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Registry hierarchy data exchange use cases

1. Unique identifier for each signal – each PMU and each signal? Or PMU-Signal?
2. Catalog available synchrophasor signals
   a. Assist subscribers in determining which signals they would like to subscribe to
3. Interconnection wide registry e.g. WISP registry western interconnect
4. Out of band device registration
   a. Peak RC presently has a web based registry which participants use to register their PMUs and signals, this works fine for adding one or two PMUs but when adding 100 PMUs this is tedious and error prone
5. Insure no duplication of C37.118 16-bit ID number
6. Automate configuration of applications consuming synchrophasor data
7. Identify phasor voltage-current pairs for power calculations
8. Identify phasor angle pairs for angle delta calculations
9. Maintain foreign key information e.g. PI tag names
10. Support data exchange to/from the following actors (it would be useful to define what each actor wants to accomplish with the data it receives or sends):
    a. Transmission and/or Distribution Utility with or without PMUs
    b. Regional security coordinator
    c. RTO/ISO with or without their own PMUs
    d. University Researchers
    e. Government labs
    f. Government regulators
11. Identify redundant PMUs and PDCs that are providing the same measurements
12. Describe changes to the registry such as:
    a. Topology changes that cause the PMU to be measuring at a different point or voltage level
    b. Changes in PMU configuration or setup (e.g. signal names)
    c. Removal of a previously conveyed PMU or PMU Measurement
    d. Rename of a PMU
    e. Movement of an existing PMU to another location
13. Exchanging solutions of state analysis in EMS based upon Synchrophasors instead of estimation
14. Supporting non-substation based PMUs (e.g. Distribution level)
15. Manually copy and paste data from other systems into a local file to create a PMU signal registry which can be used as a local signal registry store for local systems.
16. Ability to create and maintain data exchange files by manually editing the files.

Registry hierarchy data exchange Requirements

1. Human understandable, not just human readable i.e. plain text
2. Easily transferable
3. Supported by multiple development languages