

Intelligent BMS, Intelligent Sensors and the Future

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Intelligent BMS, Intelligent Sensors and the Future

- What is an Intelligent Building?
- What is the BMS required to do in an ‘Intelligent Building’?
- What route has the technology taken so far?
- Drivers for Change
- Where are we now?
- What part do Intelligent Sensors play?
- What next.... into the future

What is an 'Intelligent Building'?

' Use of technology and process to create a building that is safer and more productive for its occupants and more operationally efficient for its owners.'

Among other things this includes ...

- Clear intent for the purpose of the building.
- Skilled design and deployment.
- Selection of appropriate solutions.
- Connectivity between different technology.
- 'Cause and Effect' interoperability.
- Effective monitoring and reporting.
- Lifecycle management

What is the BMS required to do in an 'Intelligent Building'?

- Provide the 'glue'
 - iBMS – *integrated* BMS - is one of the terms used
- Interpret and normalise data from different systems
 - HVAC, Lighting, Power, Metering, Access etc.
- Highly programmable
 - Able to manage complex control regimes, interpret and distribute data
- Compatible with modern networks
- Accessible to other technology
 - Logging, reporting, presentation, management

Management Overview

WebClient II - Windows Internet Explorer

http://192.168.5.252/OfficeSecurity.asp?sector=Office&system=Security&view=building overview

File Edit View Favorites Tools Help

main panel contacts help notes date : 23.November.2009 time : 11:40:56 AM

outside - control panel CCTV display

choose an area

- 6th Floor
- 4th floor
- 2nd floor
- ground
- basement
- outside
- 5th floor
- 3rd floor
- 1st floor
- lower ground

choose a camera + click on a camera for access

Note
CCTV image on right is for demo purposes only and is not live.

live camera

office panel security fire & smoke temperature lighting environmental I.T. lifts & elevators M & E

What route has the technology taken so far?

- Historical BMS

- HVAC control & monitoring only
 - Energy management – simple metering interfaces
 - Essentially stand-alone with limited integration and inter-operability
 - Graphic head-end
 - Some reporting
 - Little analysis
-
- ‘Buried’ in the technical areas of a building with little visibility to business managers and building users.

Drivers for Change

- 'Integration'

- Early efforts often produced less than satisfactory outcomes!
- Available technology struggled to match the demands
- Different designs and specifications with low repeatability combined with changing product suppliers with varying technology have lead to a host of 'one-offs' that are challenging to support.

- Open Protocols & Databases

- Efforts to make some standardisation for integration led to:
 - Lonworks, BACnet
- Other 'standards' have become established too
 - Modbus, Konnex, OPC
- SQL databases make historical data more accessible

