



AHREXPO

2019 EDUCATION PROGRAM • FREE INDUSTRY SESSION



SCOTT BOEHM
Tridium

Building Automation 101

Presented by AutomatedBuildings.com

JOIN US! MONDAY, JAN. 14 • 12:00PM – 1:00PM • LOCATION: B311



Building Automation 101+: Interoperability, Integration, and the Internet of Things

Interoperability

Connectivity

Connectivity



Protocols

Wired

BACnet

LonWorks

Modbus

OPC

OBIX

DALI

OpenADR

ONVIF/PSIA

SNMP

MQTT (Message Queue Telemetry Transport)

AMQP (Advanced Message Queuing Protocol)

Protocol Transition to IP

- Twisted pair replaced by Cat 6
- Security, Encryption

Wireless

Wireless Mesh

Zigbee 3.0

Bluetooth

Z-Wave

- Residential, Light Commercial

EnOcean

Battery-less

BACnet and Wireless

- BACnet International has approved the ZigBee building automation standard

Integration

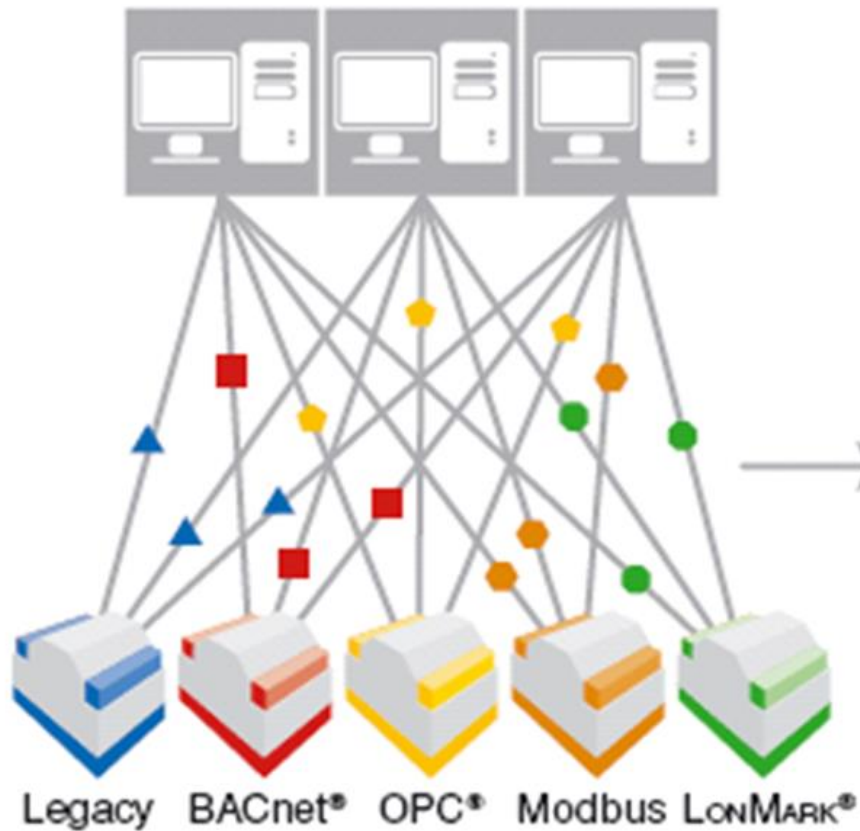
Why Integrate?

