

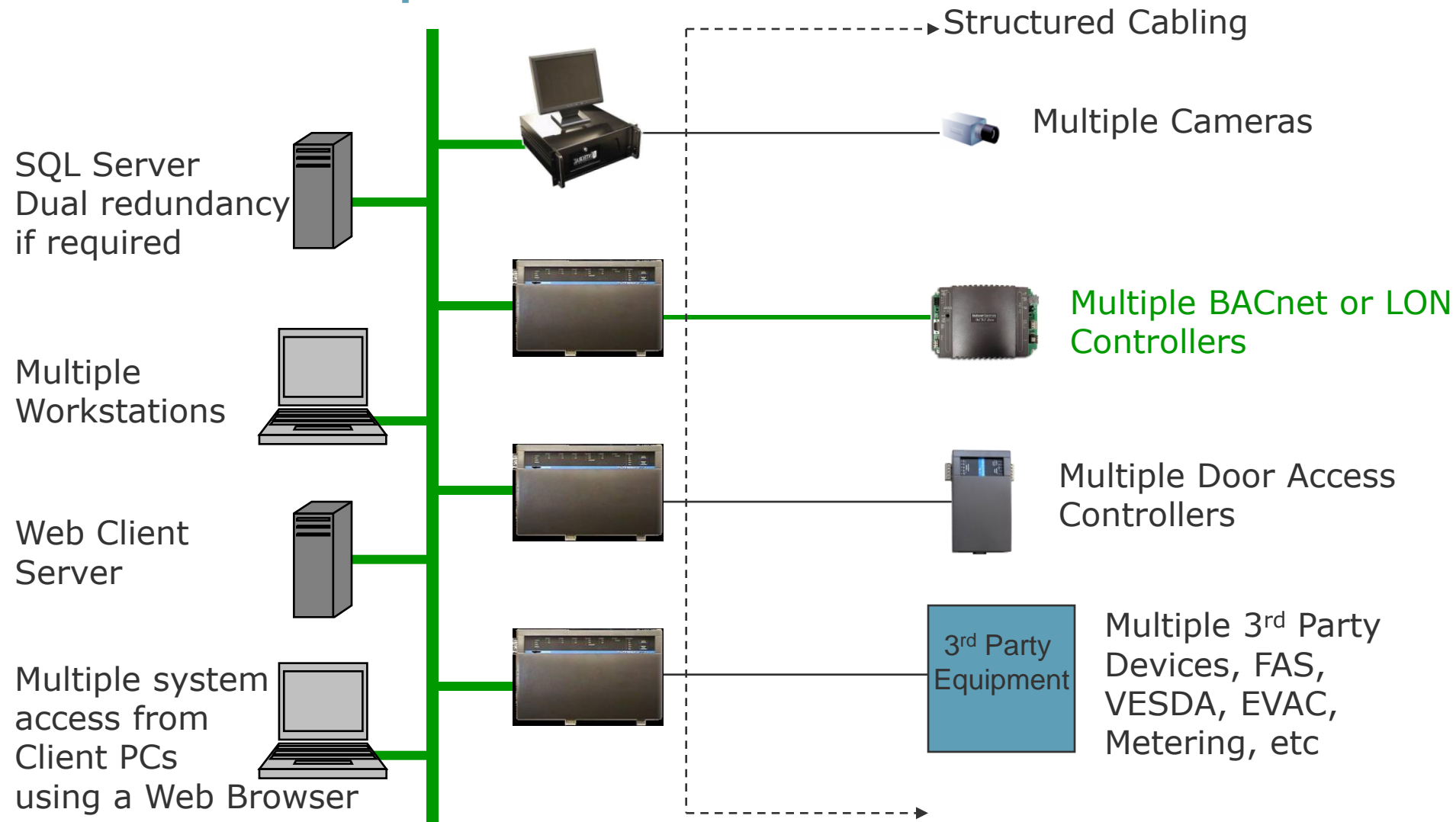
Integrated Systems for Intelligent Buildings



Intelligent Cities Conference
January 2009
King Abdulaziz Historical Hall
Umm al-Qura University
Abdiah, Makkah

