Comply Advantage

RoPython Meetup
20 June 2019

ComplyAdvantage.com

About ComplyAdvantage

ComplyAdvantage embraces a data-driven, technological approach to fighting crime as a way to **empower compliance**, helping firms to understand who they are doing business with, and ultimately make decisions faster. Practically, that approach means offering **easy access to a constantly-updated, multifunctional suite of data**, and the technology needed to exploit it effectively.

Our platform includes sanctions lists, transaction and adverse media monitoring tools, global AML databases and more, **integrated seamlessly** with existing tech infrastructure, and navigable with intuitive, user-friendly APIs. We focus on regulatory **efficiency, flexibility, and usability**, as a way to demystify the compliance function, and unlock its potential for every type of financial services firm, from fledgeling start-ups, to established international banking firms.

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Do you trust your Data?

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Why?

*We have entered the **Age of Required Knowledge**. With all the data available to us, internally and externally, employees and executives are expected to **know.** There is a **cost of knowing**. Getting caught not knowing could lead to sensational news headlines accompanied by loss of shareholder value, loss of customers, and even industry fines.*

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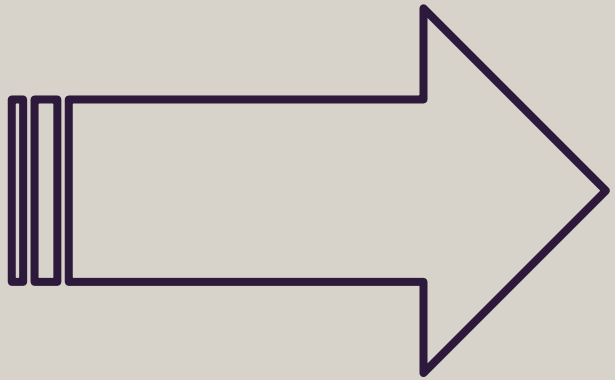
Stats

- *By 2020, there will be around 40 trillion gigabytes of data* ***- EMC***
- *90% of all data has been created in the last two years -* ***IBM***
- *Internet users generate about 2.5 quintillion bytes of data each day -* ***Data Never Sleeps 5.0***
- *By 2020, every person will generate 1.7 megabytes in just a second -* ***Domo***
- *In 2012, only 0.5 of all data was analysed -* ***The Guardian***

Data Characteristics

- Accuracy
- Currency & Timeliness
- Correctness
- Consistency
- Usability
- Security & Privacy
- Completeness
- Accessibility
- Accountability
- Scalability



- Authenticity
- Trustability
- Traceability
- Confidentiality
- Integrity
- Availability

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The Core

Audit

- Exists to provide step by step documented history of a transaction/operation
- Is used to detect when a system is not working properly
- Focused mainly on operations, transactions, events

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Provenance

- Is information about entities, activities and people involved in producing a piece o data
- Is used for assessments about data quality, reliability or trustworthiness
- Exists to provide evidence that a system is working properly
- Focused mainly on relations between Entities, Agents and Activities

