

# OpenFMB PlugFest 3.0 Review

May 20-22, 2024



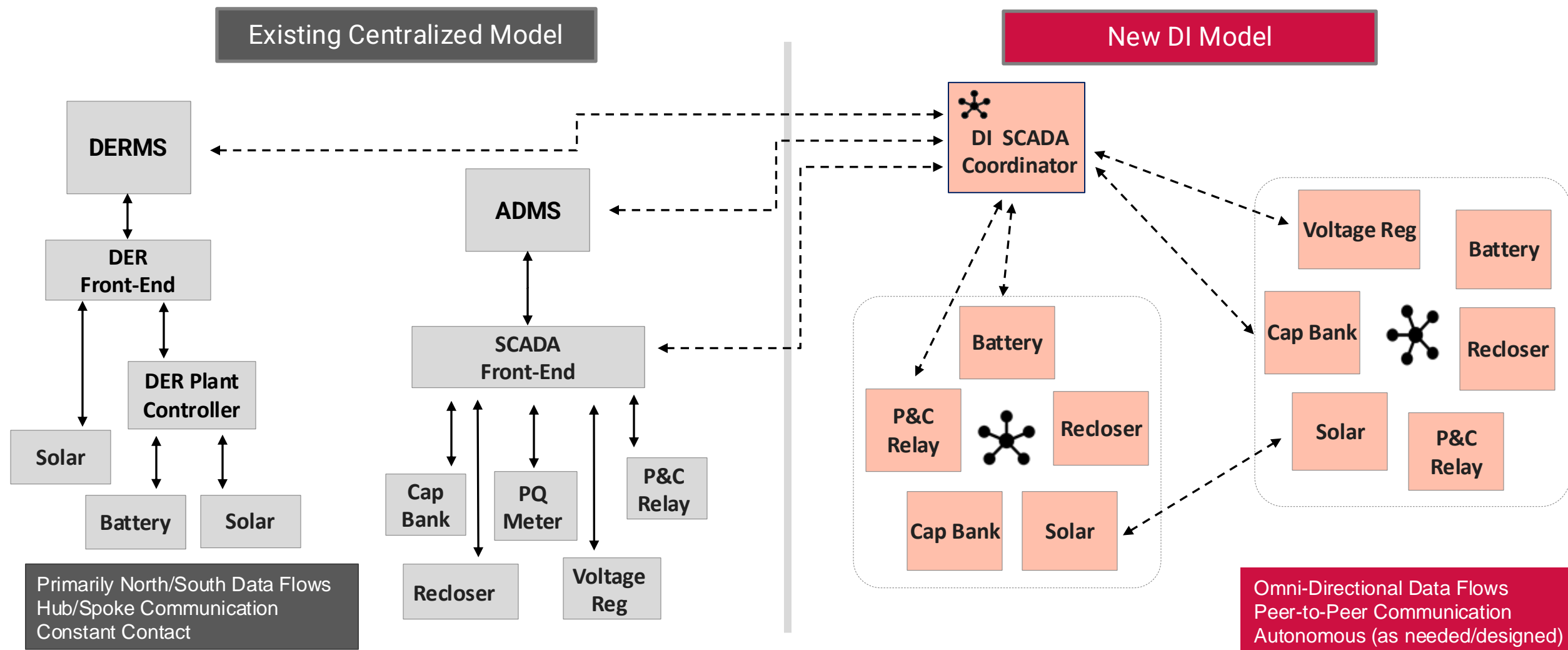


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# Distributed Intelligence (DI) Introduction

DI is a multi-layer, federated architecture that supports active coordination between multiple devices/systems to solve a common problem, augmenting the traditional centralized model with autonomous operations at the edge.



# UCAIug: Data Models for all Control Paradigms

- CIM was designed for tertiary controls in utility back-office SCADA, containing object classes for “as-built” topology
- IEC 61850 was designed for primary controls in substation & grid protection, containing “as-operated” logical node attributes
- OpenFMB (distributed) artifacts were designed for secondary controls in DER/Microgrids by harmonizing objects in CIM (centralized) classes with IEC 61850 logical node (decentralized) attributes.

