

# Converged IP Solutions



# Service Birmingham goals and objectives

Service Birmingham is a ten year joint venture between Birmingham City Council and CAPITA formed in 2006

goal:

- to deliver a world class ICT service, enable transformation, and realise savings in excess of £1.0 billion

key objectives:

- up front investment in ICT infrastructure
- to provide transformation skills, capacity and capability
- the development of ICT staff skills

# Key results to date ICT transformation

## Technology investment

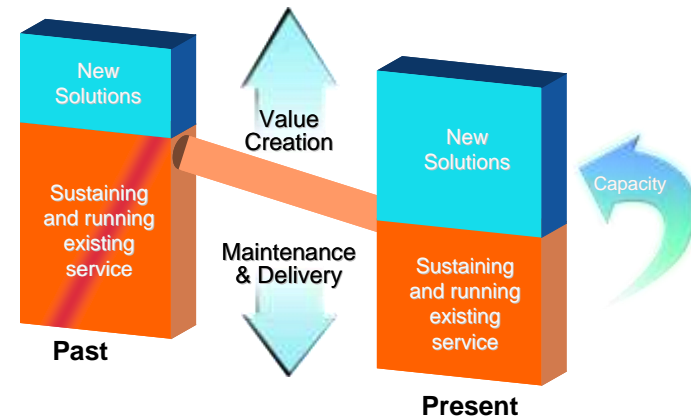
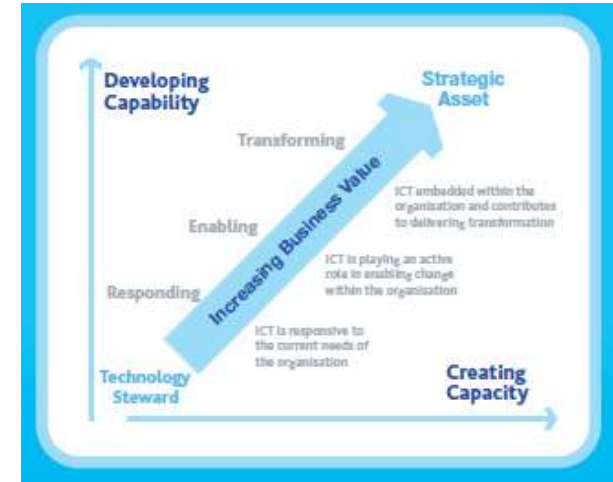
- £2M single state of the art IBM enterprise class server technology
- desk top refresh
- a single world class MPLS network
- implemented SAP (550 applications rationalised down to 150)

## Service development

- seven IT help desks consolidated into two
- certified sap customer competency centre
- ISO 20000 IT service management standard

## Organisational and people development

- ICT fully centralised across council in one organisation
- £ 2.7m investment in staff skills development



# Next stage in evolution-IP Convergence

Building three new services which:

- exploit the present managed data network investment
- enable mobile working and street based connectivity
- exploit the universal adoption of the Internet Protocol (IP) for communication

The new services being developed are:

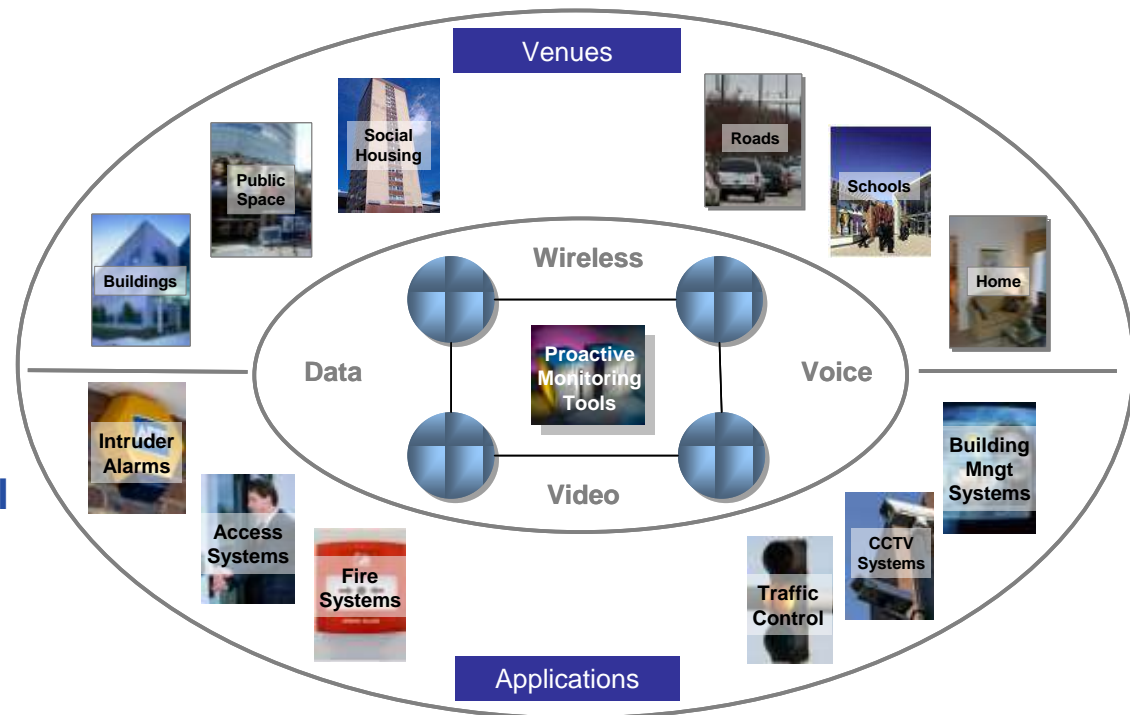
1. using the network for voice
2. providing wireless connectivity to extend the reach of the network
3. using the network for video (e.g. CCTV)

