Emerging Areas in Power Systems and SDN

Abhilash Gopalakrishnan
Power Technologies R&D,
ABB India Development Center,
ABB Global Industries & Services Ltd.

9 September 2015

Interfaces of Interest for SDN

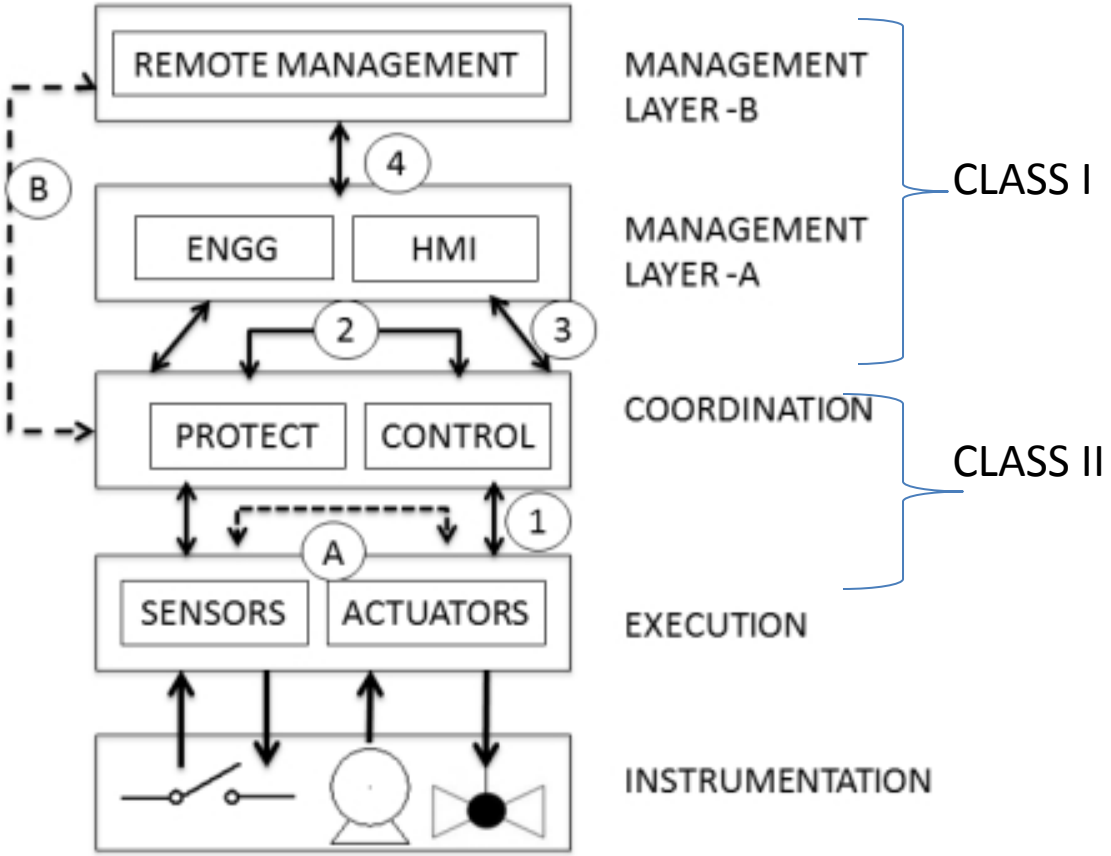

Fig.3: Components & Interfaces

Based on the Interface segments Class I for less deterministic parts, Class II for more deterministic parts.

Use cases and resilience

1. Resilience and Recovery plays a major role in ICS. Class I would expect Resilience of N+1 for nodes and possibly N+2 for SDN Controller Nodes and 3 Nines should also be okay in some community microgrids, where full time visibility of plant is not necessary. Recovery time 100ms or 160ms is important. For Class II however we would require 5 nines or more. It would be best if this is configurable in a standard way or taken care while planning and also based on mix of Hardware and Software aspects. Class II would need 10ms recovery time ranges.
2. Network As a Service is quite possible in community micro grids, where pay per use is a much relevant option and business model.
3. Network Control Center Gateways meant for Remote Monitoring and aggregation can be fully based on SDN/NFV which would also be aligned to Class I.
4. Life time of ICS systems being from 15-20 or even 30 years, Therefore support for updates using NFV would be of significant benefit.
5. Planning Scenarios can be to a major extent be replicated allowing good reduction in on site efforts.

9 September 2015