

# Business Trends & DC Power Market

## Proliferating Battery Apps (Lead Acid & Lithium)

- Cell sites of all sizes and 5G
- Renewable energy storage
- Outdoor solar LED lighting

## Challenges – Business Trends

- Logistics problems; potential of fraud and theft
- Shortage of DC Power technical skills & know-how
- Increasing cost for preventative maint. dispatches

## Opportunities

- Decentralization and Outsourcing of IT and Apps
- Rise of *Pay-as-You-Go* Cloud IoT Platforms & ...
- New IoT Battery Monitoring Service with 1 Year ROI



Public Safety App



Solar LED Bus Stop

# Paradigm Shifters



1994\_Nokia 1011  
1<sup>st</sup> Digital Cellphone



1981\_IBM PC  
1<sup>st</sup> Personal Computer  
*Desktop Computing\**



2000\_Blackberry 957  
1<sup>st</sup> Internet Cellphone



1983\_Motorola DynaTAC8000x  
1<sup>st</sup> Cellular Phone



2007\_Apple iPhone  
1<sup>st</sup> GPS-enabled Computing Platform  
*Mobile Computing\**

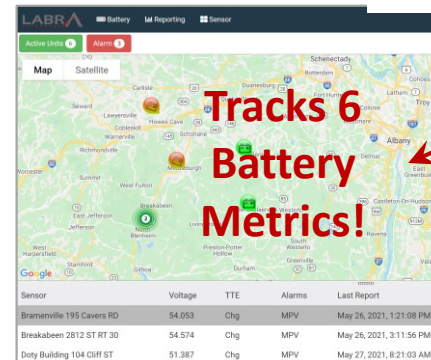
Birthplace  
South FL



1992\_IBM Simon PC  
1<sup>st</sup> Smart Phone



2018\_LABRA Technology Blackbox  
1<sup>st</sup> IoT GPS-Voltmeter Platform  
*IoT Computing\**



*\* Personal Computing*



## Lead-Acid Battery Reserve Assurance

*Labor-Saving IoT Voltmeter Saves 1PM Visit / Year*

*“When you change the way you look at things, the things you look at change.”*

*— Max Planck*

# LABRA Technology – UVP / What is it?



Wireless HD  
GPS-Voltmeter

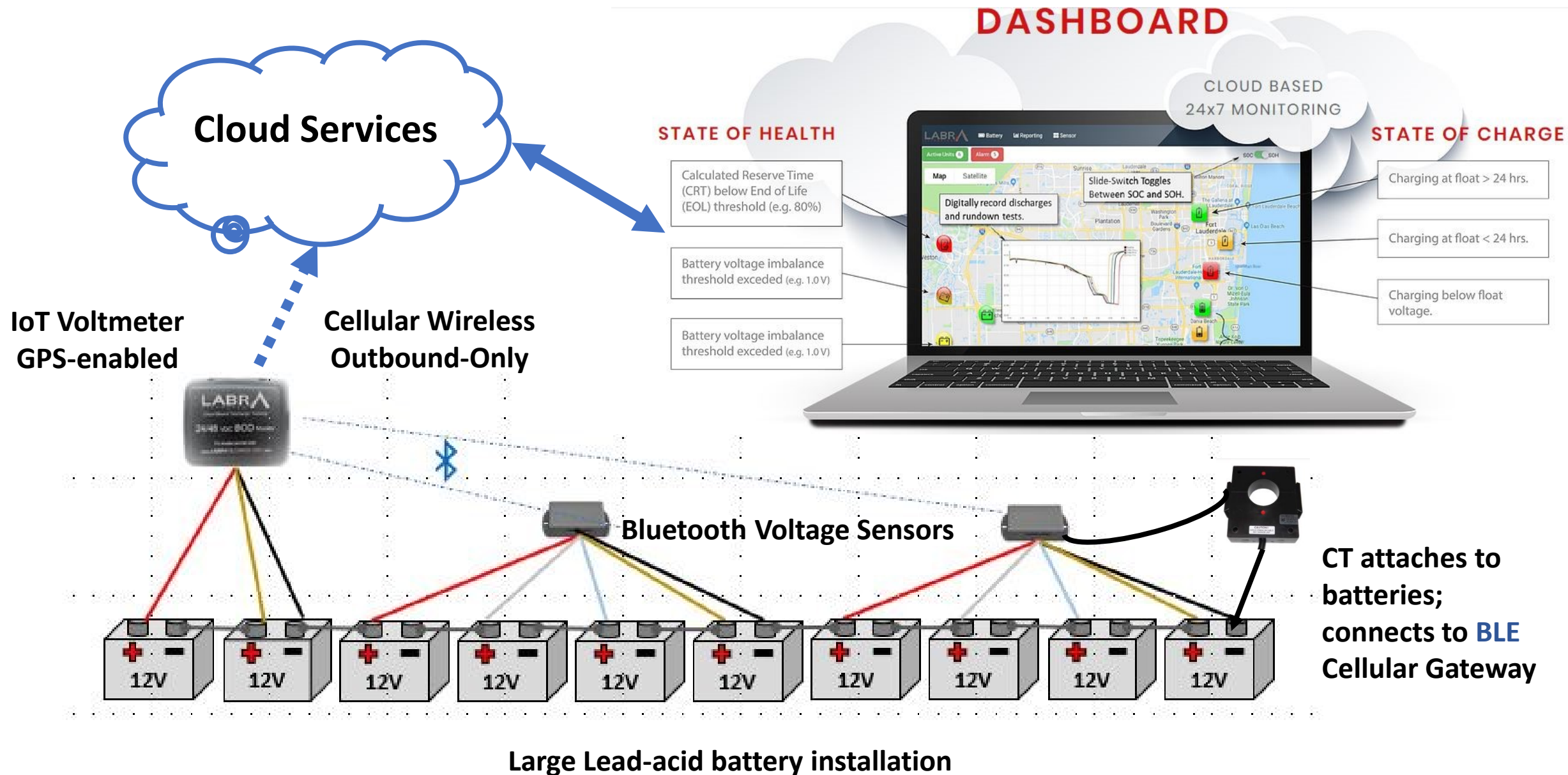
*“The Nuts & Bolts to Cloudify Amps & Volts”*

