

# EVE Helps Tackle Climate Change

An example of best practice IT security at the remote distributed edge (without onsite IT staff)

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# Agenda

- › Case Study - Biodigester in Chile
  - › Sustainably transforming waste to energy
- › Benefits of Open Source + Industry Support
  - › Remote technology management
  - › Digital transformation at scale
  - › Security and trust “at the edge”



# Biodigestion of Cows

## > INPUTS

> plant feed 🌱 and water 💧

## > OUTPUTS

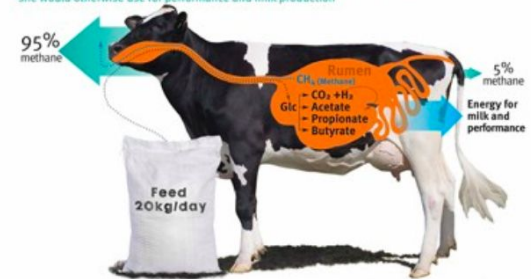
> milk 🍼, methane 🌬️, manure 💩

> 95% burps, 5% farts










### Methane Reduction Project - how to reduce methane emission by a minimum of 25%

A cow emits 500L of methane per day, which is equivalent to 10% of the energy she would otherwise use for performance and milk production



# Biodigester Plant Processing

## > INPUTS

- > Ag residue (grape harvests) 
- > Biosolids (stabilized sludge, expired food)  
 
- > Manure 
- > Liquid industrial waste 
- > Organic residue from fishery and meat industry  
  



# Biodigester Plant Cow Friendly Benefits

## > OUTPUTS

- > Liquid fertilizer
- > Mulch
- > Methane gas



# Climate Accounting in Molina, Chile

 DIGITAL MRV

PROJECTS  
Molina Biodigestr site

## Molina Biodigestr site

 Dashboard

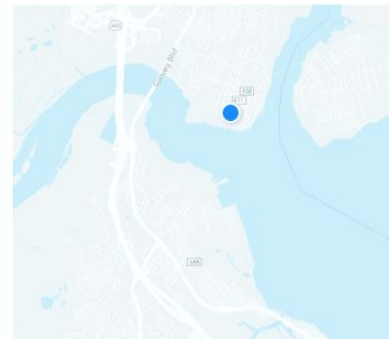
 Sensors

 Activity

 Documentation

 Analytics

 Users



Project type

CHP Plant

Methodology

Anaerobic Digestion Process

Project developer




Bio E

Project ID

BEM

Recent Activity

[View all](#)

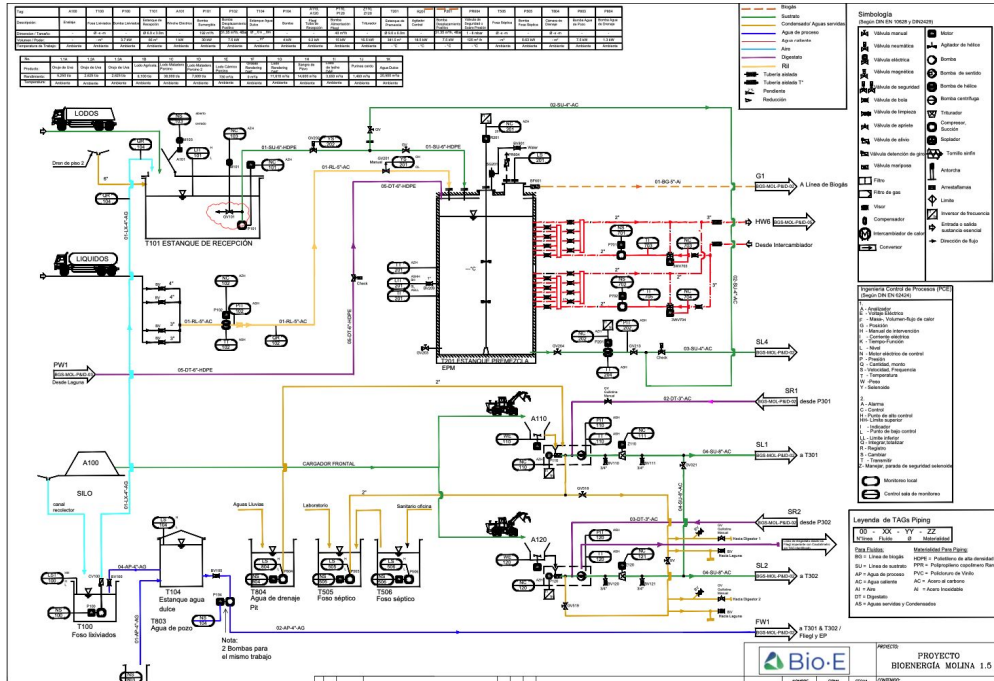
	<b>Keyley</b> Added a new sensor PT5	1d
	<b>Elizabeth</b> calibrated sensor TT2	1d
	<b>Elizabeth</b> calibrated sensor TT1	2d
	<b>Abigayle</b> calibrated sensor PT2	4d

