

Scientific research achievements of Data Logistic for Logistic Data

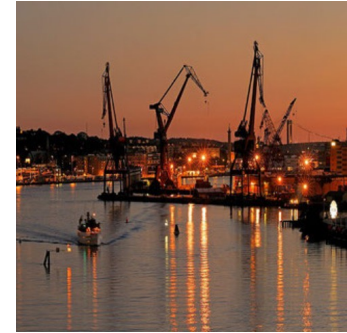
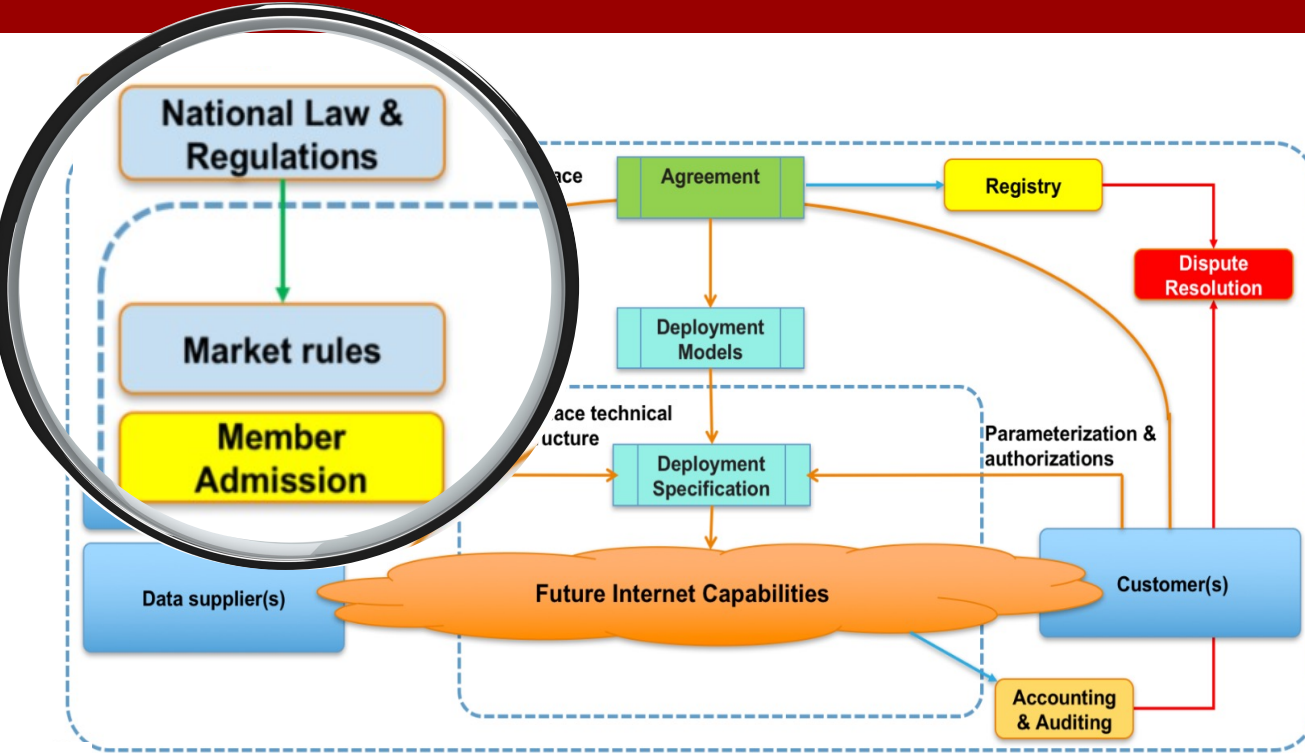
Research Display on Super Computing 2022