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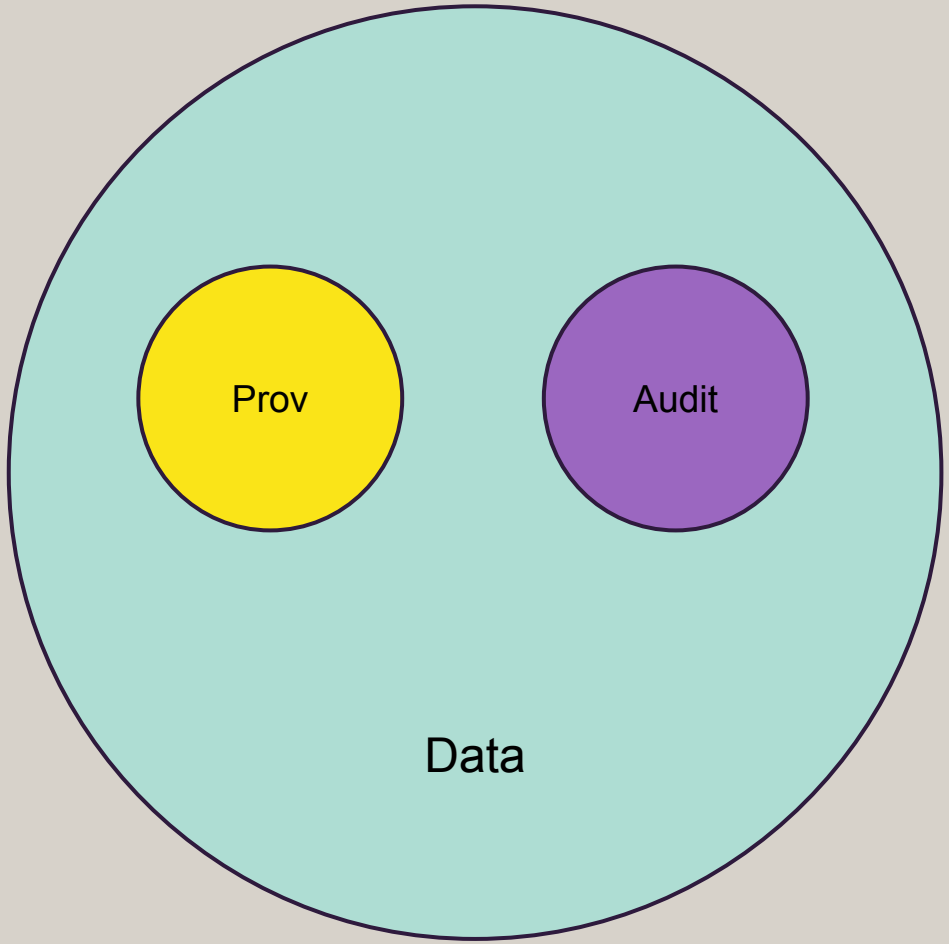
Reality



- Prov and audit data partially or totally embedded into data

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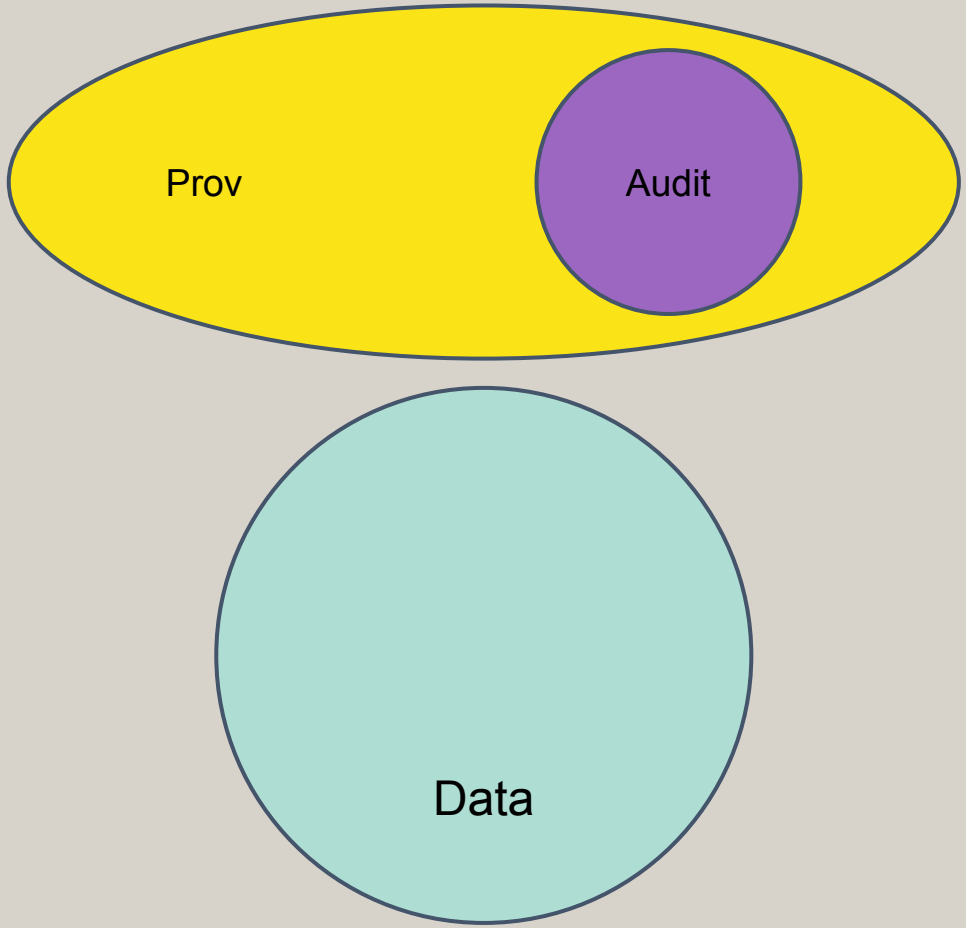
W3C Theory



