



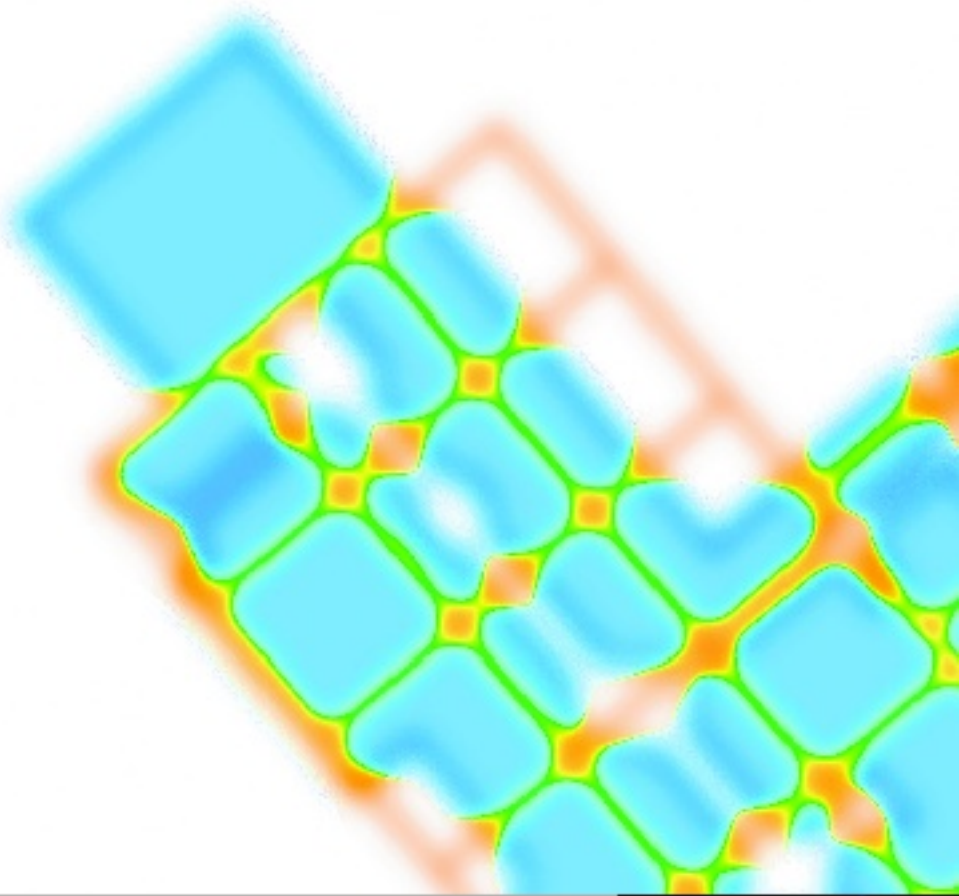
**North**

**see the big picture**

Technology is transforming the management of buildings.

'Intelligent' services now regulate every aspect of the built environment. Access and CCTV systems enhance security. HVAC, BMS and lighting systems deliver comfort. Smoke and fire systems provide vital life safety protection. And at the forefront of this field is North Building Technologies. Based in the UK, North is dedicated to the effective operation of buildings - their energy, plant and environments. Our unique integration, control and management products unlock the full potential of building services, bringing capabilities and functions to optimise building performance and streamline site supervision.

Now and in the future.



A complete solution for building and estates management

- ▶ A proven technical standard for building management, integration and control - compatible with most makes and types of building systems and networks.
- ▶ Totally scalable modular product range able to meet a broad range of requirements - from data logging or door control in small buildings - to fully integrated global enterprise solutions.
- ▶ TCP/IP, Ethernet and web-server options for local or remote facilities management - for both single buildings and estates.
- ▶ The commercial freedom to pursue Best Value procurement strategies for all your building systems.



**North**



At the UK headquarters of Citigroup, North products integrate motor drives, chillers, packaged AC and power management systems with primary HVAC controls.



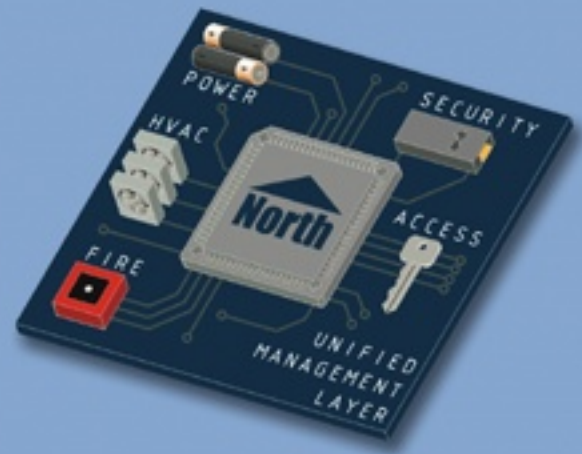
More than 100 unmanned sites across KPN's European data network are monitored with North products, keeping major business and financial centres connected around the clock.



North products integrate services and site supervision in many UK retail centres - notably the Bullring in Birmingham, Lakeside in Thurrock and The Chimes in Uxbridge.

see the big picture

- ▶ Unify command and control to streamline site supervision and lower staffing levels.
- ▶ Access business-critical information on building services, including financial and statistical data.
- ▶ Enhance the capabilities of connected systems to improve building performance and lower operating costs.