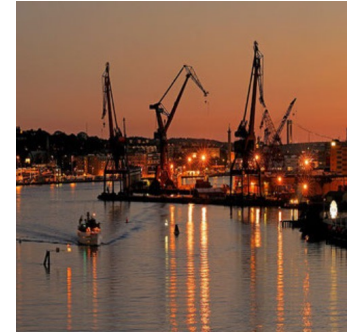
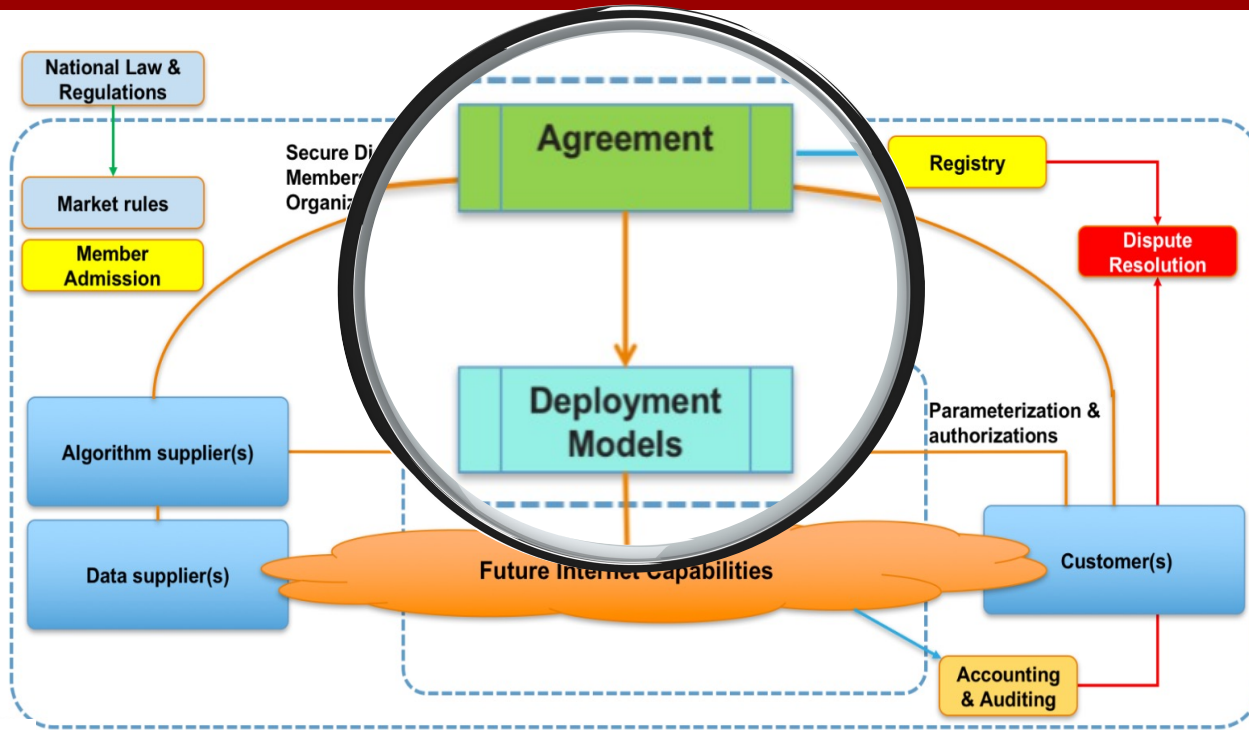
Nov 2022