- Prov and audit data decoupled and managed by the same solution

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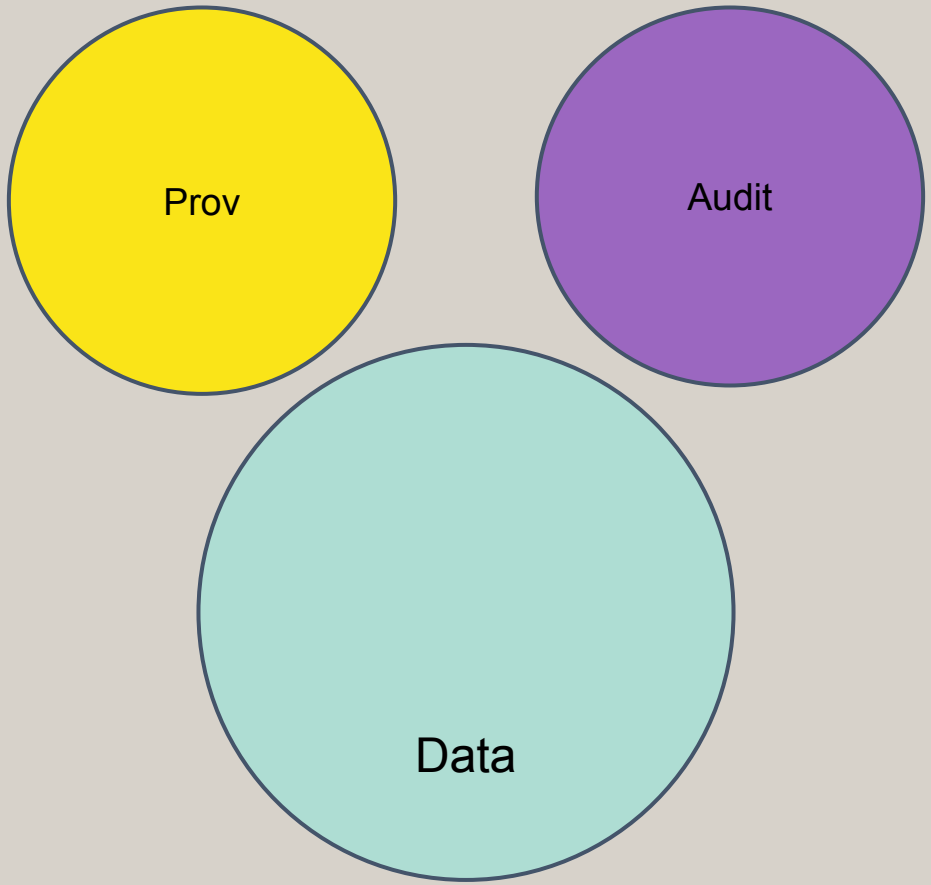
CA