## The critical overview

For commercial and technical reasons, building systems are usually designed and installed as separate entities. Even where they share the same types of field networks (or even the same wire) systems are seldom able to share information or 'inter-operate' to improve the way a building works. And when they do, it is usually the case that each will still have its own front-end which staff need to learn how to operate and support. North overcomes the limitations of this segregated approach with a dedicated management layer that works seamlessly across all services in a building or estate.

This layer of technology includes connectivity and data transport - for example using TCP/IP and Ethernet - and can incorporate sophisticated information presentation and user interaction, through web serving/browsing for example.

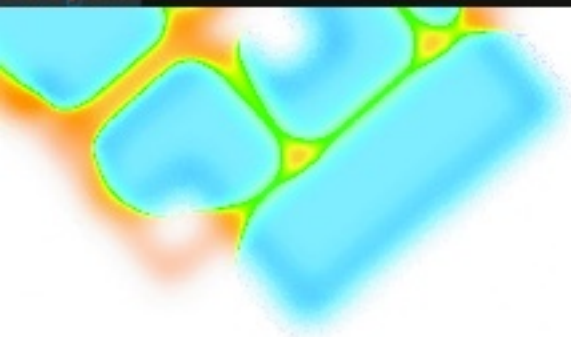
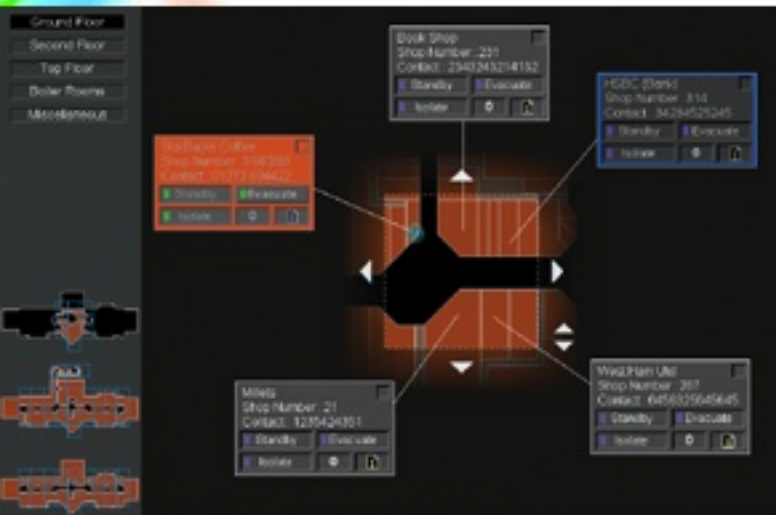
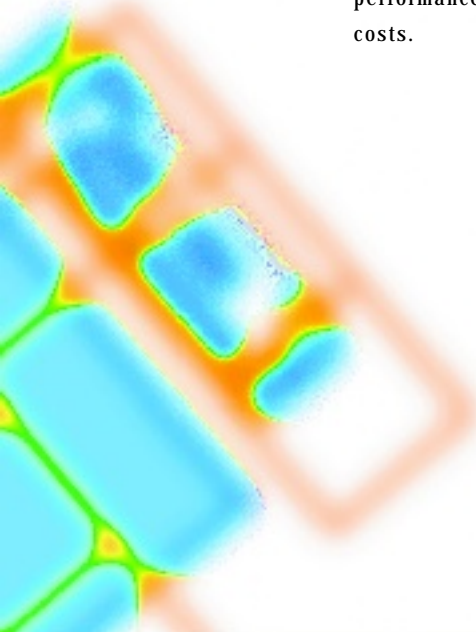
Most significantly, it has the ability to process and store building information, adding

considerably to the functionality of connected systems.

The twin benefits of North technology are that site supervision can be streamlined while building performance can be optimised.

And there are many more potential advantages. For example, with North co-ordinating the information required for optimal command and control, response to emergency situations can be enhanced, even where staffing levels have been reduced.

In fact, with a North unified management system, the whole process of managing the built environment and all its services is co-ordinated and streamlined. Furthermore, it can be integrated fully with the business processes that run the rest of your enterprise.



## In command and in control

The North Unified Management Layer is a complete solution for premises, services and energy management. It allows full flexibility over interface design. So you decide what is displayed for daily command and control, and for maintenance, utility monitoring and cost allocation. To aid strategic decision taking, powerful data management and analysis functions are also available.

- Display the information your organisation needs for effective supervision.
- Deliver simultaneous access to services for control centre and maintenance staff, and other building users.
- Standardise, unify and simplify the management of diverse services.

### Dynamic displays

Dynamic graphic displays with data in real time are now the de facto industry standard for building systems. North takes this much further by allowing interface features - such as adjustment dialogs and alarm messages - to be standardised for different building systems. This means that as far as your operators are concerned, everything is 'driven' the same way.

Our Unified Management Layer has the design stretch to meet more or less any services management application, from display panels for small buildings to fully integrated client-server based control centres. Remote access from laptops or mobiles and fault alerts by email are just some of the additional features you can choose.

### Effective alarm handling

Building systems can highlight a diverse range of potential faults and malfunctions, such as a tripped heating pump, a door left open, or the many conditional alarms that could occur during a major security breach or fire. By providing a unified

alarm management interface for different services, North enables all emergencies to be managed in a controlled and reliable way.

