



CH2M BEC

SCADA Challenges & Solutions

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What is SCADA, Telemetry?

- Supervisory Control And Data Acquisition
- Measuring and transmitting data
- Controllers, PLCs, RTUs, Dataloggers, HMI, Data historian, etc...

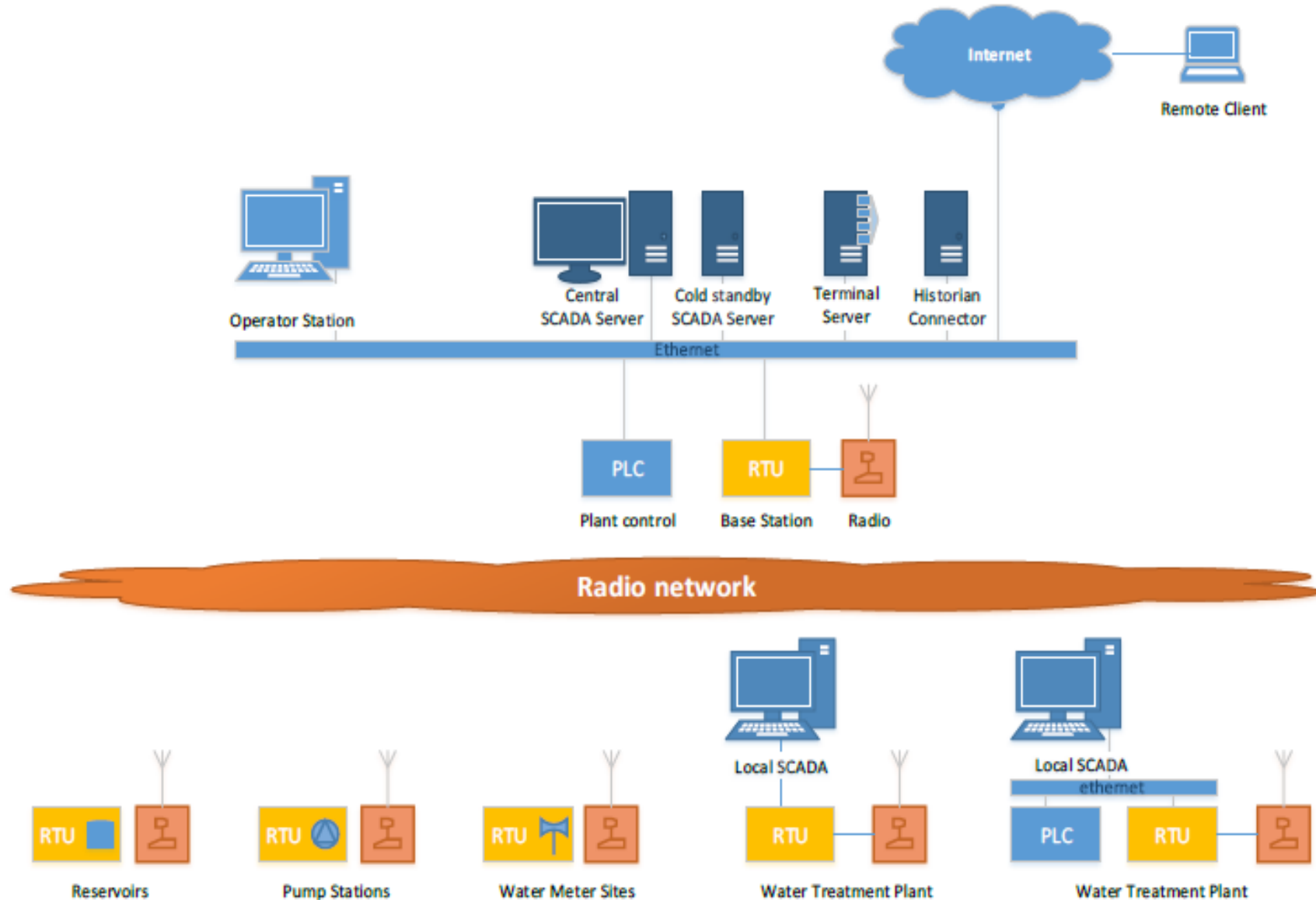


What is SCADA, Telemetry?

