



Predictive maintenance solutions for reefers

REAL TIME ANALYTICS FOR PROFITABLE ENERGY SERVICES
EXECUTIVE PRESENTATION
Q2 2019



THE PROMISED LAND IS DATA DRIVEN

REEFERpulse
SMART ENERGY SERVICES

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1. PREDICTIVE MAINTENANCE
2. POWER SUPPLY MONITORING
3. ENERGY EFFICIENCY



CONNECTED REEFER



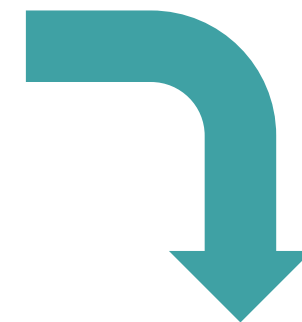
CORE ENGINE

- Processed information at the right time
- Qualified alerts
- Usage metrics

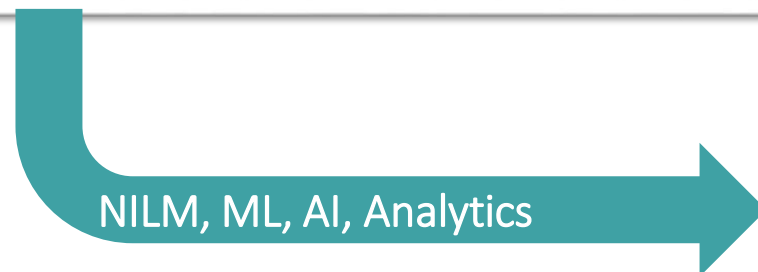
OUR SOLUTION EXTRACTS VALUABLE INFO FROM CONNECTED OBJECTS



FROM BARE DATA



TO VALUABLE
INFORMATION



*: NILM, Non Intrusive Load Monitoring, also called disaggregation, is a technology able to detect usages and loads by signal processing

WORLDWIDE MARKET



**200 Millions saved
on maintenance**

15% cost reduction in Pre Trip
Inspections and technician labor

Ave. saving of \$90/y/unit on
random maintenance, by
planning and qualifying
maintenances needs

**120 Millions
saved on fuel**

2% energy saving

**Equals \$120m saving/year or
Represents \$35/y/unit**

**150 Millions
saved on insurance**

100% of goods insured

**A 5% saving on premiums
equals \$150m saving/year**

UNIQUE SCIENTIFIC APPROACH, CODED IN A SCALABLE IT SOLUTION

- $\pm 1\%$ accuracy
- Able to manage various data sampling (from 1" to 60')

Commercial-grade Accuracy

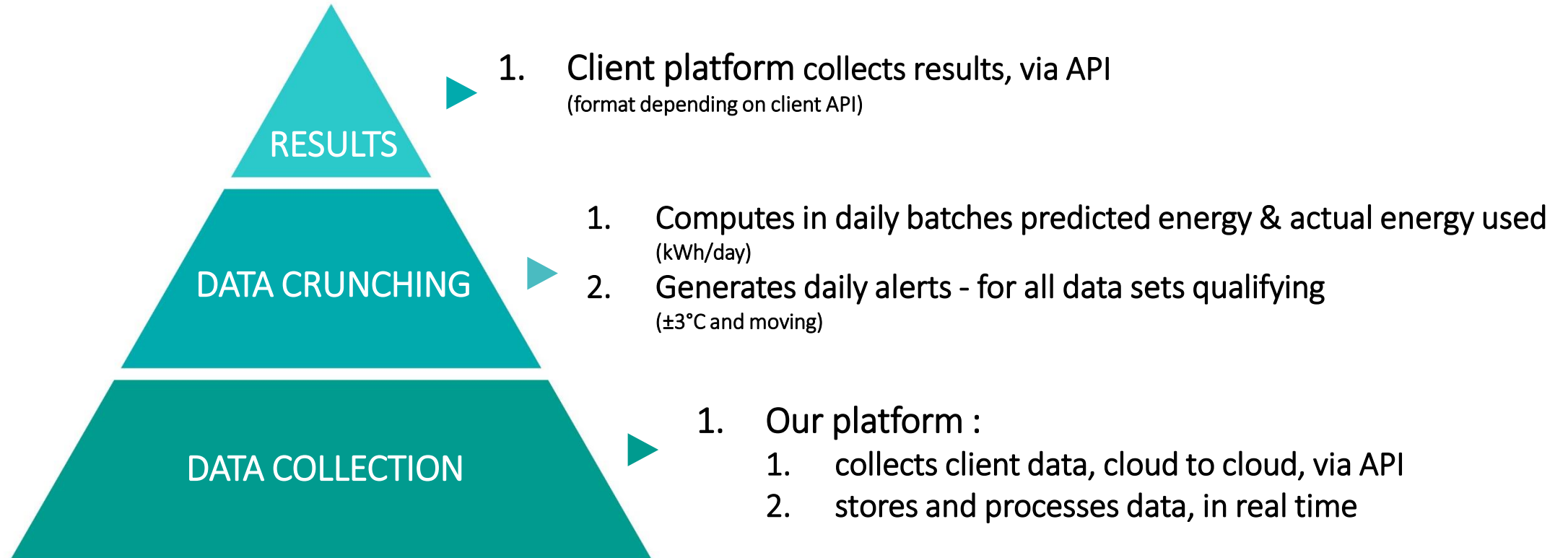
A UNIQUE REFERENCE DATABASES OF OVER 10 Terabytes

