Towards Full-disclosure: Broadening Access to SCADA Data to Improve Safety, Reliability, and Security

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Benefits of Data Openness

- Current SCADA
  - Often vertically integrated, proprietary systems
  - Data are tightly controlled
- Why promote open access to data?
  - Improve reliability
    - Better tools to understand and use data
  - Improve safety
    - Alarms can immediately reach people
  - Improve security – counter intuitive, but
    - Will have better control on how to share data

Application Areas

- Automotive industry
  - In-car sensing/control system
  - Multi-car collision avoidance
  - Traffic data sharing and congestion control
- Smart building control
  - Intelligent light and temperature control
- General industrial control and automation
  - Controlled release of data to different parties
  - Promote greater internal use of data

Challenges in Protocols and Systems

- Common protocols
  - Enable wide data access at various places
    - Sensors, data servers, operational centers
  - Enable interoperation at data level
    - Intermediaries need to easily interpret data
    - Data exchange between third-party equipment
- In-Situ Intelligence
  - Devices in the field need to process data
  - Support report-on-exception

Challenges in Access and Anonymization Control

- Must have access and permission control
  - Not all data go to public
  - Different parties have different level of data access
- Need data-level firewalls
  - Dispatch/block data at fine granularities
  - Requires understanding of metadata
- Optional anonymization mechanism
  - Some data can be released without identity info