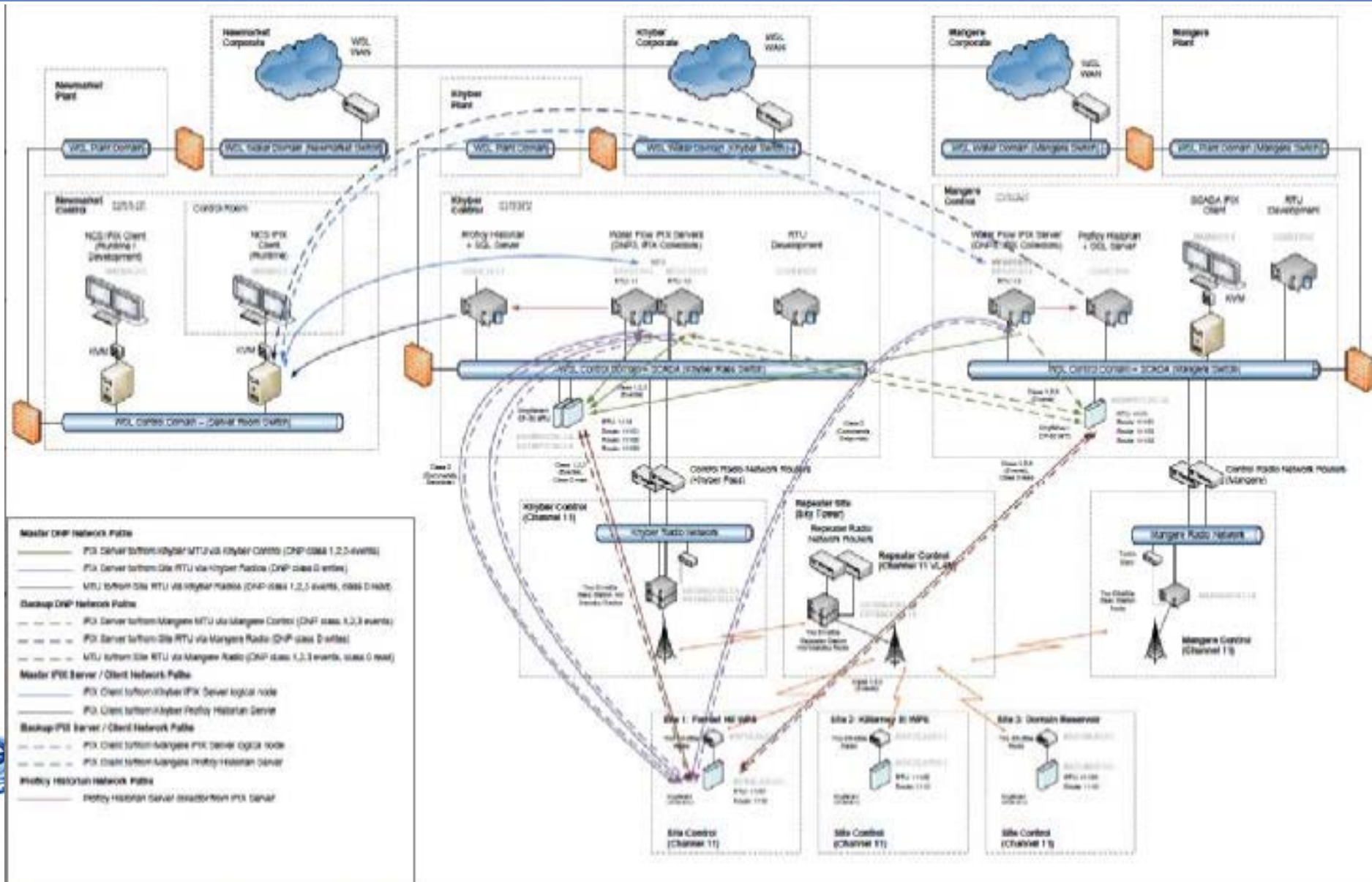
- But what does it mean?
 - Monitoring
 - Controlling
 - Alarms
 - Compliance
 - Maintenance
 - Diagnostics
 - Health & Safety
- All vital parts of a 3 waters system/network



What do these look like?



What do these look like?



Challenges

- Support
 - Breakdowns
 - Retaining knowledge and personnel
 - Lack of expertise
 - Key personnel leaving
 - Cost
- Upgrades/Modernisation
 - End of Life / Support (e.g. Windows XP)
 - Software updates
 - Changing technologies
 - Complexity (e.g. Virtualisation)



Challenges

- **Communications (to field)**
 - Reliability
 - Merging different technologies (e.g. amalgamation of local bodies)
 - Radio vs Cellular vs Microwave vs Emerging Technologies (e.g. IoT)
 - Inaccessible areas (“Currently have alarms and rely on neighbour notifying council”)
 - Pager network closed June 2017. Text messaging less reliable
 - “No radio network diagnostics available”
- **Communications (base)**
 - Interface between different systems
 - Proprietary systems



Challenges

- **Data**

- More data required

- More data gathered

- Power usage

- Lab data

- Manually entered data

- Network capacity

- Backup and Recovery

- Security of Data

Challenges

- **Security**
 - IT security
 - Management of users
 - Hierarchy of access levels
- **Control System vs IT System**
 - Understanding the different requirements (data integrity > availability)
 - Ownership of systems
 - Merging of hardware / systems
- **Documentation**
 - (lack of)



Methodology

1

- Confirm Stakeholders and Interview

2

- Review and Document Existing Systems

3

- Perform Desktop Study

4

- Identify Key Issues and Challenges

5

- Define Strategic Objectives, Priorities and Requirements



Strategic Objectives, Priorities & Requirements

- Operations
- Reporting
- Asset Management
- IT Infrastructure (& Security)
- Technical Requirements
- Maintenance & Support
- Consolidation
- Priorities & Other Projects
- Develop a Strategy



Design & Implementation

- **System Design Considerations**

- Whole of Life Cost
- Integration with other systems
- Scalability
- Reliability, Resilience & Security

- **System Development**

- Operations buy in essential
- Terminology. Do they mean the same to all?
- Graphics themes
- Alarm management
- Standardisation across all assets



Questions?

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