

Energy Savings with Direct Digital Control

Honeywell

- **Economizers**
- **Demand Controlled Ventilation (DCV)**
- **Variable frequency drives**
- **Programmable thermostats**
- **DDC systems – small to large**

Economizers & Demand Controlled Ventilation

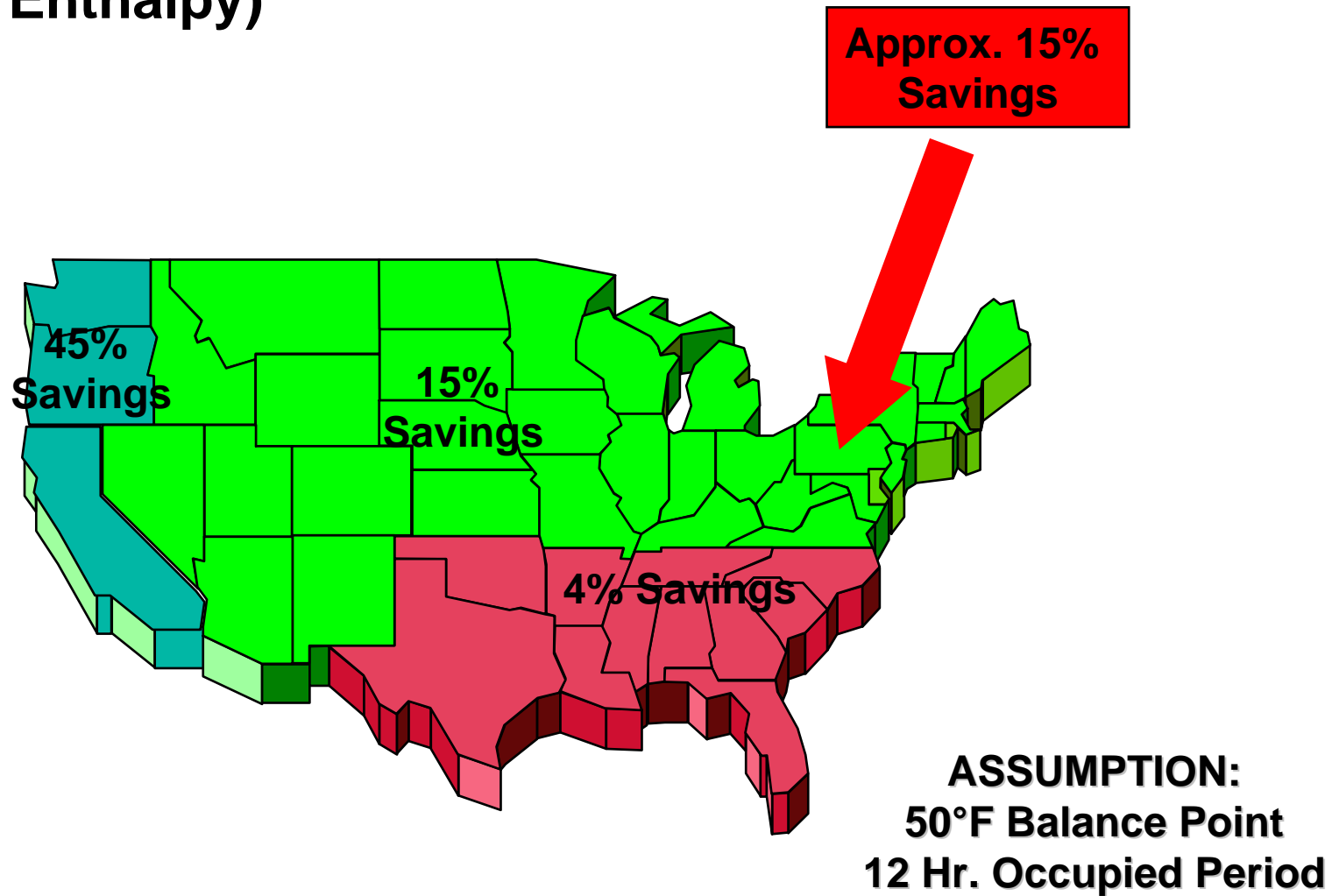
What Is An Economizer?

