



DELLTechnologies /
World
2022



Real-time Carbon Footprint Tracking through a DCF

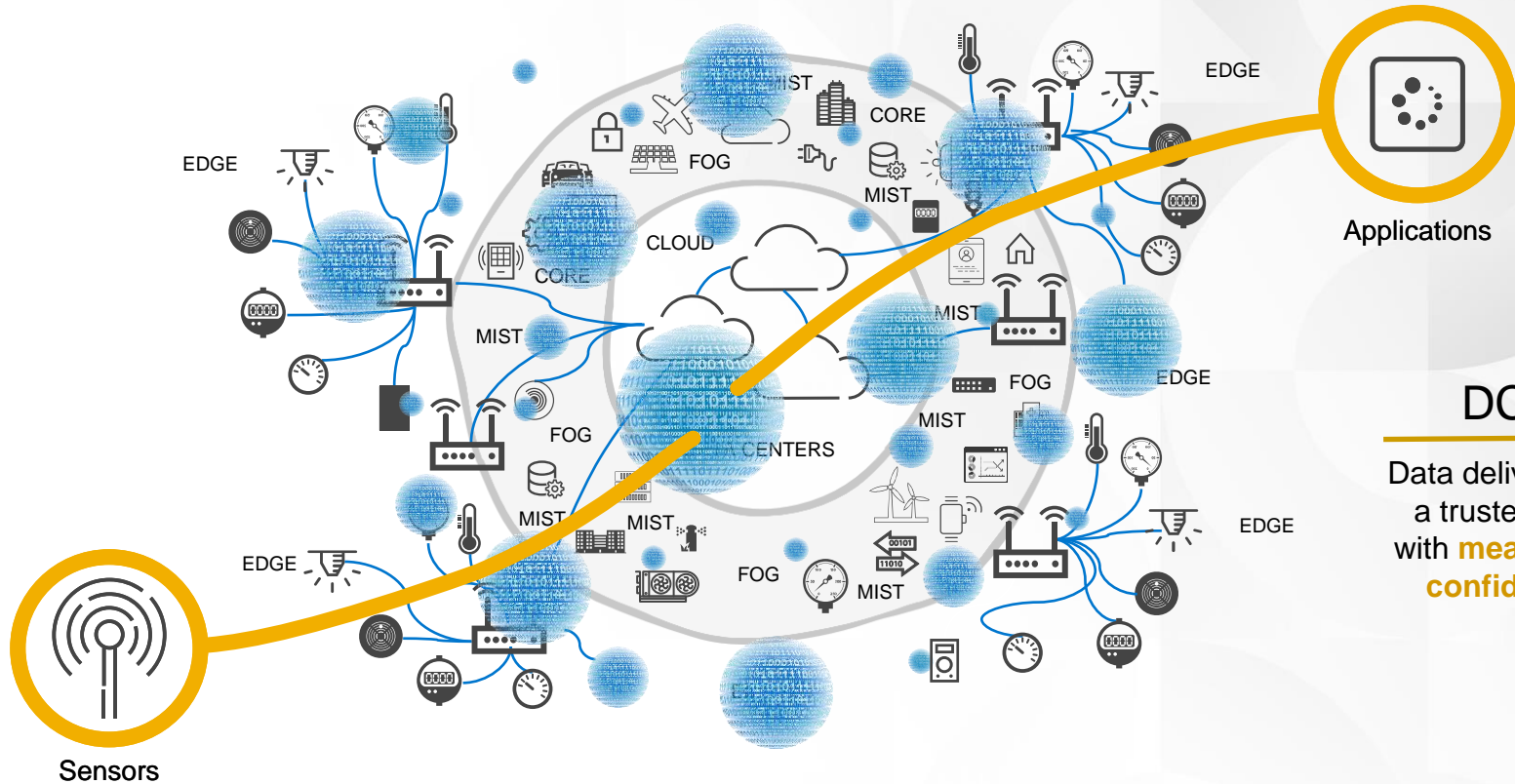
Data Confidence Fabrics and “Trustworthy” Environmental Reporting
Steve Todd, Dell Technologies Fellow
May 2022

Agenda

- What is a Data Confidence Fabric?
 - And why did Dell Technologies open-source it?
- Carbon Tracking and Transparency
 - Background
- Digital MRV
 - Bringing Data Confidence to Carbon Tracking
- Chile DigitalMRV Pilot Project
 - Technical details
- Future Plans for DCF
 - Other Applications

What is a DCF?

