
Basic SCADA System Troubleshooting

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Outline

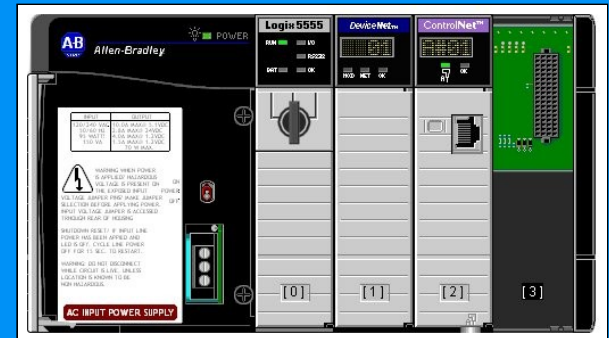
- Overview of a typical SCADA system
- Communications - Telemetry
- Examples of typical alarm scenarios

Typical System



PLC Basics

- Discrete IO, status and alarms
- Analog IO, status and alarms



Hardware failures

- Damaged Hardware
- Faulted Processor
- Failed Radio or modem

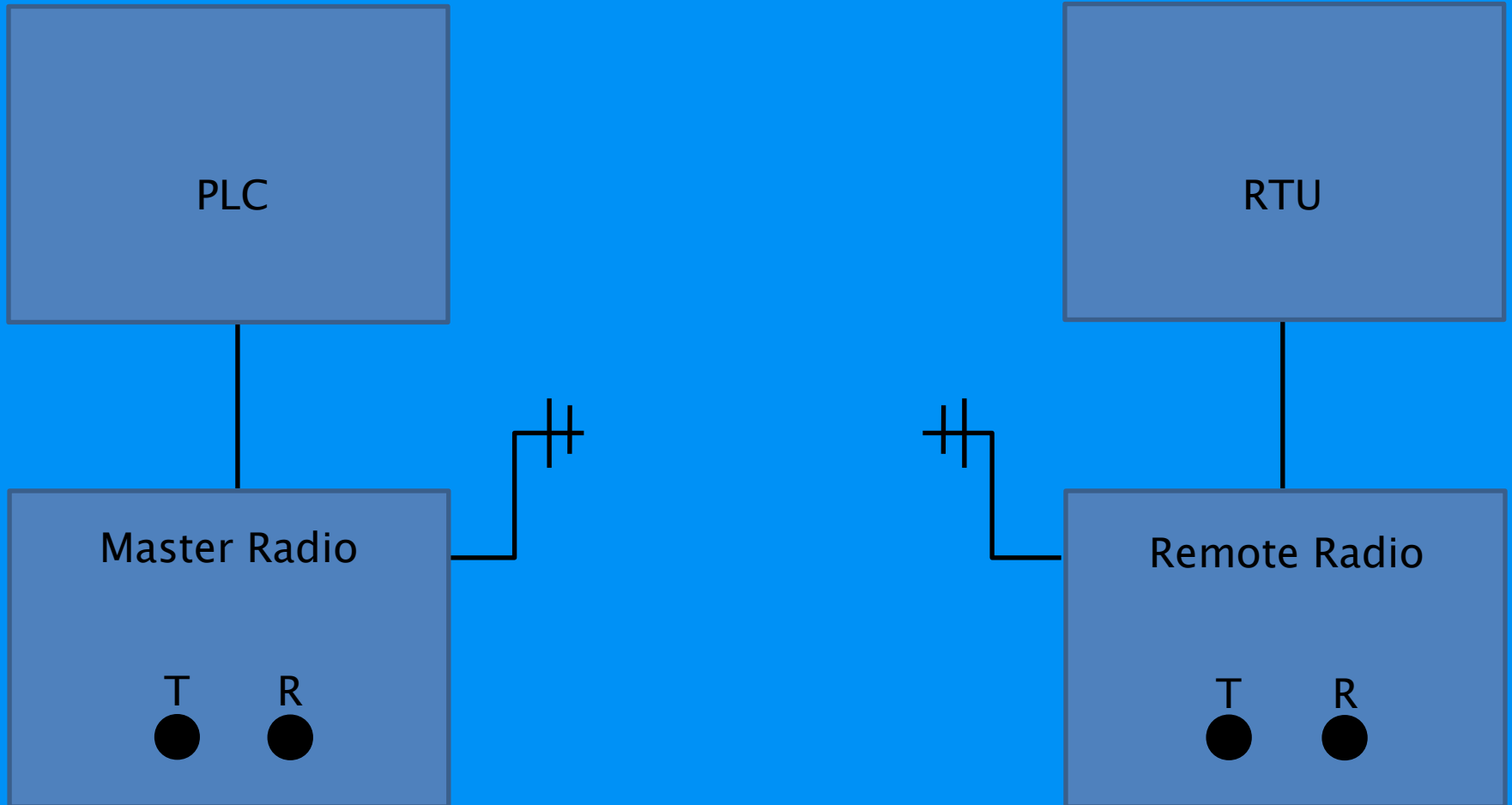
Software

- SCADA software is a collection
 - Interface to PLC
 - HMI
 - Database
 - Reports & Trends
 - Alarm Annunciator

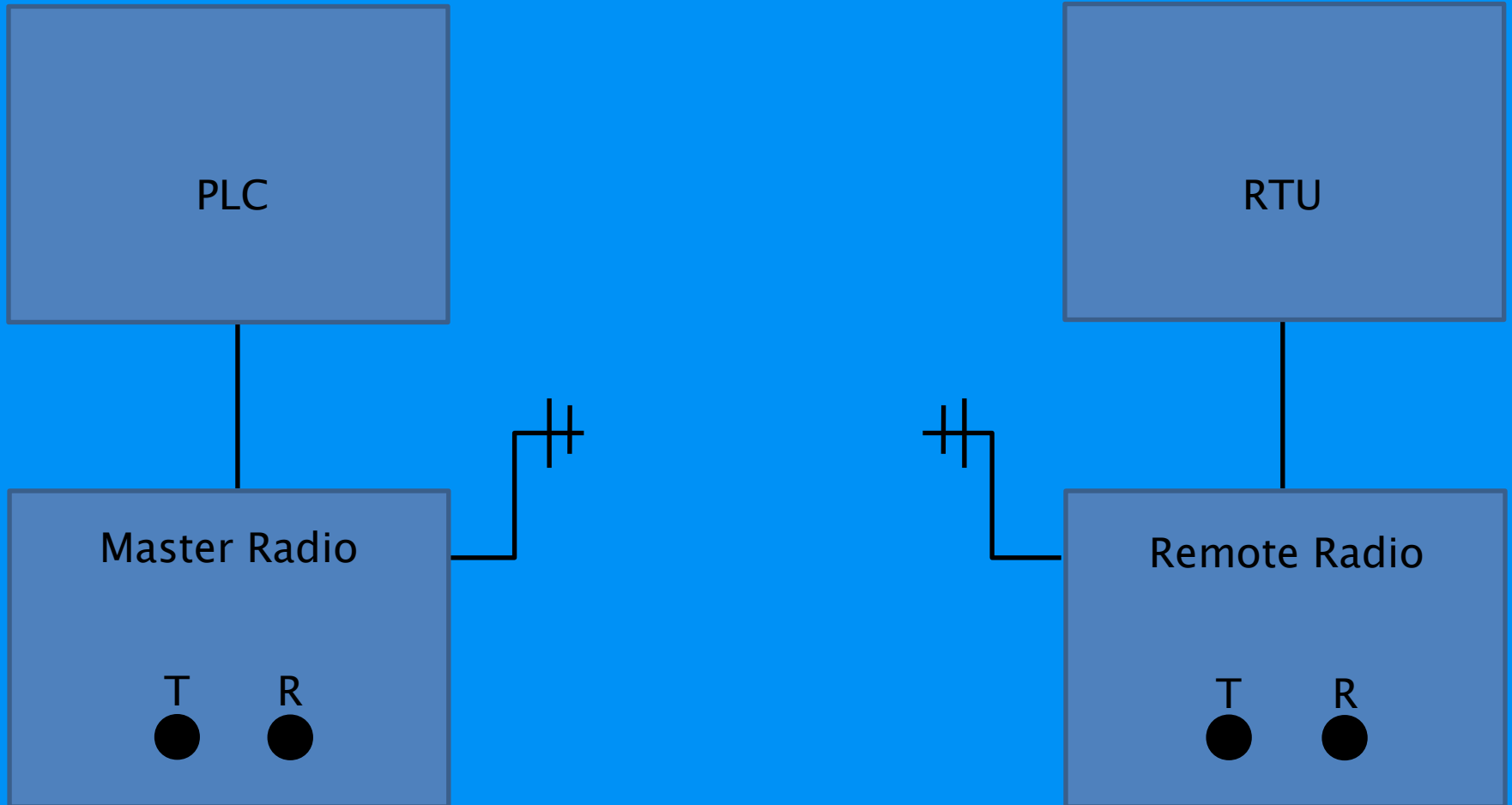
Software Problems

- What is the extent of the problem?
- Has anything changed recently?
- Are there any unusual system log entries?
- Are there any Windows Event log entries?
- Has anything changed recently?

