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Sample Implementation of Adaptive Protection for Low Voltage Microgrid

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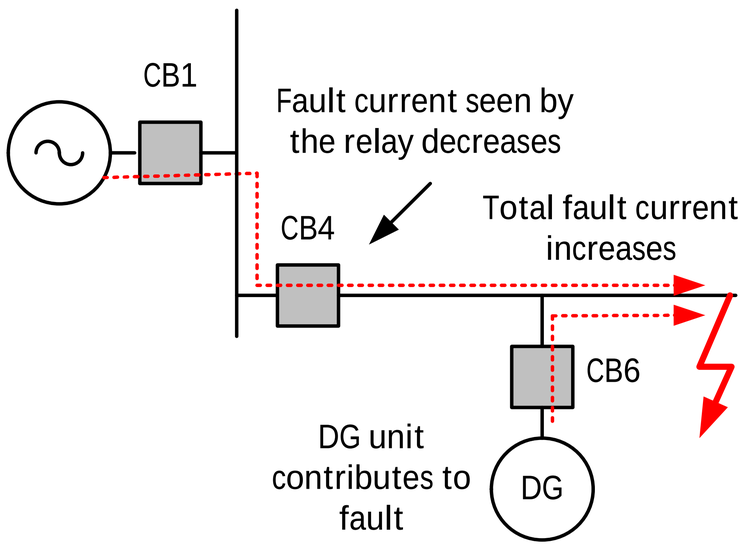
Motivation:

- Distribution grid evolution poses new protection challenges:
  - Increased Distributed Energy Resources penetration
  - Various possible operation modes: open loop, closed loop, meshed, islanded
  - Automatic feeder reconfiguration creates new topologies

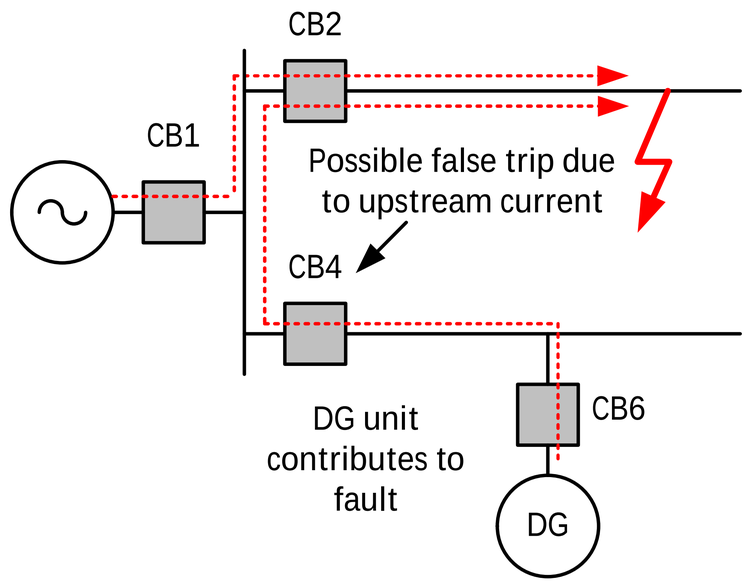
Results:

- Real-time protection coordination on a remote terminal unit at secondary substation
- Use standard Modbus mechanism to control pre-calculated “trusted” setting groups
- Identify network topology change; choose the appropriate setting group and execute control action

Mitigate protection blinding by reducing the OC pickup



Avoid sympathetic tripping by accelerating the relay for faulty feeder



Support islanded operation by increasing the OC protection sensitivity