- Prov and audit data decoupled and managed by different solutions

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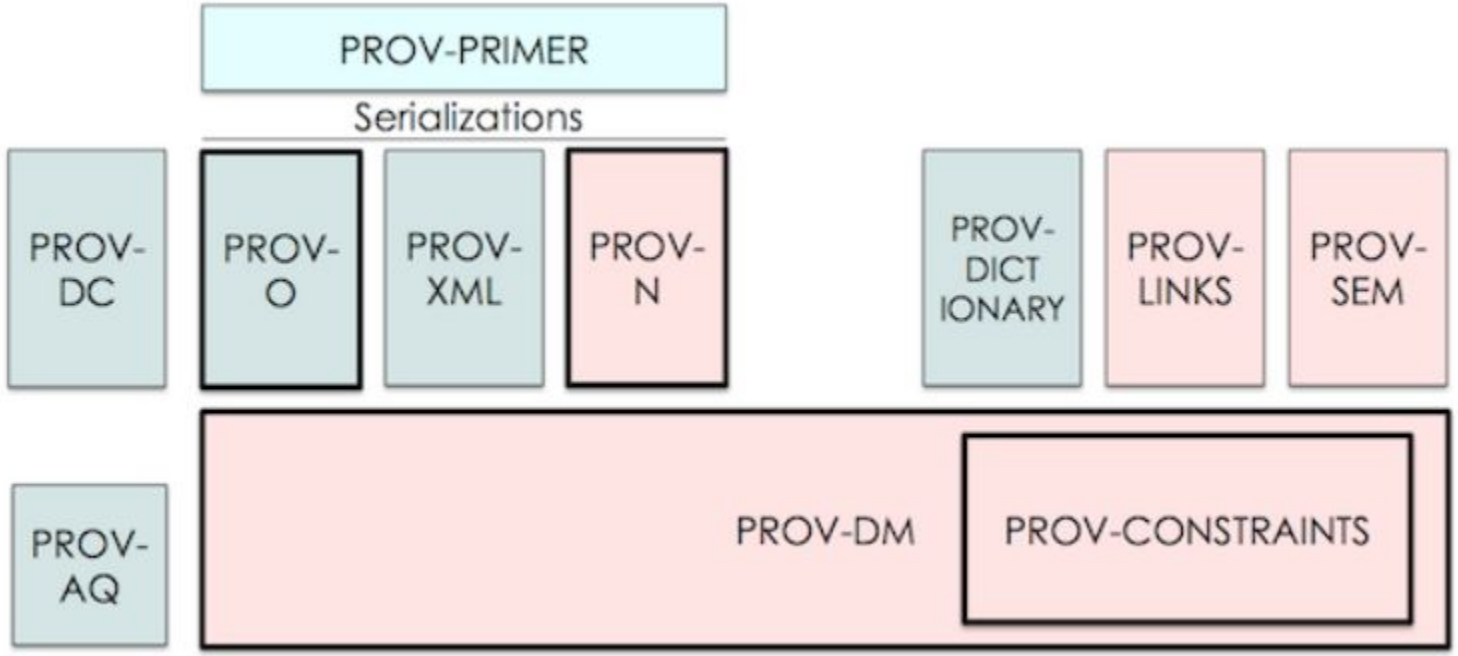
W3C PROV