Processed and displayed automatically by type and priority, alarms can be shown with plain text descriptors instead of engineering references. Alarm messages can also be printed or transferred automatically by email or sms text .

### Consolidated data

Extensive facilities can be included in a North integration solution to collect, process and display data logs from the inputs or outputs on any connected system, even in the case of systems that have no integral data logging functions.

Stored within the North Unified Management Layer or IT layer - in open database formats such as CSV, Microsoft Excel or Access - logged data is readily available for import into M&T or energy accounting packages for further analysis. Maintenance management, utility purchasing and energy management can all be significantly enhanced.

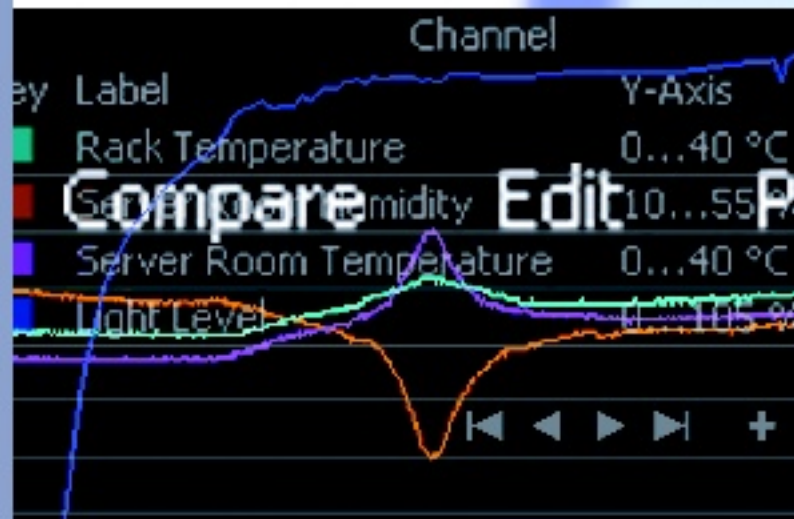
### Simplified time scheduling

Such is the power of North technology, that it is possible to schedule the operation of many different connected systems centrally and in one simple operation. This is achieved using a PC or display panel, a web browser - or by email or sms text message from a mobile phone. Even systems that store time schedules in distributed devices can be included.

Our time scheduling capabilities extend beyond simple occupancy profiles and self-adaptive on/off control. Offsets can be applied to selected building systems, such as lighting, heating and access, so they deliver different environmental conditions either side of normal occupancy periods. For example to aid cleaning or maintenance.



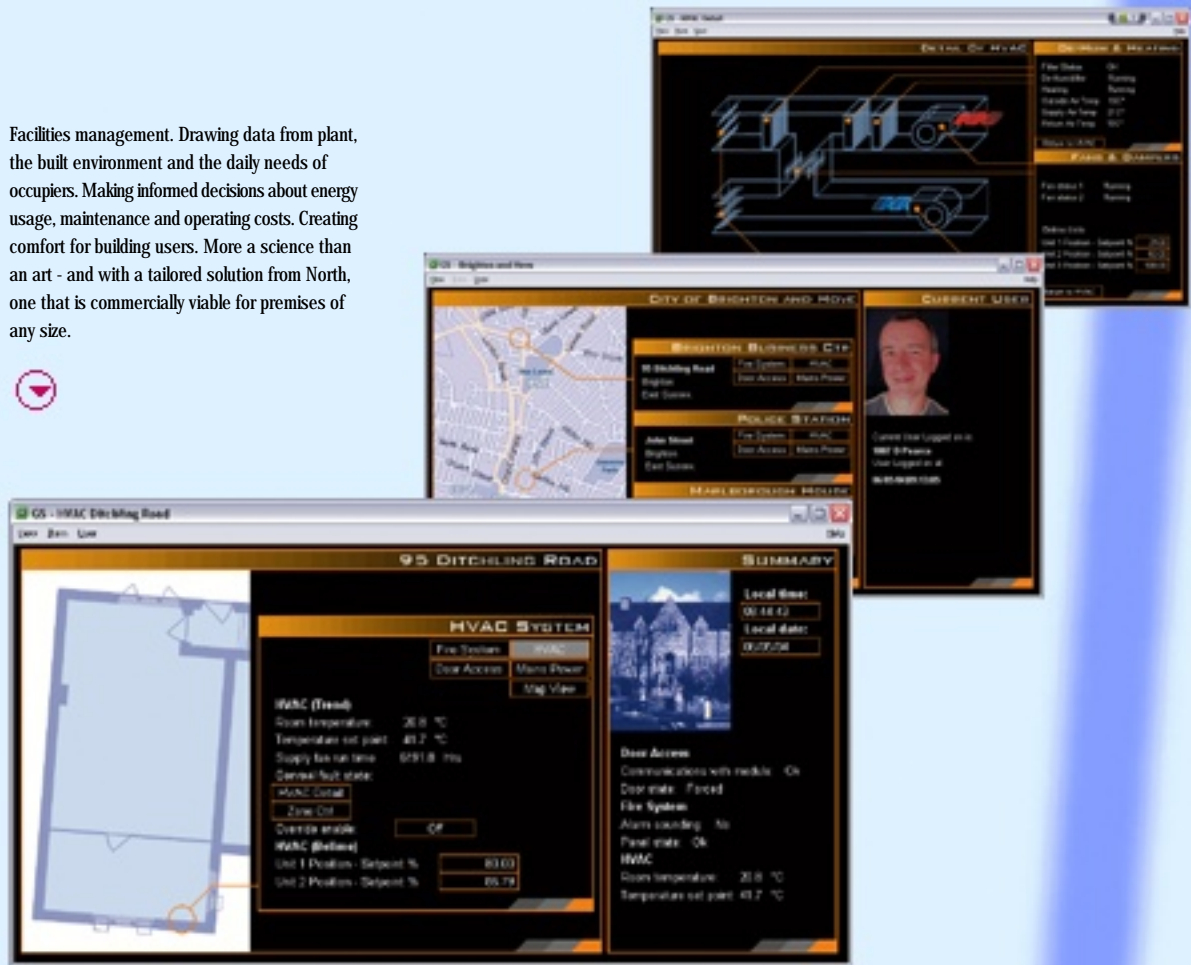
A ZIP Display Panel may be all you need for zone control of an office or small building, and is suitable for both occupied areas or plantrooms. Our text displays are fully configurable in any language for ease of use.