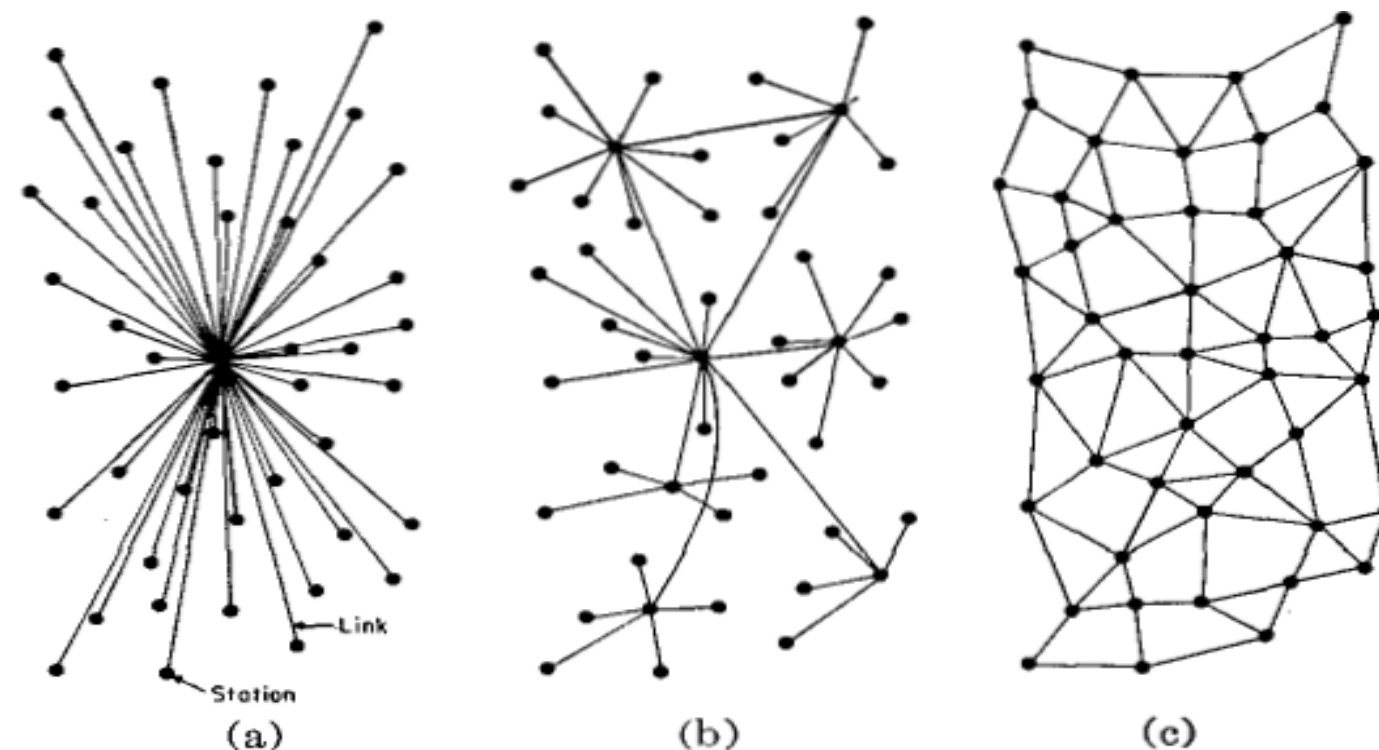


Fig. 1—(a) Centralized. (b) Decentralized. (c) Distributed networks.