## Made in USA Apple-like IoT Solution Supplier:

- *Universal* Dashboard Tracks Battery Plants in Near Real-Time
- IoT Engineered Targeting New Unserved Remote Applications
- Tracks 6 Battery Metrics using *Bell Labs* Reserve-Time Algorithm
- Bluetooth Connectivity for Plants > 60V; Optionally Tracks Current
- Secure Encrypted Outbound Narrowband Cellular (LTE Cat-M)\*
- Plans to Integrate **Lithium** via BMS using Bluetooth
- Plans to Tune Algorithm for **Nickel-Zinc** Chemistry

\* Wi-Fi option

# LABRA BMS Digitalization - How It Works



# LABRA BOD Digitalization - How It Works



2. First Voltmeter-IC Grafted onto a Proven GPS Asset Tracking Platform

1. Secure Outbound cellular (LTE Cat-M) Made in [USA!](#)

12. Global [SIM](#) Auto-Carrier Switch = 1 SKU

11. Low-Cost, First Mover Advantage, Optional Equity

10. HD Sampling for UPS; 10ms (1) input; 100ms (4)

9. API URL Mode Switch Enables [Ni-Zn](#) Chemistry

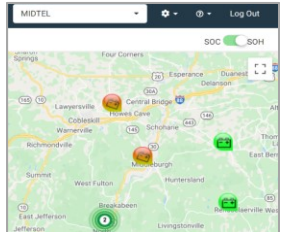
3. Battery [App](#) Tracks 6 Metrics: **BOD, TTE, EOL, SOC, SOH + [new CRT](#)**

5. Patented [Bell Labs CRT](#) Capacity Metric *Complements* the Albér tool.

4. Roots in [Battcon](#), Bell Labs Emerson, Verizon and Vertiv



IoT Smart BOD Solution



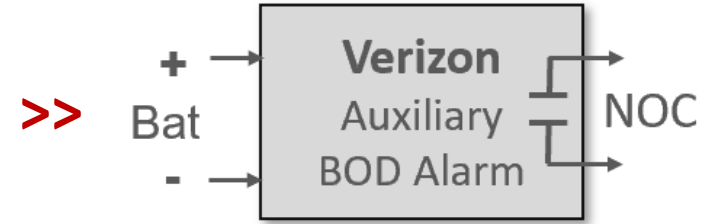
2-wire GPS Voltmeter

Universal URL & App



AWS Battery TTE Calculator URL ([Microservice](#))