An Economizer is an arrangement of dampers, with the associated linkages, actuators, and controls that allow the use of OUTDOOR AIR to achieve free cooling without the use of mechanical stages.

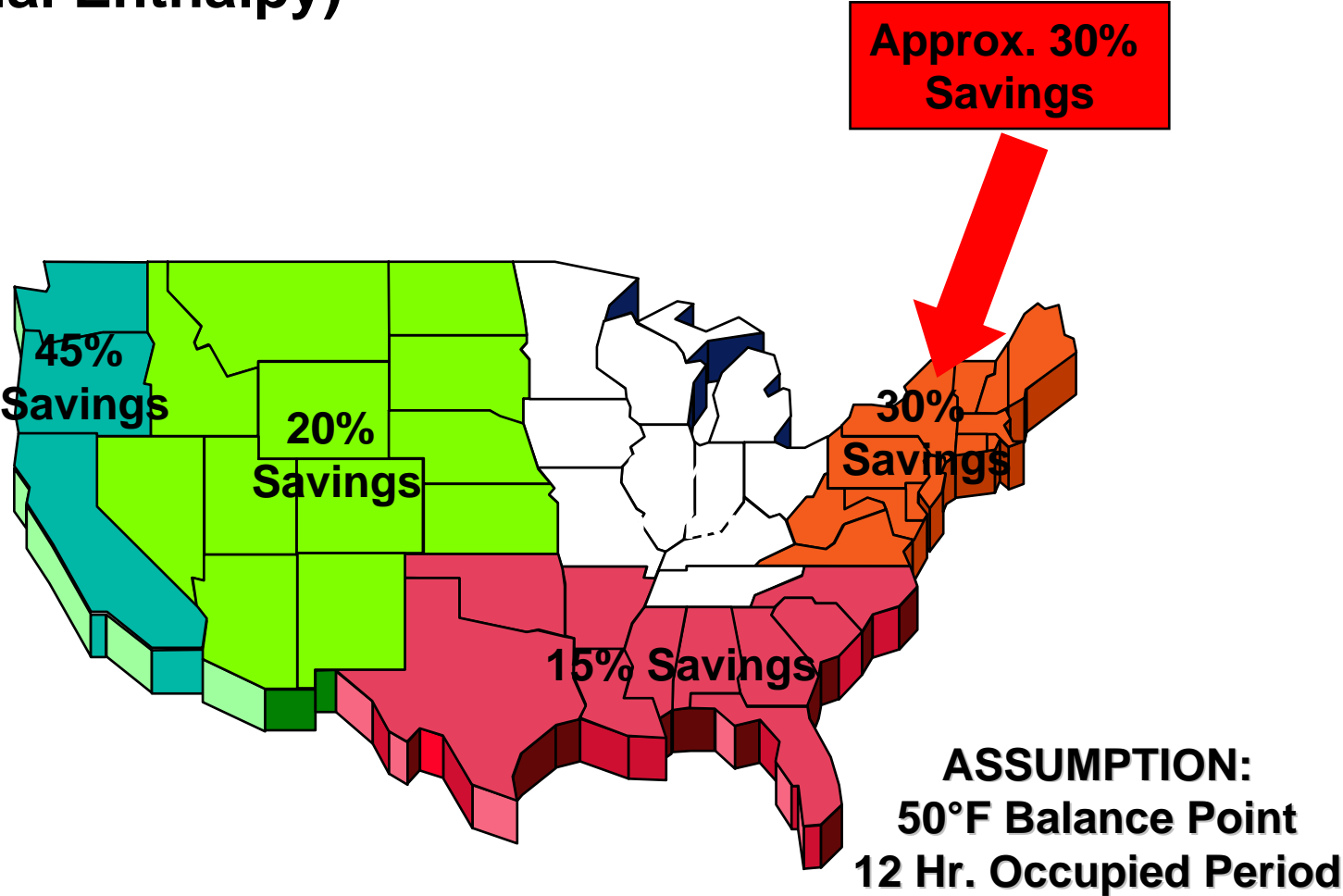
Why Have an Economizer?

