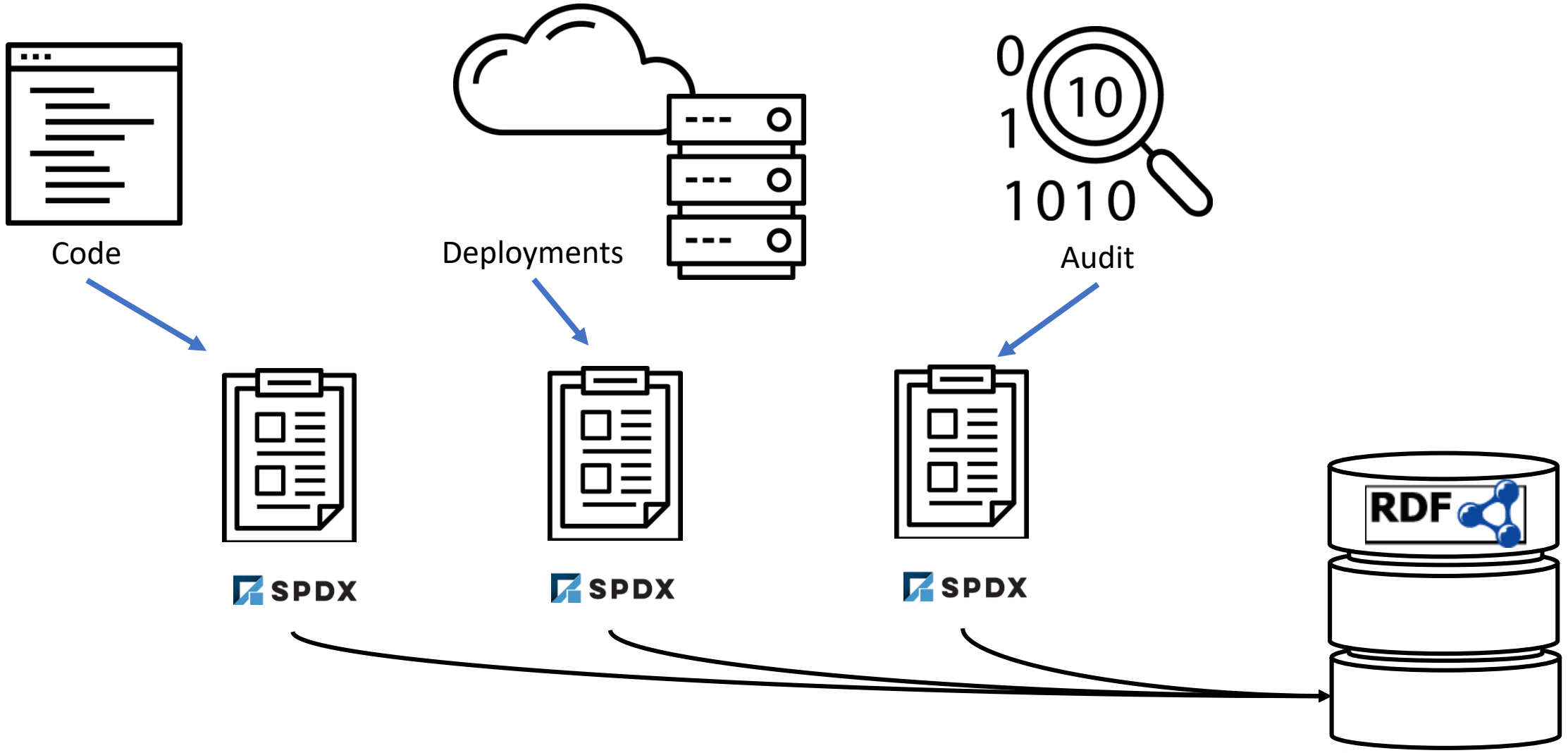
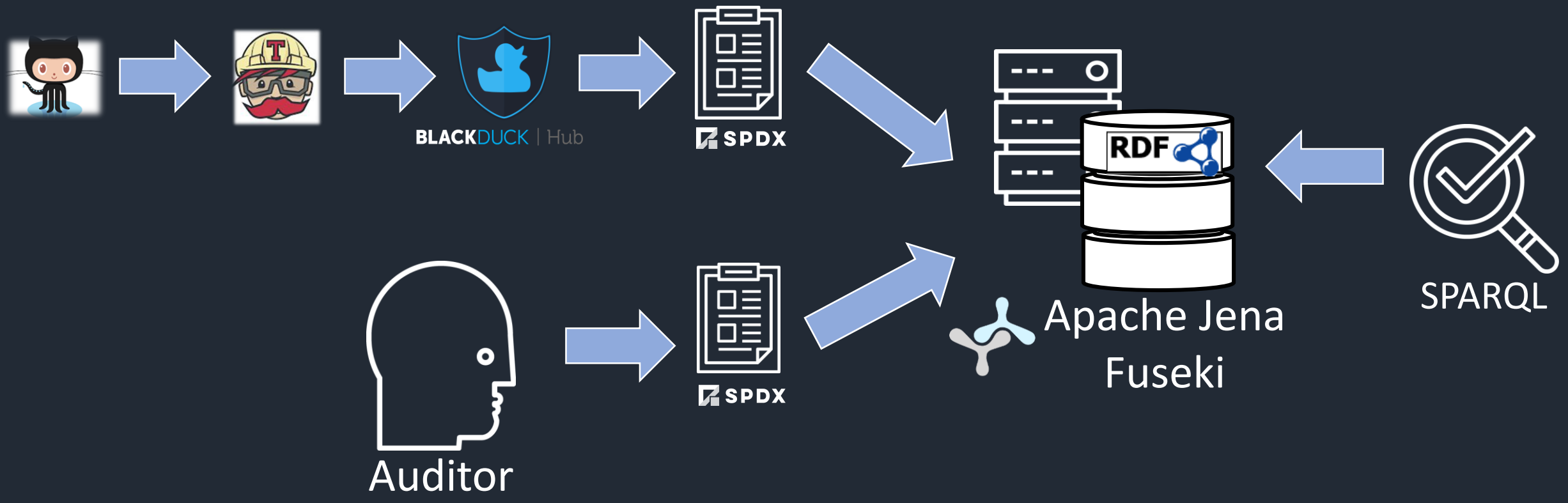
Governance with SPDX