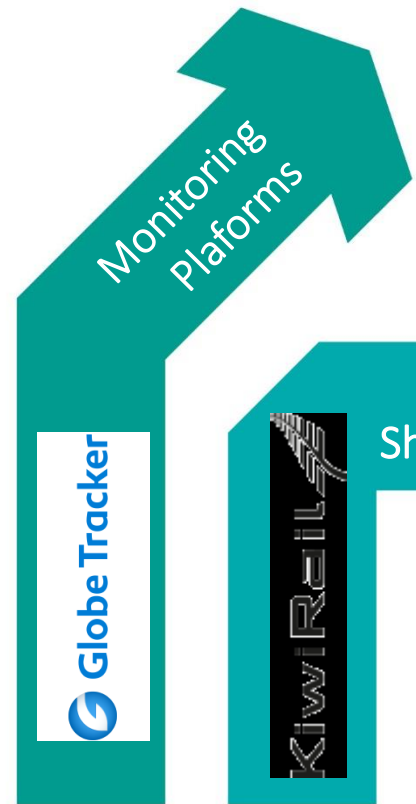
- Hardware-agnostic – works with several compressor brands
- Requires no human supervision

PROTECTED BY PATENTS & PROPRIETARY KNOW HOW

- Based on proprietary algorithms integrated with machine-learning and artificial intelligence

STRAIGHT FORWARD IMPLEMENTATION





1. Several platforms operate monitoring services on and off shore (Orbcomm, Emerson, Globetracker)
2. They need to increase their **value added to differentiate** and generate margin

1. 10 largest shipping corp operate their own reefer fleet
2. They need to reduce their operating costs and decrease the rate of wasted goods

1. **Insurance companies** : they need to retain the most valuable customers
2. And need to charge more poor quality shipments

ILLUSTRATIONS: PREDICTING

Limit

Group By

Aggregators

AVG Sampling 1 Days Align: None

Tags

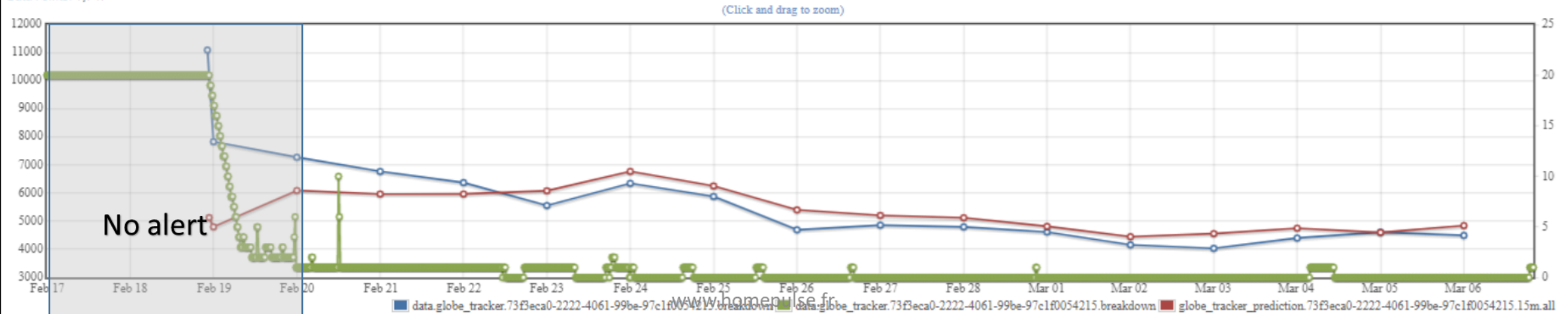
Name usage Value power15min

* Required Fields

[Graph](#) [Show Query](#) [Save](#) [Delete Data](#)