Kendall Ordish
Manager, Business Development
TAC-MEA

Fibre Optic backbone



Integration + BACnet or LON over Ethernet TCP/IP

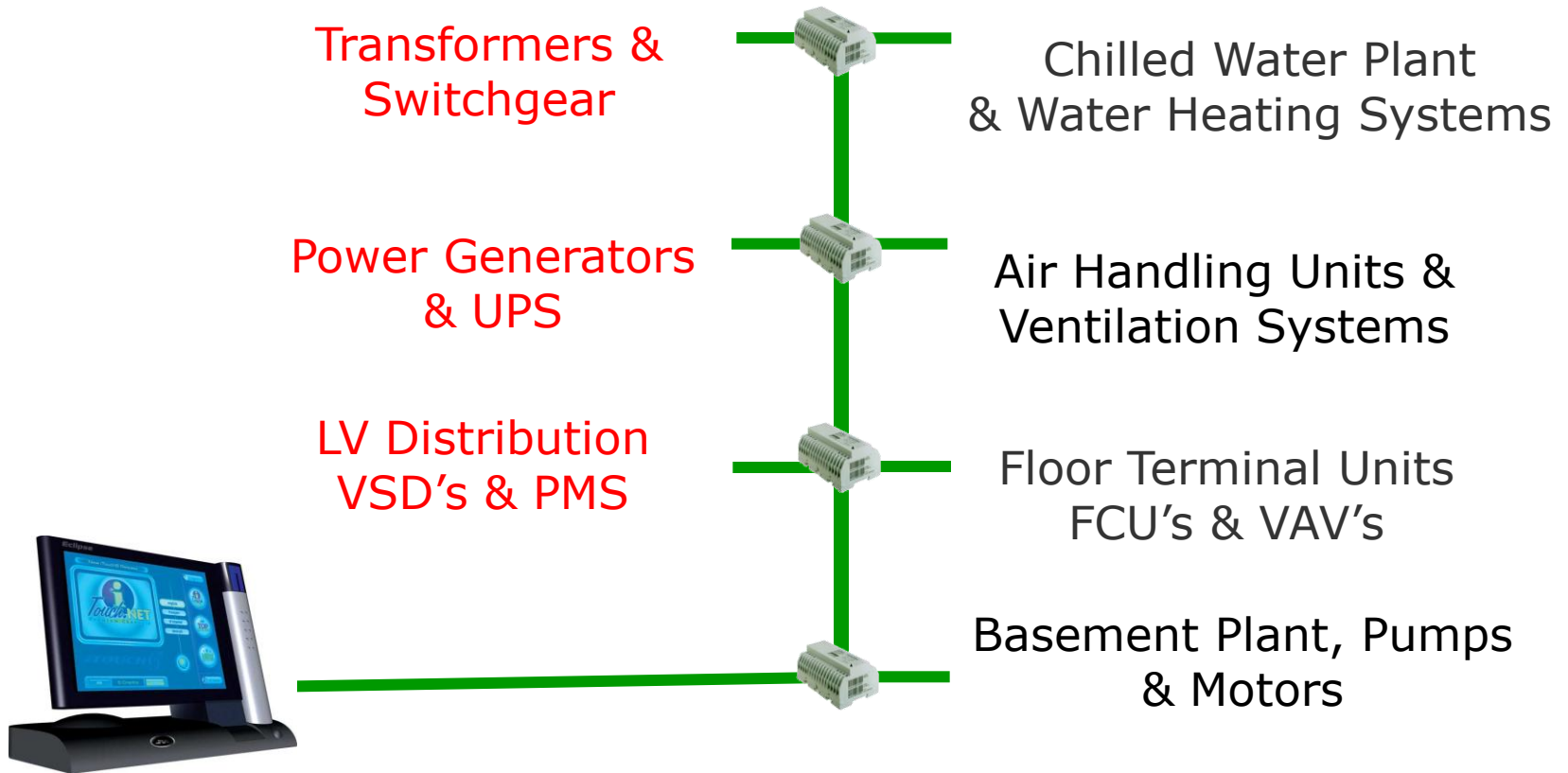
Mechanical

Electrical

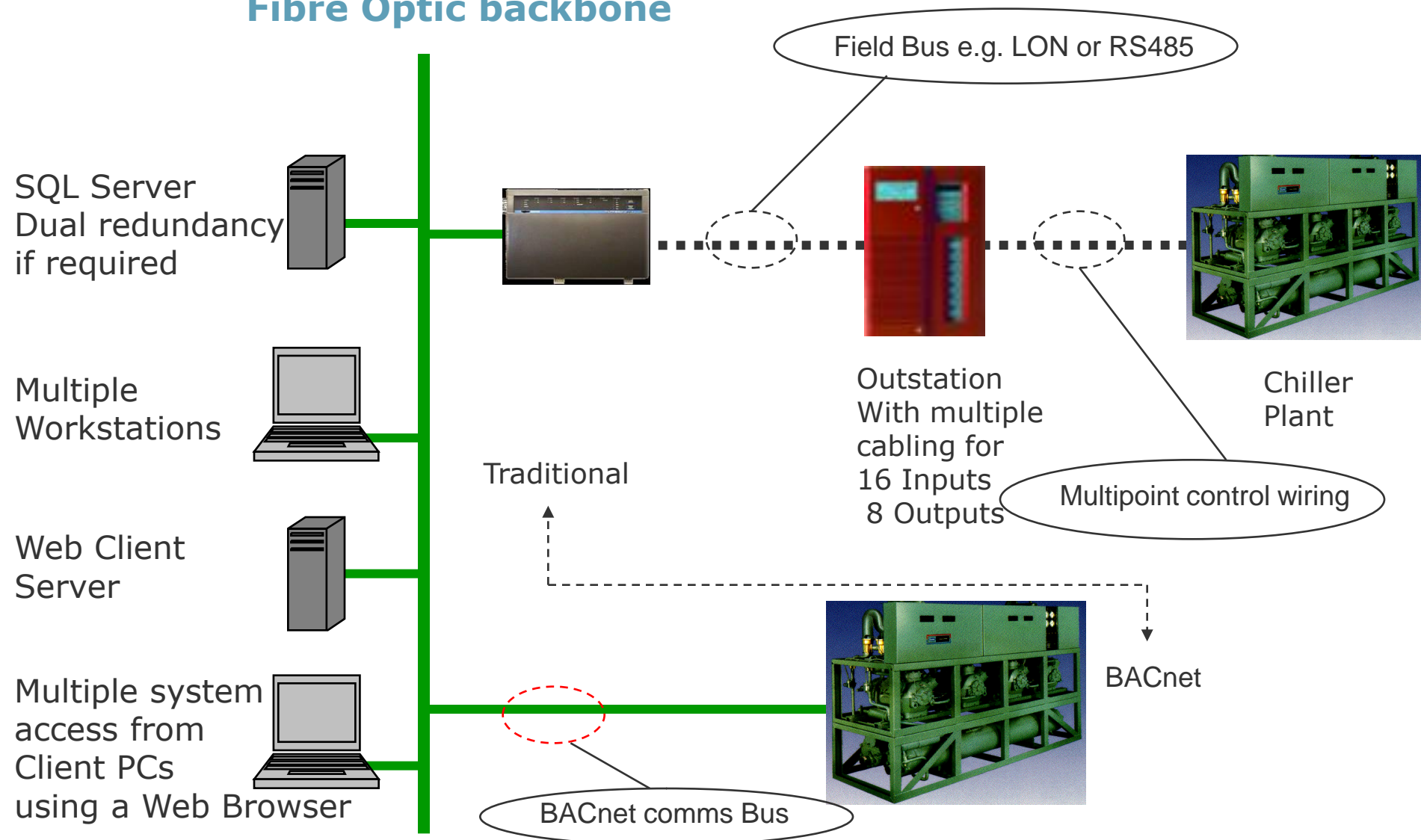
Low Current

Chilled Water Plant & Boiler Plant	Transformers & Switchgear	Building Automation & Energy Management
Air Handling Units	Standby Generators & UPS	Security Systems & CCTV Surveillance
Floor, VAV/FCU Systems	LV Distribution Systems	Fire & Life Safety Systems
Ventilation Systems	Variable Speed Drives	Access Control & personnel management
Pumps & Motors	Power Metering Systems	Lighting Management