**Next step in everything on-line and pro-actively managed**

# Converged IP network definition

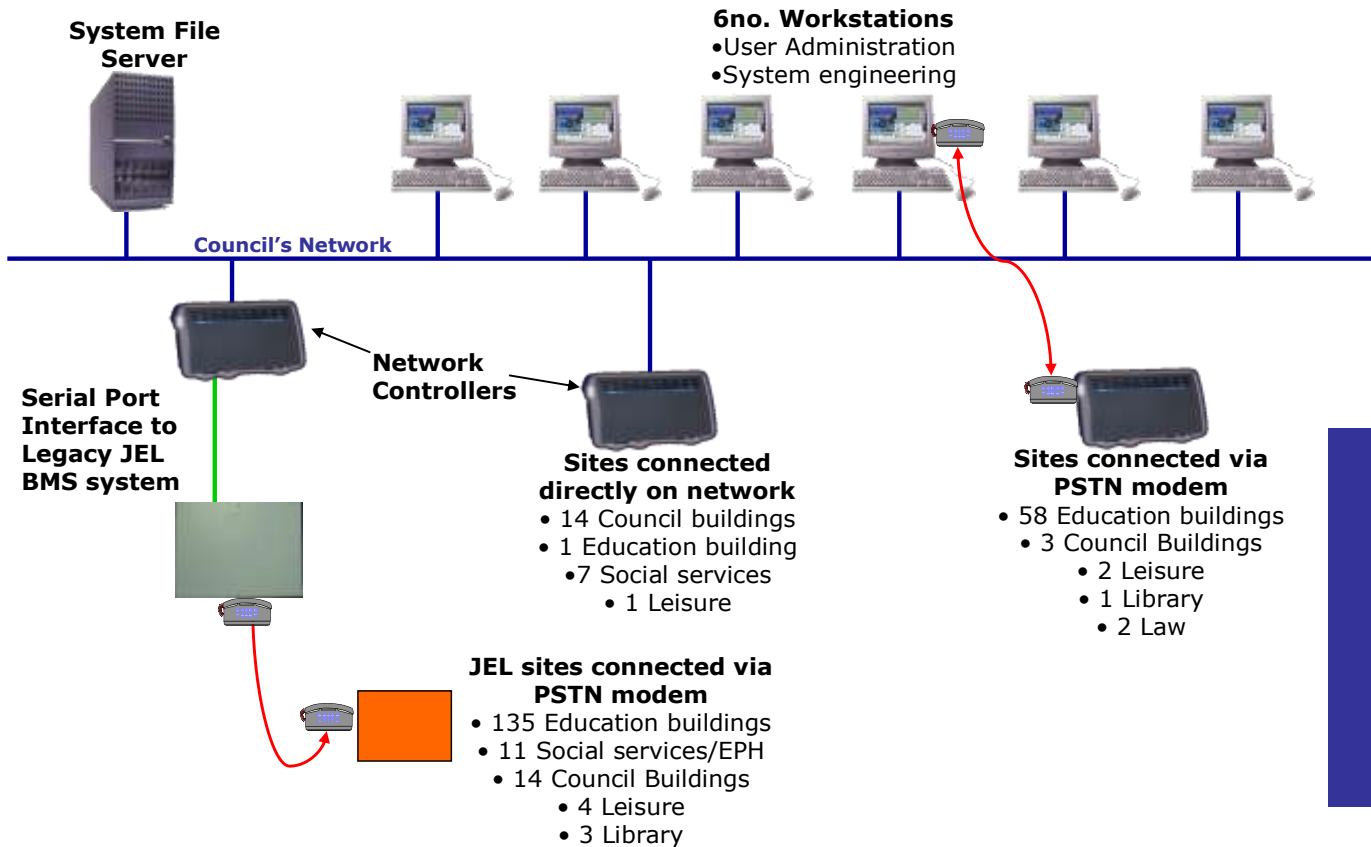
**A single and resilient network supporting data, voice and video within or between buildings or facilities, for the following disciplines**