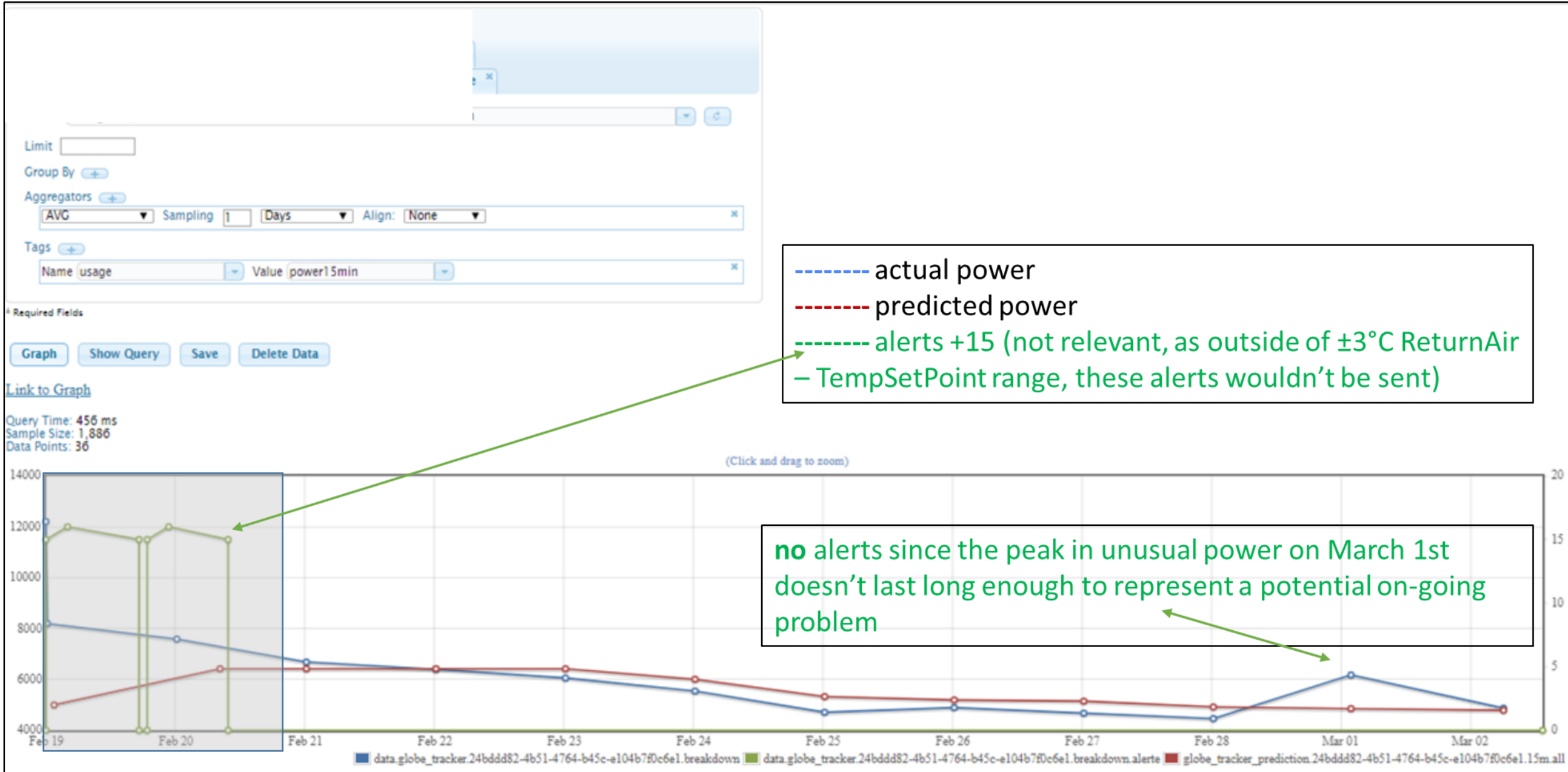
[Link to Graph](#)