North's Data Manager application makes setting up and displaying datalogs quick and easy, with facilities to impose one datalog on another. It works even when logs have been gathered from different building systems. So you can see for example, the effects of door movements on zone temperatures or zone temperatures on energy consumption.

manage

Facilities management. Drawing data from plant, the built environment and the daily needs of occupiers. Making informed decisions about energy usage, maintenance and operating costs. Creating comfort for building users. More a science than an art - and with a tailored solution from North, one that is commercially viable for premises of any size.



## Exceptional intelligence

North gives you the ability to add a powerful additional layer of artificial intelligence to your buildings that will revolutionise the way they are managed. Applied Analysis deploys sophisticated statistical analysis techniques on points logged through Data Manager to learn the way your buildings behave, and alert you automatically when something out of the ordinary happens. For enhanced security management, it can auto-learn the times of day when doors are generally used and the average durations they are open for. If a door is left open longer than usual or at an unexpected time of day or night, Applied Analysis will alert you. Similarly, it can auto-learn general occupancy patterns from light level sensors. Unlike passive alarm monitoring methods, it will automatically learn and compensate for the late working patterns of building users, yet still alert you if lights are left on overnight. Energy consumption patterns and thermal profiles can be learned and monitored automatically, with full account taken of seasonal changes. Yet Applied Analysis will use its initiative and tell you whenever an anomaly occurs. Straightforward to configure, reliable and attentive, Applied Analysis brings new meaning to the term 'management by exception'.



One of the UK's leading high street names, British Home Stores, deploys North products to control HVAC and monitor alarms and energy usage via the internet.



In Oxford, North web servers and ObSys centralise management for a university campus, with predictive alarm monitoring for main buildings and 47 residential blocks.



At the headquarters of the BBC in London, Compass links chillers to HVAC controls, matching cooling against demand from the many air handlers around the building.



ment choice

Not only is North technology unique in its ability to integrate different makes and types of building systems, but it is totally scaleable. From the complete control of a small unmanned building to the central management of entire estates.

When it comes to implementation, North solutions interface readily to the types of communications networks that support today's demanding information-based businesses. These include Ethernet, ATM, fibre optic networks and wireless LANs.

In other words, we provide one technology capable of serving all your requirements.

## Harnessing the power of IT

North harnesses the power of IT infrastructures to acquire business information from your buildings, and put it exactly where you need it. On your desk. Allowing you to consolidate and assess energy and utility data, power factors, cost centre analysis and maintenance issues.

- ▶ Take advantage of proven IT standards such as Ethernet, XHTML, SMTP and BACnet/IP.
- ▶ Incorporate LON, BACnet and other network standards into larger integrated solutions.
- ▶ Integrate seamlessly across Ethernet, Virtual Private Networks and the web.

### ▶ OVERLAYING

Extend the scope of existing control and monitoring systems simply and cost-effectively with proven RS232 and RS485 networking techniques. Link intelligent systems, remote plant and stand-alone control panels to improve the management or performance of any building.

### ▶ ALL EMBRACING

Integrated solutions are viable even for the smallest of buildings. Retail premises, residential care facilities, health centres and schools can all benefit from cohesive, integrated management. Centralised security, access, HVAC, lighting and utility management can be provided even for unmanned facilities.

### ▶ WEB ENABLING

Take advantage of the latest IT techniques to improve building management. Collect, co-ordinate and serve building data across intranets or the internet as web pages. Interact with your buildings through standard web browsers.

### ▶ UNIFYING

The supervision of large, highly-serviced buildings can be optimised through a consistent, unified interface for all connected systems. Alarm handling, time scheduling, set-point adjustment, data analysis and many other key tasks can be streamlined and simplified.



Door access and security systems provided by North keep the UK's Central Criminal Court, The Old Bailey, firmly under lock and key.



When a University campus in Malaysia was extended, North products were used for HVAC control. ObSys provides single seat supervision of this and two legacy HVAC control systems.



Compass links packaged HVAC plant to an existing control system at London's National Gallery, unifying site supervision and maintaining close control of temperature and humidity.