Complex Cyber Infrastructure

Overview of DL4LD



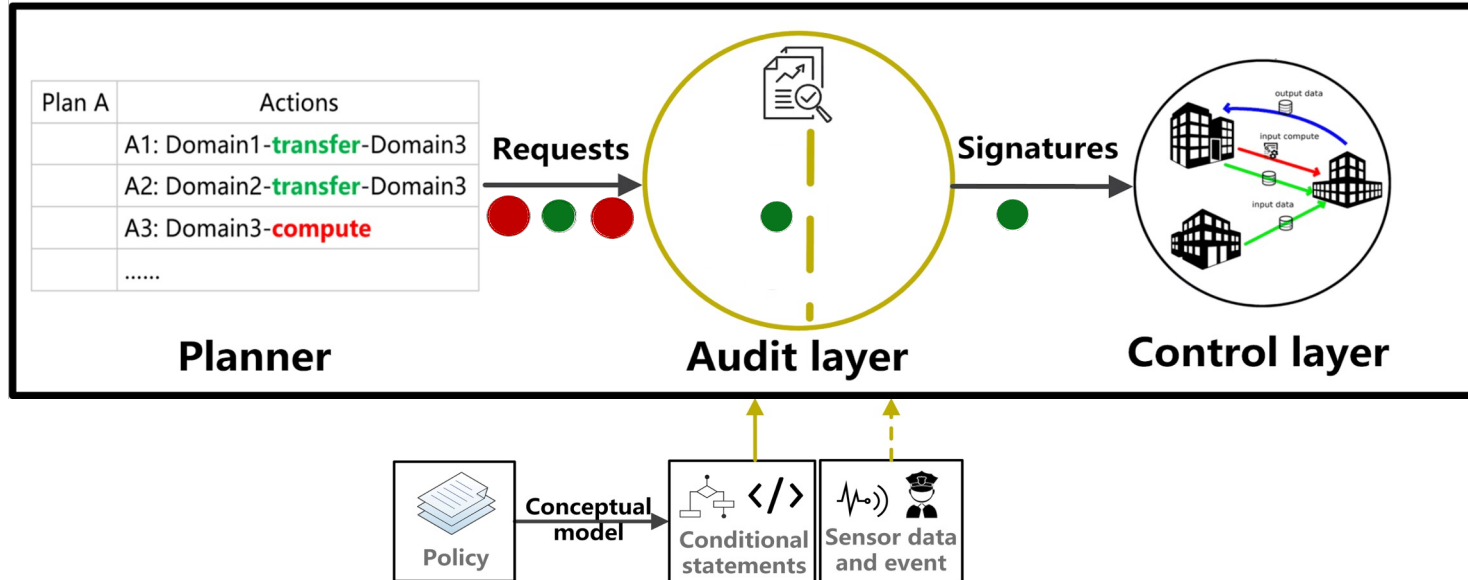
Overview of DL4LD



Policy Enforcement – Agreement & Deployment models



Auditable network overlays



Zhou X, Cushing R, Koning R, et al. **Policy enforcement for secure and trustworthy data sharing in multi-domain infrastructures**[C], 2020 IEEE 14th International Conference on Big Data Science and Engineering (BigDataSE). IEEE, 2020: 104-113.

Modelling — Compliance Management Framework



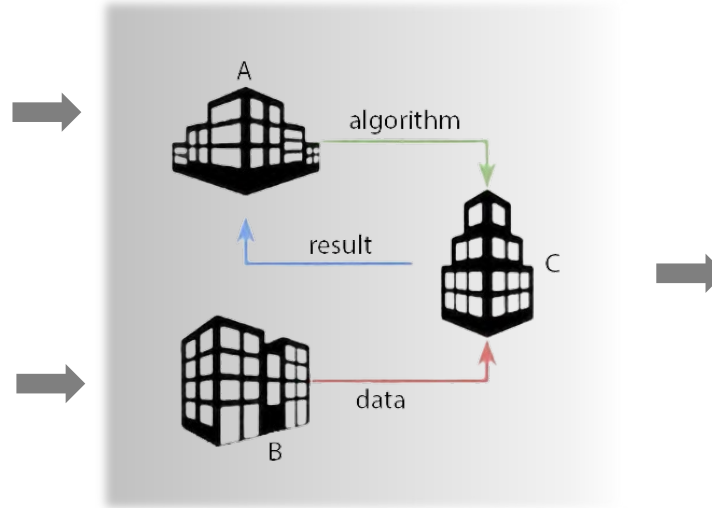
ASC

AgentScript
Cross-Compiler

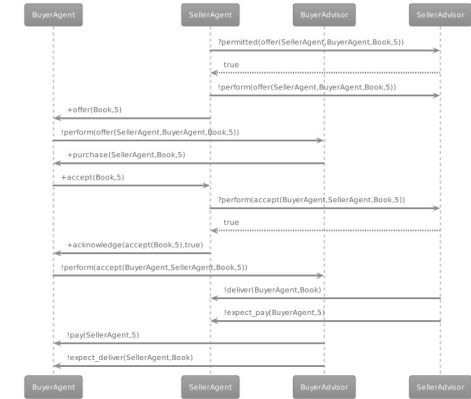
Executable
Model of Actors

eFlint

Executable Model
of Regulations &
Contracts



Executable Modelling Framework



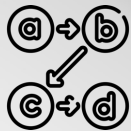
Analysis and Design Artifacts

Mostafa Mohajeri Parizi, Thomas Van Binsbergen, Giovanni Sileno, and Tom Van Engers. *Introducing Normative Advisors into MAS* (EUMAS2022)