Essential equipment that will form part of an Integrated Solution for a Building



Fibre Optic backbone

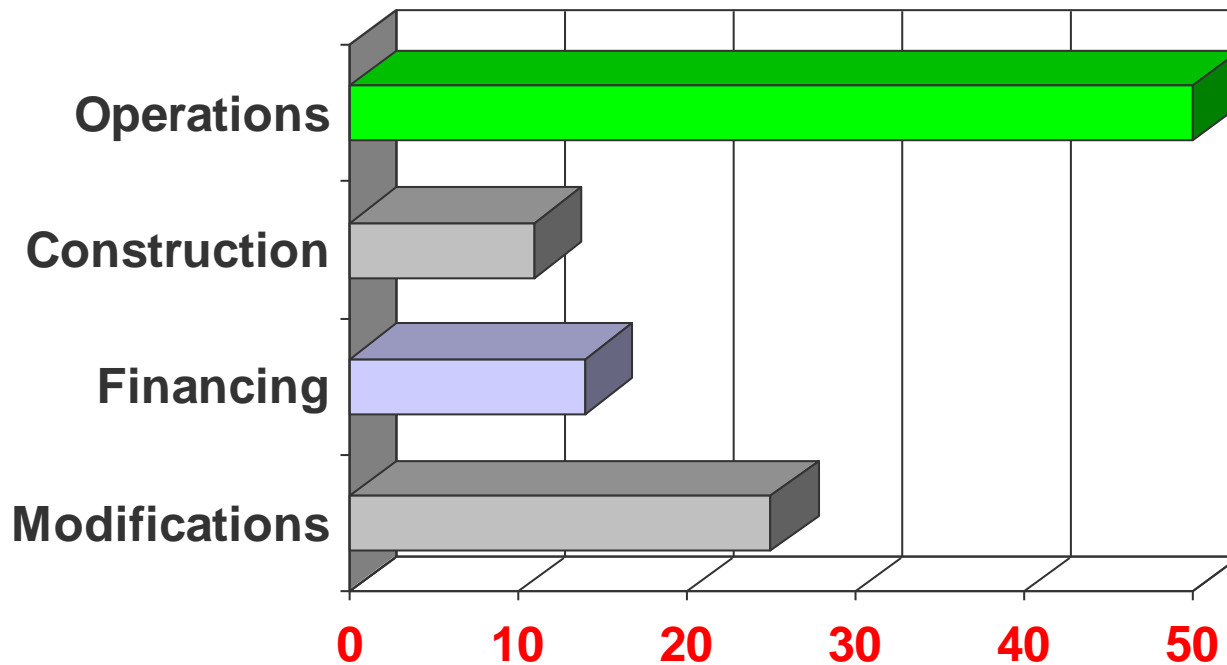


BACnet over Ethernet TCP/IP

Costs Benefits

Consider the Building Life Cycle

In the 30-year life of your building, what costs the MOST?



Construction Design Process

Static Element Design Responsibility

Dynamic Element Design Responsibility

Building Shell-Architect
Steelwork-Structural Engineer
Landscaping-Specialist Designer

HVAC-Mechanical Consultant
Electrical- Consultant Engineer
Low Current Systems - ?

Construction Cost Ratios
Static to Dynamic ?

Construction Cost Ratios
Dynamic to Static ?

50/50

40/60

30/70

70/30

60/40

50/50

Costs Benefits

Building Life Cycle Benefits

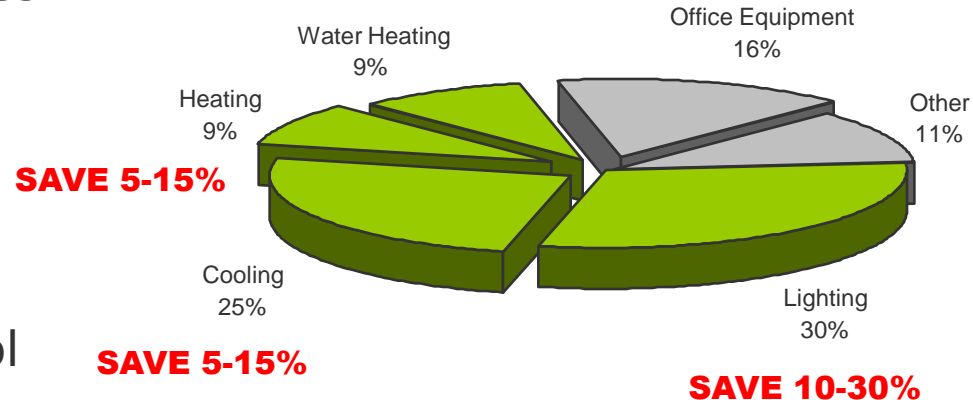
- **Decreased maintenance costs**

- Centralized monitoring of several buildings from one location reduces labor costs
- Future-proof

