Scalable Hardware-Aided Trusted Data Management

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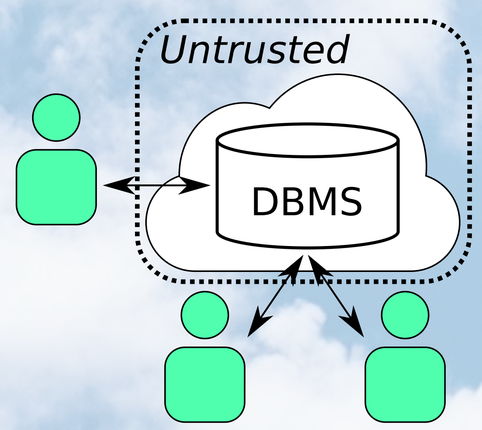
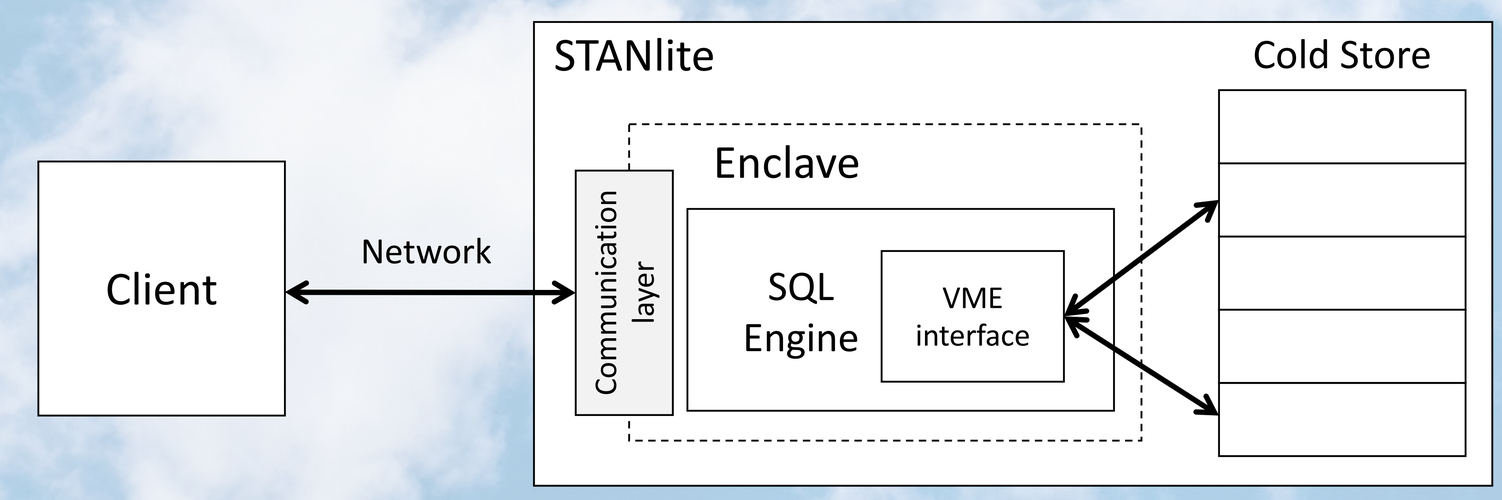
Motivation

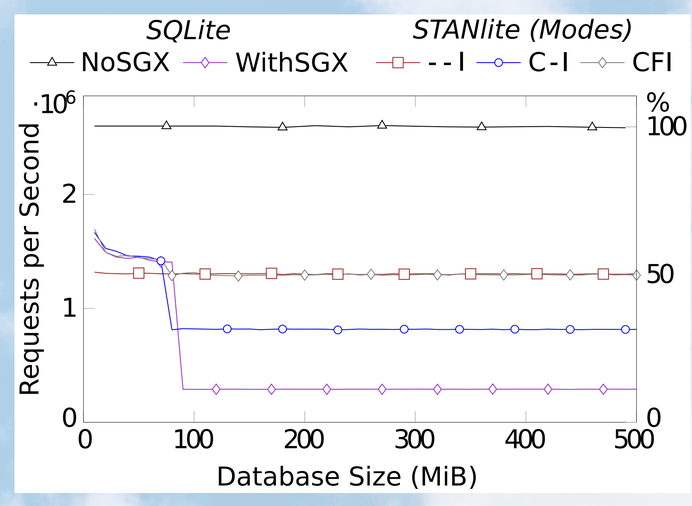
- Storing and processing **sensitive data** on **untrusted** external **hardware**



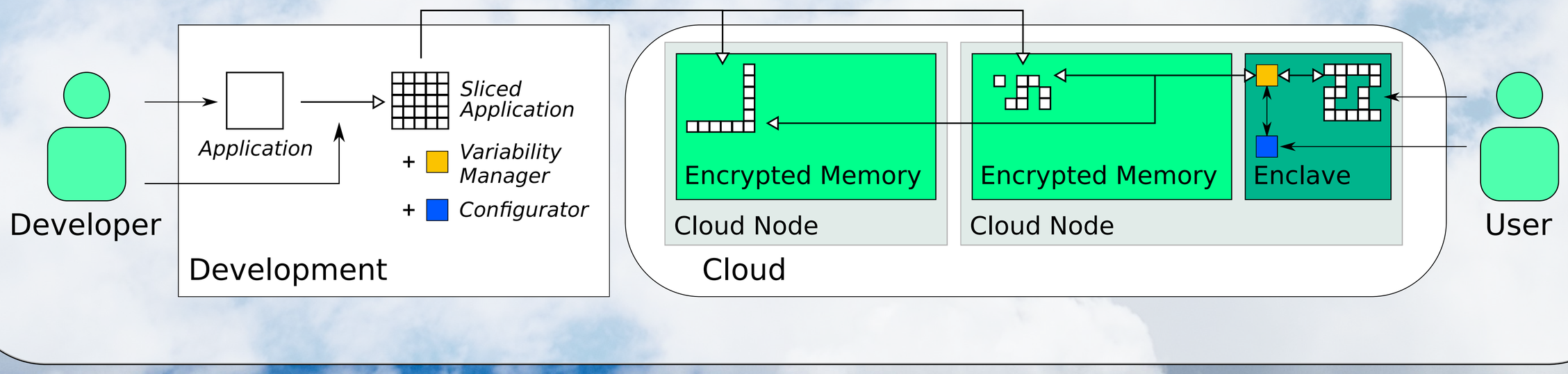
- Securing DBMS with **Intel Software Guard Extensions** and **dynamic product lines**
  - Securely store and process data
  - Efficiently manage secure memory
  - Flexibly modify DBMS functionality

STANlite - a database engine for secure data processing at rack-scale level





Towards secure dynamic product lines in the cloud



Future Work

- Convert DBMSs to DSPLs
  - Decomposing code
  - Integrating SGX functionalities
- Evaluate impact on DBMS performance

References

V. A. Sartakov, N. Weichbrodt, S. Krieter, T. Leich, and R. Kapitza. **STANlite – a database engine for secure data processing at rack-scale level.** In *IC2E*, 2018. IEEE, to appear.

S. Krieter, J. Krüger, N. Weichbrodt, V. A. Sartakov, R. Kapitza, and T. Leich. **Towards Secure Dynamic Product Lines in the Cloud**. In *ICSE-NIER, 2018*. ACM, to appear.

Website

stan.ibr.cs.tu-bs.de