Solution: Data Confidence Fabric



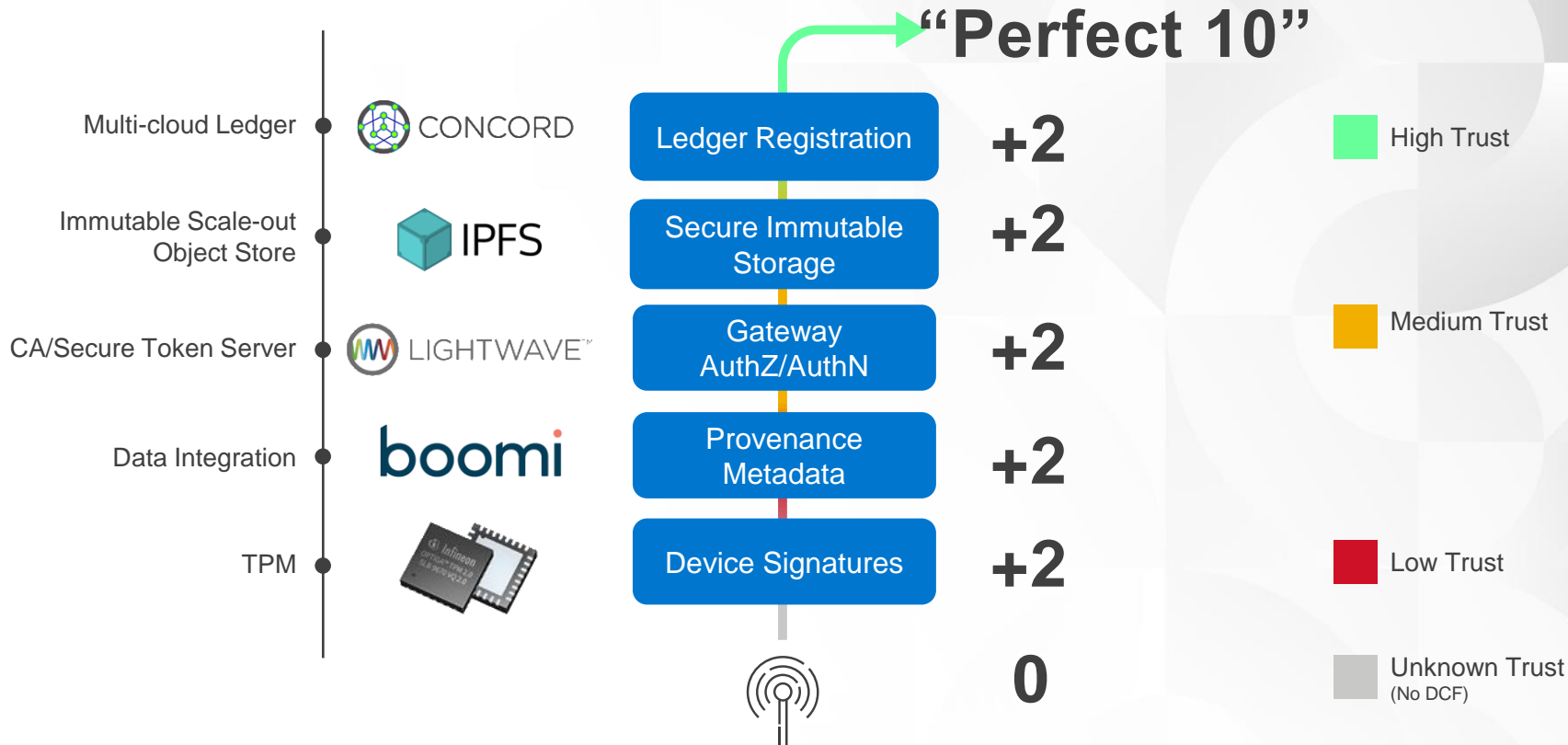
DCF

Data delivery over a trusted fabric with **measurable confidence.**

Sensors

Applications

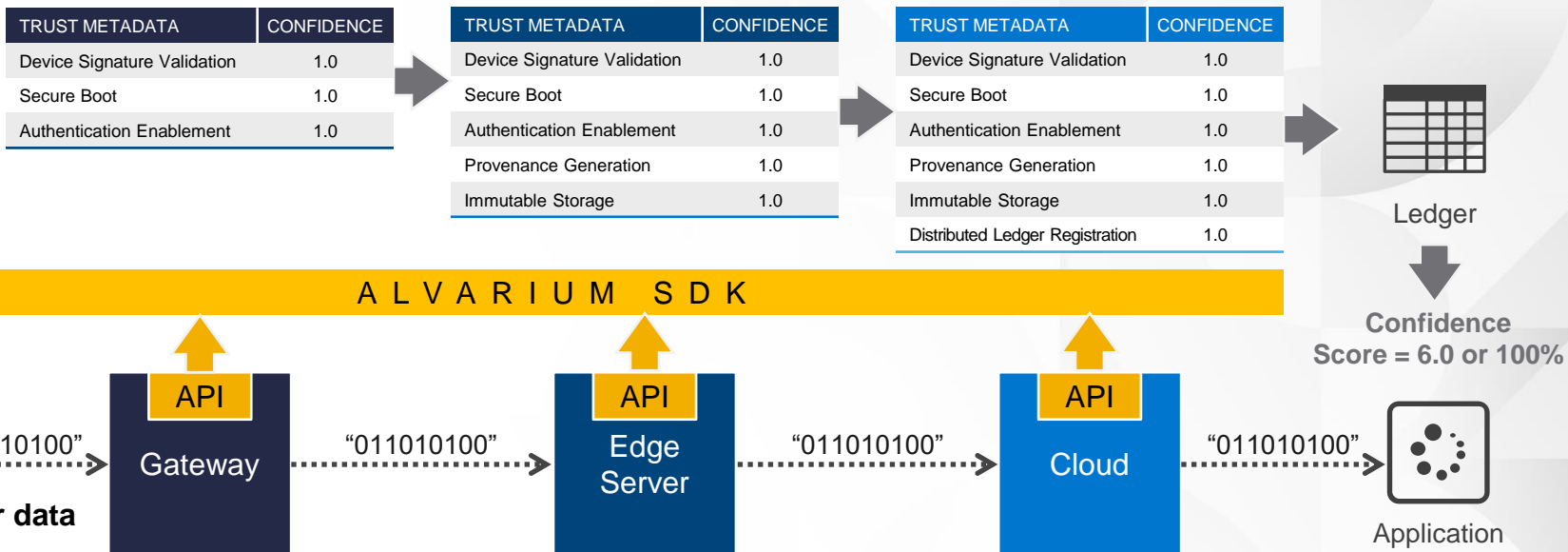
DCF: initial concept (2019)



