BACnet from ABB Cylon®

Integrating and optimising
building control systems

- Energy Management
- BACnet standard
- One architecture

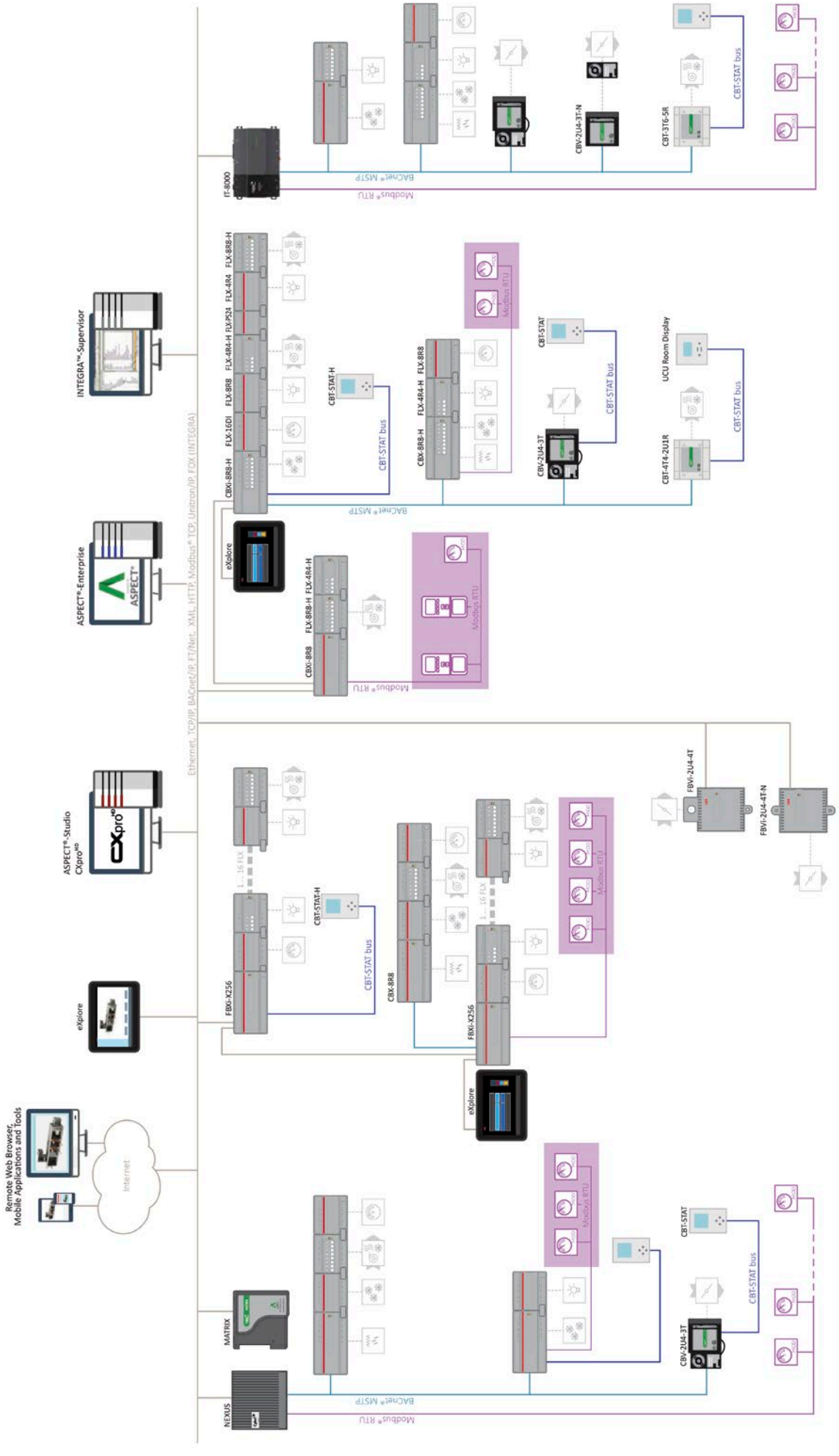
INTEGRA™-Supervisor
ASPECT®-Enterprise
ASPECT®-Studio
CXpro®
eXplore
Remote Web Browser,
Mobile Applications and Tools
Internet
Ethernet, TCP/IP, BACnet/IP, FT/Net, XML HTTP, Modbus® TCP, Unitron/IP FOX (INTEGRA)
IT-8000
CBXi-8R8-H
FLX-16DI
FLX-8R8
FLX-4R4-H
FLX-PS24
FLX-4R4
FLX-8R8-H
CBT-STAT-H
CBT-STAT bus
CBX-8R8-H
FLX-4R4-H
FLX-8R8
CBT-STAT
CBV-2U4-3T
UCU Room Display
CBT-4T4-2U1R
CBV-2U4-3T-N
CBT-3T6-5R
FBVi-2U4-4T
FBVi-2U4-4T-N
FBXi-X256
CBX-8R8
MATRIX
NEXUS
Modbus® RTU
BACnet® MSTP
Modbus RTU
CBT-STAT bus
MKTG0140 v71

