Rags to Riches
A data story

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Summary

- Waikato district overview
- Overview of the system
- Compliance incidents in 2013
- Improvement goals
- SCADA improvements
- Telemetry system improvements
- Future improvements
- Conclusion

Waikato District

- Created in 1989
- Population = 71,200
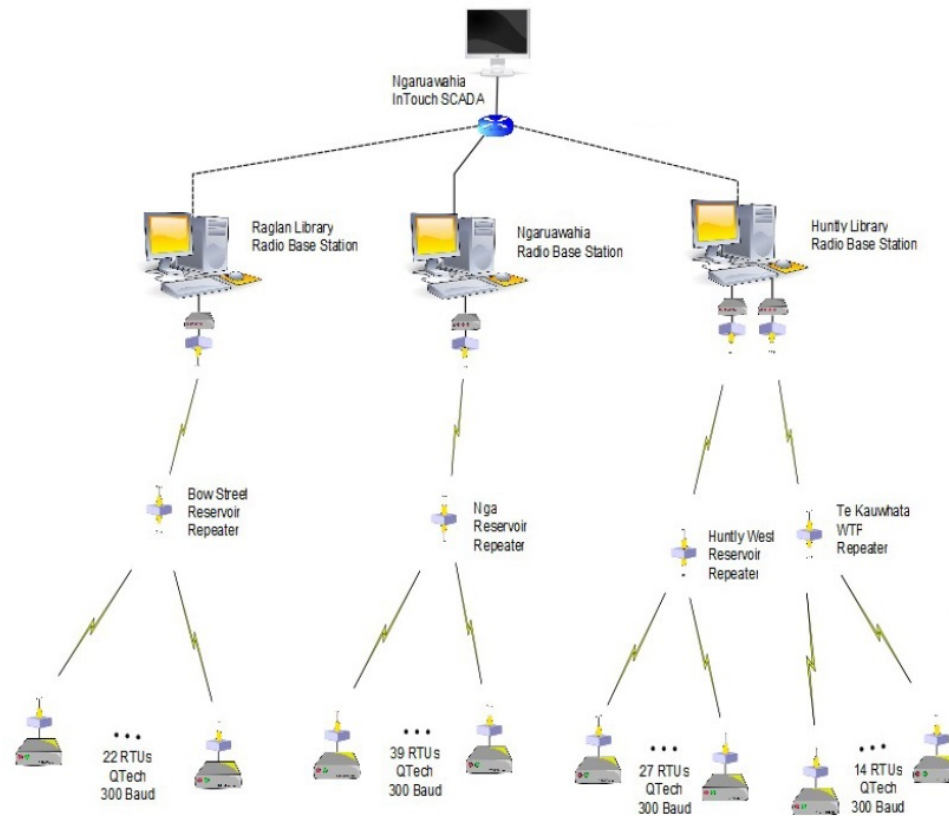- Length ~ 100km
- Width ~ 60km
- 130 sites
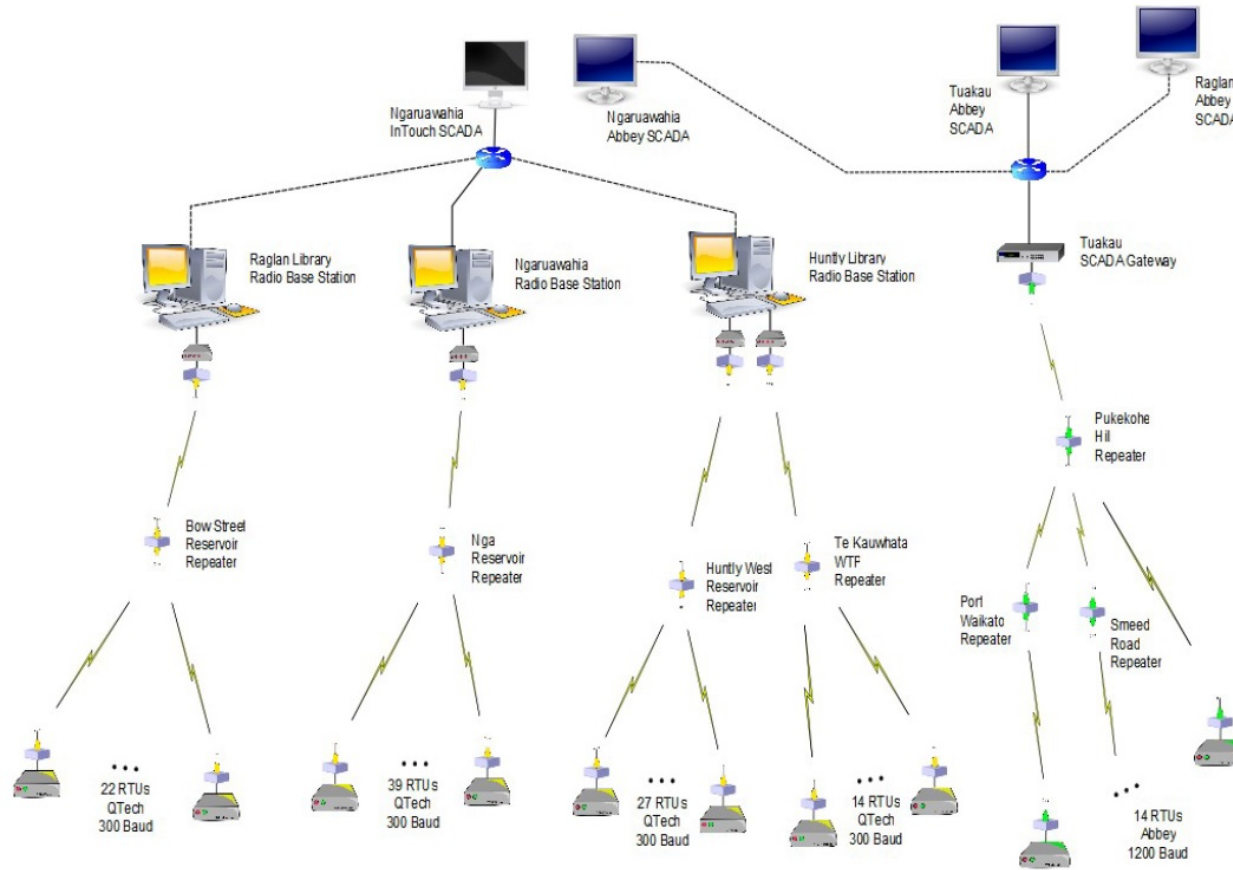
System overview