- **It saves you money immediately**
 - Reduce compressor run time and energy usage
 - Prevents excessive outdoor air during heating season
- **It saves you money long term**
 - Reduced equipment maintenance and service costs
 - Extends equipment life and eliminates premature replacement costs
- **Laws now often require**
 - To provide fresh air to building occupants
 - To meet “indoor air quality” standards

Economizer Savings (Single Enthalpy)



Economizer Savings (Differential Enthalpy)



- **Measure CO2 level as a proxy for occupancy**
- **Reduce the outside air below the full occupancy minimum flow rate**
- **Achieve savings by avoiding heating or cooling/dehumidification of unnecessary air flow**
- **Complies with ASHRAE 62 standard**



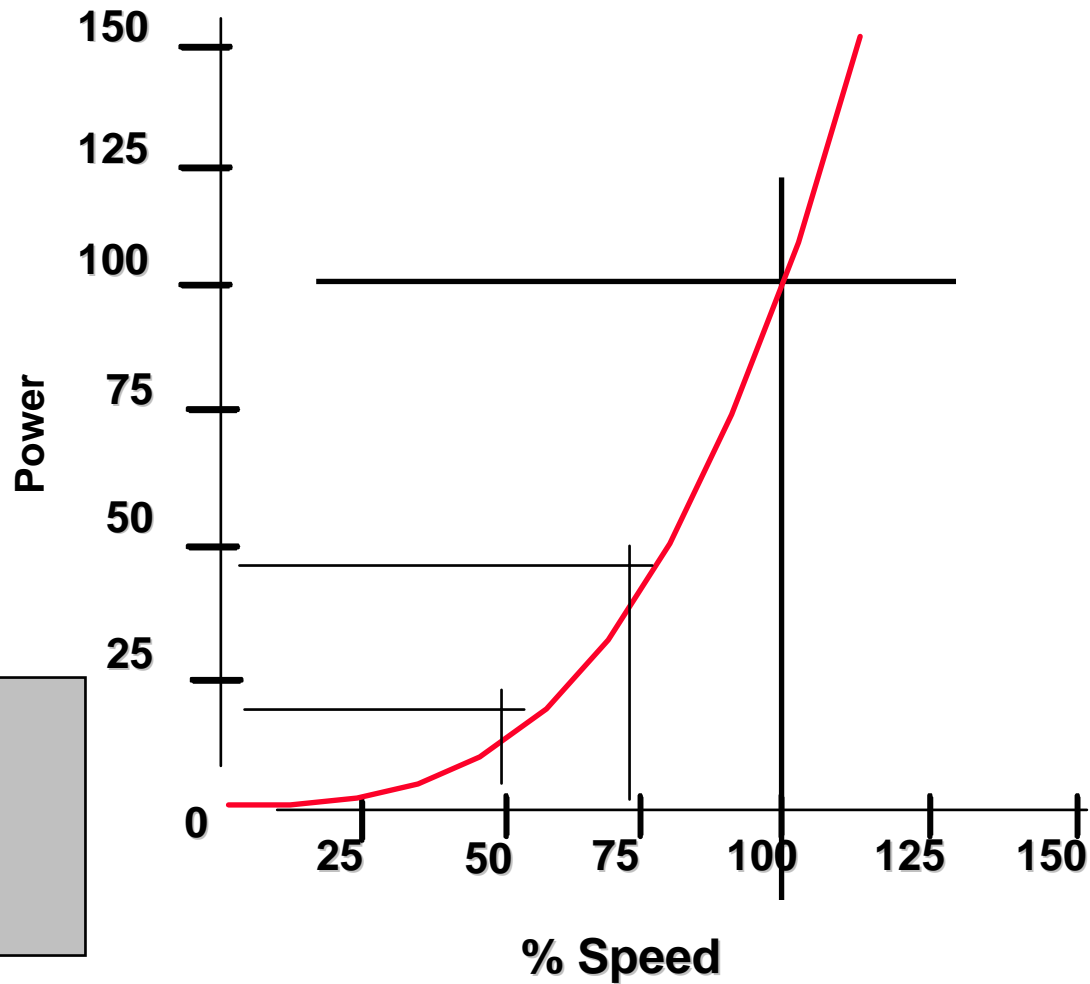
Why Use A Variable Frequency Drive?