 **18,463** +7%  
GHG emissions last 30 days

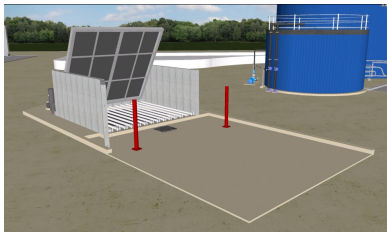
 **237,469**  
GHG emissions annu. est.

 **80%**  
Data confidence score

# Plant Design



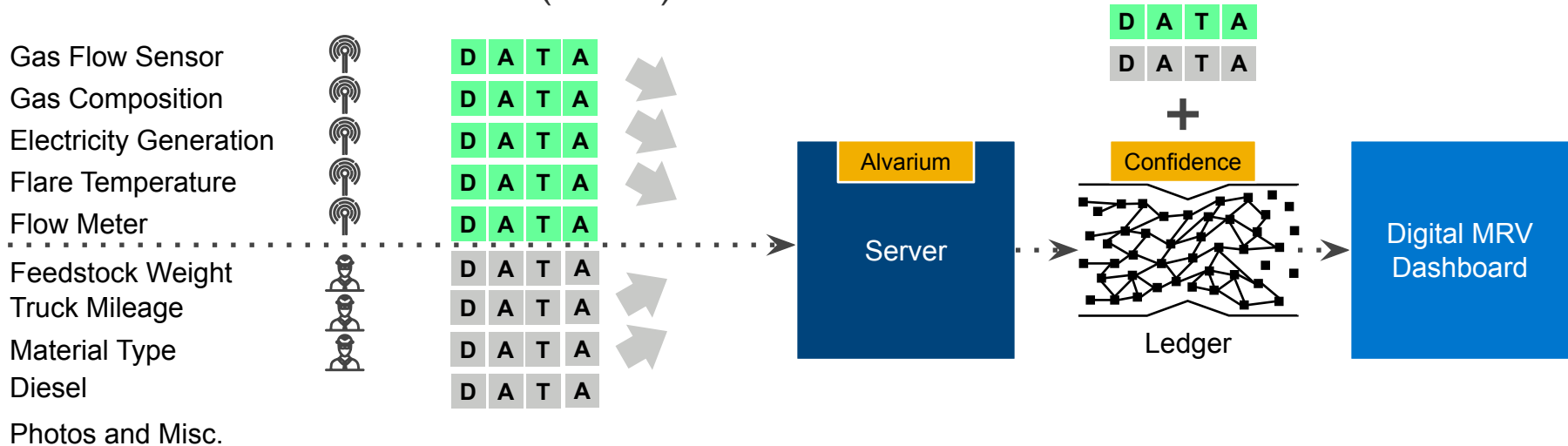
- › Main sensors
  - › Level sensors
  - › Flow meters
  - › Weight
  - › Energy production
- › Other manual data (spreadsheet)
  - › Received bio deliveries
  - › Sales