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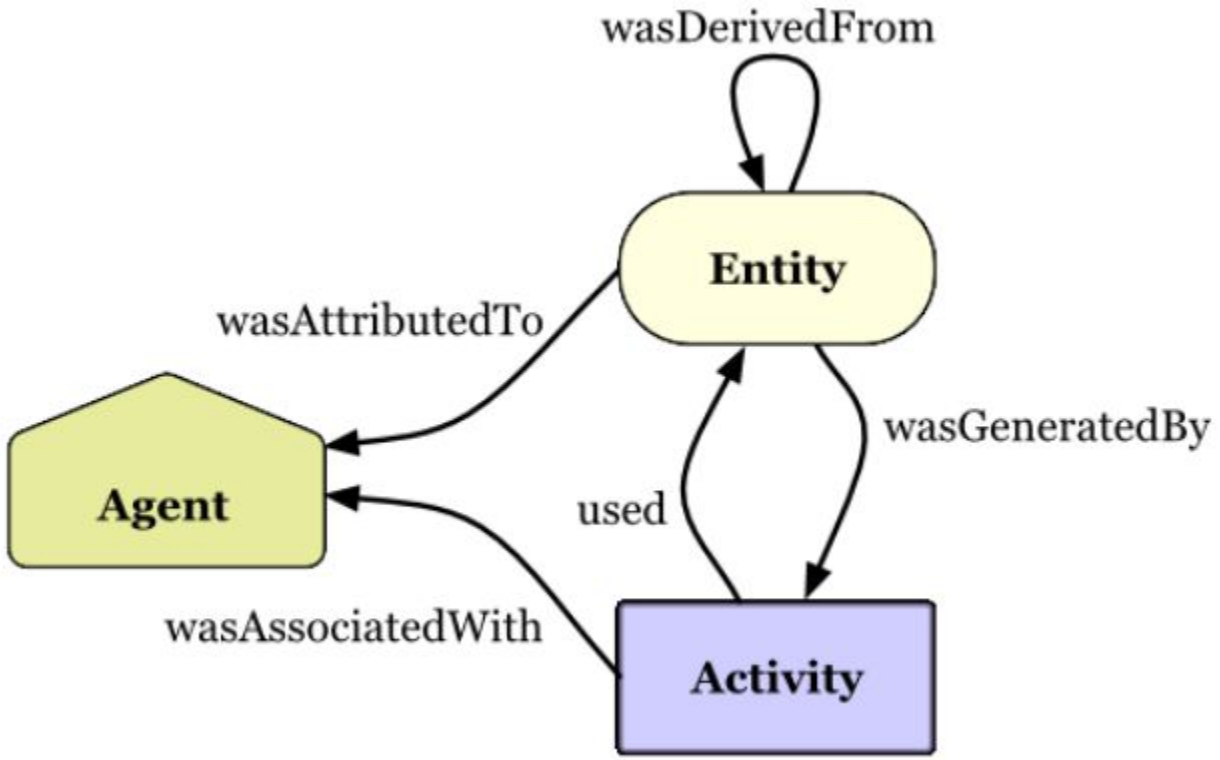
W3C PROV