2021: open-source

PROJECT ALVARIUM

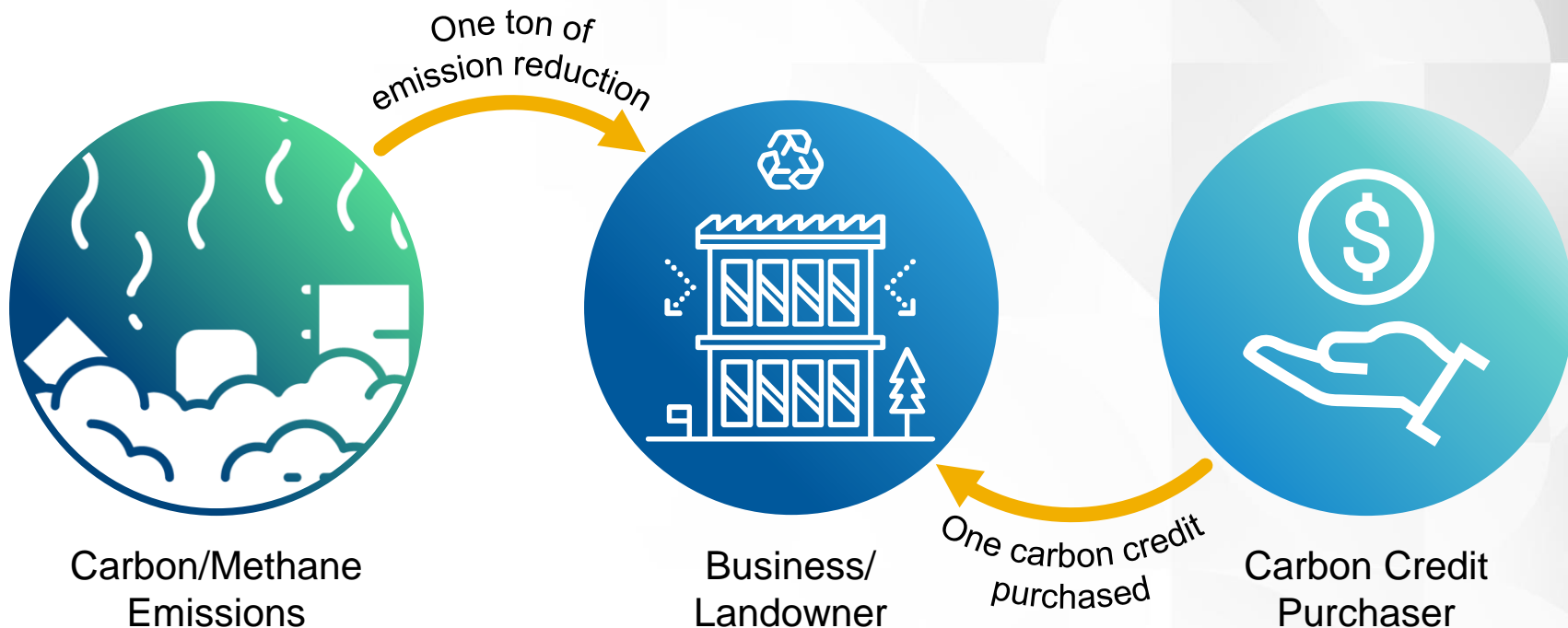
The Alvarium code base is a lightweight SDK that annotates data streams (e.g., sensor data) with trust metadata and confidence scores, forming a Data Confidence Fabric (DCF)



