



DMTF



Redfish Power Distribution Work in Progress

DMTF Redfish Forum

DCIM Task Force

March 2025



Disclaimer

- The information in this presentation represents a snapshot of work in progress within the DMTF.
- This information is subject to change without notice. The standard specifications remain the normative reference for all information.
- For additional information, see the DMTF website: www.dmtf.org





Getting involved in Redfish

- Redfish Standards page
 - Schemas, Specs, Mockups, White Papers & more
 - <http://www.dmtf.org/standards/redfish>
- Redfish Developer Portal
 - Redfish Interactive Resource Explorer
 - Educational material, documentation & other links
 - <http://redfish.dmtf.org>
- Redfish User Forum
 - User forum for questions, suggestions and discussion
 - <http://www.redfishforum.com>
- DMTF Feedback Portal
 - Provide feedback or submit proposals for Redfish standards
 - <https://www.dmtf.org/standards/feedback>
- DMTF Redfish Forum
 - Join the DMTF to get involved in future work
 - <http://www.dmtf.org/standards/spmf>



Redfish



DCIM Task Force

WORK IN PROGRESS



NEW Support for Energy Storage Shelves (BBU)

- Common product category used by Open Compute Project (OCP)
- Variation on a “Power Shelf”
 - Contains energy storage devices (batteries or supercapacitors)
 - Likely connects to electrical bus bar (single DC input / output)
 - May contain power supplies
- Likely creates a new *EnergyStorage* (or similar name) collection of **PowerDistribution** under **PowerEquipment**
 - Follows existing pattern of providing easy method to locate particular power distribution equipment types
 - Previously added new collection for *PowerShelves*

