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Trellis++ a Practical Privacy-Preserving Food Safety Framework

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Motivation

As IoT data volumes increase in a privacy-conscious world, an alternative model where provable computation happens closer to the data is needed.

Unfortunately, including the **edge** in the computational resources can lead to a higher risk of **data leakage** or **theft of confidential data**.

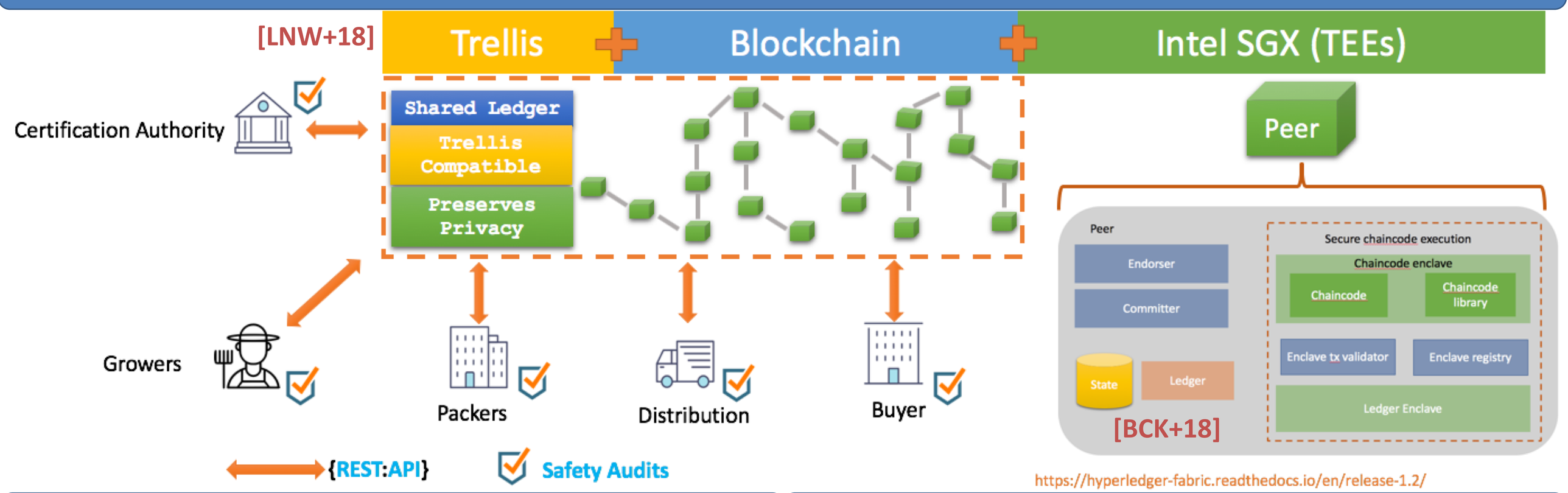
Goals

- Move parts of the computational kernels to the **edge** of the network to take advantage of the computational capabilities of the edge nodes **[1].**
- Address a critical issue on edge computing: producing **auditable computations** that also prevent theft of confidential data.

Use case

- This project aims to prove **the safety of food** through its lifecycle computing on **encrypted data** to obtain proof of safety while **keeping all these data private** to the requirements of the data owners.

Trellis++ Architecture



Contributions

- Oblivious smart contracts
- A privacy preserving computation framework
- An opensource implementation **[2]**

References

1. Palacios, S., Santos, V., Barsallo, E. et al. Multimedia Tools Applications (2019). **https://doi.org/10.1007/s11042-018-6940-2**
2. https://github.com/trellisfw/trellisfw-lib-ibmfoodtrust

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