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Controlling Personal Data Flow: An Ontology in the COVID-19 Outbreak Using a Permissioned Blockchain

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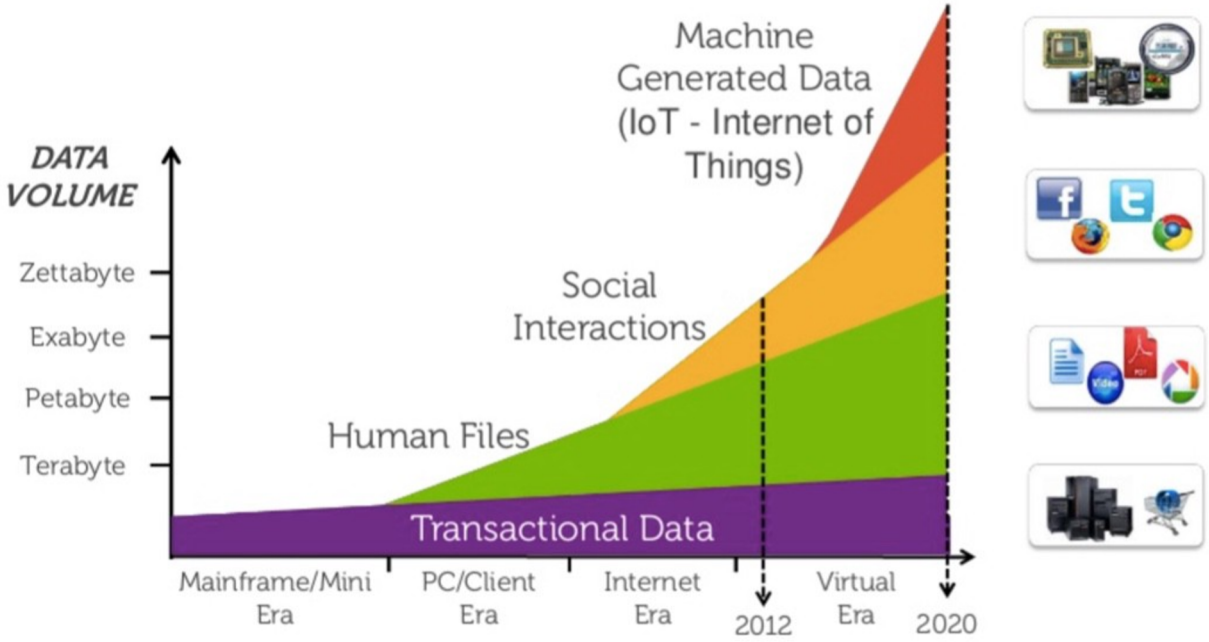
Scenario


DATA VOLUME
Zettabyte
Exabyte
Petabyte
Terabyte
Machine Generated Data (IoT - Internet of Things)
Social Interactions
Human Files
Transactional Data
Mainframe/Mini Era
PC/Client Era
Internet Era
2012
Virtual Era
2020