ABB Cylon® Smart Buildings Solutions
Recognized leadership in development of building energy management systems

For over 35 years we have invested in the field of HVAC in research and development to ensure that our products and services meet the real needs of its customers globally.

ABB Cylon® Solutions
ABB Cylon® Smart Building Solutions' comprehensive Building Automation and Controls portfolio integrates key building systems such as energy meetering and management, HVAC control, HVAC drives, lighting, fire safety, security, and workplace management.

ABB Active Energy Mangement
ABB Active Energy Management provides cloud-based, real time energy management services, tailored to the specific requirements of each customer. This innovative service allows our customers to monitor, analyse and optimise the energy consumption of commercial buildings, regardless of geographical location.

BACnet (Building Automation Control Network) is a standard protocol that enables various manufacturers' control systems to interoperate.

The BACnet protocol sets out a model for the interaction and communication between various devices in building control systems. This model creates an open system that facilitates the integration of BACnet systems within a building. It allows users to expand or upgrade using BACnet equipment or technology from different suppliers.

Increasingly, control system designers are developing devices that only speak and understand BACnet – it is their 'native' language. Building control systems that use the Native BACnet infrastructure are more efficient and easier to manage.

ABB Cylon® BACnet hardware and software products are specifically designed to work with the BACnet protocol. The basic elements of the protocol are set out in the following pages.

ABB Cylon® BACnet Model

The BACnet model is an open standard that has been developed specifically to facilitate the integration of building control systems.

BACnet can be easily extended, so a vendor can provide new functionality that can be accessed in exactly the same way as defined in the standard, this means that BACnet can be developed to meet the changing needs of customers.

The elements of the model are illustrated below: The BACnet protocol defines various network types which act as the transport system for BACnet instructions or requests. To join different BACnet network types within any one system, ABB Cylon® BACnet routers are used. These allow instructions or requests to travel across networks without interruption or change.

BACnet devices – these include user interfaces, controllers or gateways that facilitate the flow of information across the system.

Objects – representing information or data. Each object has certain properties that allow other BACnet devices to read or change information about that object.

BACnet services – are actions that BACnet devices perform, examples include data transfer between one device and other, creating alerts or prompts when a specified change occurs in the system.

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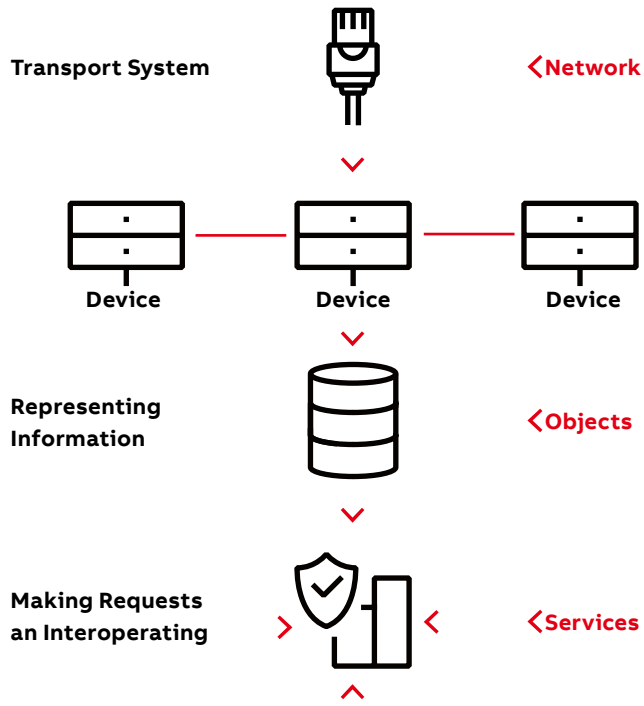
By deploying the BACnet infrastructure from ABB Cylon®, users are not locked into using control systems from any one supplier, giving them more choice and more control.