Lots of valuable data but locked in silos, so not that useful

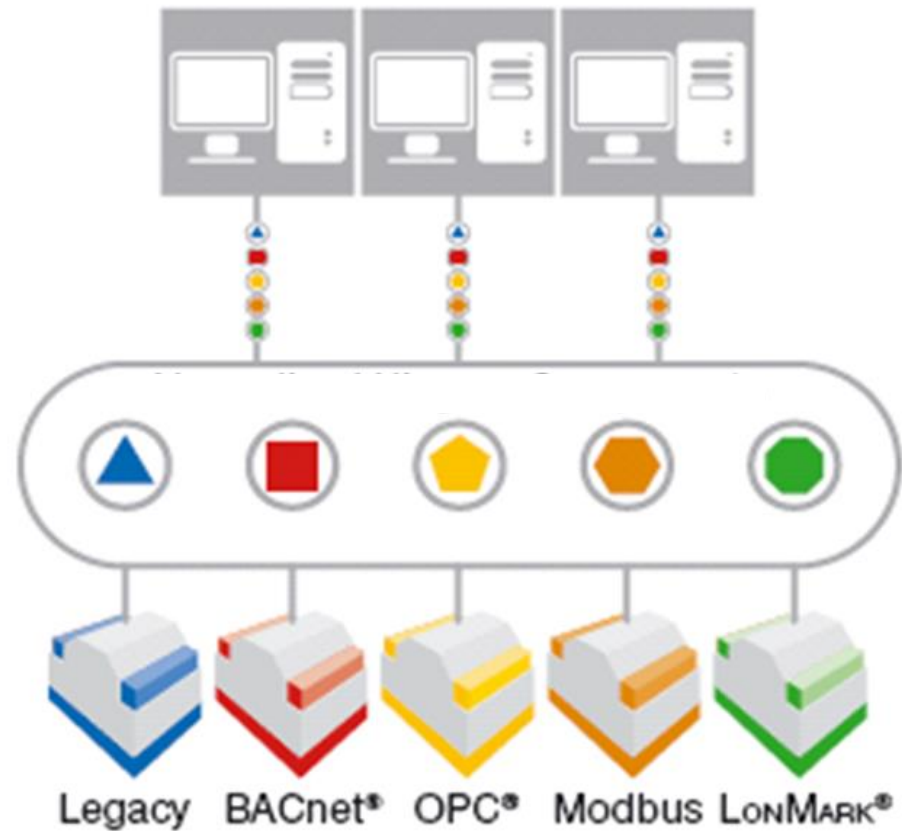


Integration - How to connect all these things

System to System



Automation Infrastructure



Internet of Things



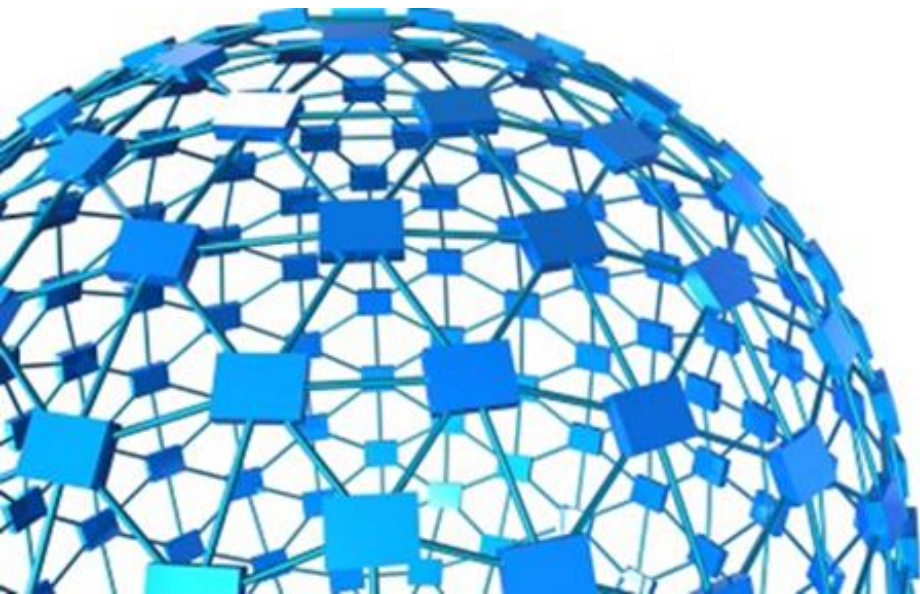
Internet of Things

IoT – The Internet of Things

Coined by Kevin Ashton in 1999

“...the network of physical objects—devices, vehicles, buildings and other items—embedded with electronics, software, sensors, and network connectivity that enables these objects to collect and exchange data”