# scaleable modular

## Meeting every integration need

For simple integration, volt-free contacts can be used to indicate a change in status or to pass a demand signal from one system to another. But where more complex information needs to be transferred, more intelligent methods are required. In all such cases, North products are the pre-eminent integration solution. The astounding integration capabilities and flexibility of our products are the result of three core technologies developed by, and unique to North.

### Compatible

An extensive library of protocol converters or 'drivers' enables North products to 'talk' to most of the building systems and communications standards commonly found in buildings today. North is continually extending its range of drivers, and new ones are released every month. Our commercially independent approach to driver development enables manufacturers to control the capabilities of their own building systems, without restriction or loss of intellectual property, while remaining compatible with an internationally recognised, unifying integration model – XOM.

### XOM – an all-encompassing model

The eXtensible Object Model, XOM, is an object-based framework that allows North systems to accommodate the thousands of different device types employed in building systems, along with the data they generate. XOM caters for simple values such as numbers, flags, integers and times; medium component objects such as time profiles, historic trends and remote procedure calling; and complex objects such as file systems, processors, devices, controllers, buildings and sites.

As manufacturers' systems evolve, XOM extends to include them. XOM object models are available for BACnet, LON and many other

network standards, allowing them to be included in more powerful integrated systems. With XOM/IP comes the power and infinite scalability of web serving for building control and monitoring. And it opens further possibilities for enterprise automation.

At an engineering level, North products use XOM to automatically scan and recognise attached devices and networks. So design, commissioning and maintenance are simplified.

### ObVerse – integration processing

Data acquired for integration purposes usually requires some form of processing before it can be used. ObVerse, a freely programmable modular language developed by North, processes data acquired from building systems using logic and mathematical functions. It enables North solutions to augment the capabilities of connected building systems by providing virtually limitless data processing power within the integration layer. ObVerse uses engineer-friendly visual programming tools for rapid applications development. Processes can be fully tested offline before they are installed.

### Completing the picture

Underpinning and complementing these core technologies is a series of modular enterprise-strength hardware products - Compass, Commander and Zip. Their remit is to deliver connectivity with building systems and IT networks, and provide field telemetry and control. The flexibility and power of this combination enables you to build performance solutions that meet your requirements precisely. Specify the exact mix of hardware, the network architecture, the level of integration, and other features to reduce operating costs and increase control and management.



# flexible

# ObSys

## Information Technology for premises, services and utility management

Every part of our lives is affected by IT. And in commerce and industry there is a requirement for low cost, high performance data processing and storage, as well as scaleable, reliable networking and web services. ObSys software introduces this technology to building services. Whether your need is for a stand-alone supervisor or display, a client server solution for a facility or estate, or an embedded 'black box' for data processing, logging or remote data storage, ObSys fits the bill.

ObSys embodies all the core features of our technology. The extensive North driver library, the eXtensible Object Model, as well as the superb processing capabilities of the ObVerse freely programmable language are all at your disposal.

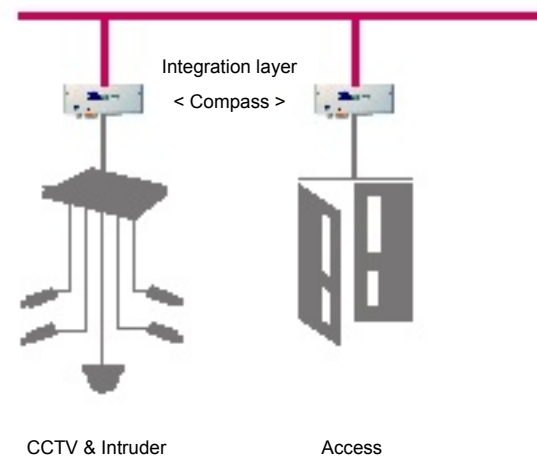
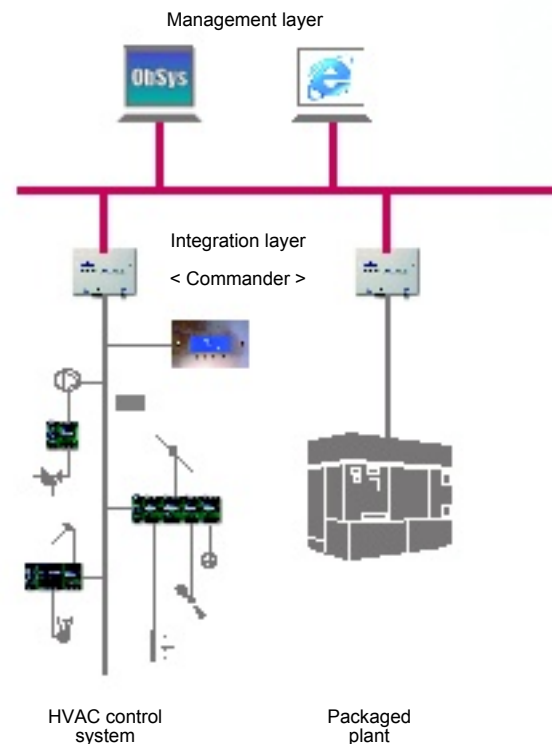
- ▶ Comprehensive management of building systems.
- ▶ Dynamic graphics, unified alarm handling, data logging, time control - and more.
- ▶ Truly flexible client-server solutions with in-built HTML, XML, DHTML, SNMP and SMTP web services.
- ▶ IP and web browser-based site supervision.