BIBBs and PICs
The BACnet protocol outlines a format that consulting engineers, suppliers, and customers can use in determining which devices best support ‘interoperability’.

BIBBs (BACnet Interoperability Building Blocks) provides a clear way to identify which functions a device can support in the key areas of ‘interoperability’.

PICS (Protocol Implementation and Conformance Statement) is a standard way for suppliers and manufacturers to provide information about BACnet devices and what functions they can support. In turn, this determines the level of ‘interoperability’ they can provide.

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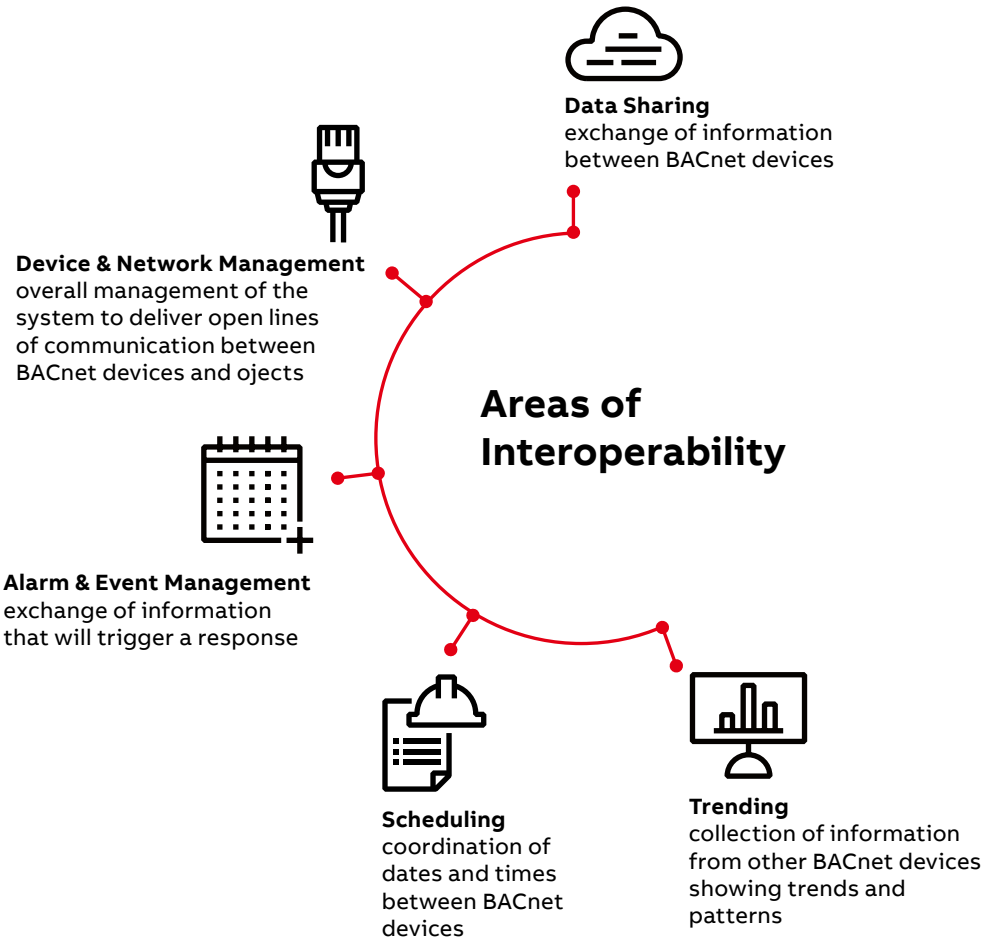
“ABB Cylon®’s technical knowledge is second to none. Their understanding of the BACnet protocol and how it works in practice was hugely valuable for our project. They were able to provide workable solutions to any issue we encountered in creating an integrated system for our client”.
TPE, International Consulting Engineers, Middle East

ABB Cylon® BACnet – Interoperability Capability

The model of devices, objects, properties, services and network types outlined on the following page is the basis for the 'interoperability' functions in a BACnet system.

The BACnet protocol sets out the areas of interoperability – the key areas within a building control system that need to talk to each other to ensure that the whole system is integrated and therefore optimised. ABB Cylon® BACnet hardware and software products fully comply with the BACnet protocol. An example of how a typical ABB Cylon® BACnet system works is provided on the inside cover page.

