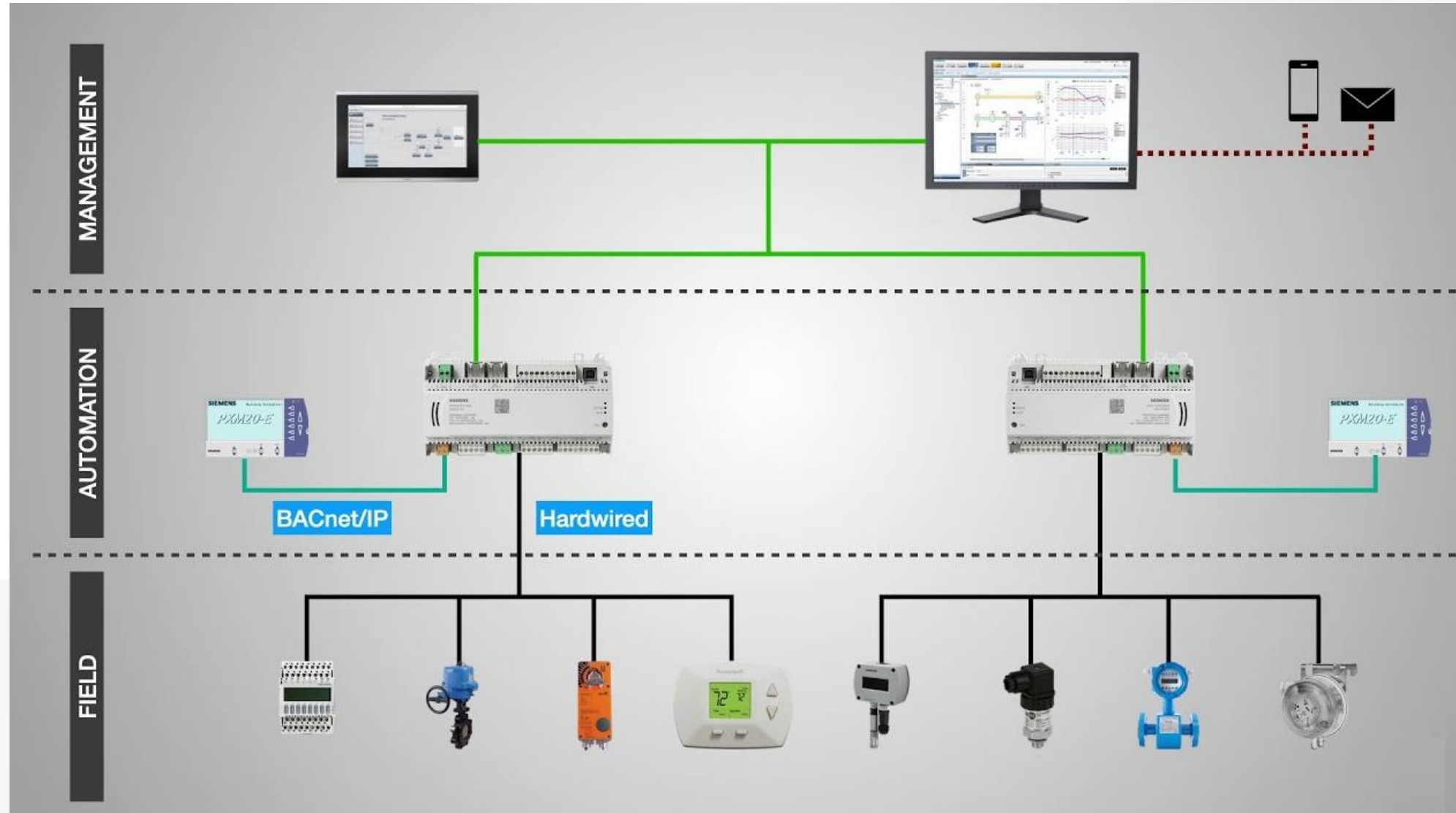




Building Management Systems (BMS)

Michael Culley-Sleight
Controls Manager, Heatweb Solutions Ltd.