Carbon Tracking & Transparency

Carbon tracking for carbon credits

An overview



Opportunities for Misrepresentation

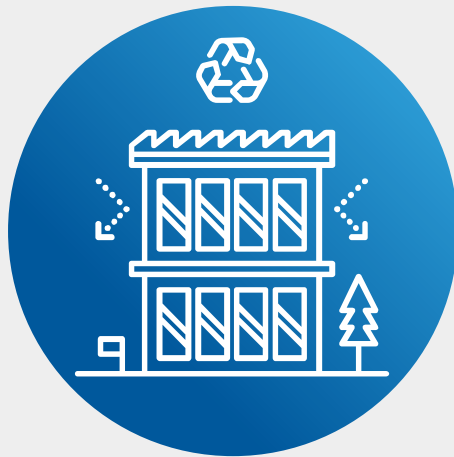
Did one ton of emission reduction actually occur?



GHG Auditor



Carbon/Methane Emissions



Business/
Landowner



Carbon Credit Purchaser

What is Digital MRV?

Digital MRV defined

DCF applies to “verification” (can I trust the carbon footprint reporting?)

Measurement:

obtaining the data necessary to quantify the carbon footprint

Reporting:

sharing the results of the measurements

Verification:

quality assurance/control (1st party) and assurance (3rd party) of “truthfulness” of carbon footprint reporting

Digital MRV is a joint 50-50 software solution from Climate Check and IOTA



DIGITAL MRV



ClimateCHECK

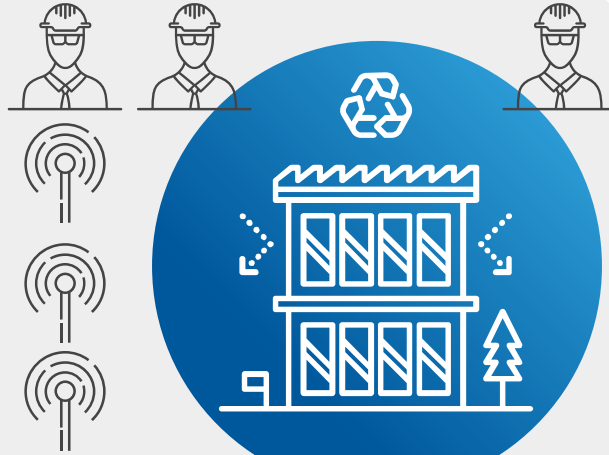


IOTA

Manual MRV



Carbon/Methane
Emissions



Business/
Landowner



GHG
Auditor

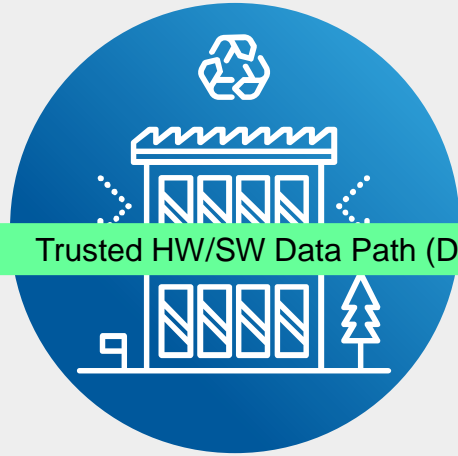
*Manual (error-prone)
Lengthy
Costly
Subjective
Non-transparent*