Query Time: 5,714 ms
Sample Size: 4,655
Data Points: 1,747

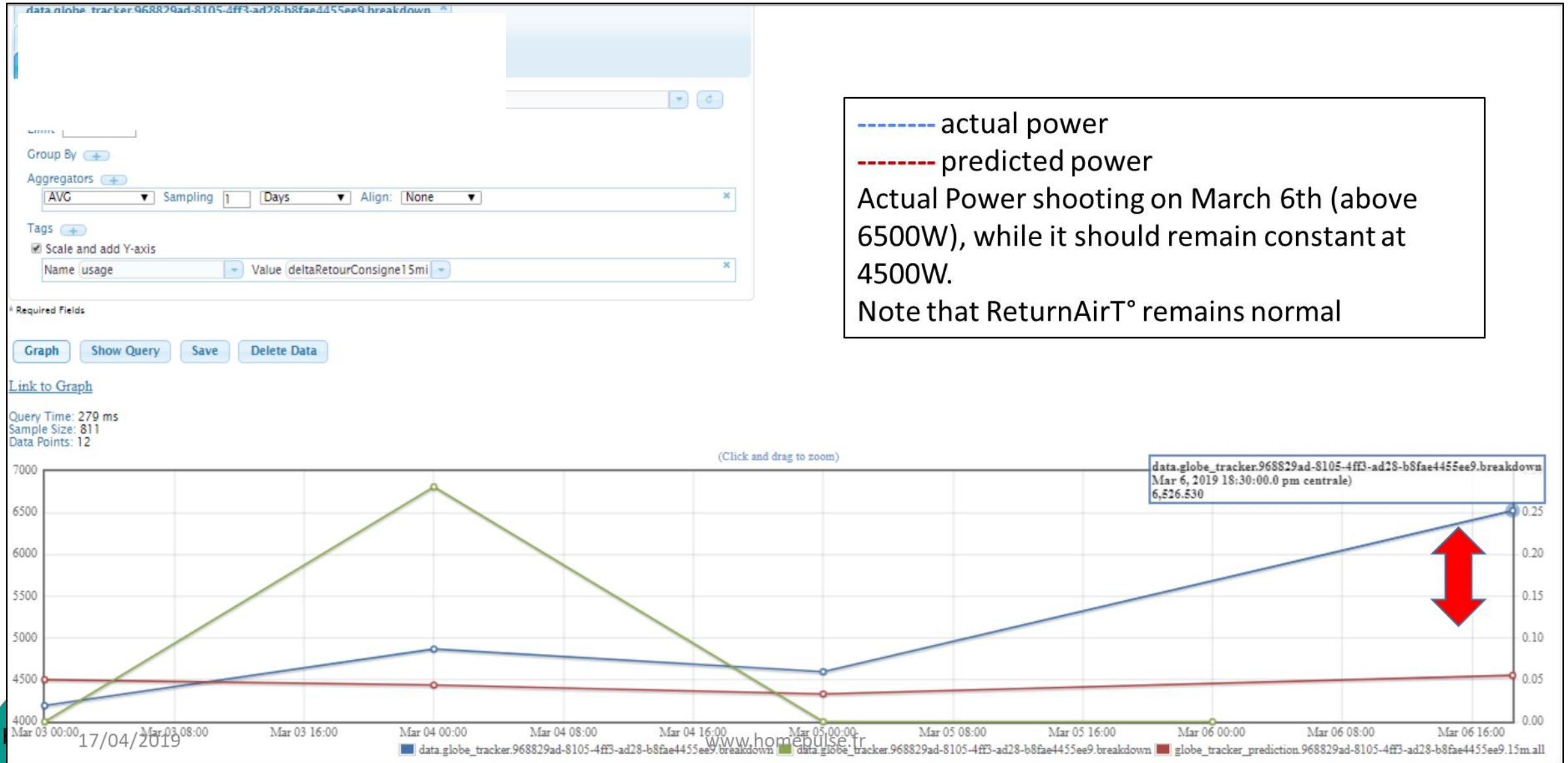


Prediction (Red) falls within few% of Actual Power (Blue) when ReturnAirT° falls with $\pm 3C^{\circ}$ of TempSetPoint (Green)