Modelling — Agent-based Framework



Normativity



Logic-Based
DSL



Modelling Framework
AgentScript (ASC2)



circleci



Travis CI

DevOps Compatible

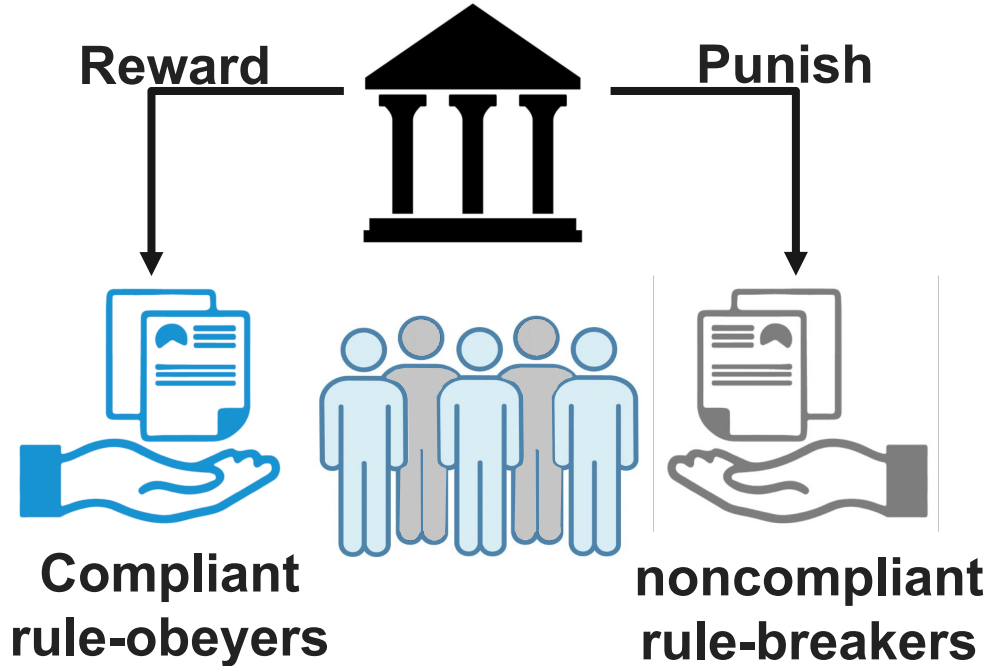


Robust & Efficient
Concurrency

Mostafa Mohajeri Parizi, Giovanni Sileno, Tom van Engers, and Sander Klous. 2020. **Run, Agent, Run! Architecture and Benchmarking of Actor-Based Agents.** (AGERE 2020).