Common Information  
Model (CIM)



IEC  
61850



Open Field Message  
Bus (OpenFMB)

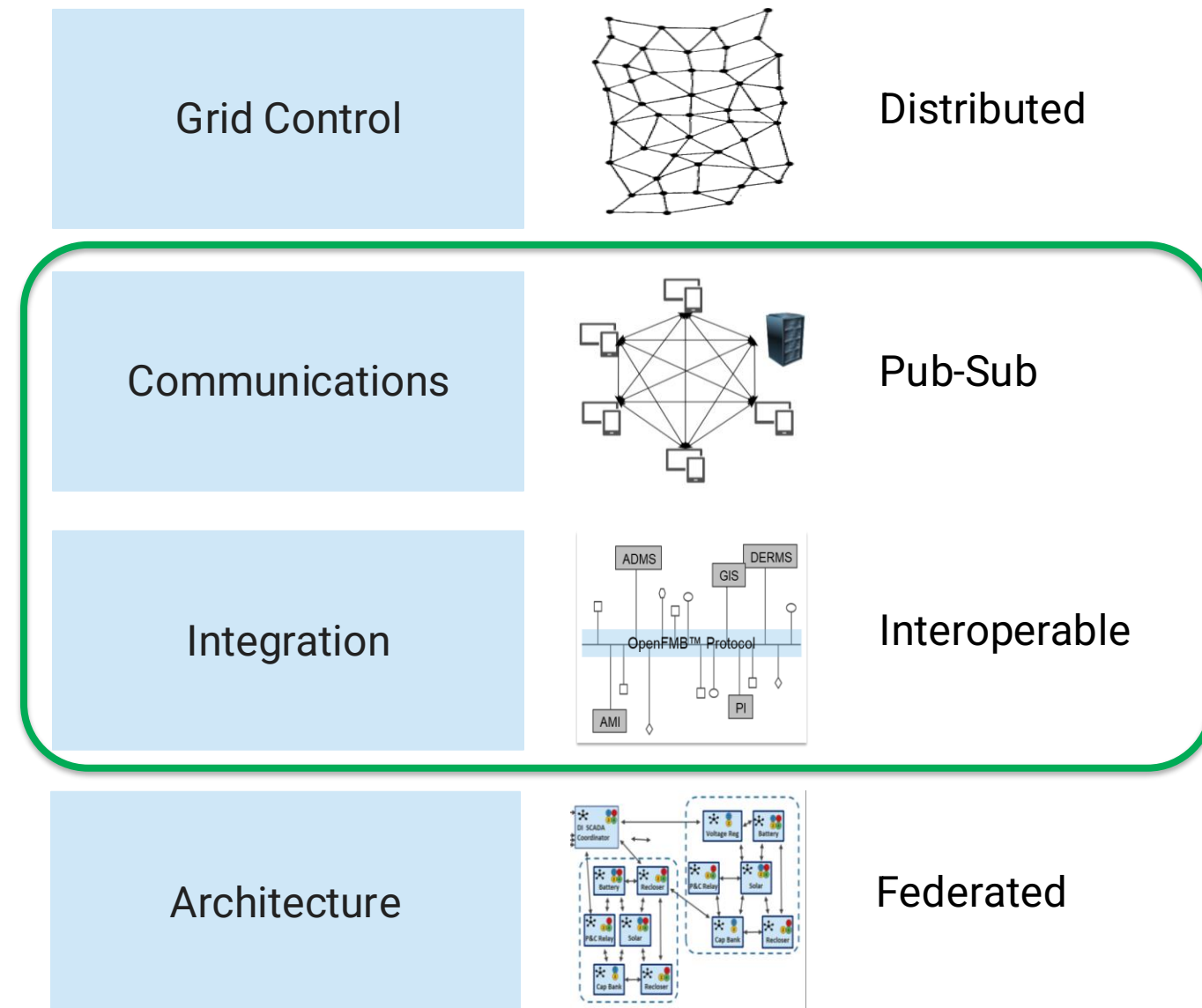




# An Evolving Grid Needs a New Solution

Modern operational solutions must support:

- Increased Granularity/Fidelity
- Faster Response Time
- Improved Scalability
- Dynamic OT/IT Configuration
- Collaborative, but Autonomous Operation
- Maximum Interoperability