- **Maximized energy savings**

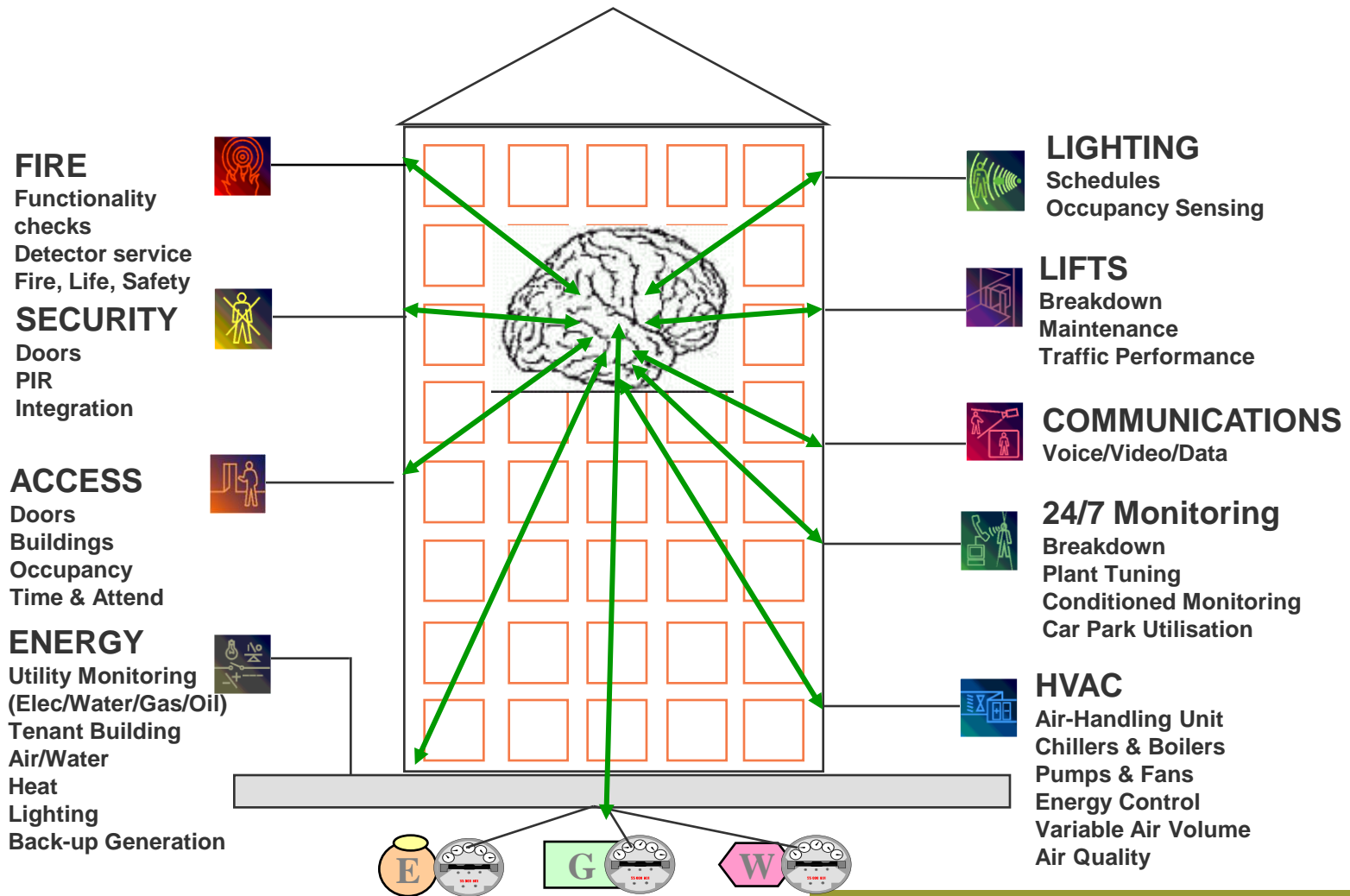
- Energy management and control systems
- Demand-controlled ventilation
- Occupancy sensors for lighting, HVAC and security