**Audio Visual**  
**Digital Signage**  
**Telephony (VOIP)**  
**Building Management**  
**Heating, Ventilation & AC**  
**CCTV**  
**Security and Access Control**  
**Fire Detection**  
**Power Distribution**  
**Lift & Escalator Control**  
**Other IP Devices (e.g. PA systems)**  
**150 sites/430 schools/50 libraries**



# Example IP network opportunity

## Birmingham City Council Continuum BMS Network



### Many other discrete networks

- Lifts
- Alarms & Alerts
- Concierge
- Lone worker

# Library of Birmingham-Intelligent IP Building



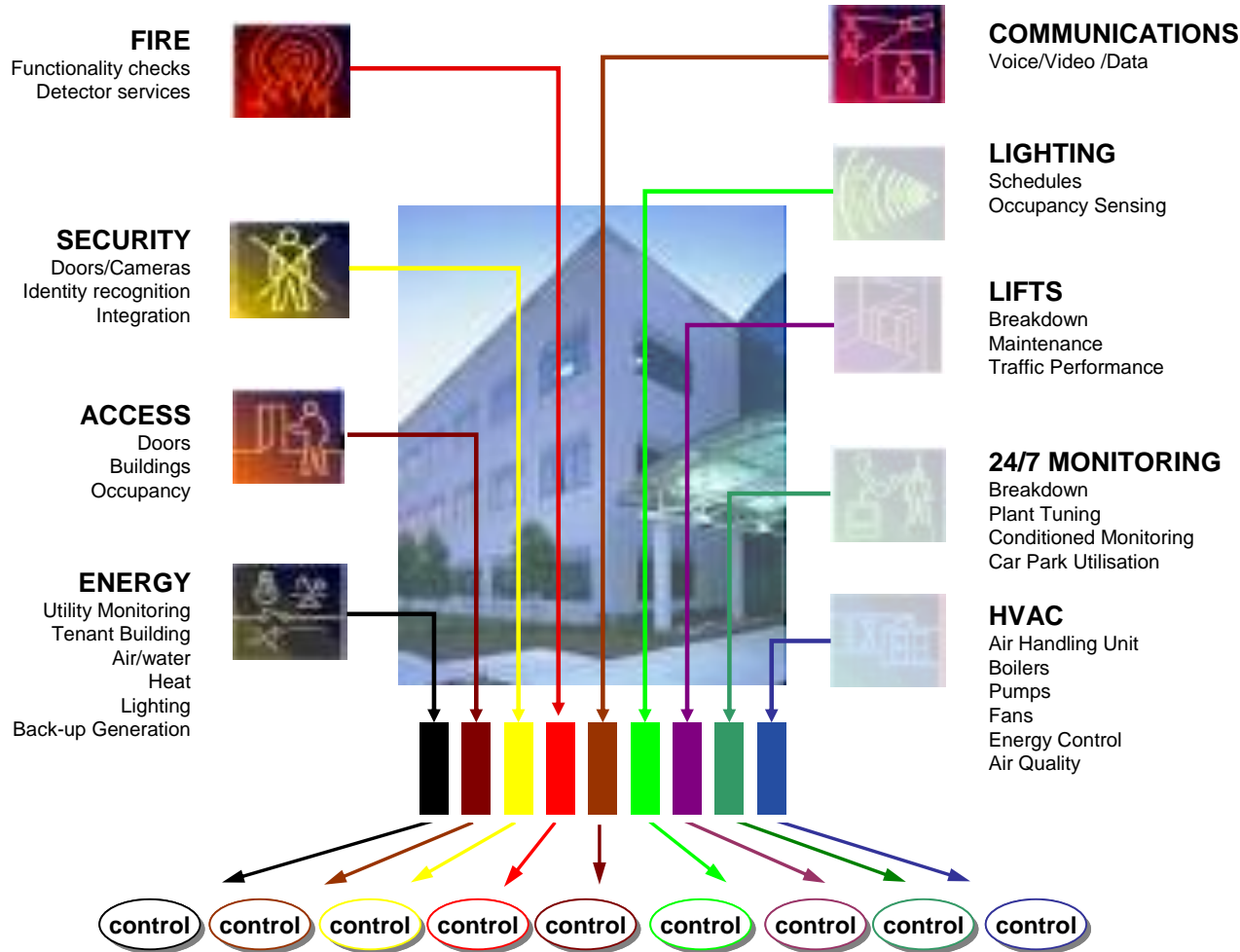
£193M project starting this year

31,000sq m capable of handling 10,000 visitors per day

Service Birmingham developing functional requirements for main contractors

- Requirement for BMS managing climate control for protecting world famous archives
- Totally integrated solution controlling heating and lighting with security and access control