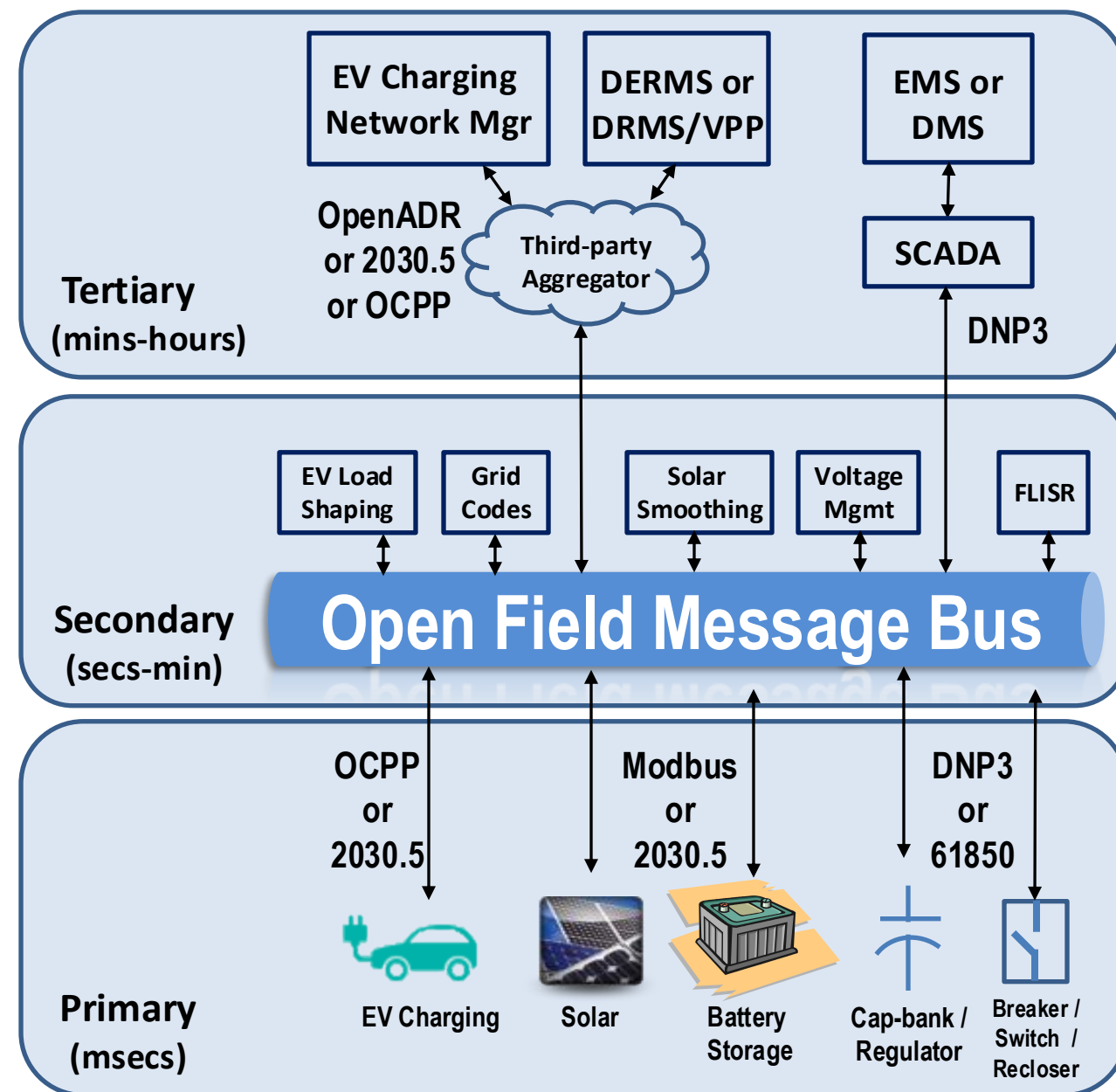


While improving (1) security, (2) safety, (3) resilience, and (4) financial metrics.