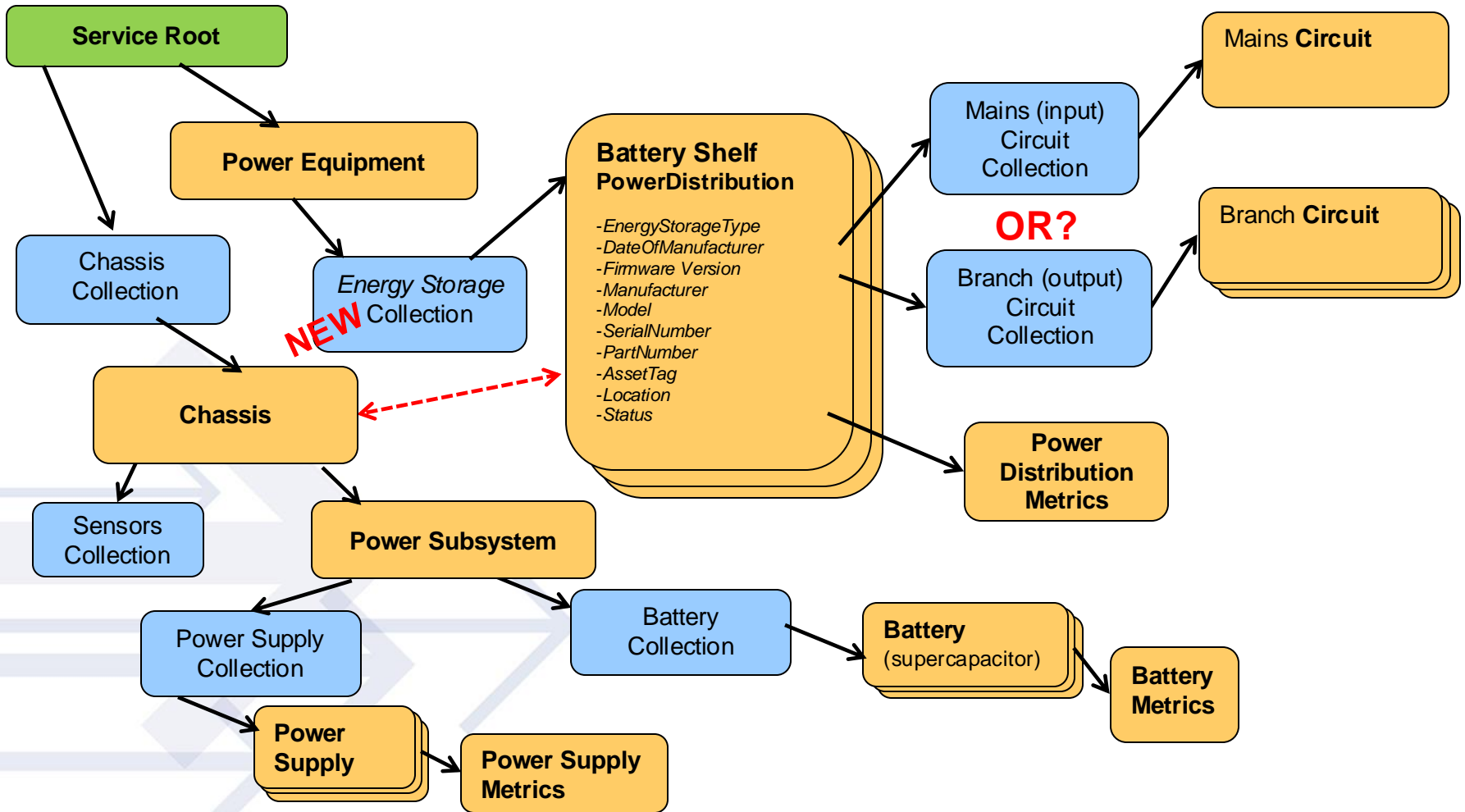


Additions to Battery schema

- Add *EnergyStorageType* to reflect general “energy storage” usage
 - Initial enumeration values of “Battery” and “Supercapacitor”
- Add *BatteryChemistryType* to provide relevant inventory information
 - Initial enumeration values of “LeadAcid”, “NickelCadmium”, “LithiumIon”
- Model a supercapacitor “unit” as a **Battery** instance
 - Supercapacitor support was requested via feedback to the Redfish Forum
 - Model already contains backup relationships and product-level data
 - Each unit can have a **BatteryMetrics** resource
 - Add *FanSpeeds[]* array property to show internal fan support
 - Same model as embedded fans within power supplies
 - Chassis-level fans are modeled using **Fan** resources



NEW Battery Shelf





Updated Battery schema

```
{  
  {"@odata.type": "#Battery.v1_3_0.Battery",  
    "Id": "Module1",  
    "Name": "Battery 1",  
    "Status": {  
      "State": "Enabled",  
      "Health": "OK"  
    },  
    "Model": "RKS-440DC",  
    "EnergyStorageType": "Supercapacitor",  
    "Manufacturer": "Contoso Power",  
    "FirmwareVersion": "1.00",  
    "Version": "A05",  
    "SerialNumber": "3488247",  
    "PartNumber": "23456-133",  
    "SparePartNumber": "93284-133",  
    "LocationIndicatorActive": false,  
    "HotPluggable": true,  
    "CapacityRatedWattHours": 20,  
    "CapacityActualWattHours": 19.41,  
    "MaxDischargeRateAmps": 10,  
    "ChargeState": "Idle",  
    "Metrics": {  
      "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Batteries/Module1/Metrics"  
    },  
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Batteries/Module1"  
  }  
}
```

New property for reporting the type of energy storage device – “Battery” or “Supercapacitor”

Feedback requested on supercapacitor usage of the ratings and charge/discharge properties



Responses to super-capacitor feedback

- Add *InputRanges[]* from **PowerSupply** to **Battery**?
 - We don't believe this is necessary for BBU shelf units as the input range is defined by the shelf (no individual input power cord per super-cap)
 - Is this accurate?
- Add *OutputNominalVoltageType* from **PowerSupply** to **Battery**?
 - Same as above, believe this is unnecessary as value is defined by shelf
- Request to add *HoldUpTime* to **Battery**
 - Is this a faceplate rating or a live measurement? Entire shelf or per-unit?
 - If this is a live value, would a "charge percent remaining" be preferable?
 - Or do these systems typically provide time? (or both)
 - This would seem more applicable for the entire shelf (not per-battery)
 - Can easily place a property in **PowerDistributionMetrics** for that total