# Traditional approach



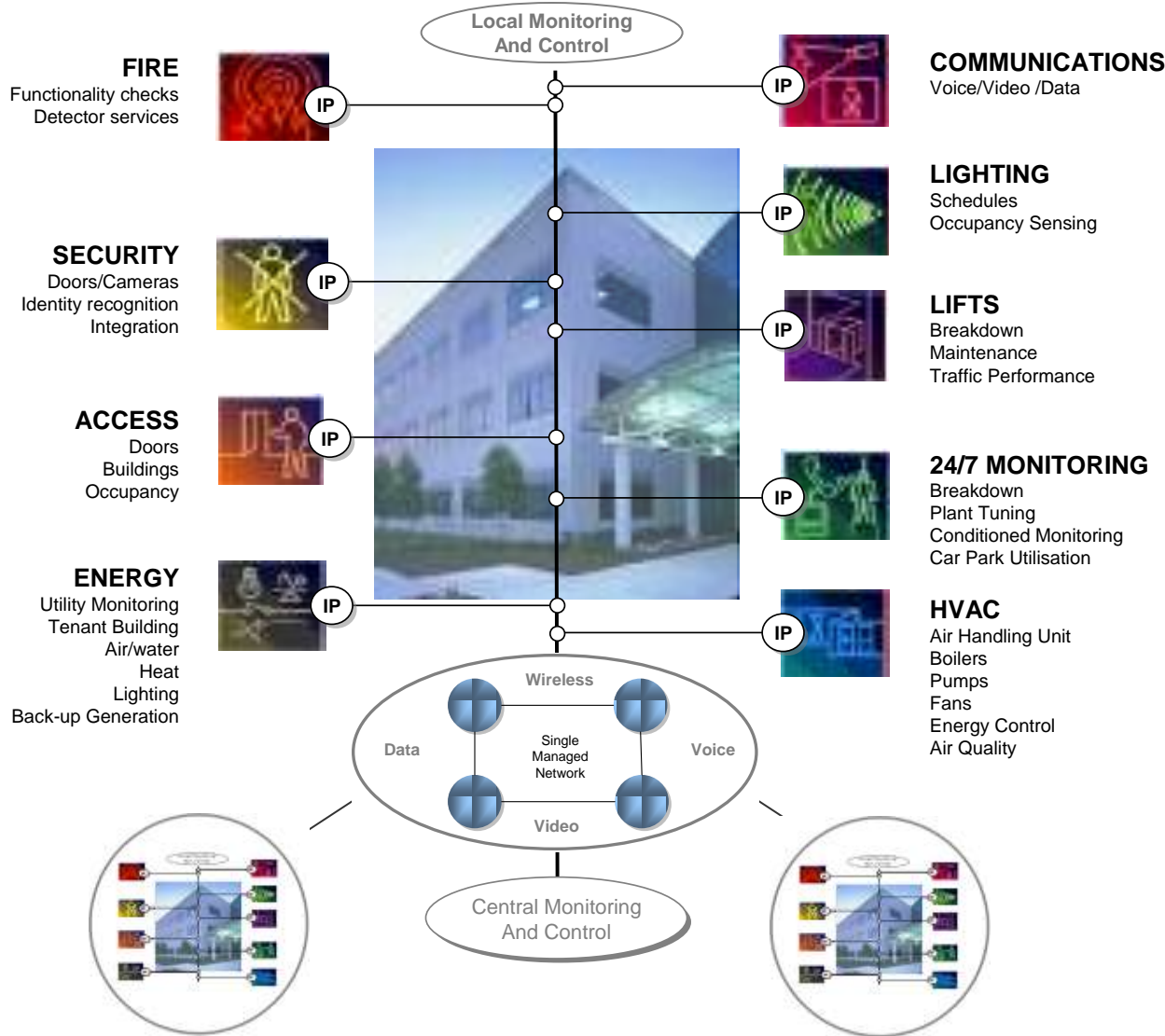
## Building systems implemented one by one

- HVAC, Lighting, Security, Fire, Electrical Distribution
- Building systems operate in silos
- Little to no communication or coordination between systems
- Limited use of Council network