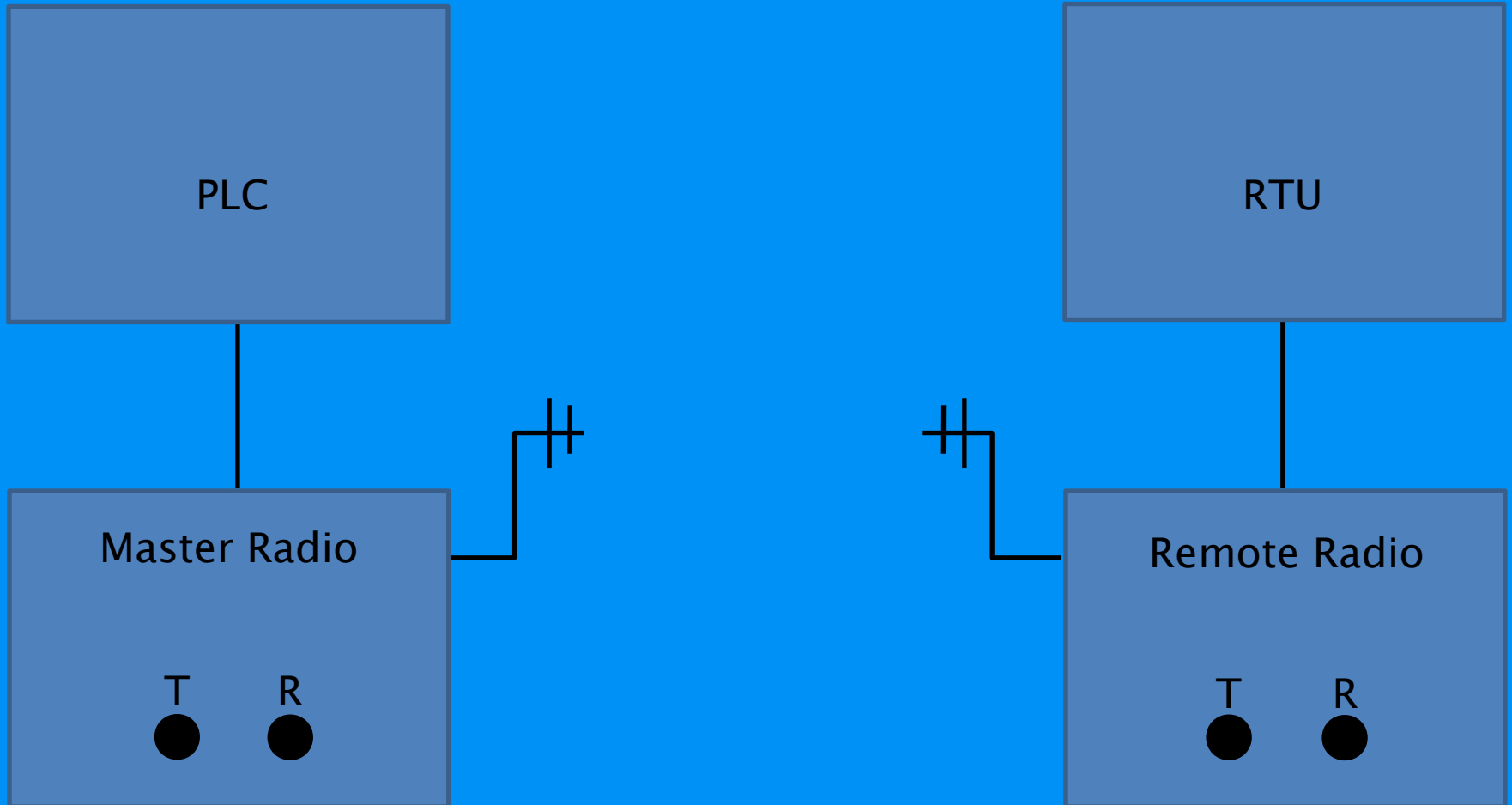
Basic Communication



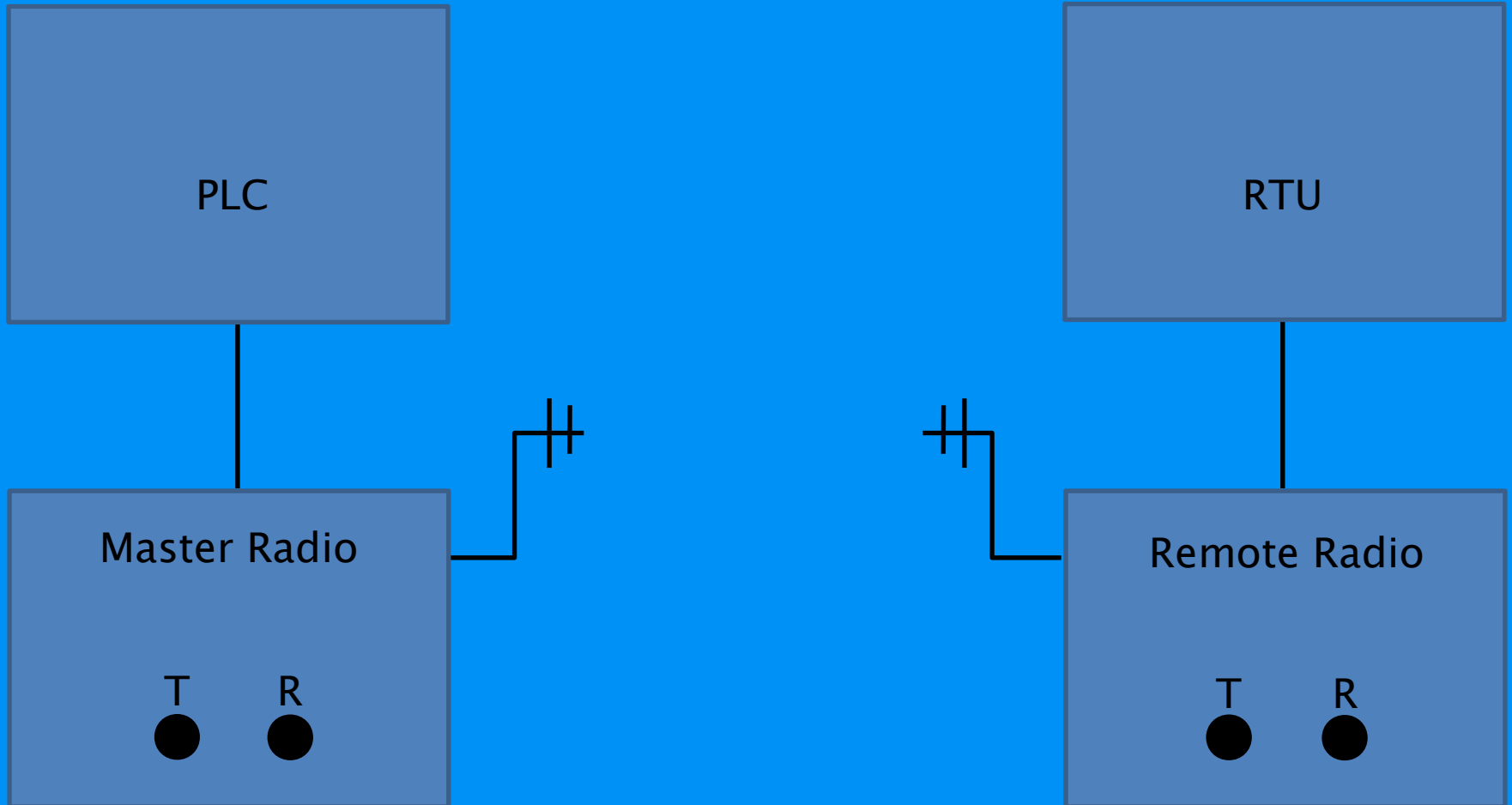
Basic Communication



Basic Communication