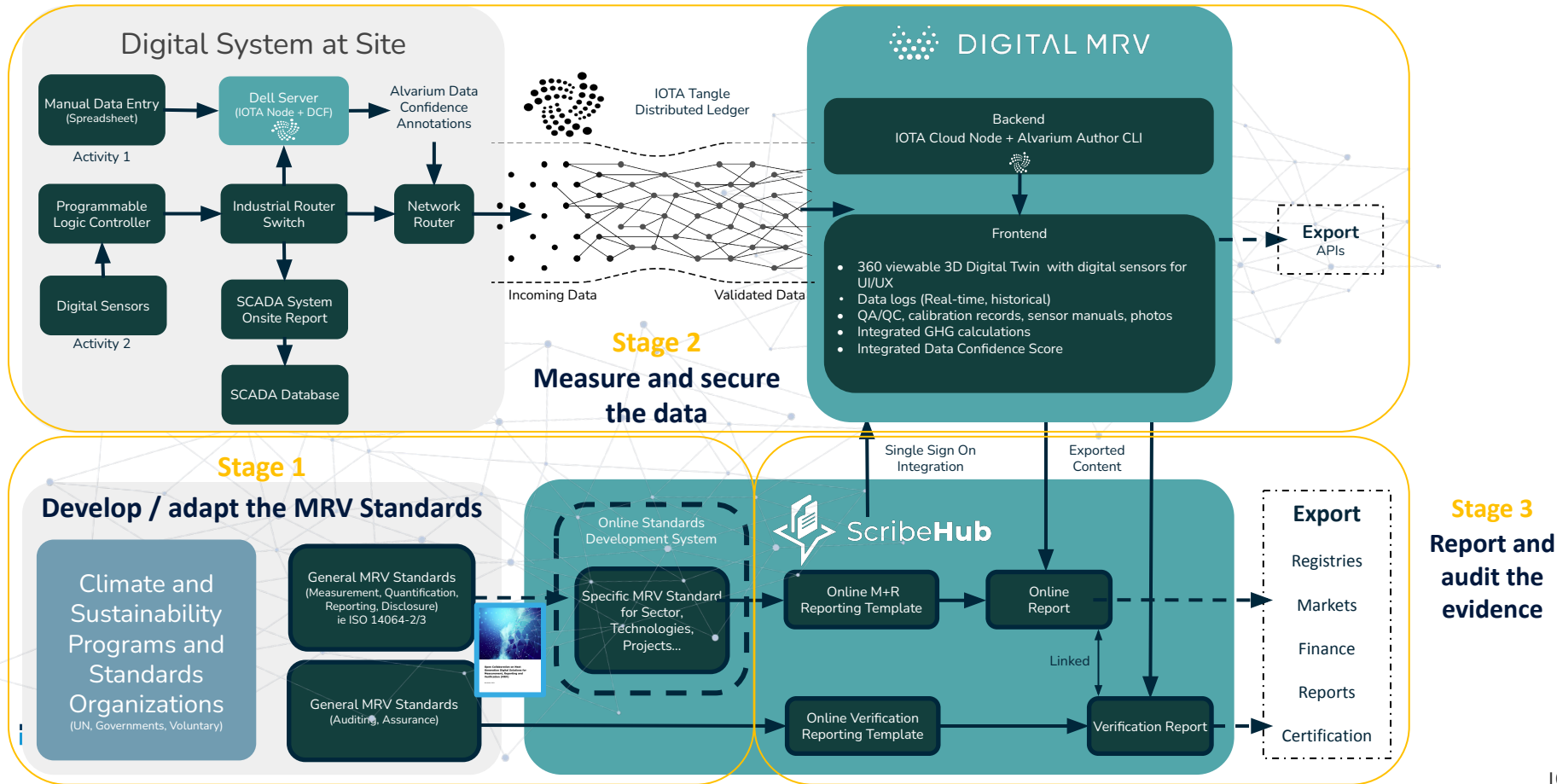


# Digitizing Measurement, Reporting, Verification

- › “Digital MRV” is a solution for carbon accounting implemented at state-of-the-art waste-to-energy facilities to support climate finance, carbon markets, and nationally determined contributions (NDCs)



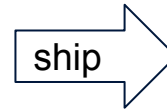
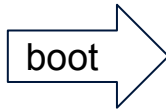
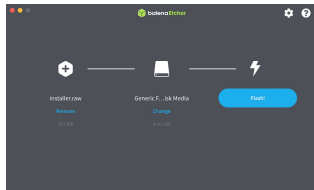
# Goal: Enable Climate Improvements to be Profitable