Scenario

Brazilian Data Regulation

Purpose Limitation

Data Minimization

Data Anonymization

Transparency

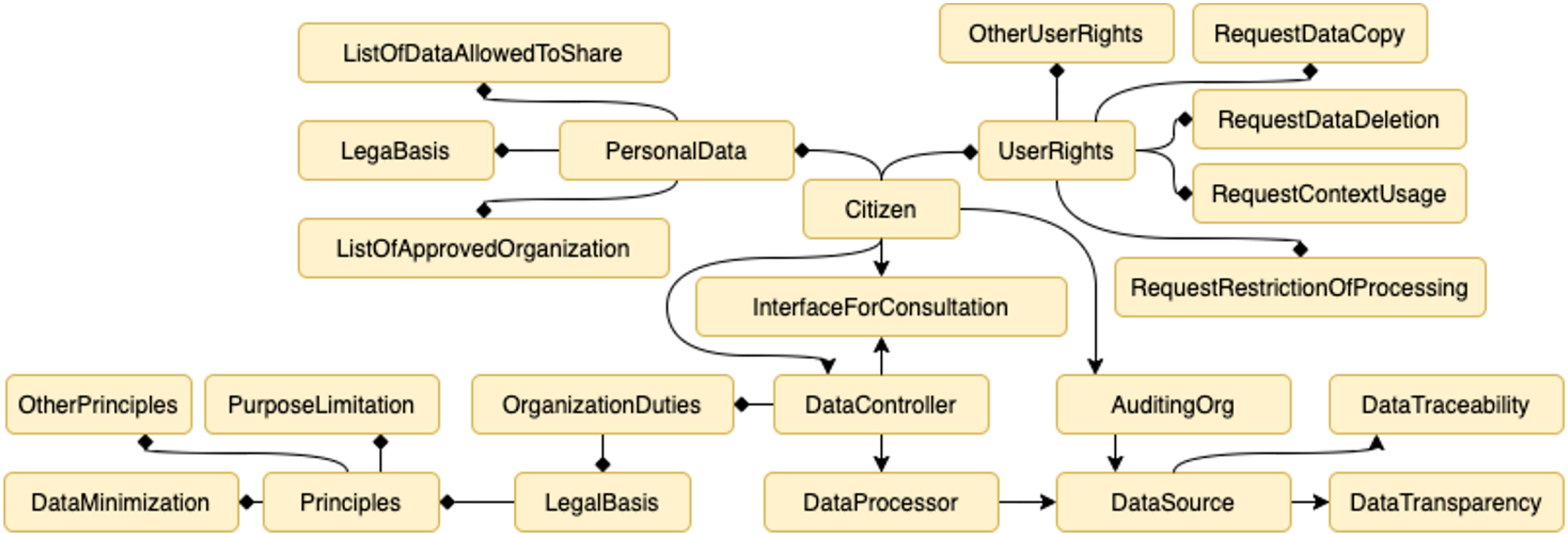
Problem

- What are the data subjects' rights and the data controllers and processors' duties in a pandemic scenario ruled by LGPD?

- How to mitigate information asymmetry and comply with LGPD?

- How can the blockchain technology be applied in such plot?

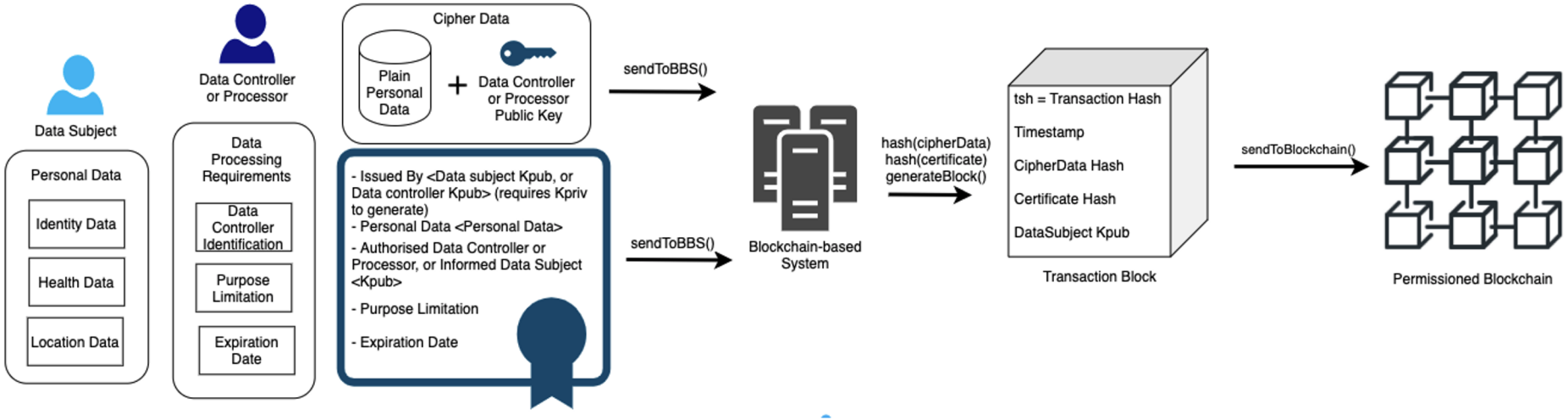
Ontology Proposal



Blockchain Data Model

	Public Blockchain	Permissioned Blockchain
Access	Open to the public	Multiple Organizations
Authority	Decentralized	Decentralized
Consensus	Permissionless	Multi-party Consensus
Data Handling	Read and Write Access open to the public	Read and Write Access for Multiple Organizations

Blockchain Data Model



Data Governance

In order to define a governance model, we based our approach on the Governance Analytical Framework (GAF) based on the Hyperledger Fabric permissioned blockchain concepts.

Conclusion and Future Work

Ontology for LGPD applied in the COVID-19 scenario.

Permissioned Blockchain Data Model

Governance Model developed under the Hyperledger Fabric architecture.

Further approaches would evaluate the most suitable permissioned blockchain platform according to the scenario requirements.

Thank you

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