Basic Communication



Don't overlook the obvious

- Power
- CAPS LOCK key
- NUM LOCK key
- PLC Fault indicator

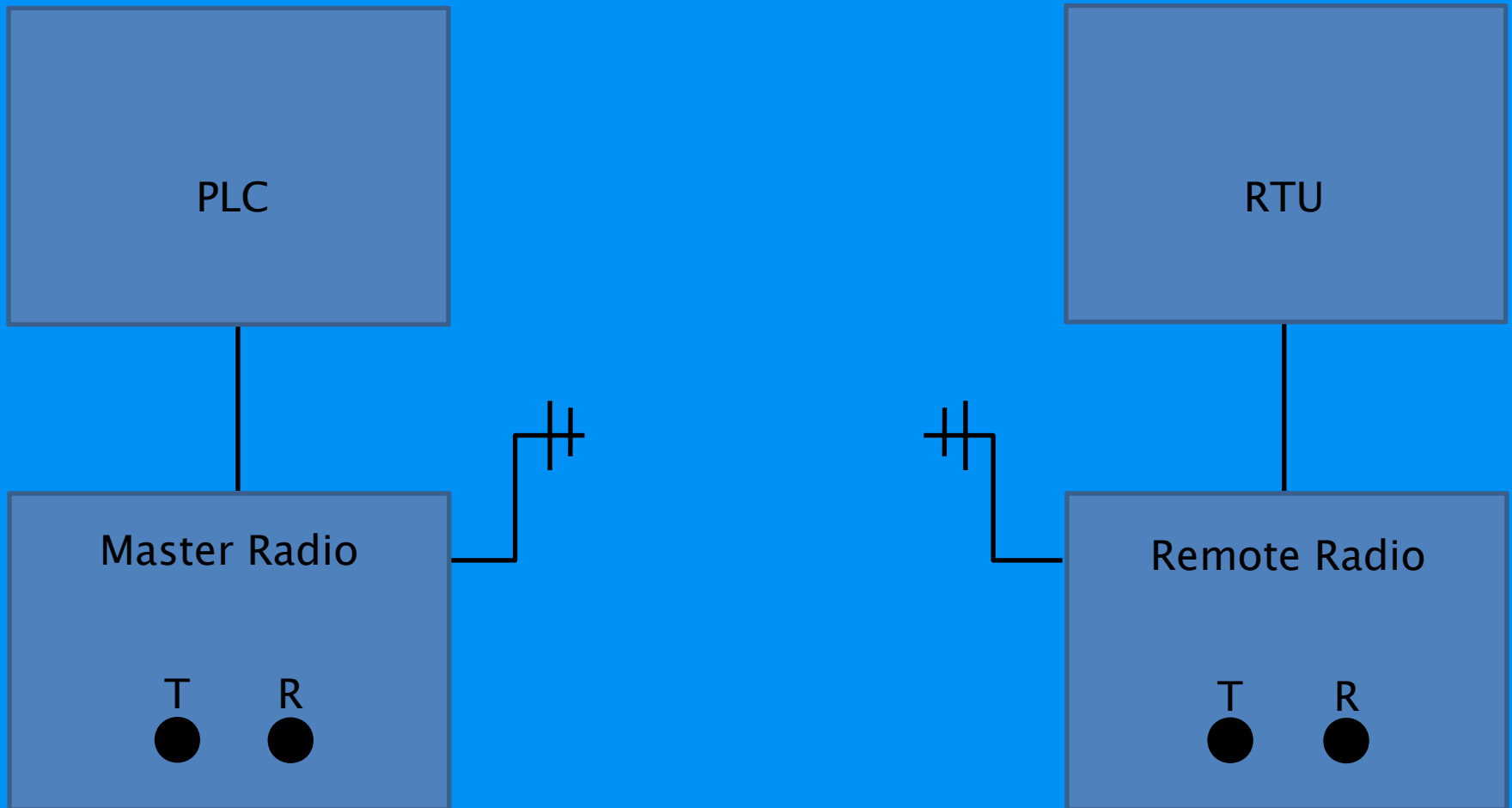
Typical Failure Scenarios

- Information on the SCADA PC does not appear to be up to date
- Verify connection with Master PLC
- Verify connections with remotes