# What is Open Field Message Bus (OpenFMB)?

*OpenFMB facilitates interoperability to reduce integration costs, enable secure data sharing and the development of Distributed Intelligence (DI) applications, and inspire design re-use.*

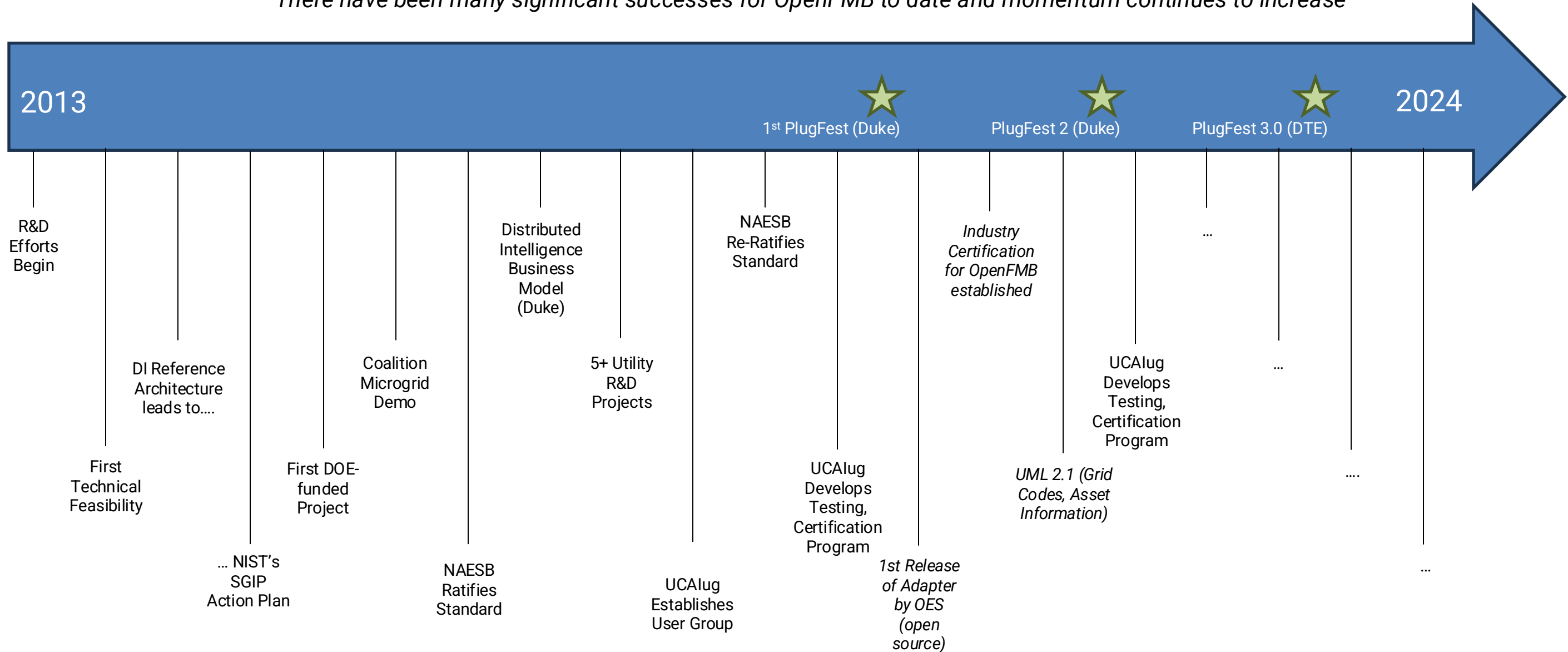
- Framework for Grid-Edge Interoperability and Distributed Intelligence
- Ratified as a Standard in 2020 by North American Energy Standards Board
- Defines unified open-source data model, based on IEC 61850 and CIM
- Leverages IoT pub/sub protocols for secure peer-to-peer data exchange
- Foundational use-case designed for microgrids and/or circuits with DERs
- Adapters complement and quickly translate to/from other protocols



**TO BE UPDATED**

# OpenFMB Timeline

*There have been many significant successes for OpenFMB to date and momentum continues to increase*



# OpenFMB PlugFest 3.0: Objectives

- Learn about OpenFMB in general
- Test, Ready Release of OpenFMB 2.2 (Data Model, Use Cases)
- Meet Peers, Share Stories, Strengthen Relationships
- Build Momentum for Grid Edge Solutions