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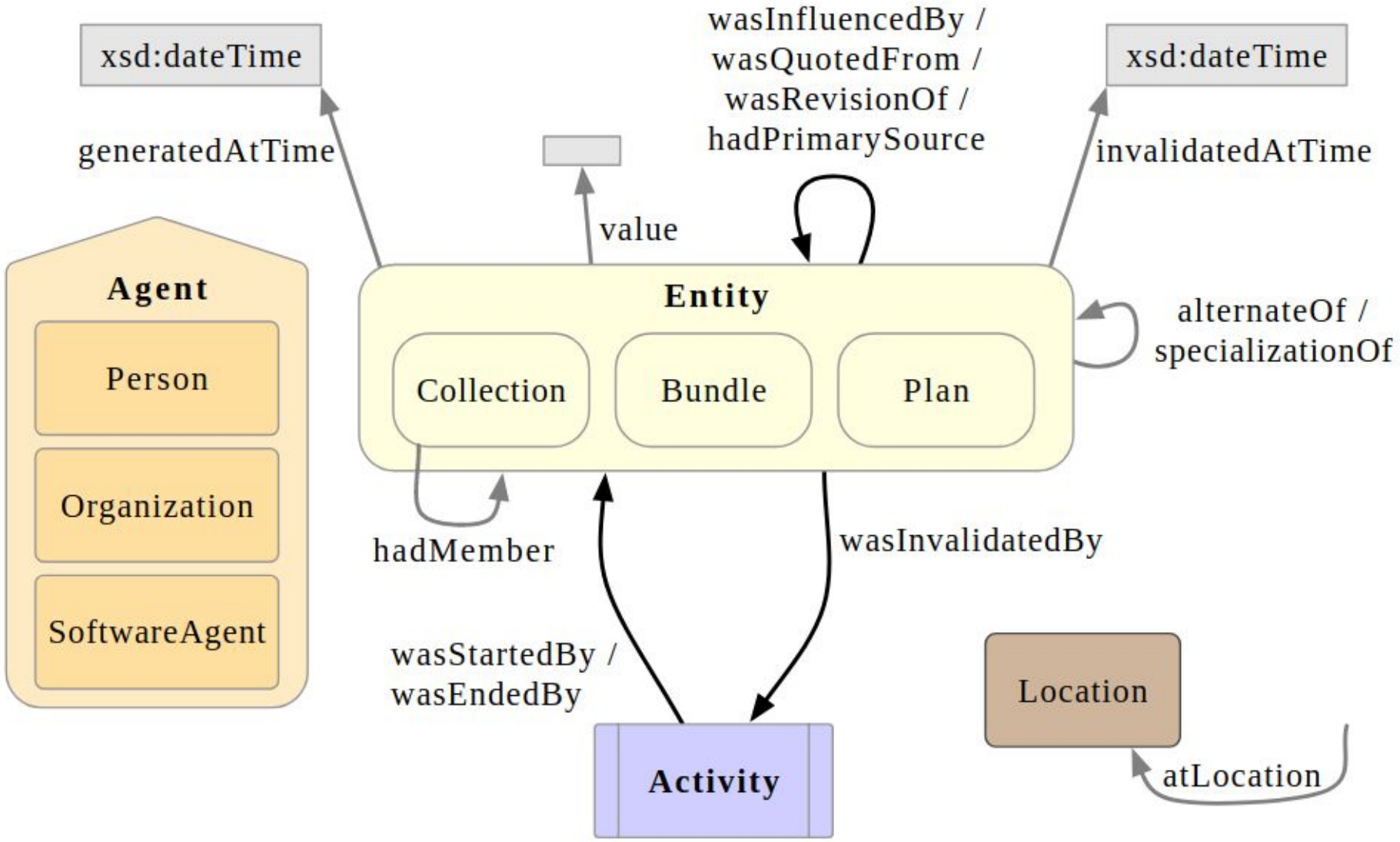
W3C PROV