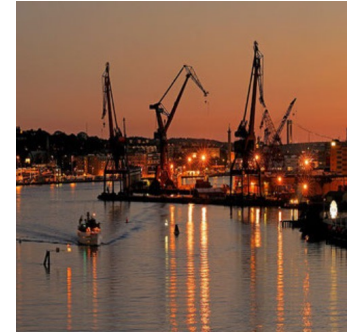
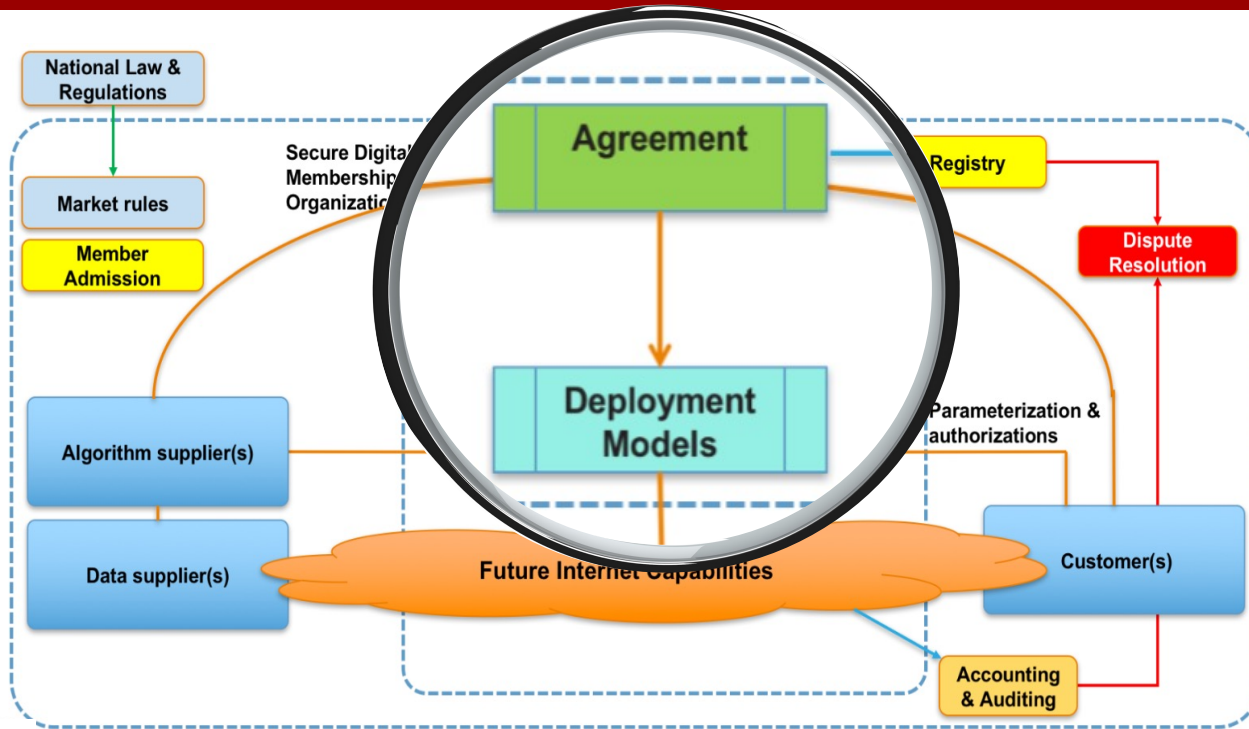
Mostafa Mohajeri Parizi, Giovanni Sileno, Tom van Engers. 2021. **Seamless Integration and Testing for MAS Engineering.** (EMAS 2021).