# Use and Benefits of Open Source at the Edge

# Ship Provisioned Hardware, not People

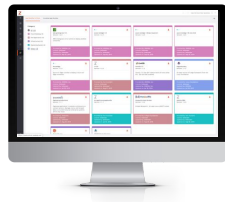
- › EVE-OS image on USB stick
- › USB boot to install on Dell T140
- › Ship to Chile, connect Internet



# Secure Edge Architecture



Web Console



App Marketplace

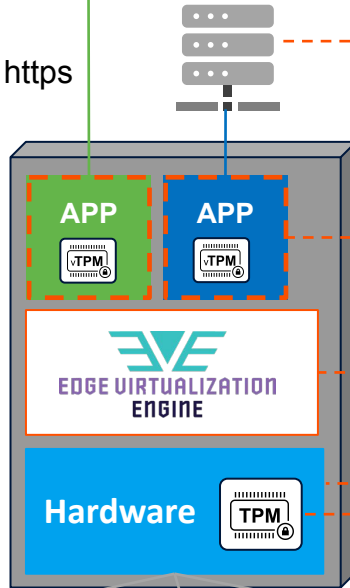


(Commercial EVE Controller)

THE **LINUX** FOUNDATION



https



Any cloud (IOTA Tangle)

Historian, SCADA,  
or any on-premise system

Any app (VM or container)



Any Gateway at IoT Scale

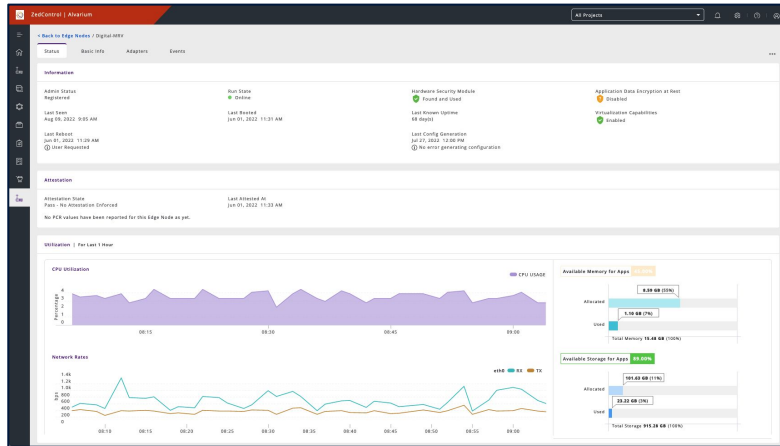
No Compromise to Security  
(TPM and vTPM)



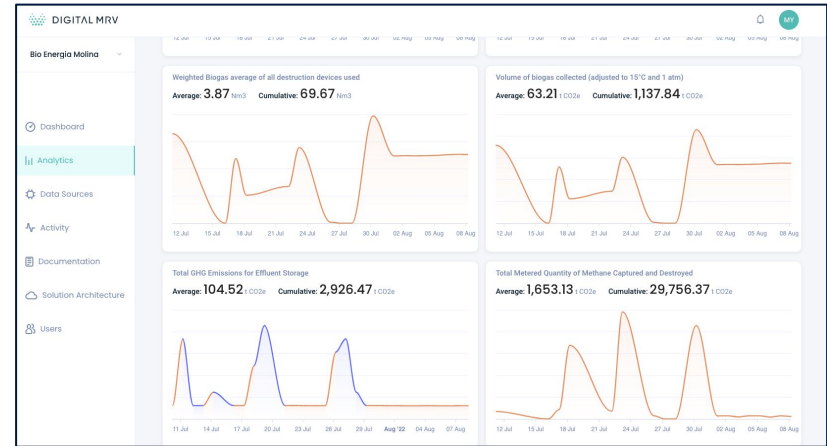
# Digital Transformation at Scale

➤ No reason to visit Chile (darn 😊)