Building Management Systems (BMS)



Control Panels

- Field devices are wired back to a control panel
- Hand Off Auto (HOA) selector switches
- BMS controllers
- Hard-wired relay logic

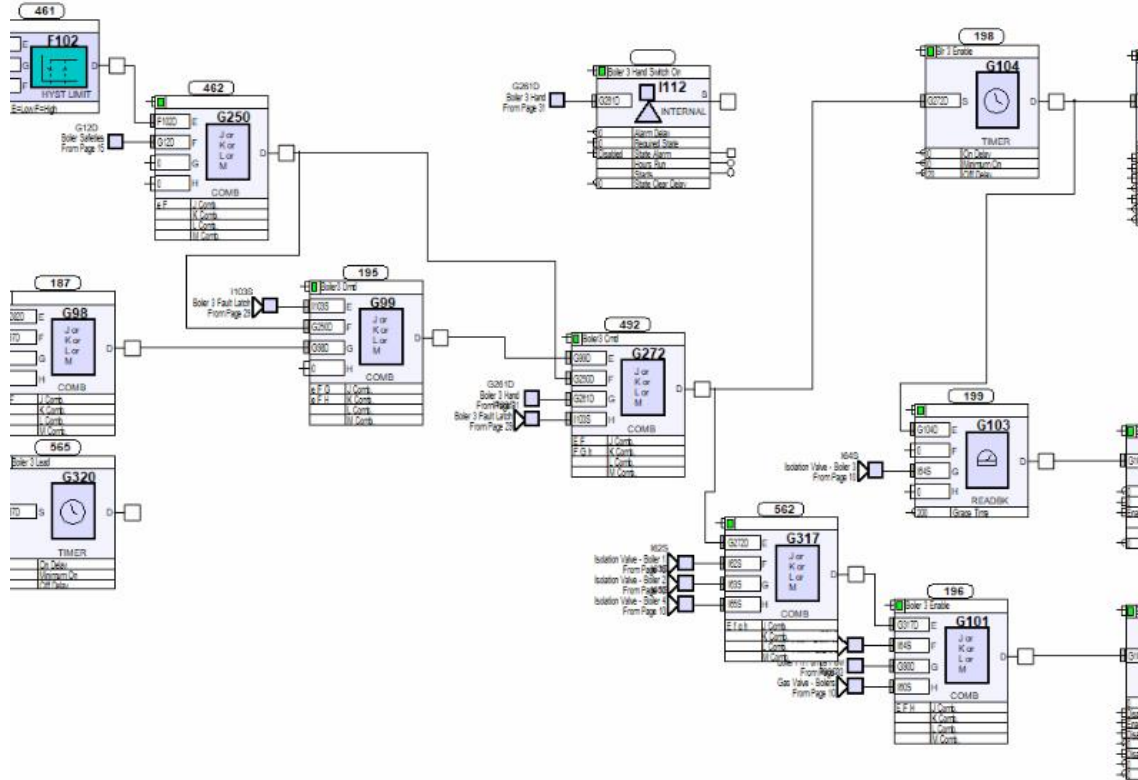


Controllers

- Inputs, outputs
- Main plant – freely programmable
- Terminal – fixed strategy



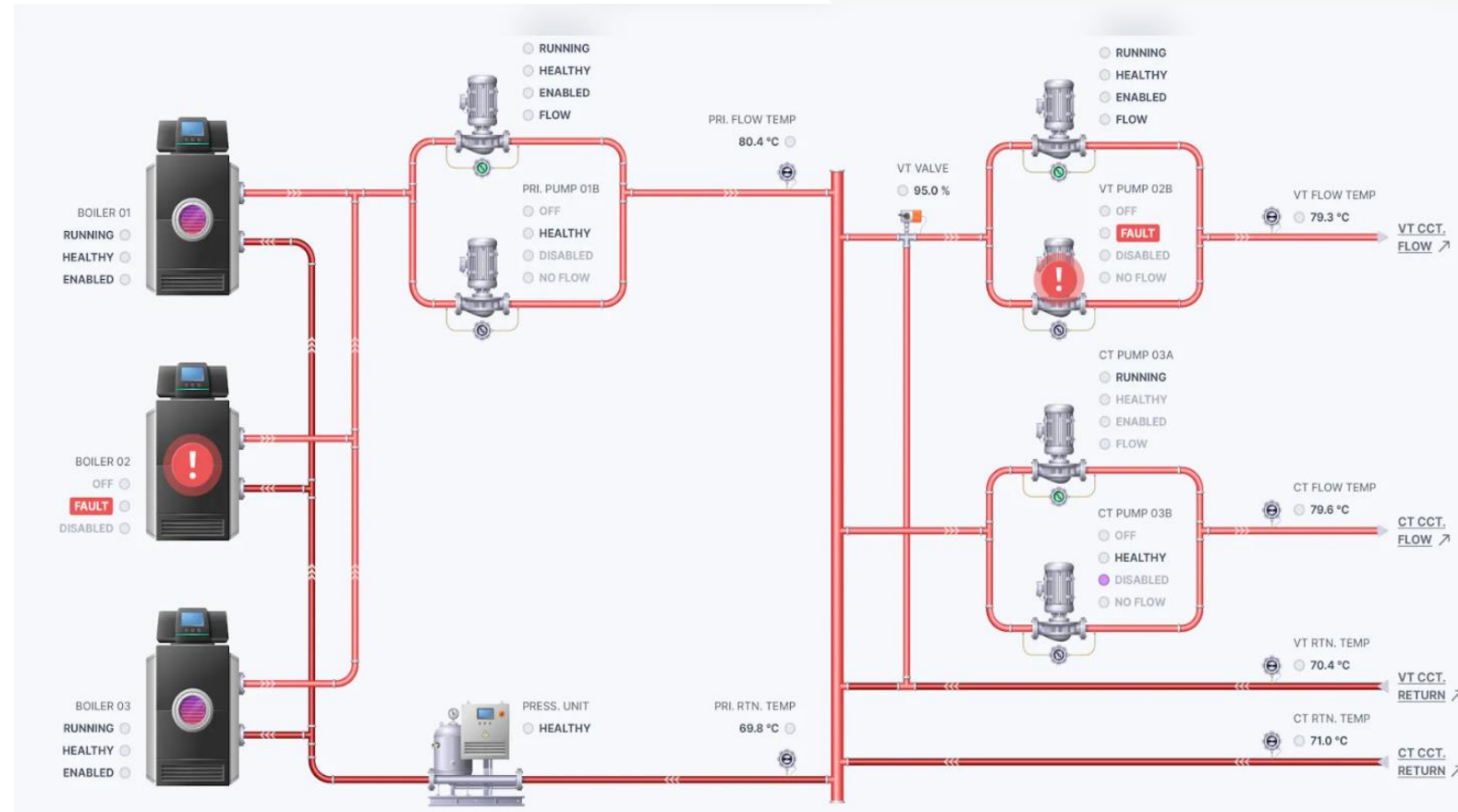
Control Strategy



- Replicates relay logic with increased energy efficiency
- Optimised start-stop and control/PID loops
- Demand-driven strategy

Head end/Supervisor

- Insight into the control system
- Generally no strategy
- Graphical layout
- Plant status and end-user adjustments



Communication Protocols



Integration

- Control systems are talking to each other
- Open-source protocol
- Specific drivers



Barriers to energy efficiency

- Des ops vs mechanical as built and commissioned
- Project engineer and contract dependent
- No energy efficiency in Acceptance testing/witnessing
- Legacy buildings
- Awareness



