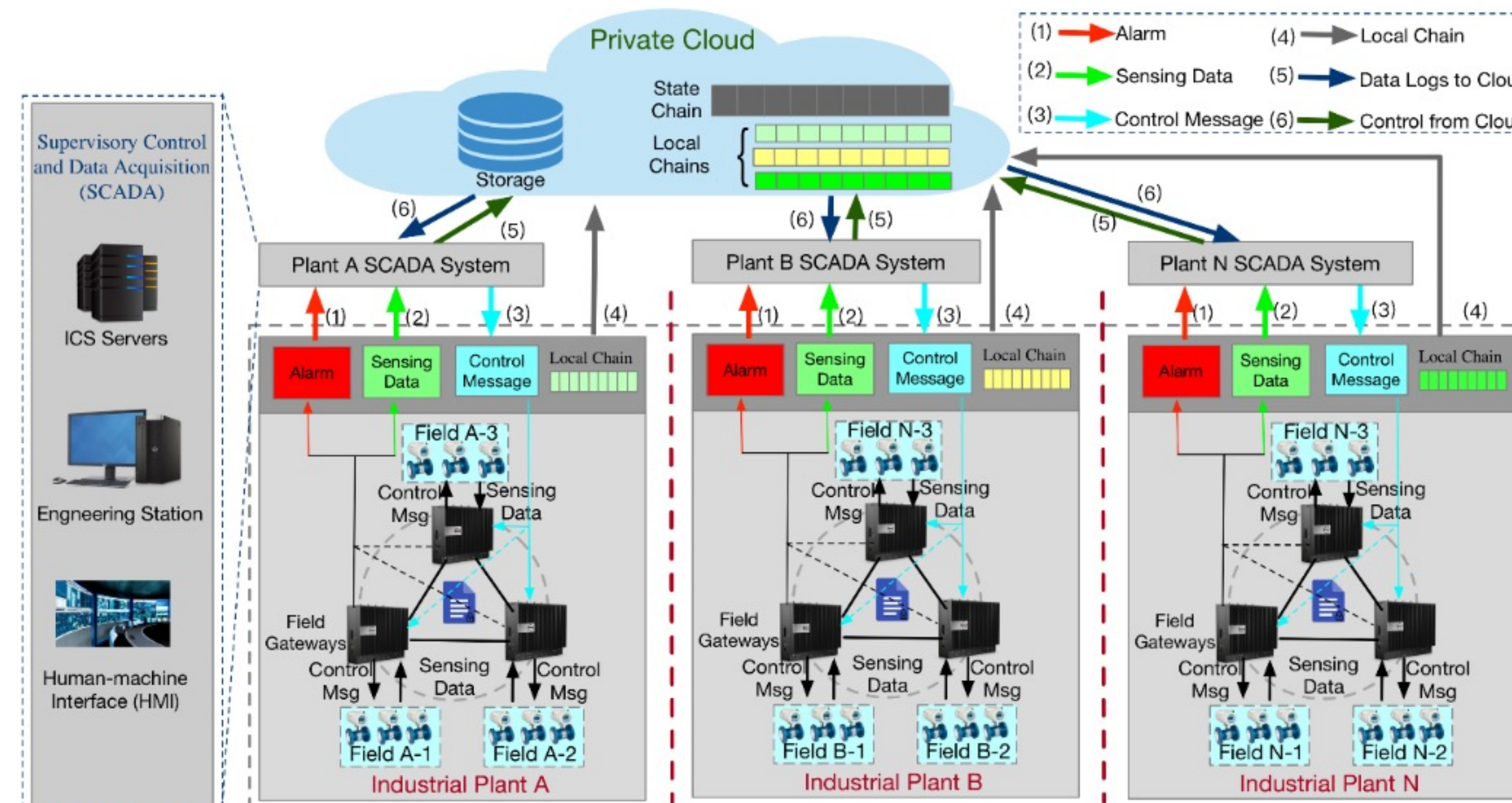




# Collaborative Research: A Secure Communication Framework with Verifiable Authenticity for Immutable Services in Industrial IoT Systems

## Challenge:

- Verifiable authenticity, integrity, and uniformity for intra-plant communications
- Distributed inter-plant immutable services



## Scientific Impact:

- Provide verifiable authenticity and immutable services for distributed industrial IoT (IIoT) systems.
- Ensure correct operations of physical systems

## Solution:

- Efficient signature schemes for fast and online data signing and verification
- PKC-based fast device certificate authentication
- Hierarchical and scalable blockchain protocols



## Broader Impact:

- Boost CPS security education
- Reshape the security architecture in IIoT design and advance its adoption in US critical infrastructure
- A publicly available IIoT testbed for the community

CNS-1932480 UConn PI: Song Han ([song.han@uconn.edu](mailto:song.han@uconn.edu))  
 CNS-1932447 UCSC PI: Chen Qian ([cqian12@ucsc.edu](mailto:cqian12@ucsc.edu))