## Result

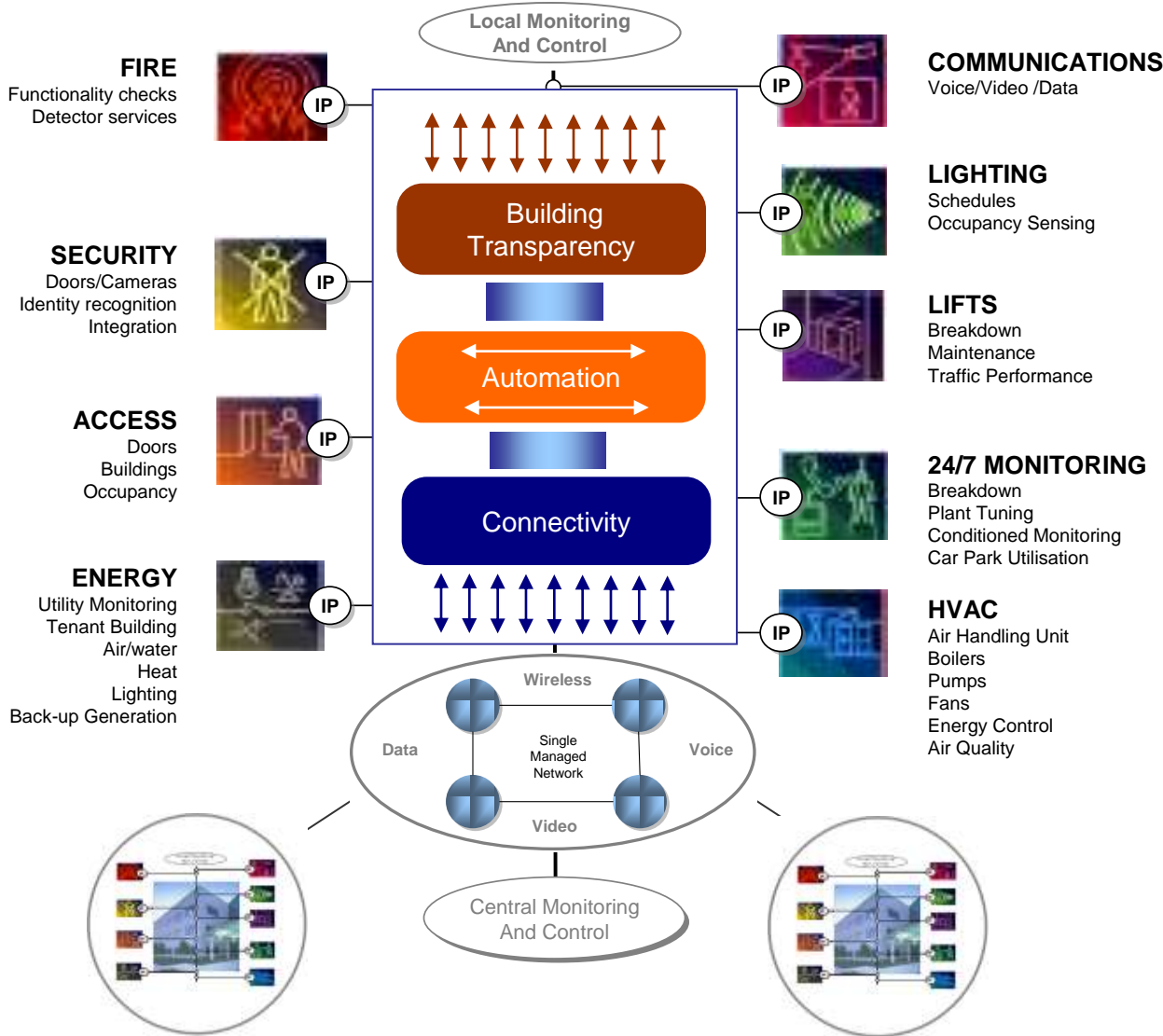
- Multiple interfaces, vendors and service providers
- Un-coordinated system behaviour
- System incompatibilities
- Operational inefficiencies
- Limited energy savings