ObSys is much more than an integration or display solution, though. It is capable of extensive data processing and data manipulation so the logging, alarm handling and time management features of existing building systems need no longer restrict the way services operate.

At a wholly different level, ObSys will handle with ease the processing and control operations normally performed by building management controllers - for example, maths, sequencing and logic functions, data logging, alarm reporting, time and temperature control, and PID loops. Couple ObSys with ZiP for data acquisition and actuation, and really sophisticated control is possible, often at a fraction of the cost of conventional BMS.

Migrating building management functions to ObSys brings other important benefits. Because it runs on volume manufactured, proven PC platforms within a Windows operating system, ObSys hardware costs are low and reliability is high. UPS power supplies, server mirroring and RAID disk arrays add integrity. And at a maintenance level, control centre staff can look after the control system software, while IT staff can maintain the hardware.

ObSys solutions are built with pre-written and/or application-specific software modules. This makes design and testing straightforward. A further engineering advantage is that ObSys self-initialises - tell ObSys what types of building systems are connected, and it will automatically link to systems, collect values and display default schematics and custom graphics.





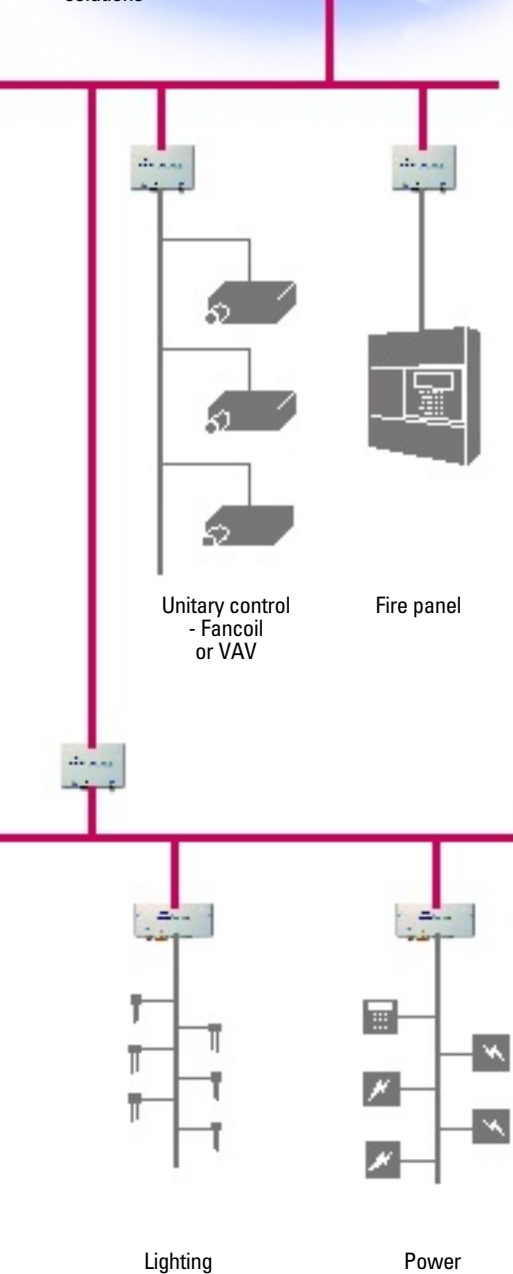
## Commander

### Versatile IP-enabled building services controller

Commander is a compact, yet extremely versatile IP-based controller developed by North for building services applications.

Commander connects to any building system that is North compatible. It can form the foundation of a unified building management solution covering access, security, HVAC and lighting, with web services for centralised management, if required. Equally, it can extend the capabilities of existing systems, providing timer-based control, data logging or additional data processing.

Commander allows peer-to-peer bridging between building systems across IP, boosting power and functionality by collecting, processing, caching and serving information for site-wide interactive control.



- ▶ All the capabilities of a freely programmable controller, with web serving.
- ▶ Extend scope of control of existing building systems.
- ▶ Bridge systems across IP for site-wide interactive control.
- ▶ Complete control of all building services.

Added to this, Commander will act as an intelligent IP server, delivering web pages or web page components to remote clients and responding to commands. Commander's web services include HTML, SMTP, BACnet/IP, and XOM/IP, the protocol used by ObSys to communicate across Ethernet. So it will sort and route alarms automatically, and email fault messages to different maintenance providers.

Commander supports data acquisition and actuation networks, such as ZiP, for a complete monitoring, metering and control solution for plantrooms or buildings. Utility metering, data logging and time, temperature and humidity control are well within Commander's capabilities.

Like ObSys, Commander embodies all of the core features of our technology. The North driver library, the eXtensible Object Model, and the ObVerse programmable language are all there, but packaged with an ultra-compact, rugged hardware implementation suitable for use in service spaces.

Proprietary building systems and network standards are supported using Compass as an integration layer; ZiP networks are connected directly, and both easily link to Commander via an RS232 serial port. IP connection is via a 10BaseT Ethernet port - addressing may be fixed, or dynamic using DHCP.

Commander is commercially attractive to manufacturers of building systems, since no redevelopment of the attached system, network or device is needed to make it Commander-compatible.

# Compass

## Data transfer and connectivity for building systems and networks

Compass is an economical and proven integration network for use with all types of building systems including access, CCTV, HVAC, lighting and power. Compass is ideal where a dedicated integration network layer is needed, and where reliable, extended operation is important.