ILLUSTRATIONS : QUALIFYING ALERTS



ILLUSTRATIONS: ALERTING



DELIVERABLE: 4 TYPES OF ALERTS

Type n°	Alert Name	Description	Causes	Format	Severity	Risks
1	Lasting Over Consumption	Long, degrading over-consumption for several days	Loss of fluids, or compressor or pump wearing out	Start time	High	System failure
2	Over Consumption	Temporary over consumption lasting from 1 to 5 days	Temporary abnormal local conditions	Start time Duration	N/A	Fuel wasted
3	System Shut Down	No compressor consumption for more than 1.5h for system in operation without idle operating mode active	Auto protection of system or default in operating mode selection	Start time Duration	Medium	System failure
4	Power Outage	Loss of power for more than 1.5h, with impact >2° on T°	Loss of power on board or disconnection of reefer	Start time Duration	N/A	Goods wasted

TRACTION: STRAIGHT FORWARD FEED BACK

Power Outages

- To track poor operations

03

Abnormal over consumption

- To prevent severe system break down

02

01

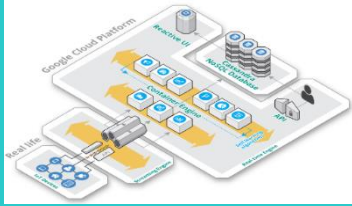
Abnormal system shut down

- To detect poor power supplies and defective control units

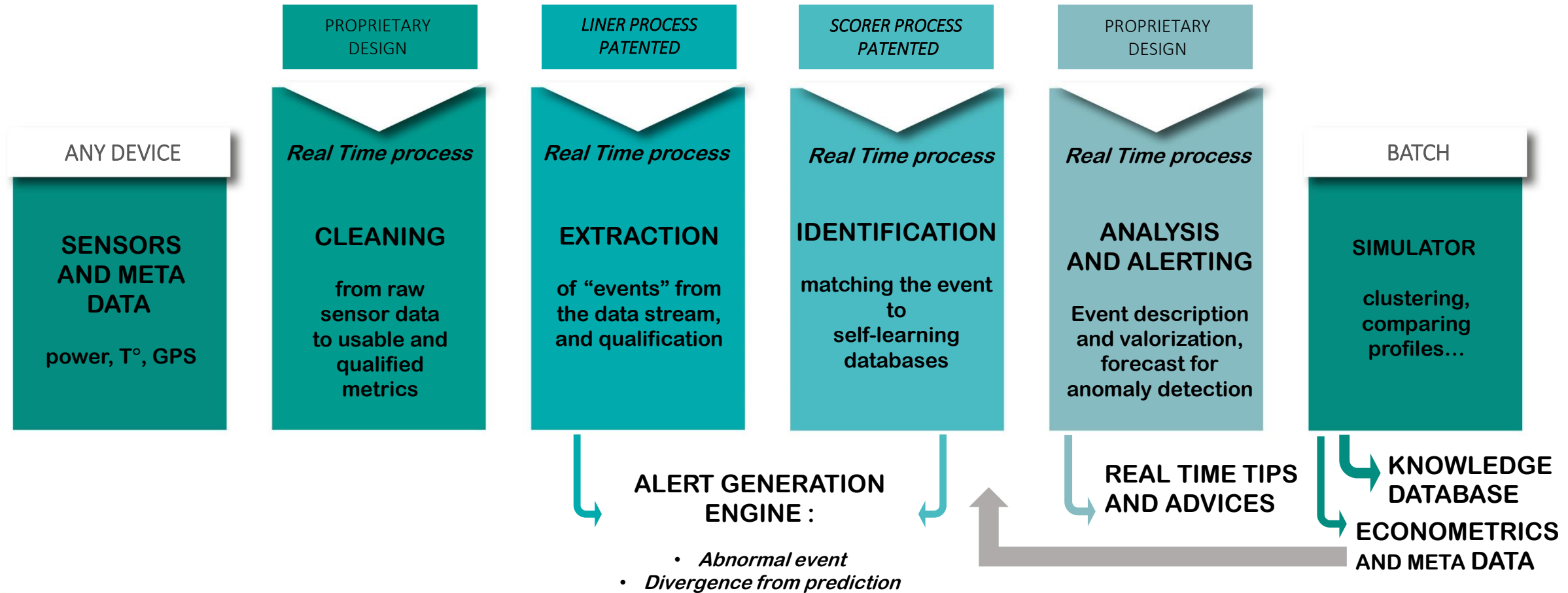
Our solution detects a **risk of goods wasted** every 14 days / unit