Modbus-IDA
the architecture for distributed automation



TCP/ IP

XML



LONMARK®

Drivers for Change

● Networks

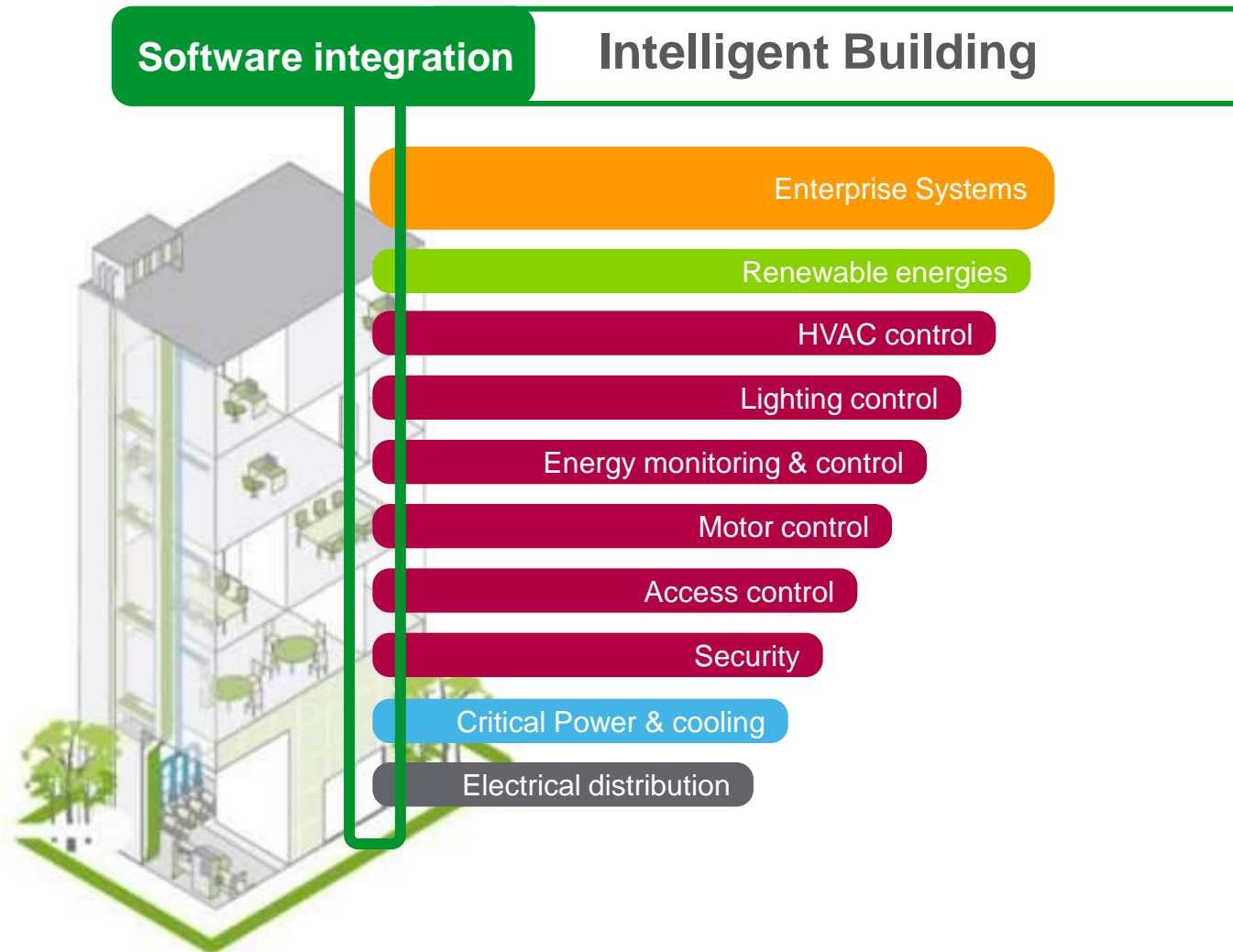
- TCP/IP is rapidly replacing proprietary network infrastructure.
- Driven by the prevalence of IT networks for business.
- Reduced overlay of multiple network installations

● Presentation

- ‘Buried’ head-end no longer acceptable
- Web based & mobile presentation increasingly important
- More usable, non-technical ‘views’ of the system
- Energy reporting

● Legislation

Where are we now ?



What part do Intelligent Sensors play?

- Multiple Systems

- BMS, Lighting, Access, Fire, Security, RFID all deploy sensors of their own
- Also business platforms such as IP phones

- Sensors are becoming more powerful

- Zone control capability
- Open protocol support including IP

- Wireless

- The largest area of development
 - Mesh networks, low power, including solar powered

Where are we Now and ... what's the Future?