# Converged and integrated approach



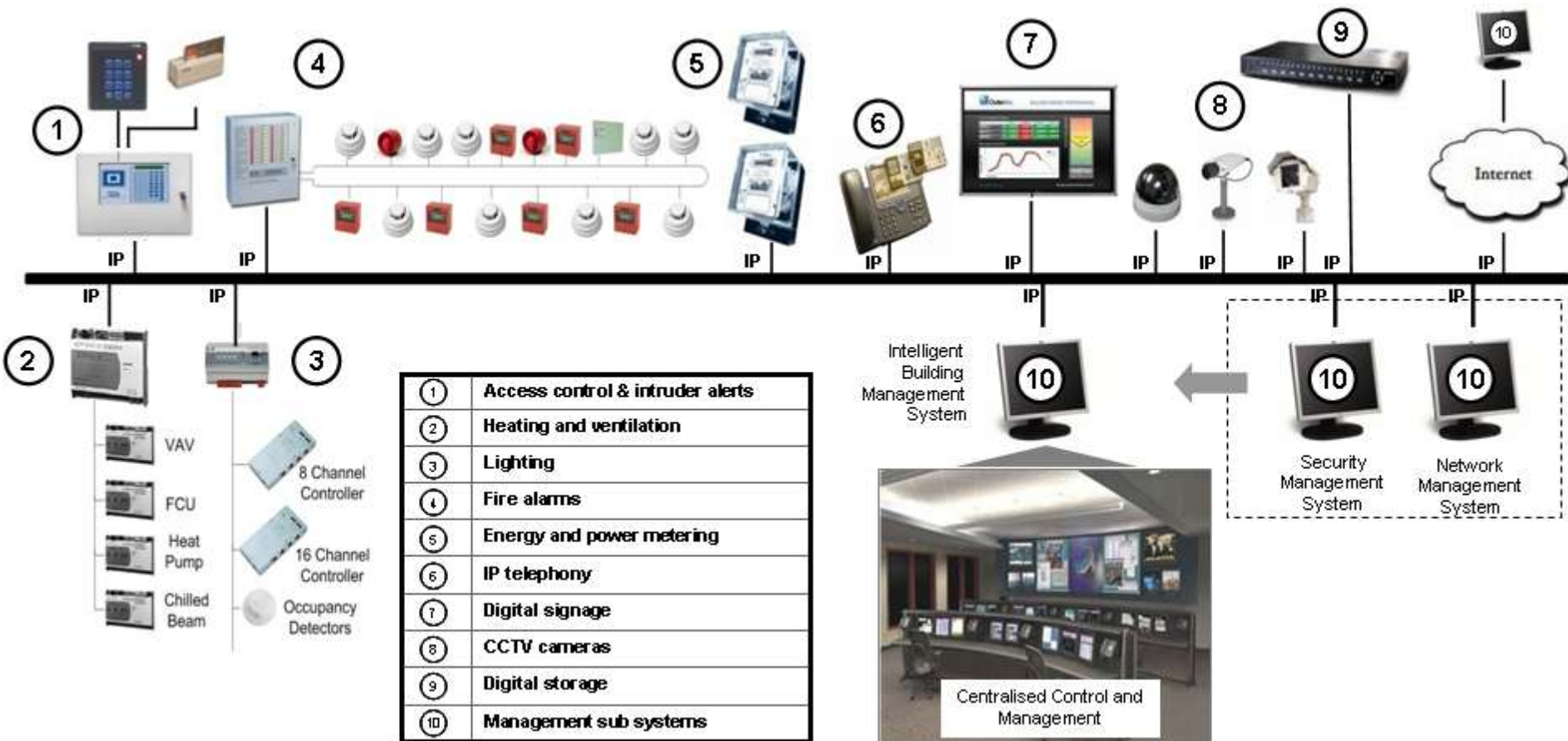
- Increasingly popular, this approach integrates some or all of the building systems
- Based on the concept of using one common IP (Internet Protocol) Network to connect all systems within a building or number of buildings
- IP is now the de-facto global standard for networks
- Enables sub systems to communicate between each other, either as an open protocol or via protocol interface devices
- This approach provides the opportunity for multiple buildings to be managed in a more advanced way
- Reduced capital and operating expenditure

