



Manually acquired data should be well organized too!

Secure • Accurate • Reliable • Accessible

Measurement and Process Control System for Hand Tools

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Introduction

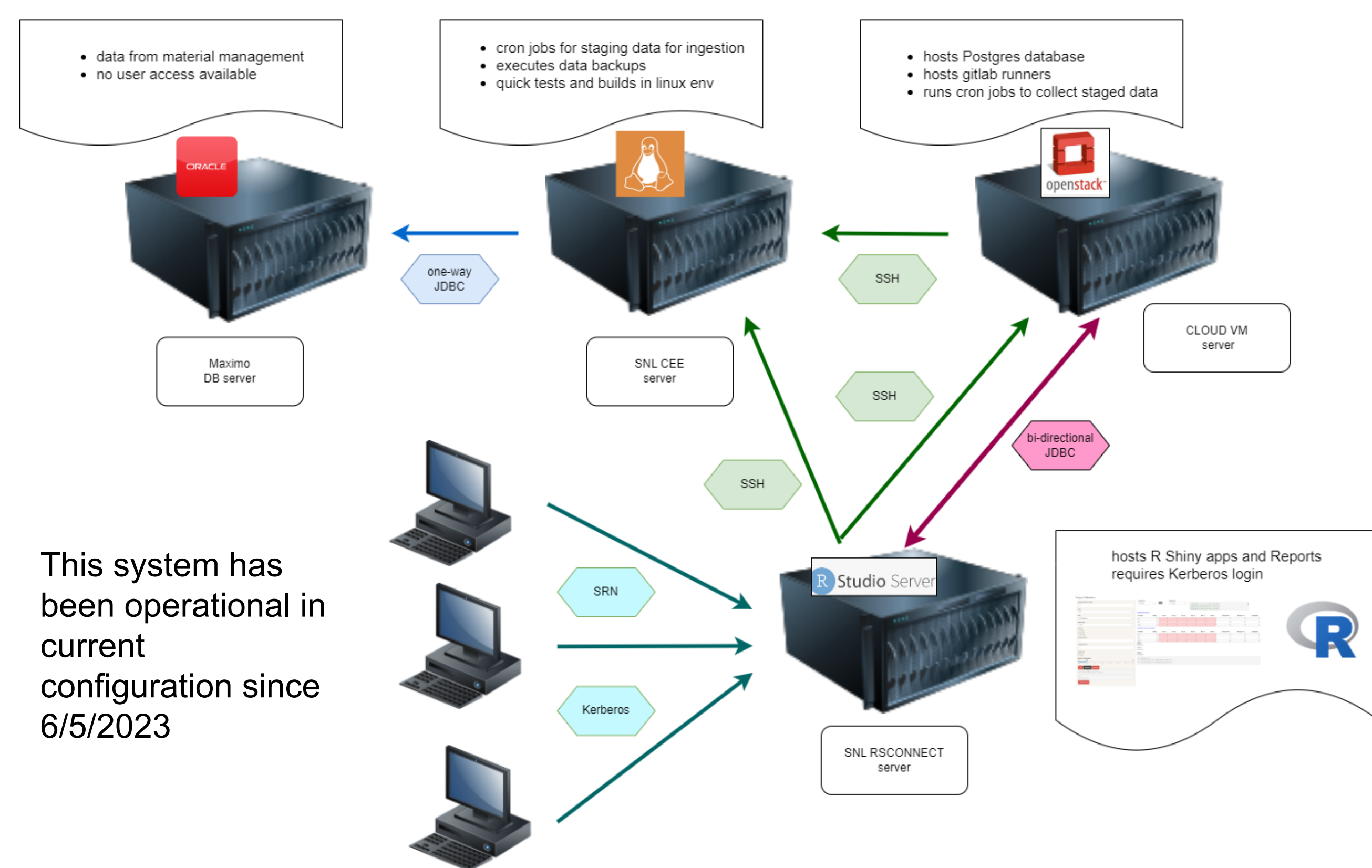
Problem: Manual data collection has unique challenges in data entry as compared to automated measurement systems. Data collection is often on paper, on spreadsheets. Excel calculations are difficult to follow and are error-prone.

Goal: A system is implemented for capturing manually collected data with a custom user interface with a full database backend allowing for quality and process controls

Methods

Build infrastructure to support the system with security, availability and stability at the forefront

Make access to data easy for engineers and metrologists



Currently executing on

Frontend development:

user interfaces and reports, calibration data processing

Backend development:

data engineering, schedulers, database development

Results See LIVE DEMO Here!

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Background

Some examples of current recordkeeping:



These spreadsheets and PDFs are often attached to the workorder, however there is no way to data-mine them.

Impacts calibrations of items such as torque wrenches, gage blocks, calipers, screws, weights, and various other "tactile" items

Impact

The immediate customer is PSL QE and Lab Engineering because they will have easy access to monitor the **quality of the items through time** as well track measurement system tool drift by employing **Statistical Process Control**. We expect many copy/paste errors and spreadsheet corruption issues to be averted thus **providing the most accurate** calibration certificate data to PSL customers.

Conclusion

The interface for the Torque station has completed beta-testing and is now in production. Several other measurement systems are undergoing development and will be rolled out in '23-'24

Future Work

Will take requests from PSL groups which would like to avail themselves of this system. Will also take requests from other Sandia groups who have a need to enrich a manual entry process with a stable UI, a sophisticated scripting language, a database, process control, and implementation of data mining