Digital MRV



Carbon/Methane
Emissions

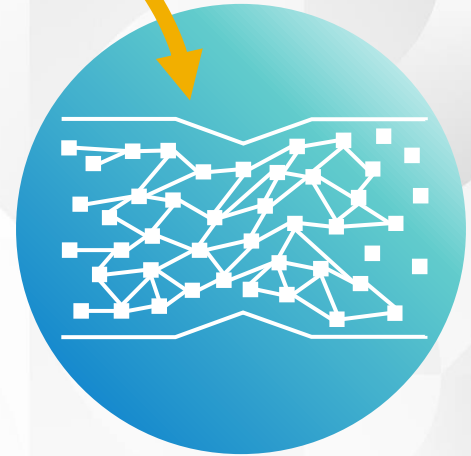


Business/
Landowner



GHG
Auditor

*Automation
Faster
Less-expensive
Objective
Transparent*



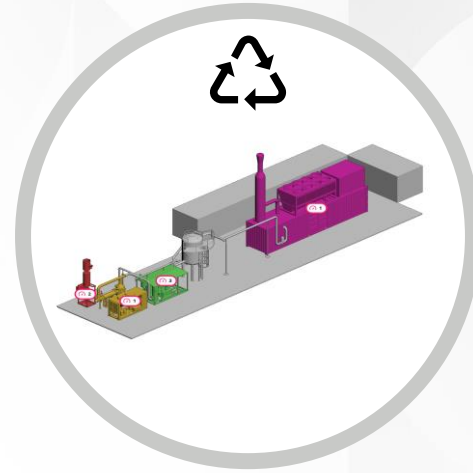
Distributed
Ledgers

Digital MRV Chile Biodigester Pilot Project

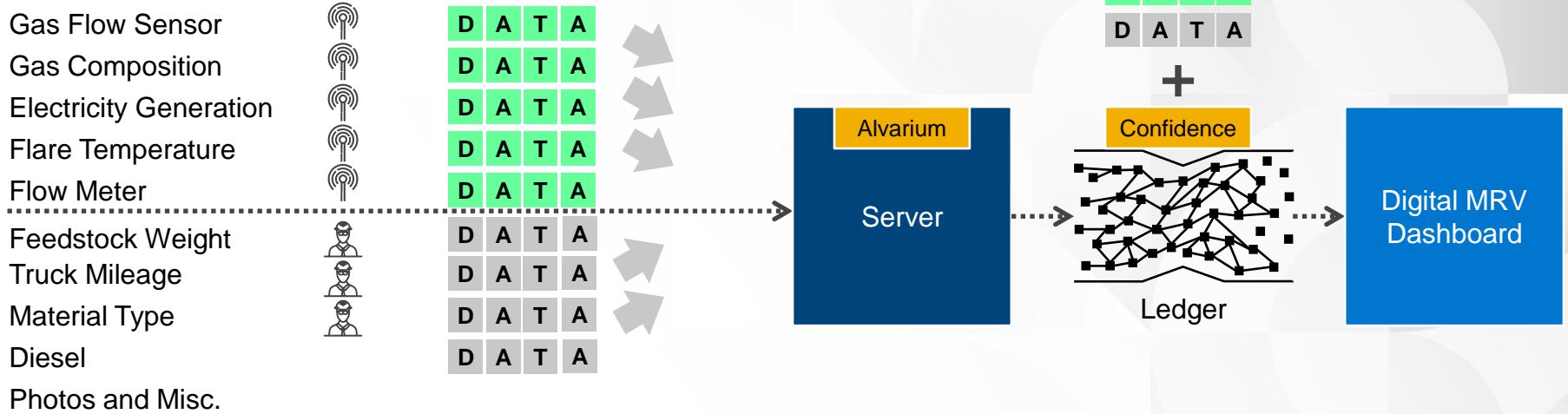
Biodigester pilot project (Molina, Chile)