What we do

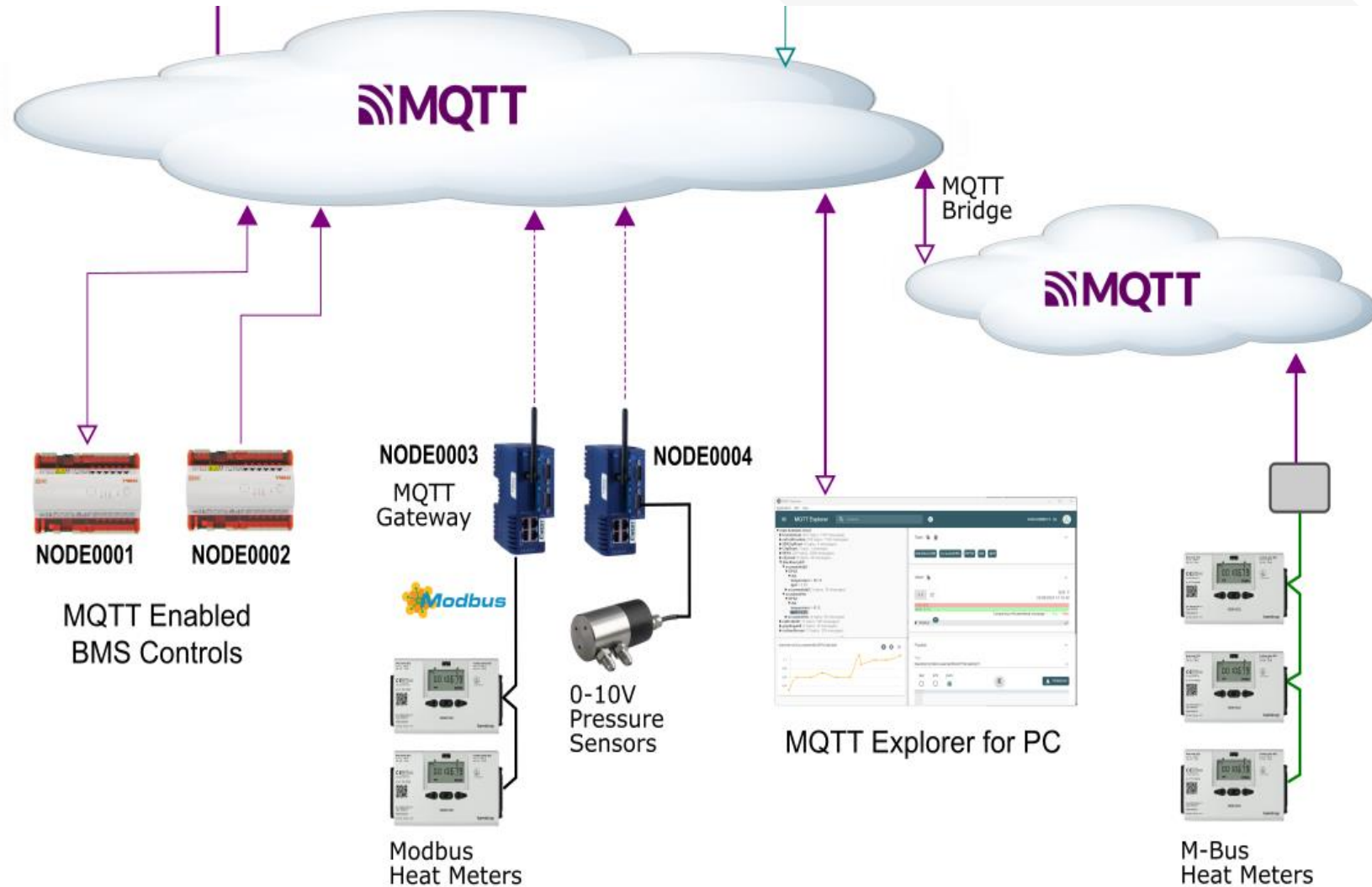
- Unlock data from BMS
- Data driven, identify inefficiencies
- BMS and mechanical in unison for maximum efficiency
- Client visibility and awareness
- Acceptance testing/witnessing with Key performance indicators (KPIs)



Gas Consumption	Primary Bypass Volume	Energy Delivered
1459 m ³	87.2 m ³	11.6 MWh
16.2 MWh	11.9%	EC Electrical Energy
2.85 tCO ₂		182 kWh

Message Queuing Telemetry & Transport (MQTT)

- Lightweight packet
- Outbound and secure TLS
- Open source – protects the client
- Numerous subscribers to one broker



Bespoke solutions

- Systems varying in age and manufacturer
- Utilise existing BMS
- Third-party controllers
- Find the best solution, reliable and cost-effective



Take Homes

- Mechanical and BMS work in tandem
- Cost-effective way to unlock data from your existing BMS
- Open source; it's your data.
- Increase in energy efficiency, reduction in cost and carbon
- KPIs for acceptance testing, and long term