● Technology

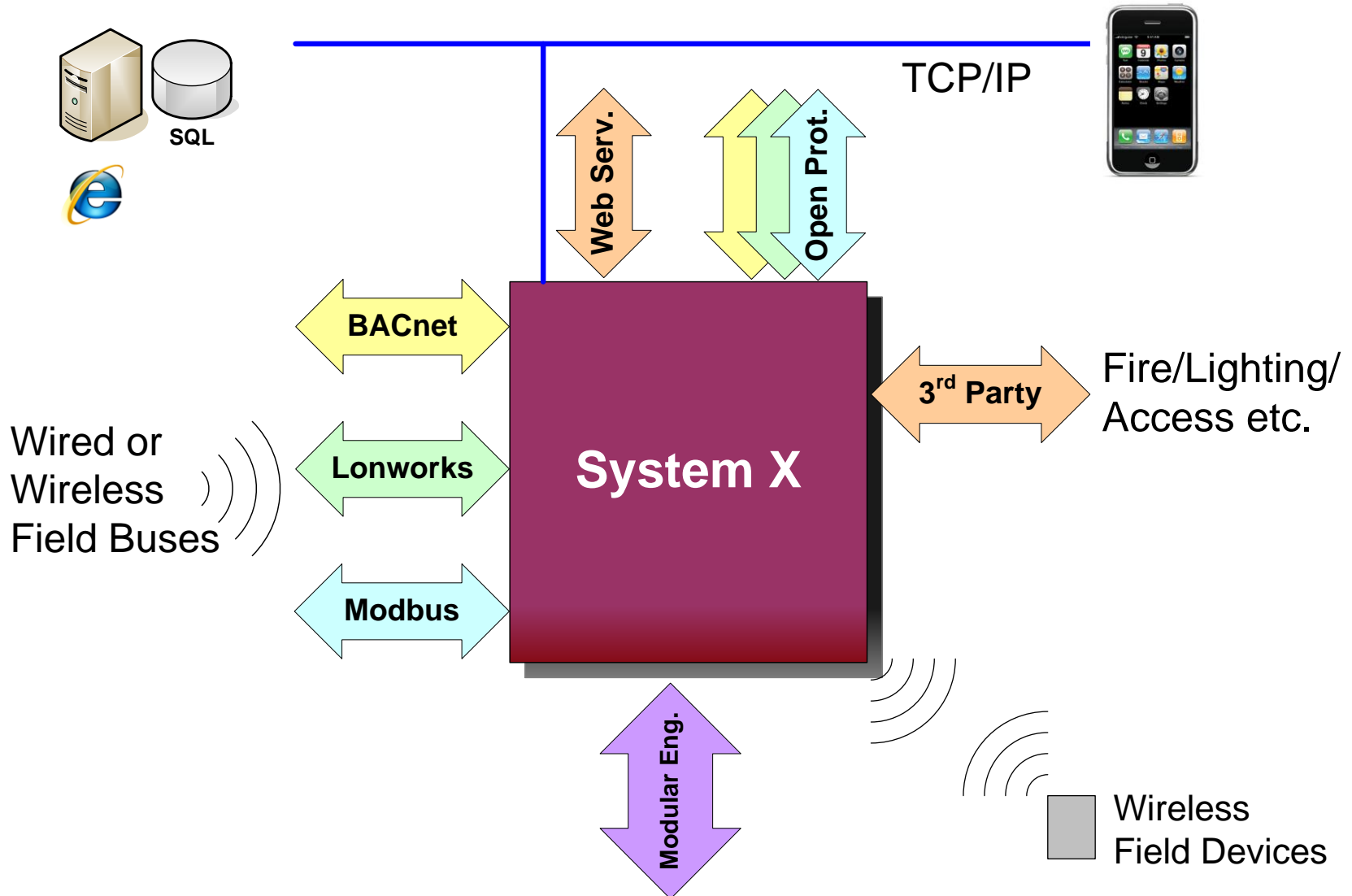
- Support for one or more 'open' protocols widespread
 - Support for multiple protocols from same device
- Capability for translation between protocols inconsistent
 - Driver development or 'plug and play' integration solutions
- IP capability increasing
 - Embraced by more systems, IP to smaller devices, more PoE
- Web serving capability
 - Web services and graphics serving as standard for business connection
 - Hand-held connectivity – iPhone etc.

Where are we Now and ... what's the Future?

● Technology

- Wireless networks and sensor connections
 - Improved standards e.g. 802.15.4 ZigBee
 - Improved power management
- Energy & Lifecycle monitoring
 - Improved data collection and reporting
- Engineering is a significant overhead
 - More 'Plug and Play' using defined building blocks
 - From interfaces between systems to zones, floors and buildings
 - Including control, monitoring, reporting alarms and visualisation

Future iBMS



Questions