## OpenFMB

*a reference architecture for interoperability with field devices and applications. It is a foundational component to enabling grid edge intelligence and operation.*

## OpenFMB PlugFest

*organized by the UCA, it is an event to demonstrate and test technical capabilities to assess readiness and identify gaps, issues, and/or questions prior to any wide-scale deployment.*



# OpenFMB 3.0 PlugFest:

Host Utility: DTE Energy

Where: Detroit, MI

When: May 21-23, 2024

Focus: Data Model 2.2 (EV Charge Mgmt)

## Attendees

- AES
- Battery Innovation Center
- Burns & McDonnell
- Cisco
- Consumers
- Dell
- DTE Energy
- Duke Energy
- Eaton
- Electrada
- Liberas
- Open Energy Solutions
- Pacific NW Laboratory
- SEL
- Semtech
- UCA



# Plugfest Technical Demonstration

*Provided a space to configure, enhance, and demonstrate capabilities within an OpenFMB sandbox provided by DTE Energy*



- Major Focus Areas: (1) OpenFMB Integration, (2) Certification Testing, (3) DI Collaboration
- Multiple vendors participated
- Capabilities Demonstrated: (1) Backwards Compatibility, (2) EV/BESS DI Use Case
- Successful Presentations to Engaged Stakeholders from DTE Energy





# DTE New Technology Lab Tour

*As the host utility, DTE Energy exhibited its leadership and accomplishments within the area of Distributed Intelligence.*

The entire team demonstrated its thought leadership and innovation across a wide range of topics

Three Stations with Plugfest attendees rotating between them:

1. Simulation/Test Environment: Hardware-in-the-Loop (HIL) Solution along with an integrated DI Platform
2. External Lab Capabilities: Battery Trailers, DI Gateways & Compute Nodes, and Overview of Site (including future plans)
3. Functional OpenFMB/DI Applications: DTE's New Battery Management App, EV Smart Charging, and Self-Sustaining Neighborhood



# Plugfest OpenFMB Presentations

*Plugfest is also about informing others, sharing success stories, and challenging attendees for the next stage. We had a variety of presenters from utilities, national laboratories, and vendors who participated.*

- Welcome and exhortation from DTE Energy's VP of Distribution: Bill Chiu
- Keynote Speech on the EV Landscape and the Opportunity for OpenFMB
- Two Utilities provided a vision for Distributed Intelligence within their service territory.
- Multiple vendors presented their capabilities and solutions within grid edge to attendees (HW & SW)
- UCA Co-Chairs provided a quick introduction to OpenFMB for novices as well as updates on the User Group's three areas of focus: (1) Data Model, (2) Certification, and (3) Marketing







# OpenFMB PlugFest: Key Takeaways

- Interest and adoption of OpenFMB as a solution is growing. (If not for travel restrictions, attendance would have been greater)
- Several utilities see OpenFMB and Distributed Intelligence as foundational to their vision for a transformed grid. We learned about two of them.
- Multiple use cases are being explored within the industry with actual demonstrations and proofs of concept that either exist or are imminent. Publicly sharing this would increase exposure of OpenFMB.
- Certification is critical. Many vendors are waiting for this to be offered.
- The Users Group needs to continue to expand on all dimensions with with special attention on (1) utilities and (2) regulators & government officials.
- The website must be improved as a primary source for information sharing with the industry.
- Attendees in general want to see/experience more. What's next by the Users Group?



# OpenFMB PlugFest: Next Steps

- Release OpenFMB 2.2 Data Model (target end of 2024)
- Launch working group for OpenFMB 2.3 Data Model
- Initiate an OpenFMB Certification program (TBD)
- Complete the transition to UCA's new website and expand the information available to both members and the public
- Engage industry stakeholders via tradeshows, training, publications, etc.
- Establish an environment for more advanced demonstrations, collaboration, and testing



# In Conclusion...

The Users Group would like to recognize DTE Energy for hosting Plugfest.

Also, thank you to those who helped make Plugfest possible this year including Presenters, Planners, etc.

For more information, contact OpenFMB co-chairs:

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