Our solution costs less **\$1 / fault found.**

BUSINESS MODELS: VOLUME BASED

Packages	SAAS platform	included
Data flow	Cloud to cloud / API	Data storage and results availability
Set up fee	\$10k to \$15k	Raw data collection and results push
Recurring fees	\$0.5/month/unit ¹	Data crunching, licensing, maintenance and support
Ease of implementation	1 to 2 months	Documentation and tests results
Architecture		Fully redundant, fault tolerant, scalable big data platform

OUR CORE COMPETENCIES : ARTIFICIAL INTELLIGENCE & MACHINE LEARNING for TIME SERIES



OVER 2€ M BILLED WITH WORLD LEADERS



TECHNOLOGY AWARDS

- Top performer on 2017 European NILM performance benchmark (over 12 technologies including 9 Europeans, 2 north Americans and 1 Japanese)
- Top 3 performer on 2015 USA NILM benchmark (over 11 technologies)
- Laureate of the 1st hackathon by French Ministère de l'Environnement, de l'Energie et de la Mer. May 2016

KEY ACCOMPLISHMENTS

- 2014 : design, development of Qinergy®, 1st European Home Energy Monitoring
- 2015 : completion of NILM solution and filing of patents (R24951FR & P26082FR)
- 2016 : launch of real time analytical platform HomePulse®

MANAGEMENT TEAM



Luc Terral
CEO & CTO

*Engineering MS, over
25 year exp. in
management In USA &
Europe*



John Queffelec
Corporate
Devlt Officer

*Senior Executive at
Microsoft; VC director &
M&A advisor*



**Frédéric
Lefebvre-Naré**
Chief Data Officer

*Polytechnique, CESS
Ensaé, 25 year
experience in research*



Luc Rouach
Chief Marketing Officer

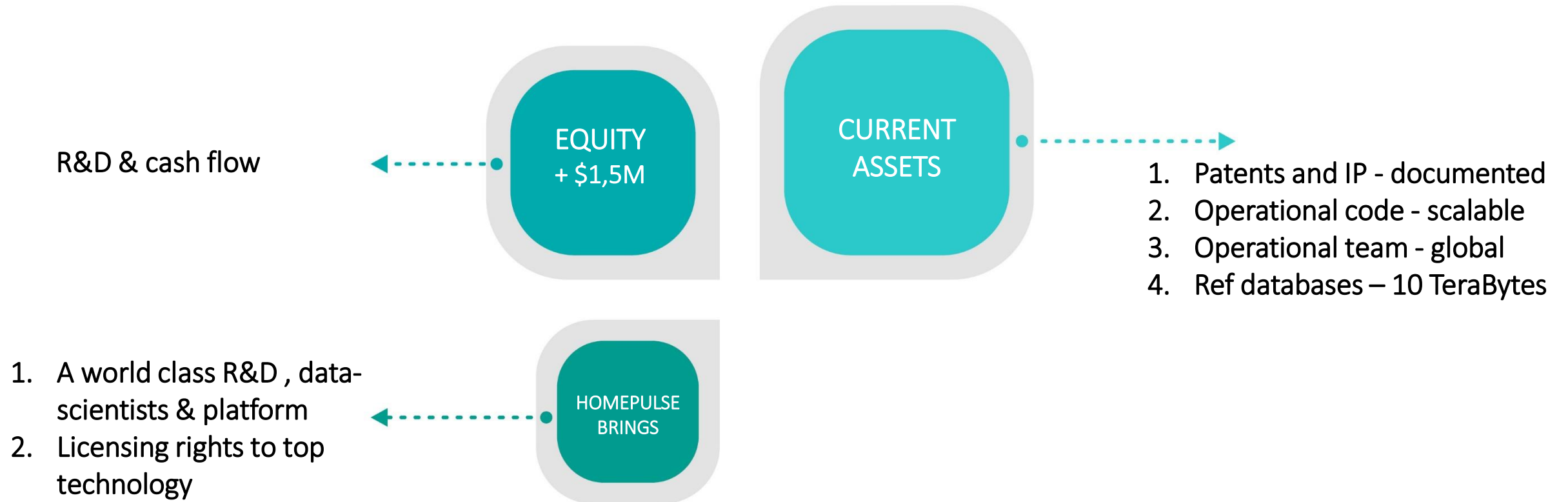
*MBA, 25 year experience in
marketing and innovation*