# Multiple levels of integration and value

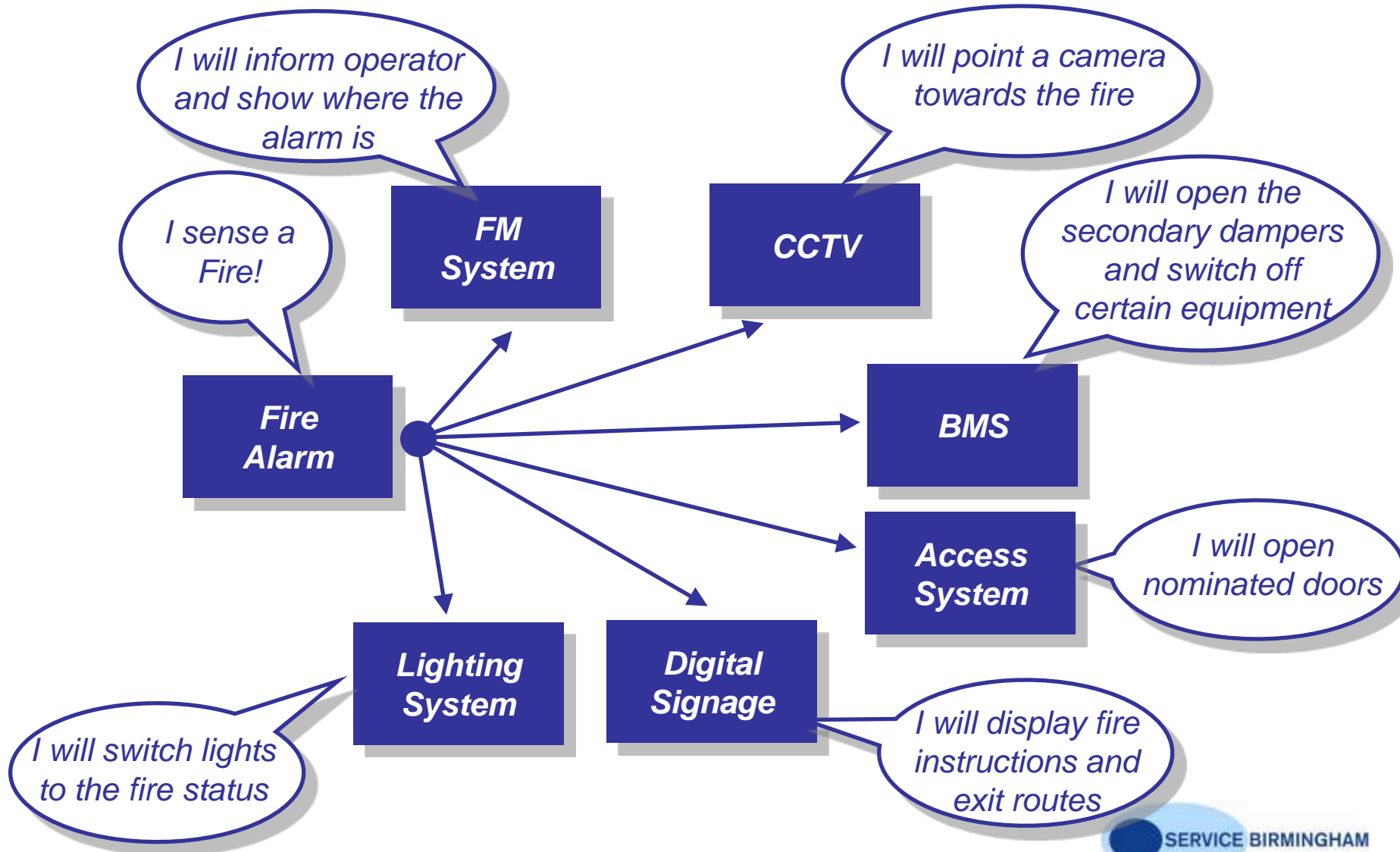


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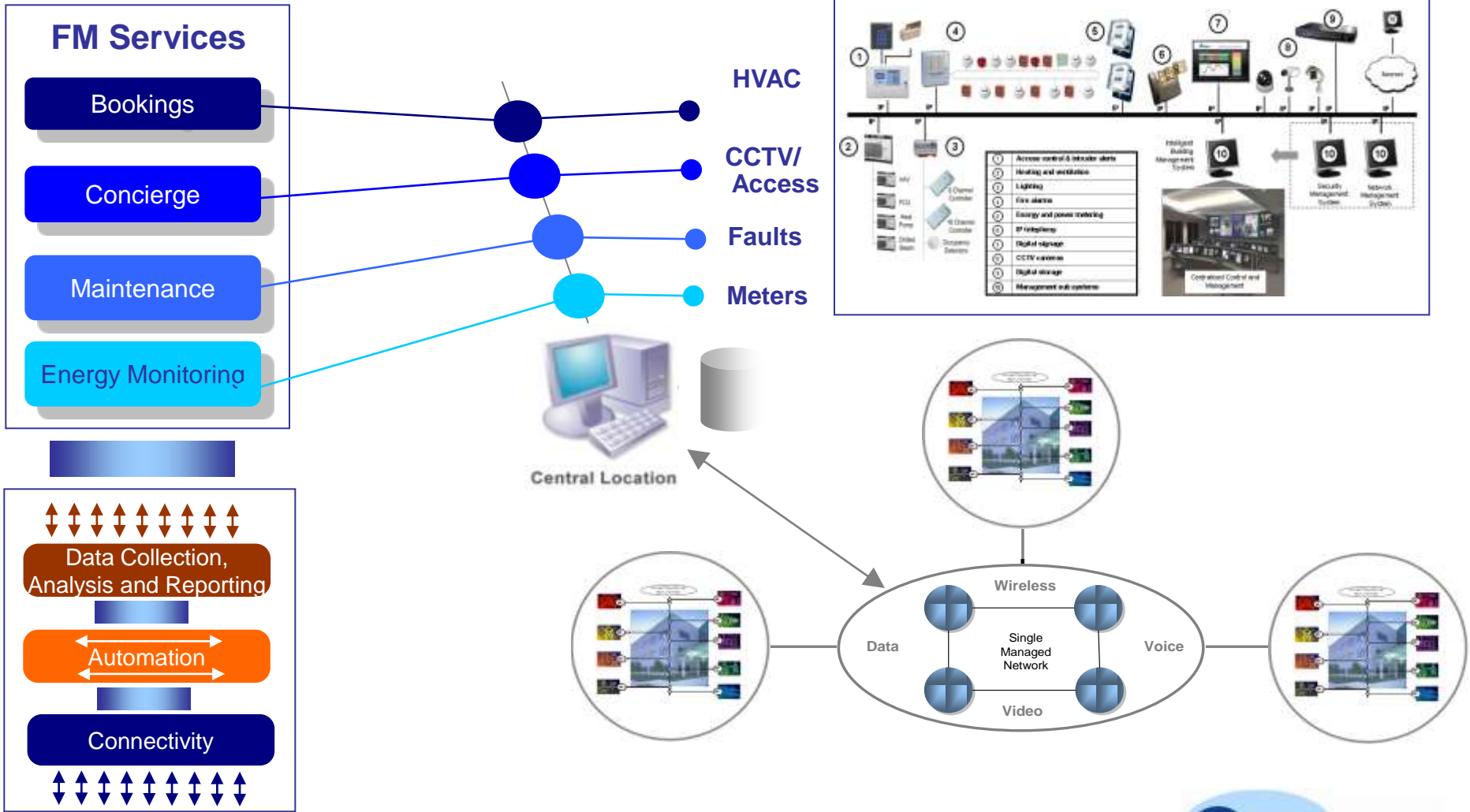
# Level 1 integration - connectivity



# Level 2 integration – automation 'cause and effect'



# Level 3 integration – building transparency data collection, analysis and reporting



# Advantages of an integrated solution

- **Reduced Capital Expenditure**
  - A single software suite for all building management and security systems
  - Reduced workstations – not a set per discipline
  - Common field devices – PIRs for intruder, lighting control etc
  - One set of dynamic floor plan graphics
  - One common IP network installed early in the construction plan which enables systems to be commissioned earlier in the project
  - One project management team can be employed – less cost, risk and better coordination
  - One containment system
- **Reduced Operational Expenditure**
  - Labour cost savings/productivity gains resulting from enhanced operations (e.g. cause and effect), reduced number of operatives and one support team for multiple disciplines
  - Better understanding of all facility operations through single management system and improved reporting
  - Improved comfort and energy consumption savings

# Challenges for Converged IP systems

Shared services LAN/WAN infrastructure need to be designed and managed for security as any corporate network should be

- Convergence between Facilities Management and IT Department may raise challenges