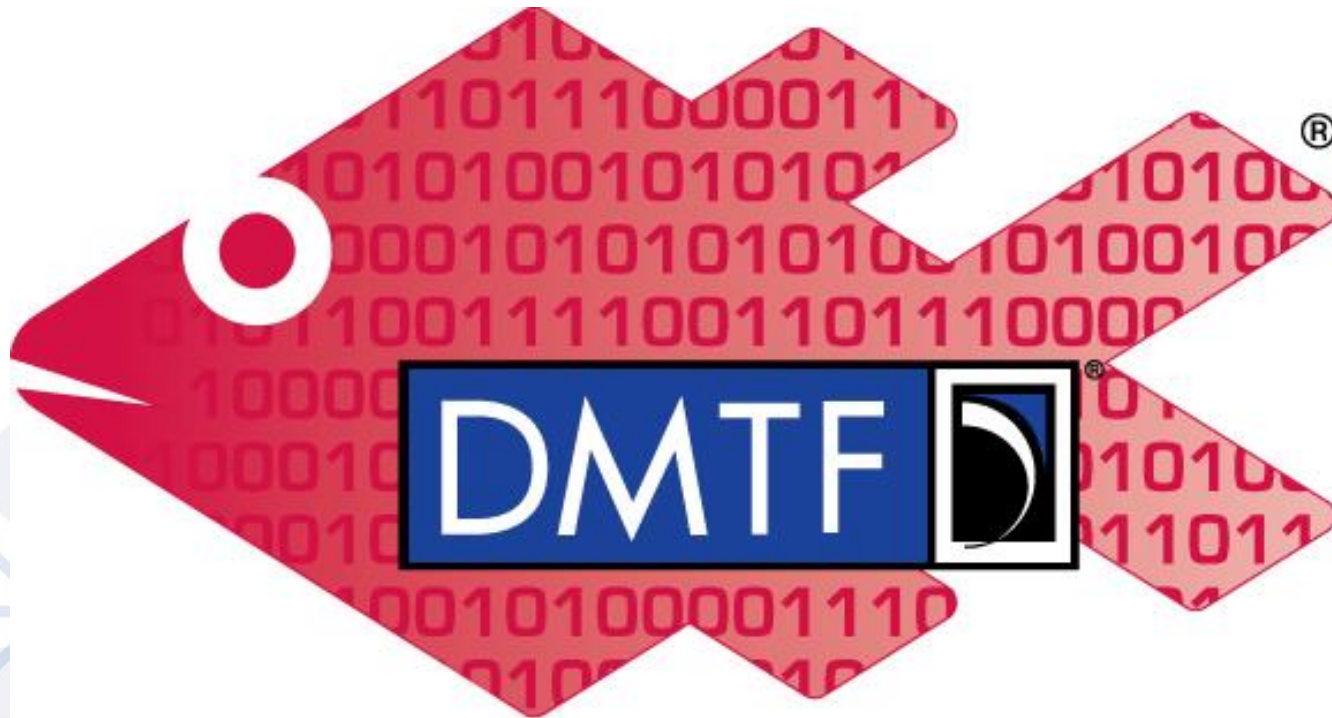


Questions for industry

- For Battery Shelves, where should a single DC **Circuit** reside?
 - These units use one connection to the bus bar (input/output circuit)
 - Should this be considered a “Mains”, “Branch” or a new *CircuitType*?
 - We lean towards a “Mains” instance as any power unit should have one...
- Existing data model / schema does not show charging/discharging
 - Running on backup power would certainly warrant a specific property
 - This status/state should be reflected at the **PowerDistribution** level
 - Affected **Outlet** and **Circuit** resources could show a *Condition*
 - Expect other property additions to fully model an “energy storage system”
 - Previous work-in-progress showed more detailed proposal for UPS support
 - DMTF Redfish Forum requests further feedback and input from industry experts



Q&A & Discussion



Redfish