- Implemented early 1990's
- Datran QRTUs
- 300bps radios
- System organically grew as required

System overview – pre 2010

- Datran QRTU & Q22
- SCADA PC's
  - Huntly,
  - Ngaruawahia
  - Raglan
- Operated independently
- No central database

System overview – post 2010

- Supercity 2010
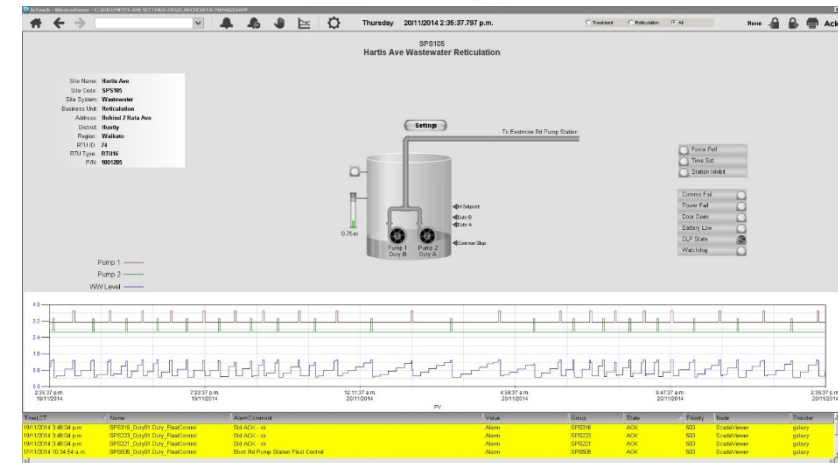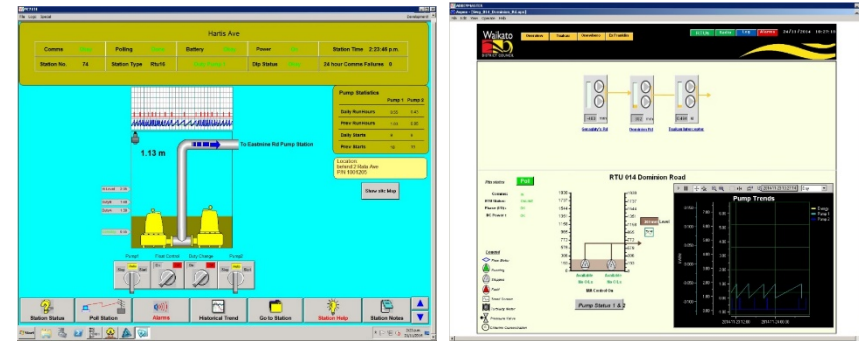- Franklin Abbey system
- Four systems

Compliance incident

- Major incident 2013
- Prompted SCADA strategy report
- Deficiencies were discovered