You may want to pass data from a chiller to a BMS. You may need to co-ordinate access, security and CCTV. You may want to simplify alarm monitoring on one or any number of sites. Compass meets all these requirements - and more.

A single Compass Point provides all the connectivity required for a system, network or device. Any of our communications drivers can be installed, bringing compatibility with all leading building systems, as well as the most popular open network standards.

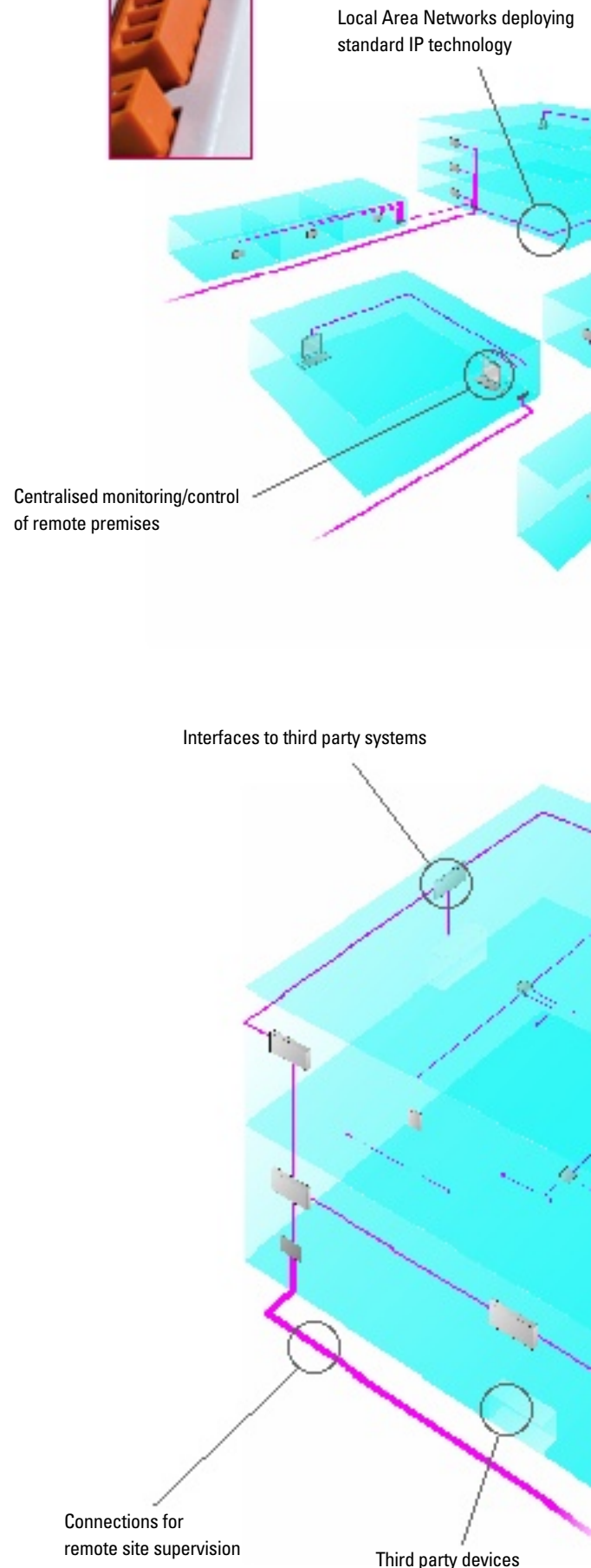
- ▶ A dedicated network to link building systems for integrated control or management.
- ▶ Add data processing, logging, alarm handling or timer functions to existing systems.
- ▶ Low connection cost thanks to industry-standard RS232, RS422 and RS485 device connections.

Compass deploys the North eXtensible Object Model, enabling the network to handle the wide range and types of data found in modern buildings. These include simple values such as fire detector status, camera position or temperature, as well as text alarms and historical data logs for HVAC, access or security.

Using the ObVerse control language, Compass Points can be programmed to process data, either for re-transmission to the connected system to augment its capabilities, or for transfer to other building systems. If variables need to be accessed frequently across the Compass Network (to synchronise time or global occupancy status, for example), network-level data caching is available.

Modem support enables integration solutions to be provided across existing PSTN lines, linking remote buildings or estates cost-effectively for alarm monitoring, data logging or central management.

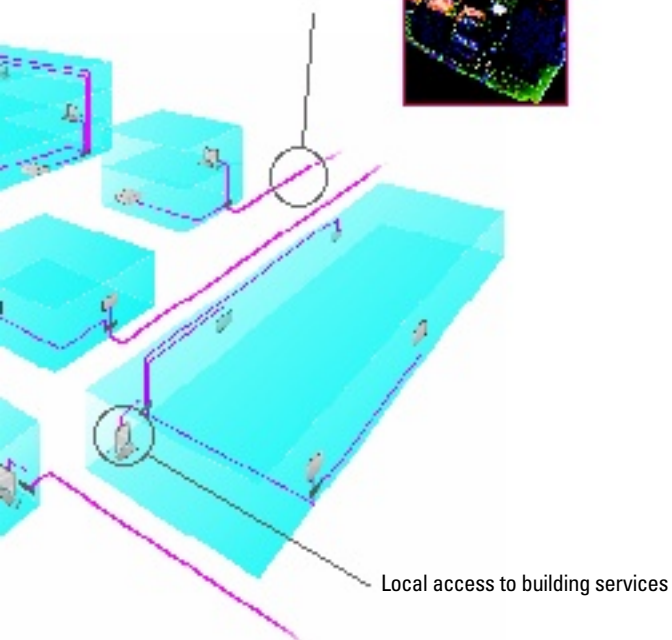
As with Commander, no re-development of the attached system, network or device is needed to make it Compass-compatible.