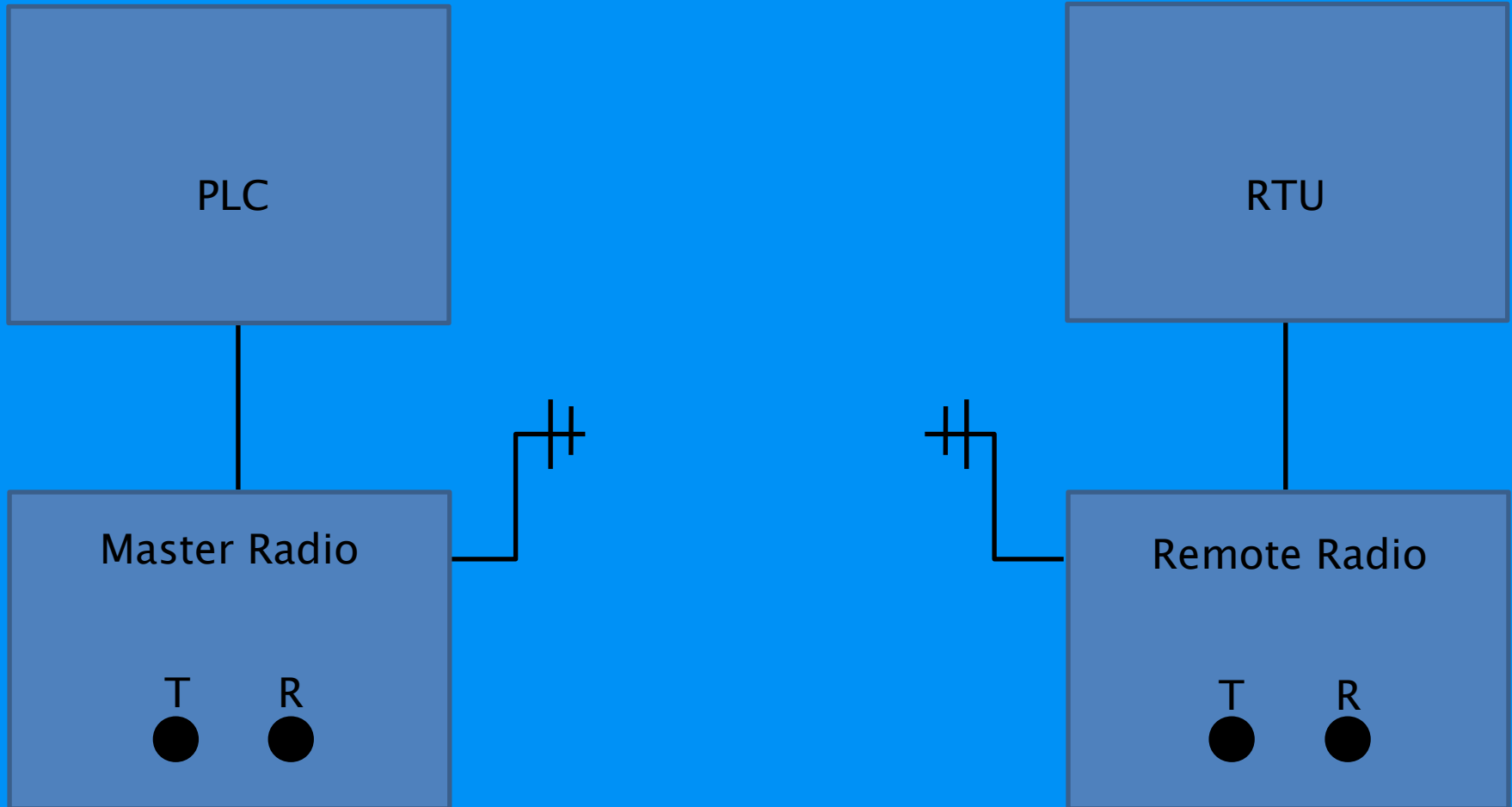
Typical Failure Scenarios

- Communications alarm with remotes
- Just 1 site or multiple sites
- Master PLC communication with Radio
- Failure of remote site equipment.

Communication Failed at a remote site



Communication Failed at a remote site



Have a backup plan

- System and Data backups
- Manual mode
- Secondary Operator Interface
- Warranty status

Review Your System

Remote sites

- Control panels – condition, documentation, expandability
- PLC's or RTU's – Capability, communications, age, condition, supportability
- Communications equipment – Capability, communications, age, condition, supportability
- Instrumentation – existing or new
- Enhanced Control capabilities
- Expanded IO
- Operator interface, SCADA system access
- Building Security

Central SCADA

- Master Control panel
- Communications equipment
- SCADA software – HMI, Reports & trending, database, alarm annunciation, supportability, capacity
- SCADA Network – server, workstations, printers
- Remote system access, Internet access, security
- SCADA System Management – security, access control, system backup, recovery, redundancy



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