Energy Conservation

By controlling the fan or pump speed to provide just sufficient flow – an enormous amount of power can be saved

1/2 motor speed = 12.5% power

Power



Energy Savings

3/4 motor speed = 42%
power, 58% power saved
1/2 motor speed = 12.5%
power

- Improved control
- Reduced noise & vibration
- Simpler installation and commissioning
- Lower maintenance costs
- Fewer complaints!

Programmable Thermostats

Typical Energy Savings for the U.S. and Canada

Percent of Heating Energy You Can Save

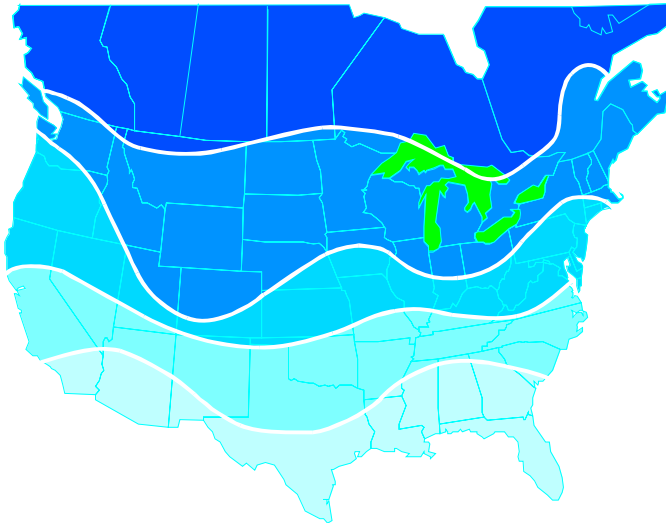
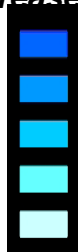
**Savings for once-a-day
10°F (5°C) decrease***

- 6 to 8%
- 9 to 11%
- 12 to 13%
- 14 to 15%
- 16 to 18%



**Savings for twice-a-day
10°F (5°C) decrease***

- 12 to 16%
- 18 to 22%
- 23 to 25%
- 25 to 29%
- Up to 30%



Percent of Cooling Energy You Can Save

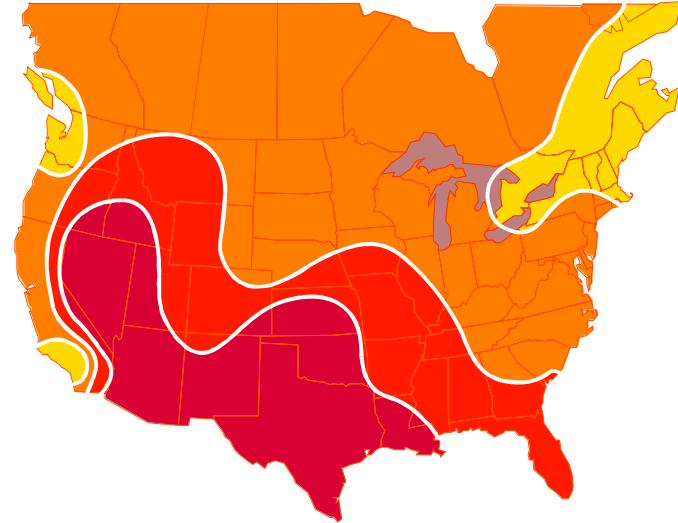
**Savings for once-a-day
5°F (3°C) decrease***