Remote device/sw mgmt



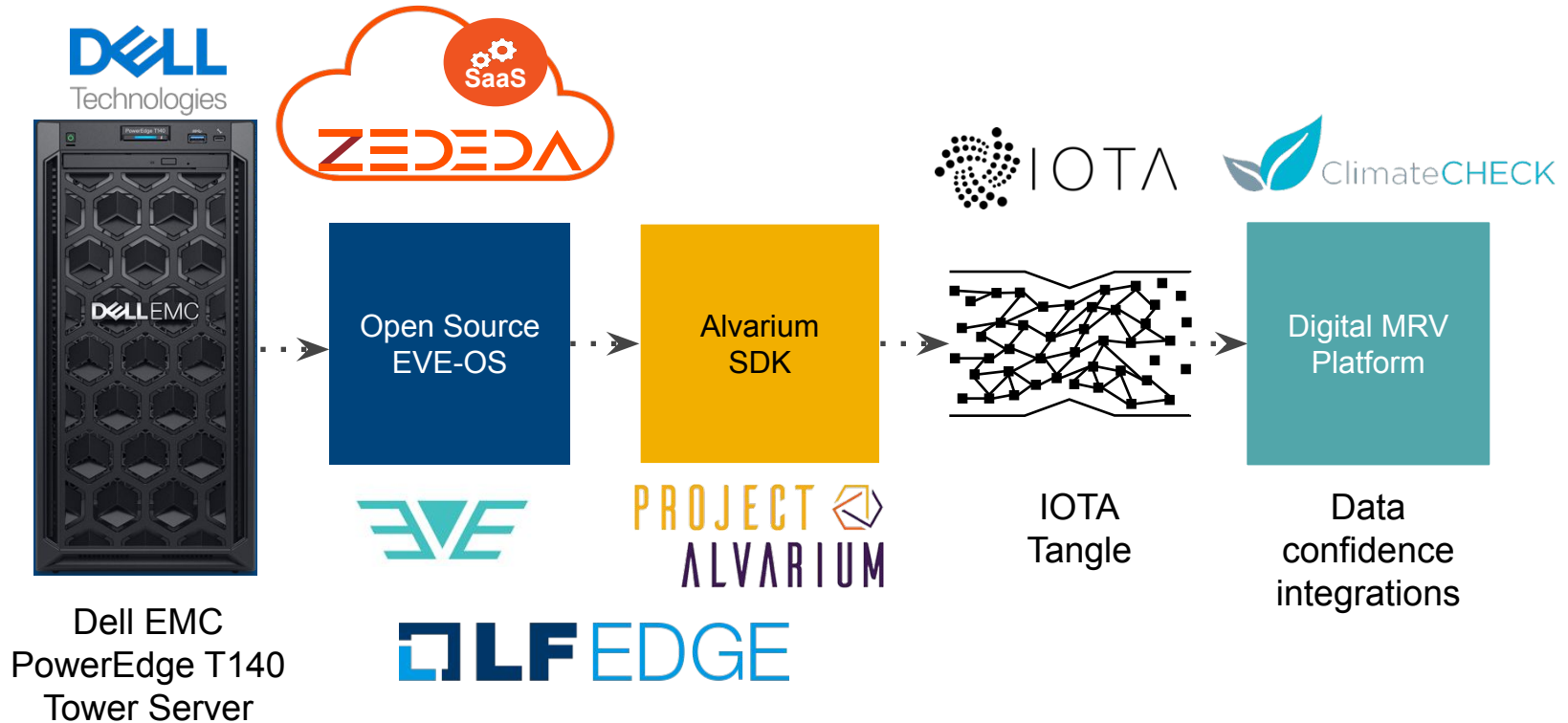
Remote app, data, reports, and analysis



# Security and Trust at the Edge


-  > EVE locks down the bare metal hardware and lets admins securely deploy software from anywhere
-  > IOTA secures and routes the application data
-  > Alvarium applies a confidence score so that data auditors know when they can trust the source

# Solution Partners and Projects





# EVE Value: Key Takeaways

- › Digital transformation at the edge brings unique requirements
  - Remote cloud-based administration for massive scale
    - Device security and full control over app orchestration
  - Support for disparate embedded hardware (any hardware)
  - Enablement of both legacy and cloud-native applications
  - Critical IT need: “lock down and own the bare metal” 
- › Evolution means handling old (VMs) and new (containers and clusters)
- › Networking is harder than you think, especially with security
- › **Stay ahead of the competition** by leveraging and engaging in the power of open source, open community, and open ecosystems



# Ready to Transform Your Edge?

1  
8

# Demo Time