Incentive Design — Regulations & Market rules

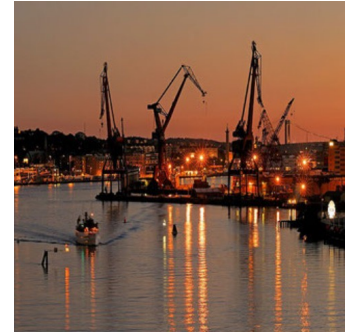
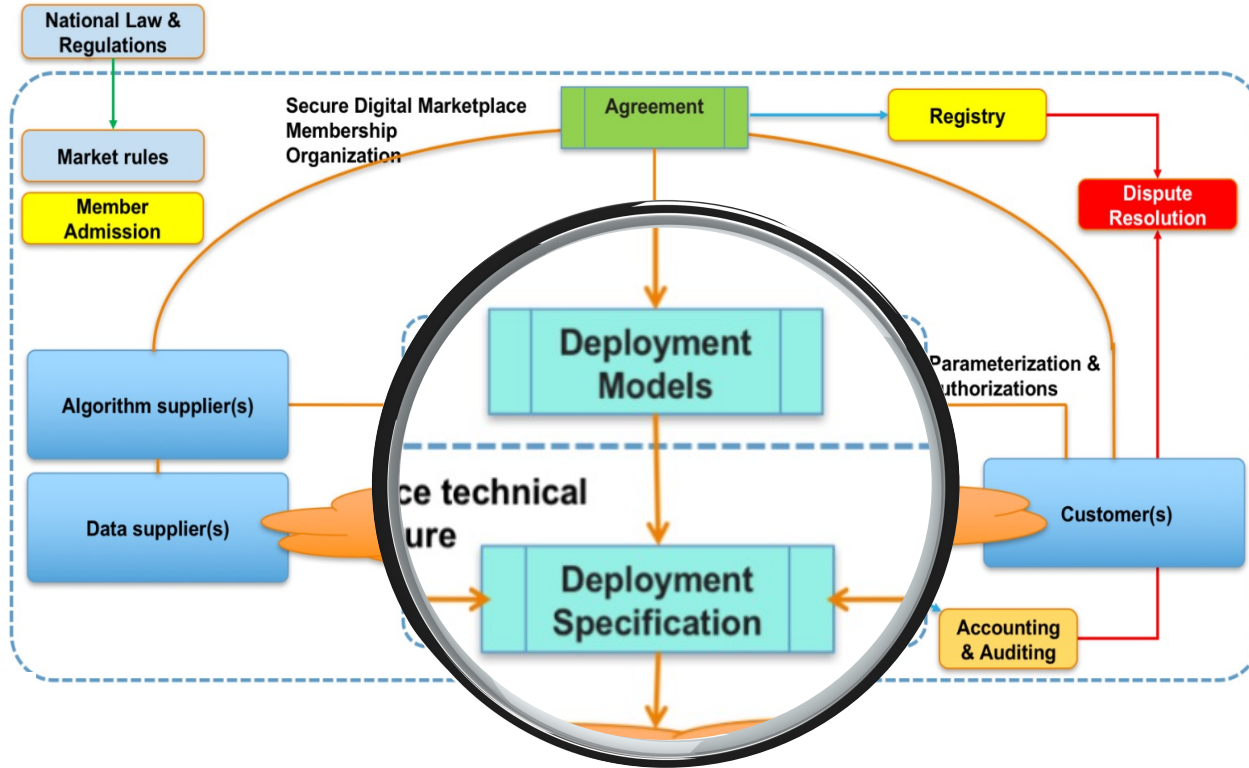


Zhou X, Belloum A, Lees M H, et al. **Costly incentives design from an institutional perspective: cooperation, sustainability and affluence**[J]. Proceedings of the Royal Society A, 2022, 478(2265): 20220393.