- 7 to 9%
- 10 to 11%
- 12 to 14%
- 15 to 18%



**Savings for twice-a-day
5°F (3°C) decrease***

- 11 to 15%
- 16 to 18%
- 19 to 22%
- 23 to 33%



6–30% *Energy Savings*

Commercial VisionPRO 8000 Features

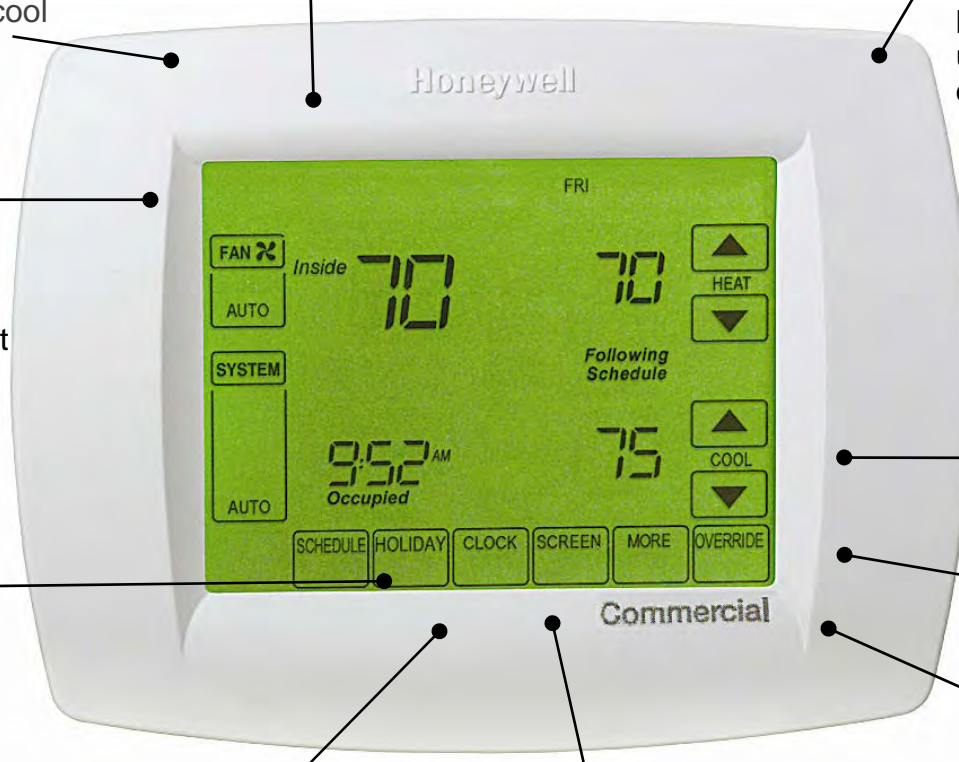
Honeywell

Up to 2 heat / 2 cool – conventional and 3 heat / 2 cool heat pump

#1 choice in thermostats – Honeywell is the leading brand in temperature control

Economizer output – activates economizer based on time of day or economizer logic, resulting in less energy usage and better indoor air quality.

Configurable recovery ramp – automatically changes temperature so it ramps up gradually, helping prevent oversized equipment from going beyond desired temperature



Saves energy – effortless, 7-day programming saves up to 33% on annual heating and cooling costs

Holiday setback – lets users easily select temperature to maintain while they're away from the building without re-programming

Energy Star® compliant

5-year warranty

Automatic daylight savings shift – thermostat automatically adjusts for daylight savings time

Title 24 energy/air quality compliance – preoccupancy purge and override limits meet all fresh air and override limitation requirements

Multiple lockout levels – save energy and money by preventing unauthorized setting changes

Remote temperature sensing – compatible with 10K or 20K remote temperature sensors, allowing for various averaging options. Increases temperature response and improves comfort level faster.

