Distributed Provenance and Assurance

Directory

The Directory provides the record of **who** all the participants are, the **agreements** they have executed, and their **role** in the Trust Framework.

It issues **digital certificates** which are used to sign data to prove the identity of the participant who created that data.

The directory is the only centralised service in the Trust Framework.

Assurance

Assurance is the machine readable metadata which allows decision makers to quantify how much **trust** they can place in the data used to make their decisions.

Provenance

The **Provenance Record** encapsulated the Assurance metadata and machine readable description of where the data **originated** and how it has been **processed**, and the **identify** of everyone involved in the chain.

It is signed by certificates from the Directory, so that participants later in the chain can verify the identity of the participant making each assertion.

Implementation tasks

Designed for minimum implementation effort

1. **Farmer** – continues to upload their data into the Test Bed. There is no change to their processes.

2. **Data exchange platform** –

   a. creates a Provenance record to record receipt of data from the farm, the processing performed, and transfer to the Carbon accounting solution.

   b. generates Assurance metadata and embeds in the record.

   c. attaches Provenance record to onward transfer of data & logs for auditing.

3. **Carbon accounting solution** – adds a receipt to the Provenance record, description of processing, and transfer to the Bank. Attaches to report & logs for auditing.

4. **Bank** – verifies the Provenance record, and uses Assurance metadata as an input into their decision making process.

Demonstrates key benefits of Trust Framework

1. **Distributed identity** in a Trust Framework.

2. **Digital signatures** to verify data transfer and Assurance assertions, without a central service.

3. **Participation** without individual negotiations by using pre-agreed agreements and Trust Framework identity.