- Wikipedia



Things that Add Value



Water Conservation

HVAC



Metering



Lighting



Power



Plant



Utility Integration



Alternative Energy



Mobile Devices

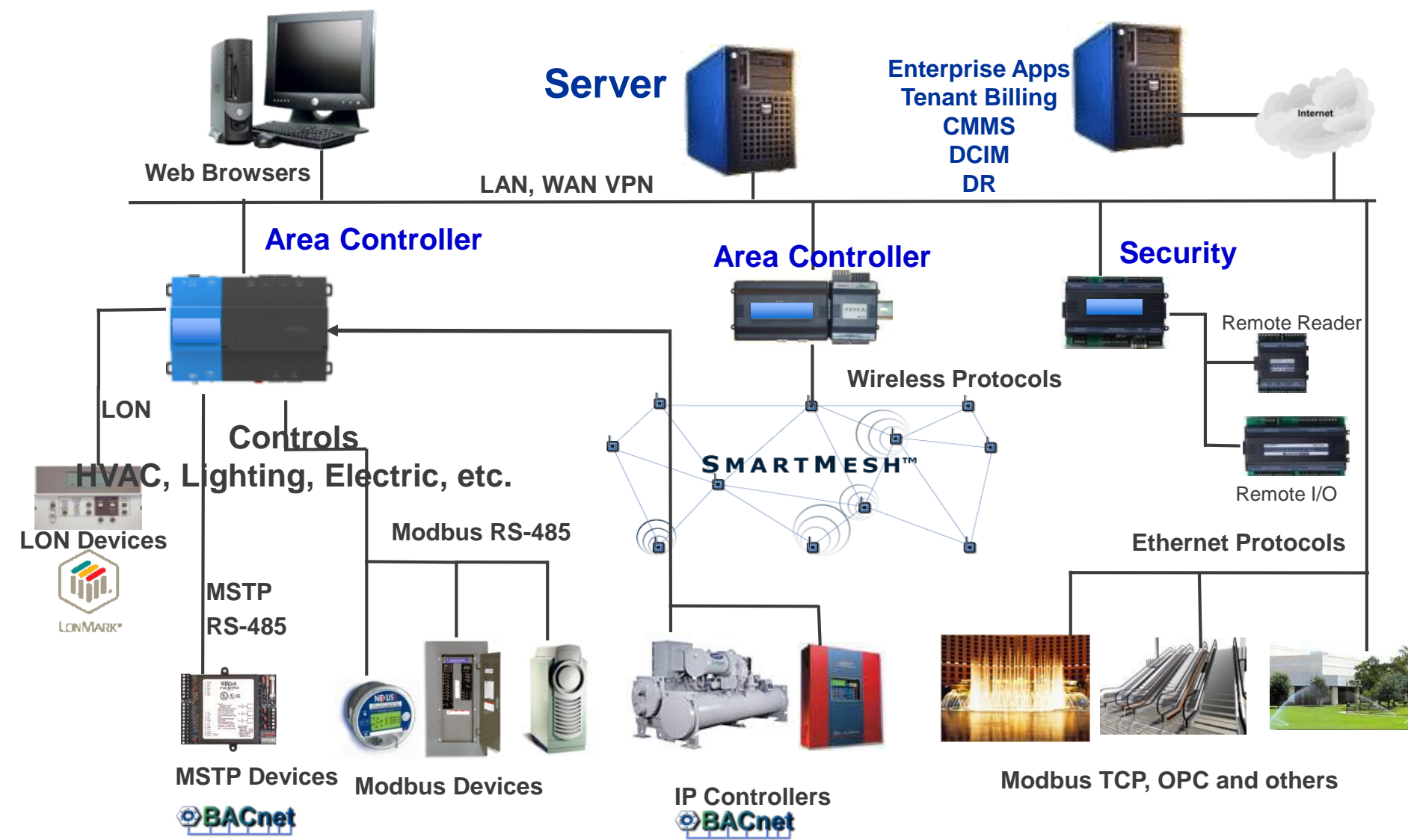


**Video &
Card Access**



Elevator

A Typical BAS Architecture



Other IoT Topics

Big Data

Edge Devices

Analytics

Wireless

Cloud Services

Questions



Connecting “things” results in LOTS of data

[illegible]

Finding what you need can be difficult ...



... so we need Analytics – 24/7

Analytics can help find the needle

- Works 24/7
 - Identifies patterns, trends and exceptions
 - Overcomes the skilled resource issue
 - Provides actionable insights
- 



THANKS!

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