The T7350 product line offers six models

- ◆ Staged or modulating outputs
- ◆ Models also include the following features:
 - 365-day clock
 - Discharge or outdoor air sensing
 - Remote indoor temperature and humidity sensing
 - **Advanced dehumidification control**
 - Occupancy sensor input



- **Available from multiple sources**
- **Small to large systems**
- **Open protocols**
 - LonWorks, BACnet, Modbus, OPC, DDE, XML
- **Usability features**
 - Web access
 - Extensive data history for analysis
 - Alarm paging
 - Monitor and control multiple sites



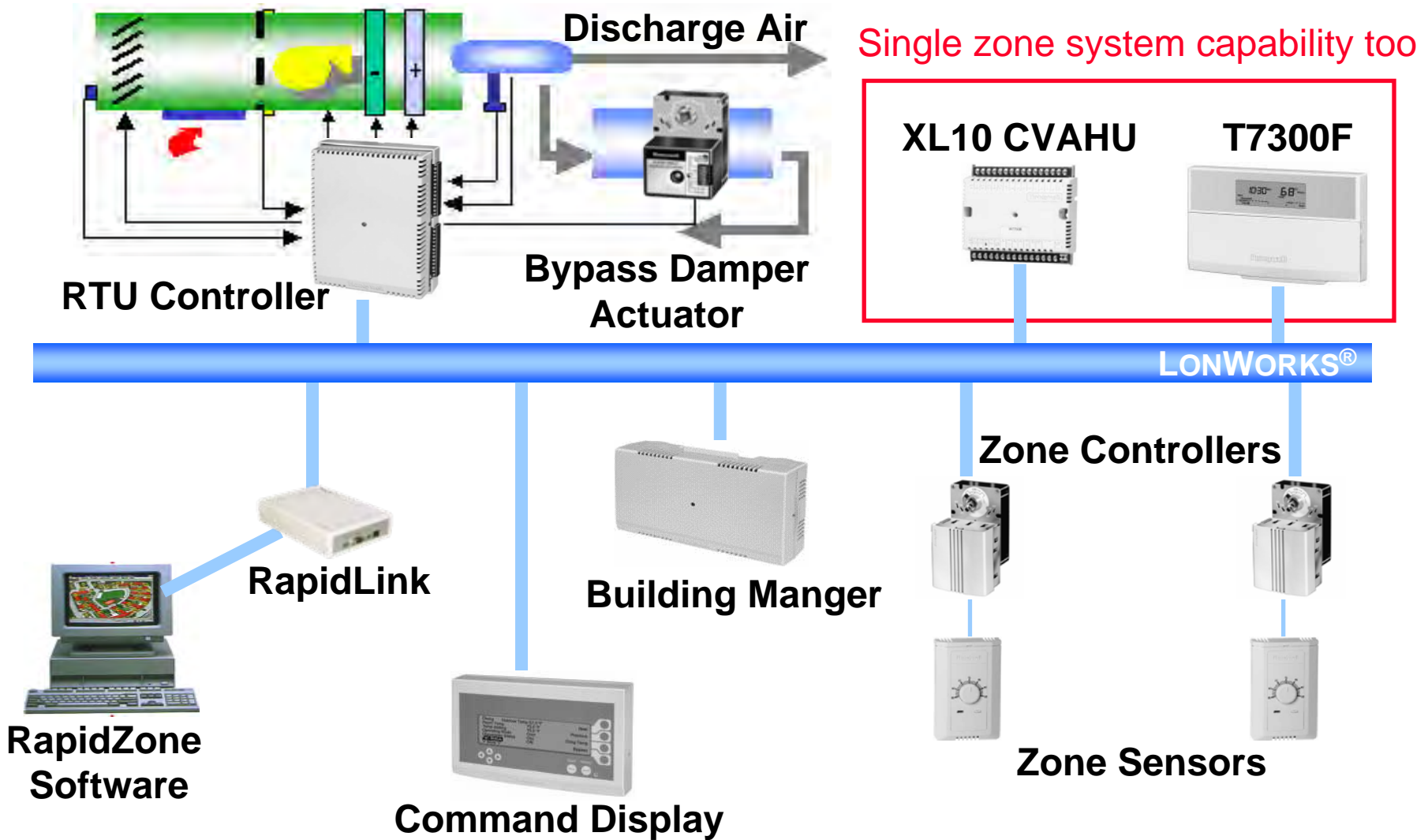
Competitive procurement - open distribution



You are not restricted to one factory branch or dealer. There are multiple product and support sources in major metropolitan areas.