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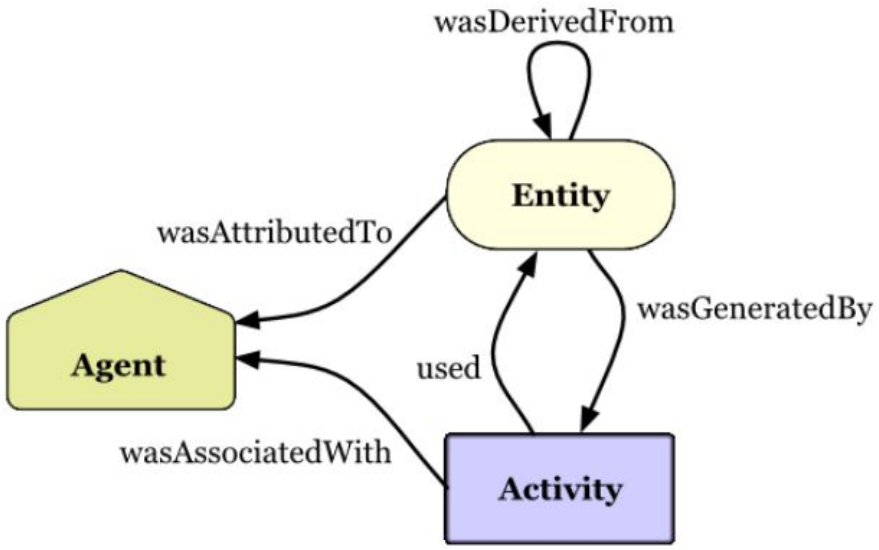
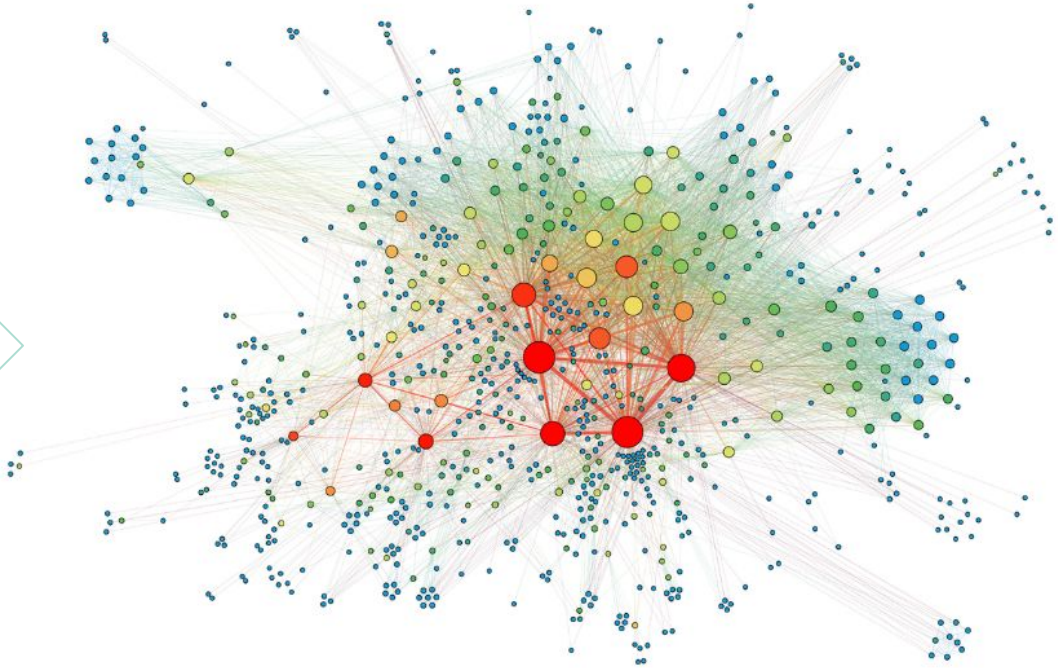
Why?





