

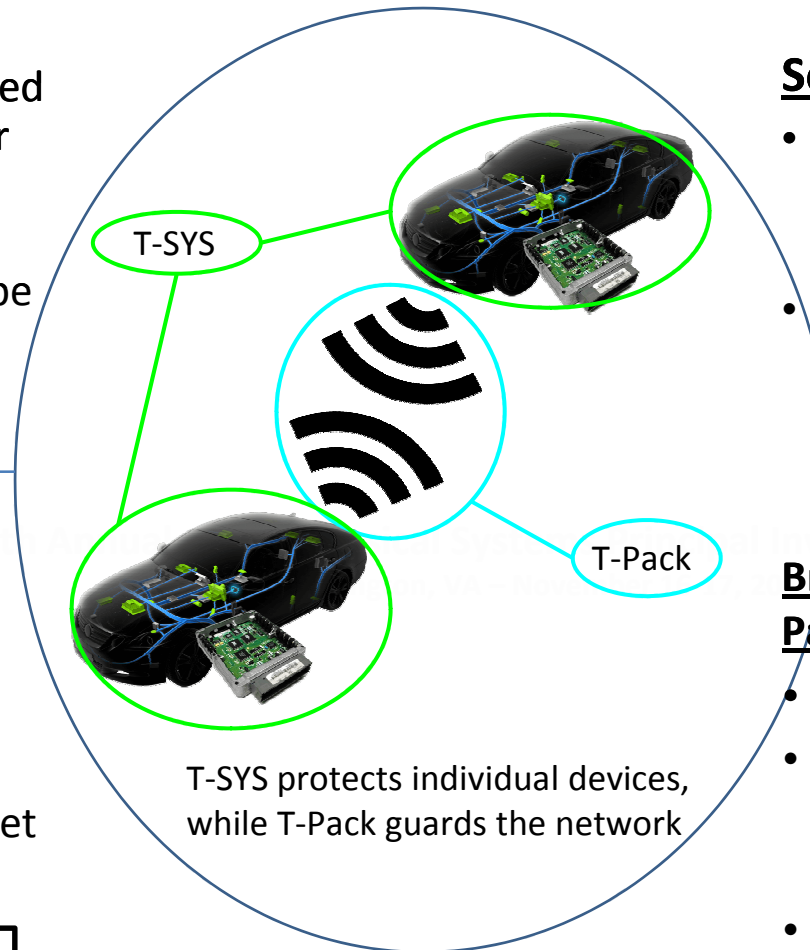
T-SYS & T-Pack: Intrusion Detection for CPS

Challenge:

- Real-time systems need protection from cyber attacks
- Standard security mechanisms should be complemented by novel techniques

Solution:

- Detect attacks by timing anomalies
- T-SYS: execution progress tracking
- T-Pack: network packet arrival tracking



Scientific Impact:

- T-SYS: Configurable protection scope across user-kernel boundaries
- T-Pack: detection of delay attacks on networked real-time systems

Broader Impact and Broader Participation:

- Demo code in a real RTOS
- T-SYS: Lower overhead than other timing-based security measures
- T-Pack: Detects 100% of DDOS attack of small intensity at minute cost