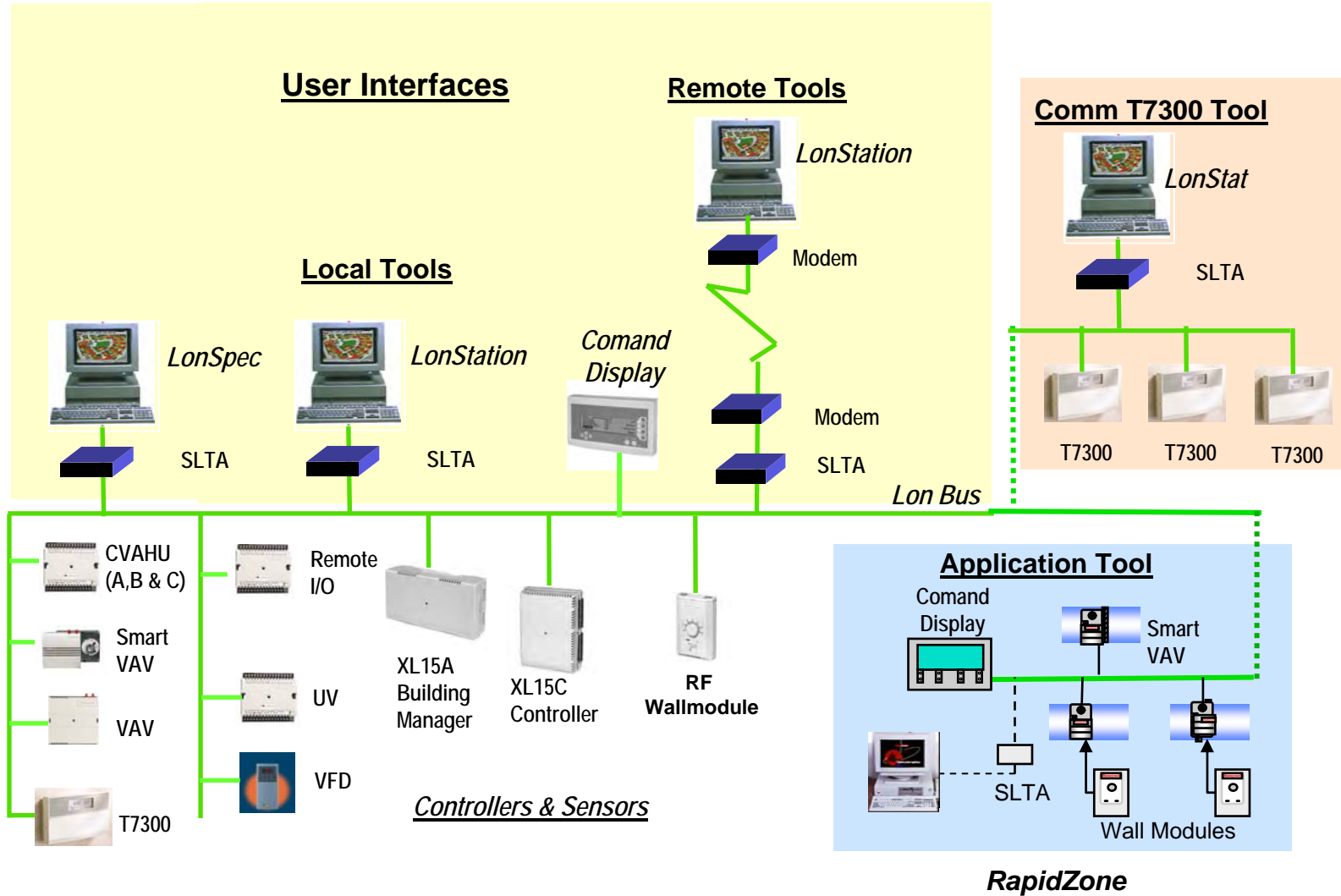
RapidZone System

Honeywell