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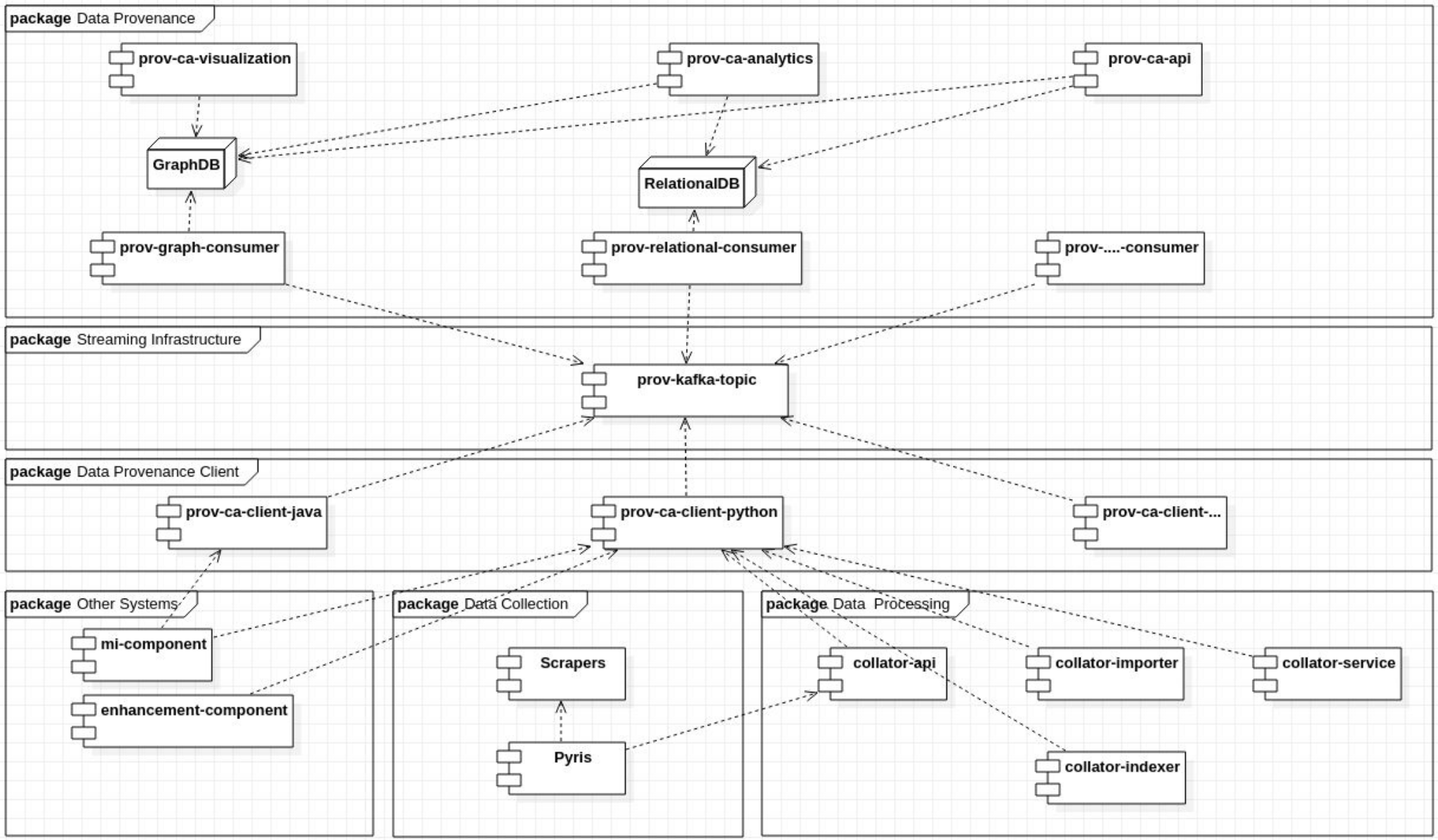

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Experimental Stack

- Python
- Python prov library
- Python prov-db-connector
- Kafka
- JanusGraph (ThinkerPop, Gremlin - gremlinpyton, Cassandra)
- PostgreSQL
- AWS
- Docker, Kubernetes

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Challenges & Learnings

- Robust specification - W3C PROV
- Even if the specification can be considered simple the complexity is given by identifying and modeling properly Entities, Agents, Actions and the relationships between them
- Can be challenging to collect and link provenance informations generated by different systems
- Scalability
- Provenance data retention
- Graph databases seems to be more suitable for provenance informations
- Didn’t find mature Gremlin support for prov documents (better support for Neo4j)
- prov-db-connector can be extended to support Gremlin
- decoupling audit and provenance data from business domain data can decrease the complexity of the systems
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- avoid using provenance data for other reasons, es. provide client services that are using PROV data
- OpenSource python provenance related libraries needs more support

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Q&A

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