  - Analogous to converge of voice and data communications , budgets and departments

Level 2~3 integration opens converged IP networks to web browser management

- Corporate sabotage and physical threat to staff
- Fake entry to single time challenge/response door entry systems
- Tampering with building temperature below legal limits

Benefits are apparent and market is moving to IP but careful management of converged networks and services needs full security policy implementation by IT professionals

# Example savings

- 8 floors of office and HQ facilities
- Max 1,500 people capacity
- Central core 10M from edge 3 sides and 16m on the 4<sup>th</sup> side
- 13,500 sq mtrs
- 80:20 net to gross on its floor area
- Plant on roof and in the basement

## Total Cat A/B cost

|             |            |
|-------------|------------|
| Traditional | £1,406,912 |
| Integrated  | £1,066,370 |

24% savings

Major cost advantage is that structured cabling moved to Cat A stage, becomes enabler for other systems to utilise, therefore reduces proprietary cabling and associated costs

Greater project hierarchy efficiency

## 30 year life cycle cost analysis

|             |                    |
|-------------|--------------------|
| Traditional | 90p/Sq M per annum |
| Integrated  | 57p/Sq M per annum |

36% savings

Savings are predominately derived from saving in labour costs and reduced energy usage

Integrated approach is enabler for faster and more efficient maintenance

# Hammerson Leicester case study