System goals

- One system
- Common look and feel
- Single historian
- Single alarming system
- 5 simultaneous users
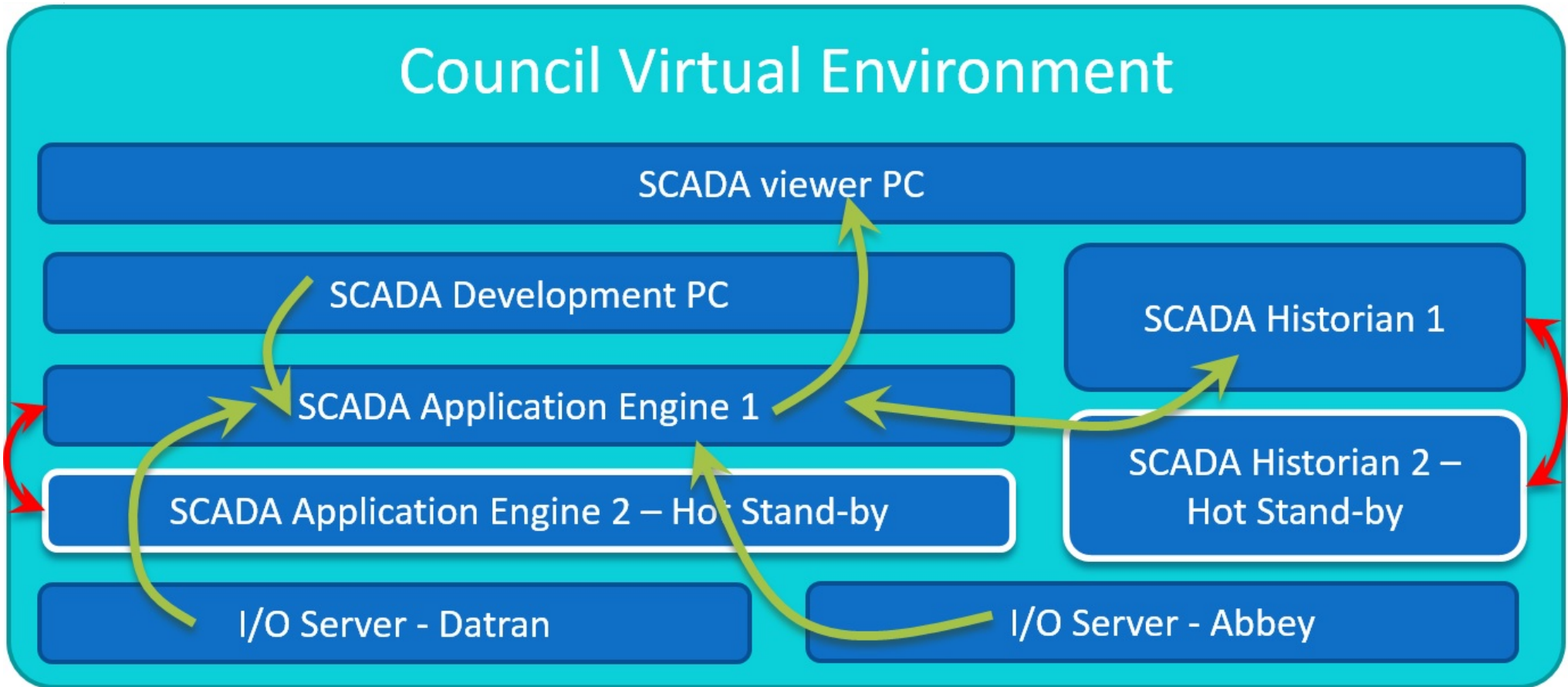- System tractability
- Major treatment plants

SCADA upgrades

- Wonderware's Archestra
- Eyeknow alarming system
- System platform at TP's
- Water outlook connectivity
- Virtual environment
  - Reducing single points of failure
  - Regular back-ups
  - Hot-standby application and historian
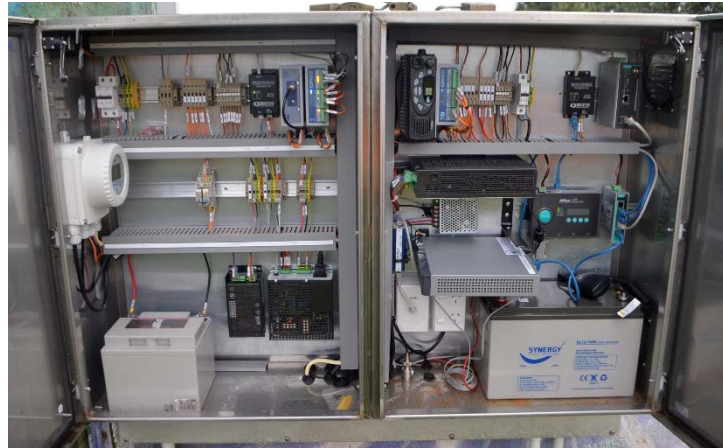
SCADA Architecture

Telemetry improvements

- Treatment plants off radio
- Onsite data logging
- Council OneOffice network
- New connections where required
- Raglan WTP point-to-point
- Back-up SMS units

Telemetry improvements

- Review radio usage

- Remove unnecessary communication

- Replaced aging repeaters

- Usage below 30%

- Still operating 1200bps analogue

Future improvements

- Ergo's layers of SCADA
  - Layer 1 - SCADA Software Layer
  - Layer 2 - Network Backbone Layer
  - Layer 3 - Radio Network Layer
  - Layer 4 - Site Controller Layer
  - Layer 5 - Physical Wiring Layer
  - Layer 6 - Operator Procedures Layer
  - Layer 7 - Documentation Layer
- Significant upgrades to layers 1 & 2.

Conclusion

- After years of "organic growth", Council's SCADA system was unable to provide the necessary functionality.

- Guided by the 2013 SCADA strategy and Councils control system experts, ERGO, a number of upgrades and improvements have been made.