Overview of DL4LD



Overview of DL4LD



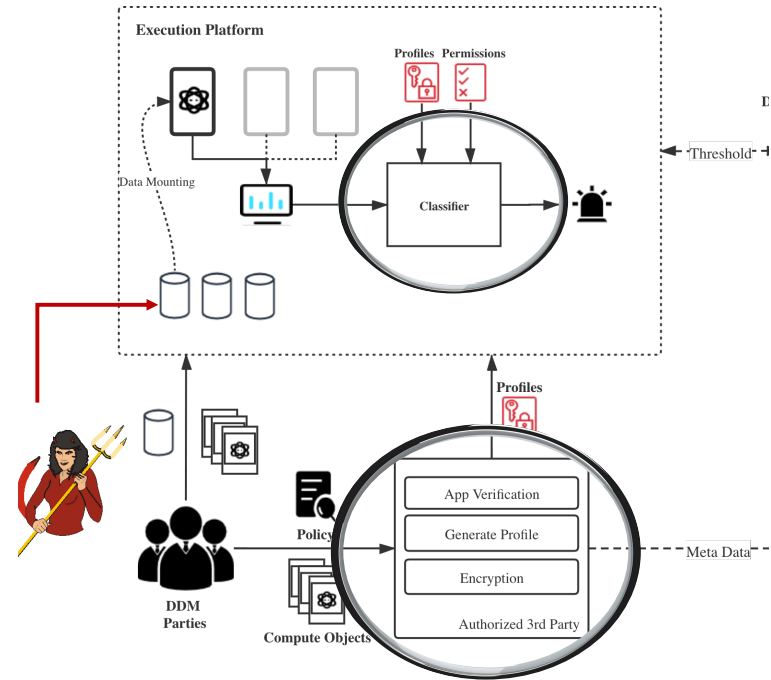
Host-based intrusion detection



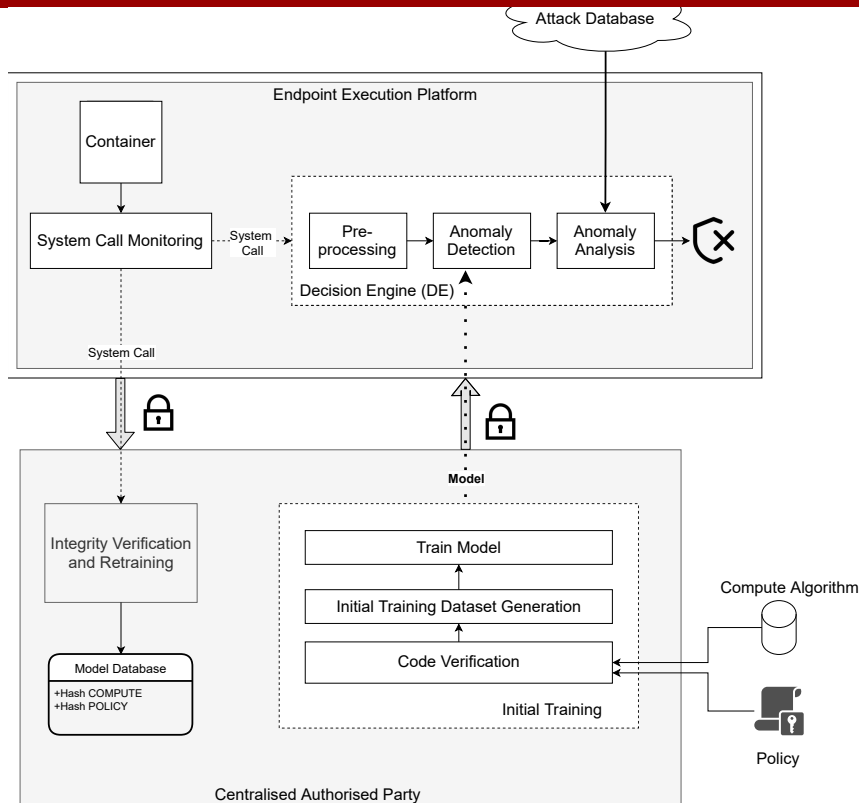
Our system can identify threats from (federated) machine learning applications.

An intruder in the system will try to run an illegitimate or unauthorized applications in the system.

The profilers and the classifiers will need to work to detect this in real-time.



Compliance system architecture



We perform in real-time anomaly analysis using the DL4LD attack database.

Our model are trained initially and retrained with new data to avoid the effect of ML poisoning attacks.

Scientific research achievements of DL4LD



- March 07, 2022: Demonstrator Smart Contract controlled networks, OFC2022, San Diego.
- Zhou X*, Belloum A, Lees M H, et al. Costly incentives design from an institutional perspective: cooperation, sustainability and affluence[J]. **Proceedings of the Royal Society A**, 2022, 478(2265): 20220393.
- Mohajeri Parizi M*, van Binsbergen T, Sileno G, van Engers T. Introducing Normative Advisors into MAS[C]//**The 19th European Conference on Multi-agent Systems**, 2022.
- Mohajeriparizi M*, Sileno G, van Engers T. Preference-Based Goal Refinement in BDI Agents[C]//**Proceedings of the 21st International Conference on Autonomous Agents and Multiagent Systems**. 2022: 917-925.
- Mohajeri Parizi M*, Sileno G, van Engers T. Seamless Integration and Testing for MAS Engineering[C]// **International Workshop on Engineering Multi-Agent Systems**. Springer, Cham, 2021: 254-272.
- Mohajeri Parizi M*, Sileno G, van Engers T. Declarative Preferences in Reactive BDI Agents[C]//**International Conference on Principles and Practice of Multi-Agent Systems**. Springer, Cham, 2020.
- Zhou X*, Cushing R*, Koning R, et al. Policy Enforcement for Secure and Trustworthy Data Sharing in Multi-domain Infrastructures[C]//**2020 IEEE 14th International Conference on Big Data Science and Engineering (BigDataSE)**. IEEE, 2020: 104-113.
- Mohajeri Parizi M*, Sileno G, van Engers T, et al. Run, agent, run! architecture and benchmarking of actor-based agents[C]//**Proceedings of the 10th ACM SIGPLAN International Workshop on Programming Based on Actors, Agents, and Decentralized Control**. 2020: 11-20.

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