The illustration below shows how key areas of interoperability can be integrated



Interoperability in Action
BACnet is an open protocol. Certain key functions have been agreed as priority areas. ABB Cylon® BACnet works within these parameters but also develops specific priority areas that are designated 'Available' to meet the needs of each client. A typical example of how the system works is shown below.

If a command for a change in Minimum On/Off (Priority No 6) is made, before being carried out, the system first checks if a higher priority such as Critical Equipment Control (Priority No 5) is in effect. The new command will not be carried out while the higher priority remains in effect.

Priority	BACnet Priority
1	Manual Life Safety
2	Automatic Life Safety
3	Available
4	Available
5	Critical Equipment Control
6	Minimum On/Off
7	Available
8	Manual Operator
9	Available
10	Available
11	Available
12	Available
13	Available
14	Available
15	Available
16	Available (Default)

Command Center
The Command Centre – BACnet places all the information you require for managing the services and energy management in single or multiple buildings, exactly where you need it – at your fingertips. This fully featured BACnet Operator Workstation (B-OWS) allows you to check and adjust control set points, as well as view and change time schedules.

With a powerful graphics library, data logging, charting, trending and alarm management features, the Command Center enables the performance of main plant and terminal units to be fine-tuned with ease.

Furthermore, alarms can be automatically sent by email or SMS to key personnel for instant attention.

Service
ABB Cylon® has a dedicated technical support team trained in BACnet that work directly with system integrators and consulting engineers. The team provides a totally flexible service to customers. Highly skilled engineers are on call by telephone, email or on-site support as required. They can provide assistance with system design or training in using ABB Cylon® products.

With a programme of continuous research and development, ABB Cylon® stands over the reliability of its software and hardware products, which are manufactured in the UK we manufacture in the United States, too.

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"The back-up service from ABB Cylon® was exemplary. We found that they responded very quickly and flexibly to any request we had. That kind of service is as important to us as the products they sell which are of a very high quality"
Graham Milward of Eton Associates Limited, United Kingdom

ABB Cylon® Solutions – Making the World Greener
With 40% of energy being consumed by our buildings, energy efficiency is one of the key enablers in creating a greener world. ABB Cylon® is passionate about working in partnership with System Integrators and their clients to ensure the way we live and work uses all our energy resources optimally. We continuously invest in research and development, training and technology to achieve this goal.

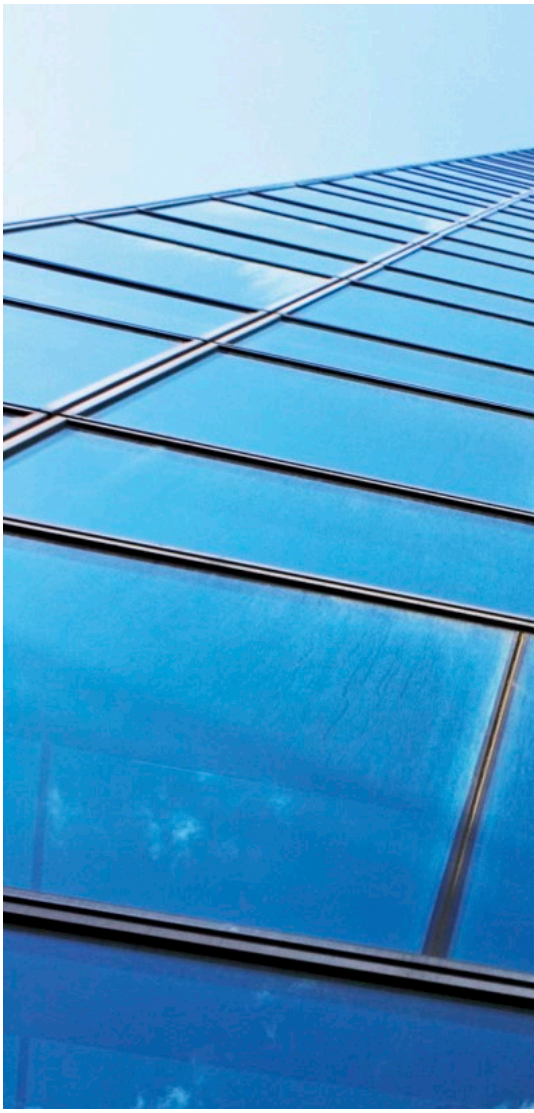

abb.com/buildings

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