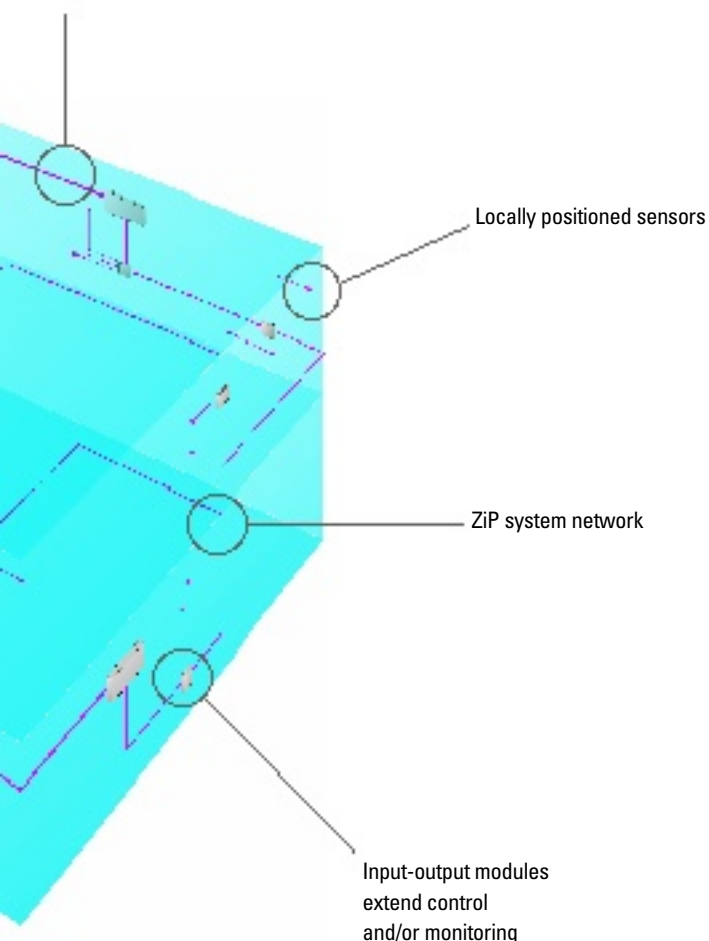
## Modular data acquisition and control



Wide Area Networks  
achieved with IP or PSTN



Compass network



ZiP is ideal for monitoring and/or actuation applications where network communications are essential. It will supplement existing systems or operate as a telemetry/control solution in its own right.

Diverse uses are possible - door control, regulating temperature and humidity, monitoring energy and utilities. ZiP can also collect temperature values in refrigeration units and cold stores for environmental logging.

ZiP is modular, scaleable and exceptionally easy to configure. It includes a range of 'plug-and-go' input-output modules, and ZiPnet, a simple-to-wire communications bus.

With its DIN-rail mounted design and snap-together PowerZip connections, ZiP is ideal for panel installation. Because it is so compact, you can fit a large number

- ▶ Cost-effective monitoring and control for many building services applications.
- ▶ Wide range of modules - fixed function and freely programmable.
- ▶ Analogue, digital, security and card reader inputs; analogue, digital, relay and voltage outputs.

of ZiP points into a small space. However, ZiP networks can be up to 1km long. This, coupled with a high communication speed makes ZiP equally robust as a field network.

ZiP requires Compass, Commander or ObSys to co-ordinate control and monitoring, to process data, create data logs, and to communicate with the outside world. Team Compass and ZiP for an economical building management solution with a dedicated communications layer. Combine ZiP with Commander for much more extensive data management and access to Commander's full range of IP web services.

ZiP modules initialise automatically on power-up, and are easily configured using ZiP software tools from any PC. Fixed-function and freely-programmable modules are available, providing complete applications flexibility as well as the convenience of a dedicated solution.

North products are designed to operate for the useable lifecycle of building services and hence we are committed to the principle of effective long-term customer care - from initial enquiry through specification, engineering, handover, training and post-installation support. We operate accreditation schemes for value-added resellers designed to ensure supply chain quality:



## Systems Partners

North products are available worldwide through a network of North Approved Systems Partners and North Engineering Houses. These are companies with building services expertise that are trained to engineer North products, and have a proven track record in providing high quality solutions using North products.

### Authorised Distributor:

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Singapore 169201  
Office: 65-62739110 Fax: 65-62738113  
Email: sales@apecus.com  
Website: www.apecus.com



## Original Equipment Suppliers

Manufacturers of building control systems need to know they are working with a company providing robust, resilient and open integration solutions. North Original Equipment Suppliers (OEMs) co-operate closely with North's technical development to ensure our products meet the most stringent test and deployment criteria for extended, trouble-free operation.

For up-to-date information on North-compatible technologies, late-breaking news and technical advice, please visit:

[www.northbt.com](http://www.northbt.com)

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