Average Energy Use in Commercial Building

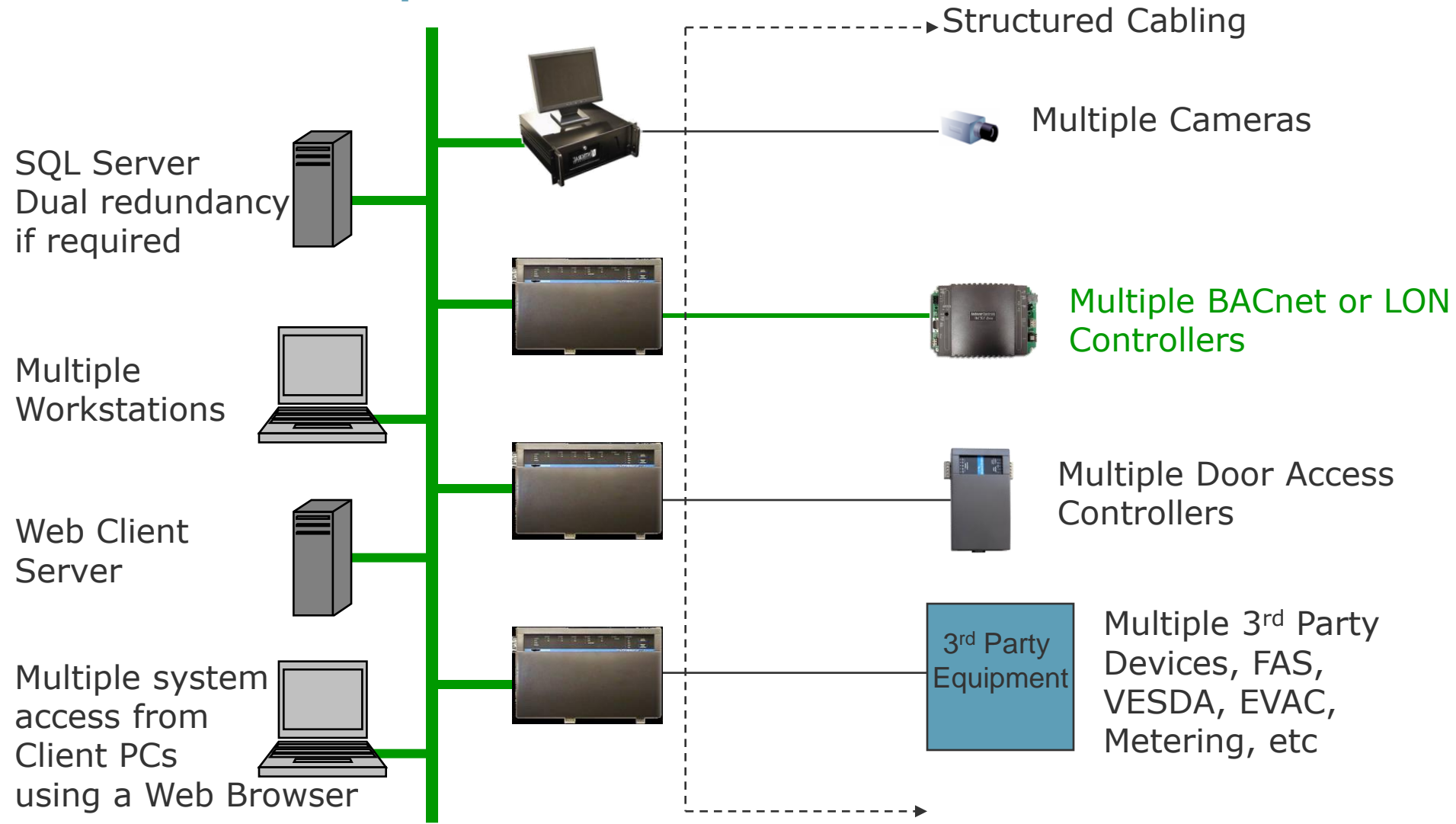


Labor and Energy savings can be up to 30% based on 30 years life of a building

The Intelligent Building ?



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Integrated Systems for Intelligent Buildings



Canary Wharf Docklands East London
Over 14 million square feet
30 buildings
90,000 employees/visitor per day