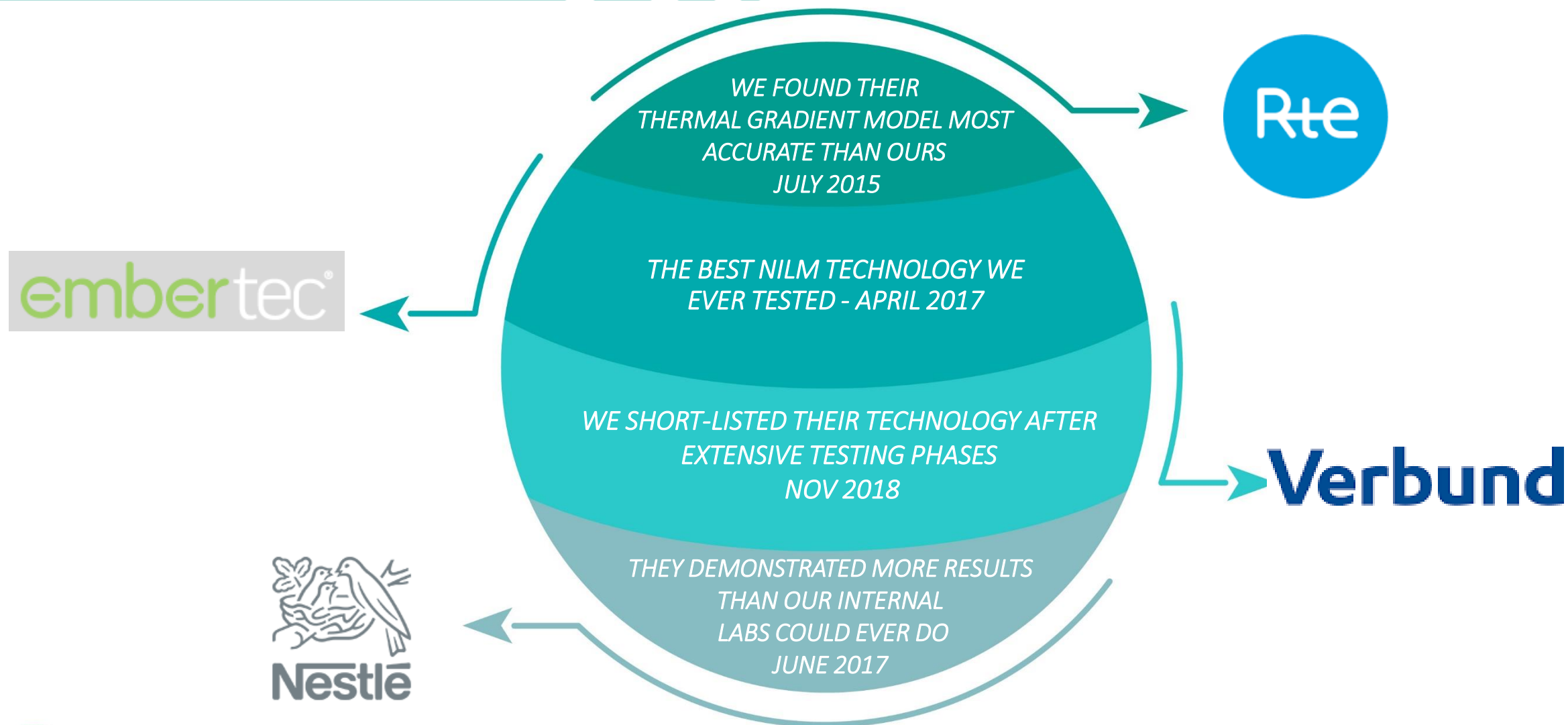
Max Lemaire
Chief Information Officer

*10 year experience in big
data technologies and IT
architecture*

PROPOSED PARTNERSHIP



WHAT THEY HAVE TO SAY:





REAL TIME ANALYTICS FOR PROFITABLE ENERGY SERVICES

THANK YOU

Contacts

CEO: luc@homepulse.co