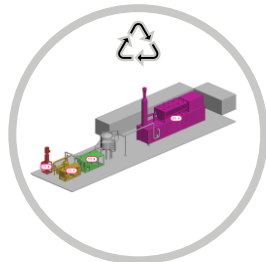
Organic Feedstock
(Used grapes and crop waste, animal waste)
Significant carbon/methane emissions



Digital MRV/DCF solution overview



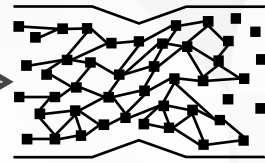
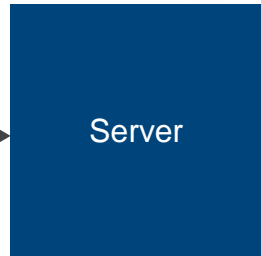
Organic Feedstock
(Plant and animal –
transported by truck)



Solution partners



Dell EMC
PowerEdge T140
Tower Server

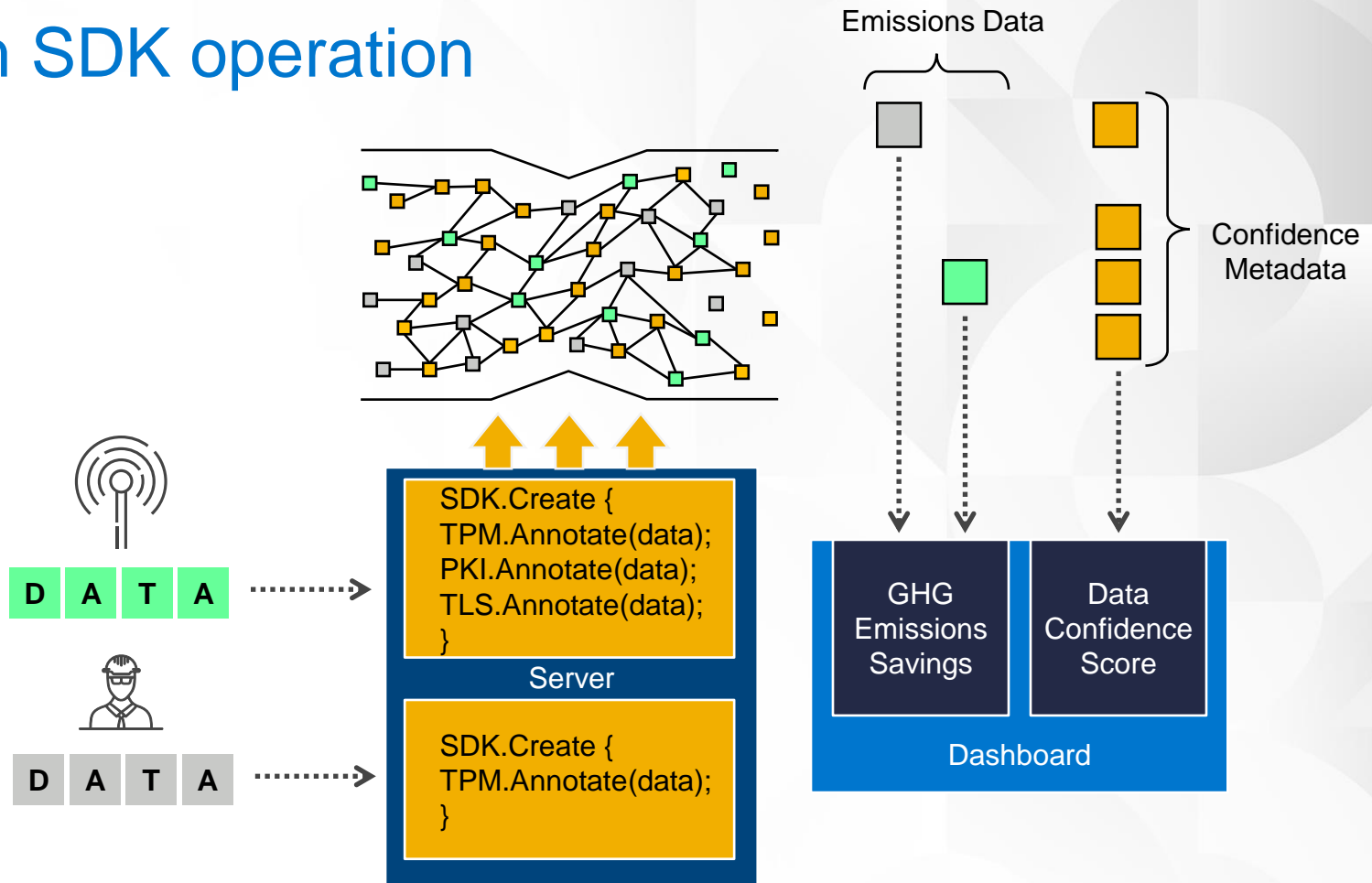