8. Fluke Discovery Made After 2019 Battcon [Q&A](#)



Battery **O**n **D**ischarge *Dumb* Analog Alarm 2001

6. 2016 [patent](#) transforms [BAU](#) into a 5-wire novel [IoT](#) solution

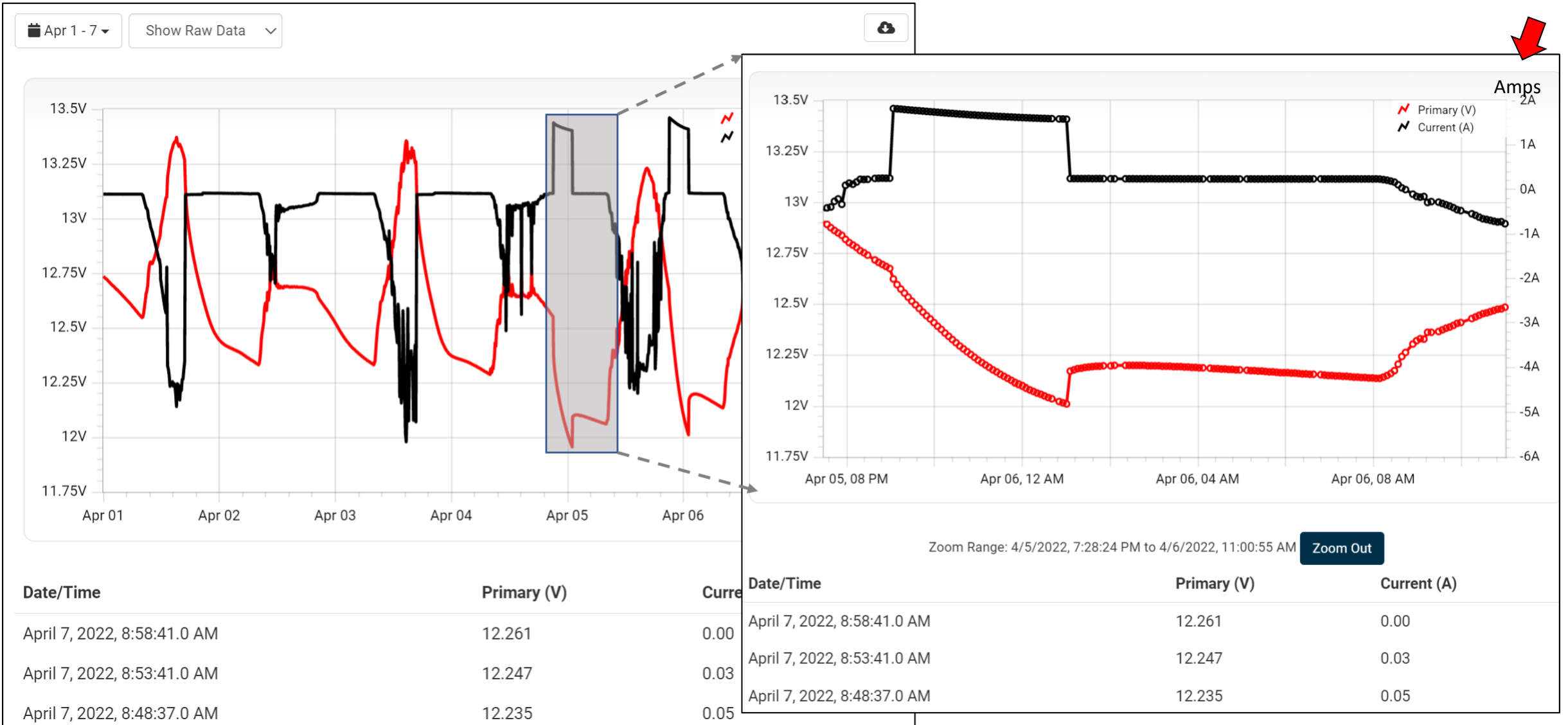


Vertiv BAU - Battery Asymmetry Unit

7. **TTE** Gauge is [perfected](#) as [serverless](#) URL Endpoint

LinkedIn Posts: [Aug](#), [Sep](#), [Oct](#), [Nov](#), [TBD](#)

# LABRA Technology – 12V Nickel-Zinc Solar App



# Fuel Gauge – CRT Metric Magic in Action