Demo



https://gitlab.com/yevster/spdx-server

Enforcing Licenses with SPARQL

List All Licenses For My Version

```
prefix spdx: <http://spdx.org/rdf/terms#>
prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?name ?licenseConcluded ?licenseDeclared
{
  ?pkg rdf:type spdx:Package ;
       spdx:name ?name .
  ?pkg spdx:licenseConcluded ?licenseConcluded .
  ?pkg spdx:licenseDeclared ?licenseDeclared
  .FILTER regex(str(?pkg), "1.0.23")
}
```

Enforcing Licenses with SPARQL

List Packages With No License Declared

```
prefix spdx: <http://spdx.org/rdf/terms#>
select distinct ?item ?itemName
{
    {  {?item spdx:licenseDeclared ?license}  } .
    OPTIONAL {?item spdx:name ?itemName} .
       FILTER (?license in (
        spdx:noassertion,
        spdx:none
    ))
}
```

Enforcing Licenses with SPARQL

List Packages With No License Declared – Filtered For Our Version

```
prefix spdx: <http://spdx.org/rdf/terms#>
select distinct ?item ?itemName
{
    {  {?item spdx:licenseDeclared ?license}  } .
    OPTIONAL {?item spdx:name ?itemName} .
       FILTER (?license in (
        spdx:noassertion,
        spdx:none
    ))
    .FILTER contains(str(?item), "1.0.23")
}
```

Enforcing Licenses with SPARQL

List Details On Specific BOM Item

```
prefix spdx: <http://spdx.org/rdf/terms#>
select distinct ?item ?p ?o
{

    ?item spdx:name 'jep' .
    {?item ?p ?o}
  .FILTER regex(str(?item), "1.0.23")
}
```

Enforcing Licenses with SPARQL

List Packages With Sensitive Licenses

```
prefix spdx: <http://spdx.org/rdf/terms#>

select distinct ?item ?itemName ?license
{
    {
        {?item spdx:licenseDeclared ?license}
        UNION
        {?item spdx:licenseConcluded ?license}
    } .
    OPTIONAL {?item spdx:name ?itemName} .
    FILTER (strstarts(str(?license), str(licenseList:AGPL-3.0)))
    .FILTER regex(str(?item), "1.0.23")
}
```

Questions?