IOTA
Tangle

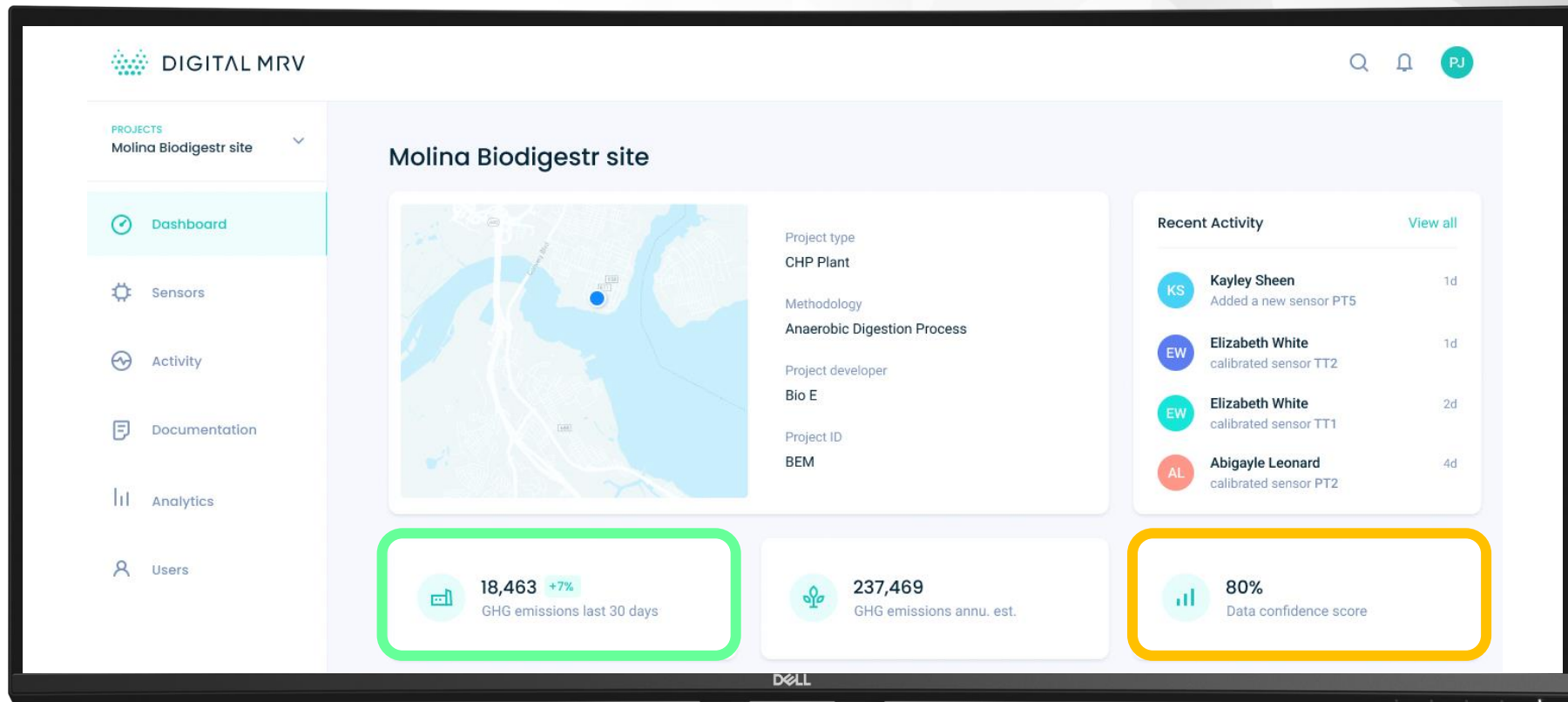


DigitalMRV
UI

Alvarium SDK operation



Digital MRV dashboard



DCF Future Plans

Future DCF environmental use cases



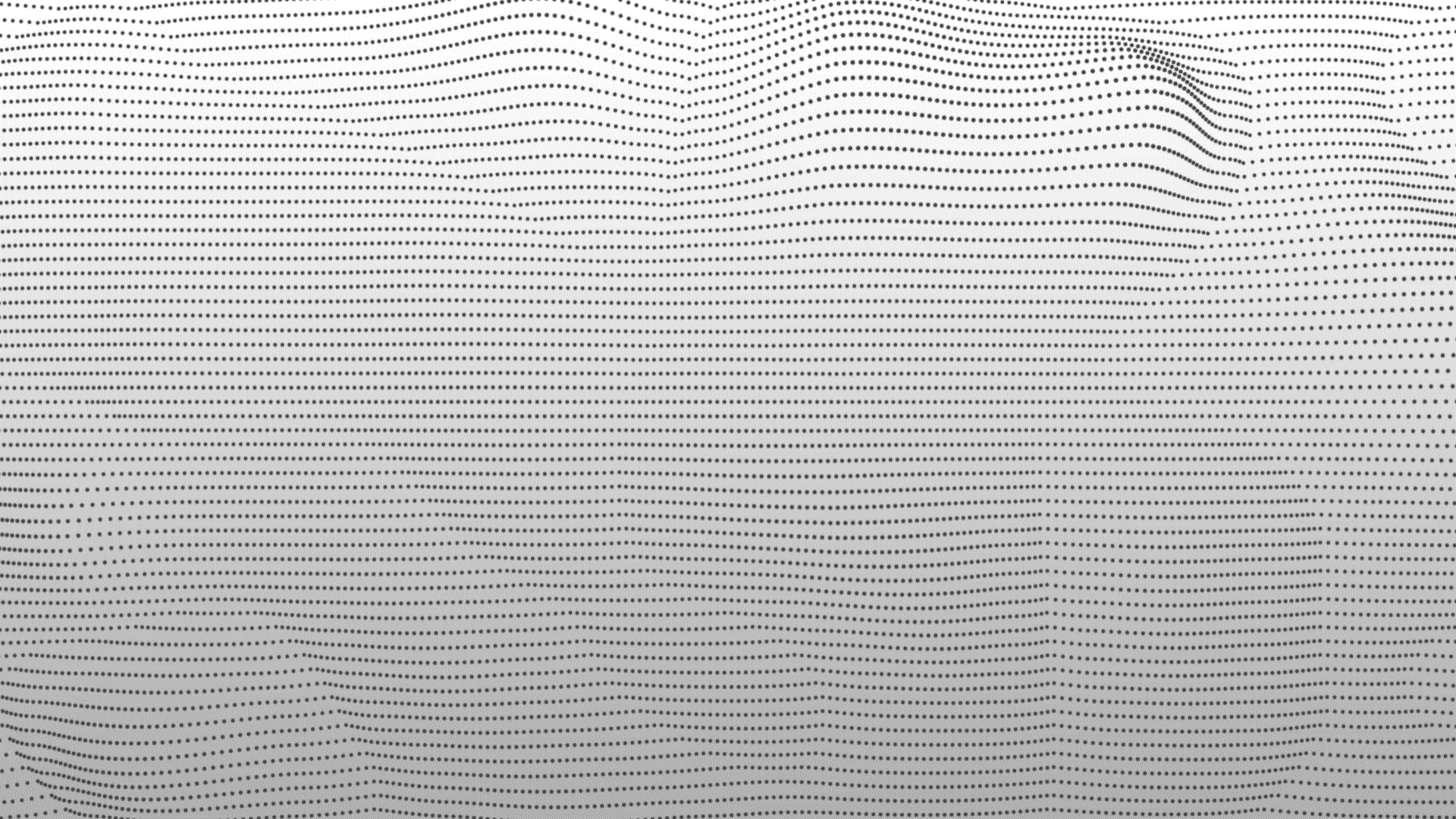
Infrastructure
Carbon Credits



Smart City
Carbon Credits



Transportation
Carbon Credits



Links to Videos

Intro video: <https://vimeo.com/703710376> [vimeo.com]

End video: <https://vimeo.com/703228529> [vimeo.com]

The logo features the Dell logo symbol (a stylized 'E' with three horizontal bars) followed by the word 'Technologies' in a sans-serif font. A forward slash follows, and the word 'World' is written in a bold, sans-serif font. The entire logo is white and centered on a background of overlapping blue and teal circles and squares.

D **LL** Technologies / **World**