Profiting from Kitties on Ethereum:

Leveraging Blockchain RDF Data with SANSA

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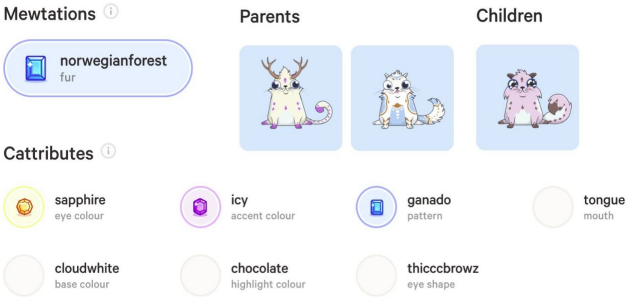
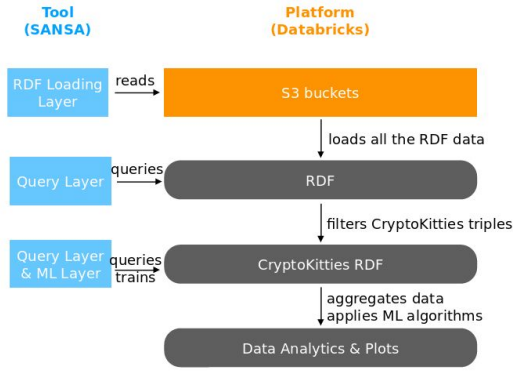
What are CryptoKitties?

- Game built on Ethereum blockchain technology [2]
- Kitties' attributes succeed from their parents' genes, with possibility of mewtations
- An owner can sell, breed or gift it to other user. When users sell or breed it, they will send transactions to the CryptoKitties smart contracts



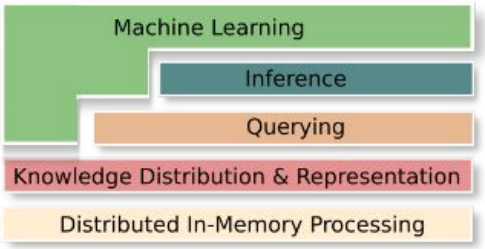
Challenges: Analyzing game performance and customer behaviors

Adopted Strategy



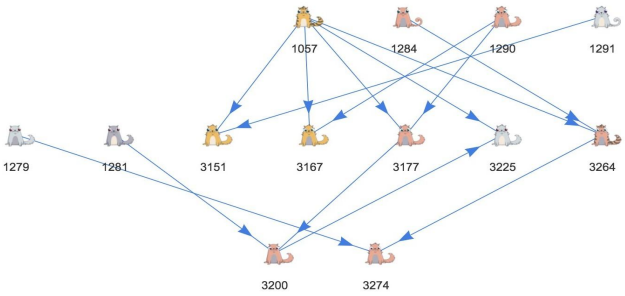
1. The Ethereum triplified according to the EthOn otology [1];
2. The RDF data loaded by SANSA [3] and filtered (retaining for instance contract messages or log information);
3. Analytics are computed using:
   a. **time series** for game performance *e.g.* number of active users and amount of spent Ether,
   b. **machine learning** for customer behaviors to detect correlations and topology from a network view.

SANSA Framework

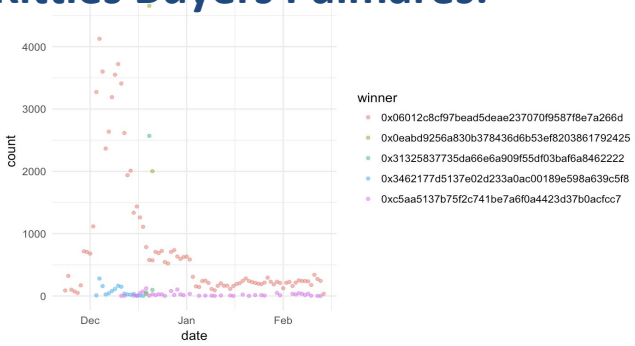


SANSA [3] is an open source framework combining Semantic Technologies and Distributed Machine Learning. It provides distributed reading, SPARQL querying, inference and analytics over large-scale knowledge graphs.

Incest Detection:



Kitties Buyers Palmares:



References

[1] - Pfeffer, J., Beregszazi, A., Detrio, C., Junge, H., Chow, J., Oancea, M., Pietrzak,M., Khatchadourian, S., Bertolo, S.: Ethon - An Ethereum ontology (2016)

[2] - Wood, G.: Ethereum: A secure decentralised generalised transaction ledger. Ethereum project yellow paper 151, 1–32 (2014)

[3] - Lehmann, J., Sejdiu, G., Bühmann, L., Westphal, P., Stadler, C., Ermilov, I., Bin, S., Chakraborty, N., Saleem, M., Ngonga, A.C.N., Jabeen, H.: Distributed semantic analytics using the SANSA stack. In: Proceedings of 16th International Semantic Web Conference - Resources Track (ISWC'2017) (2017), **http://sansa-stack.net**

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SMART DATA ANALYTICS FROM DATA TO KNOWLEDGE

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