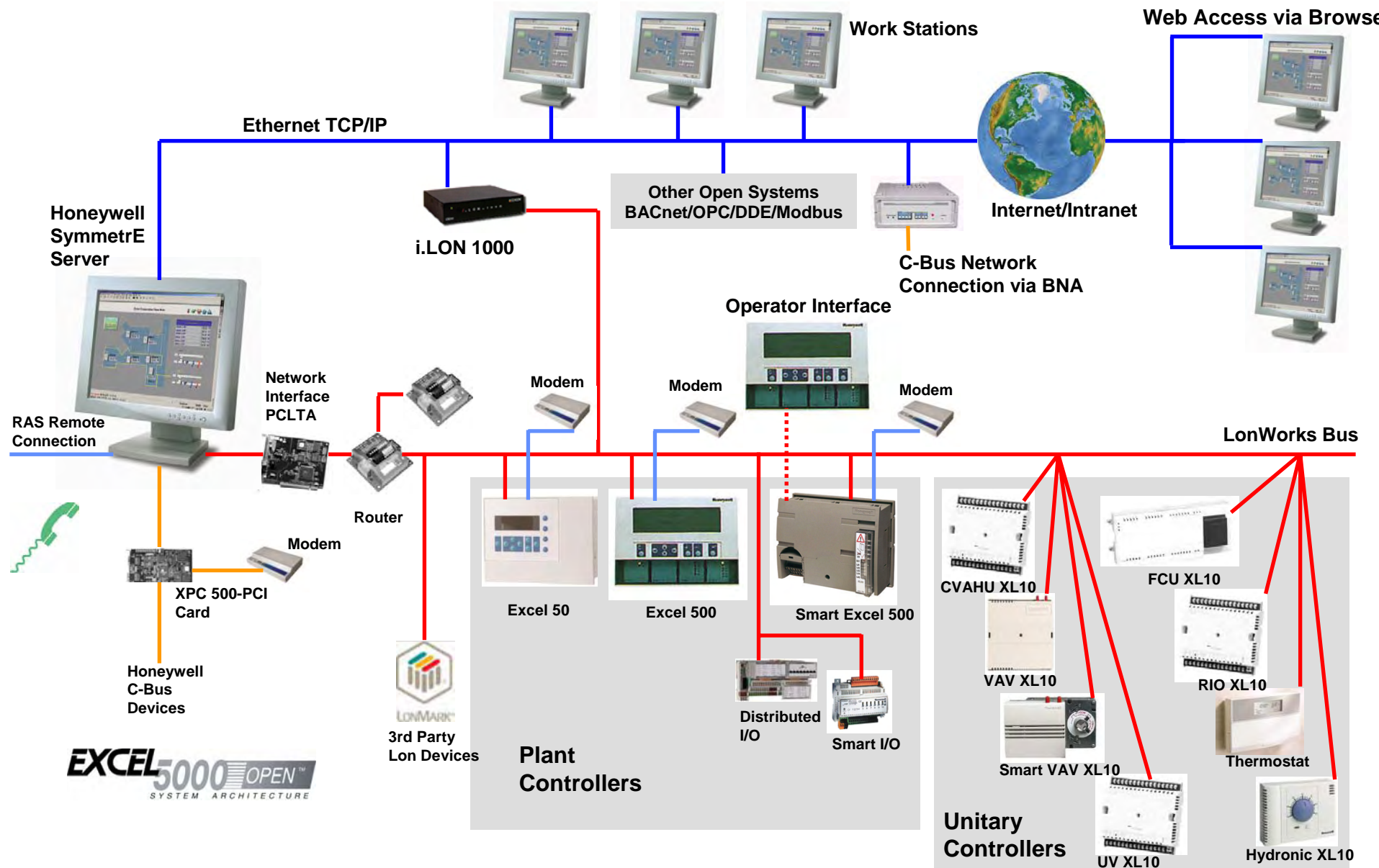
Variable volume, variable temperature

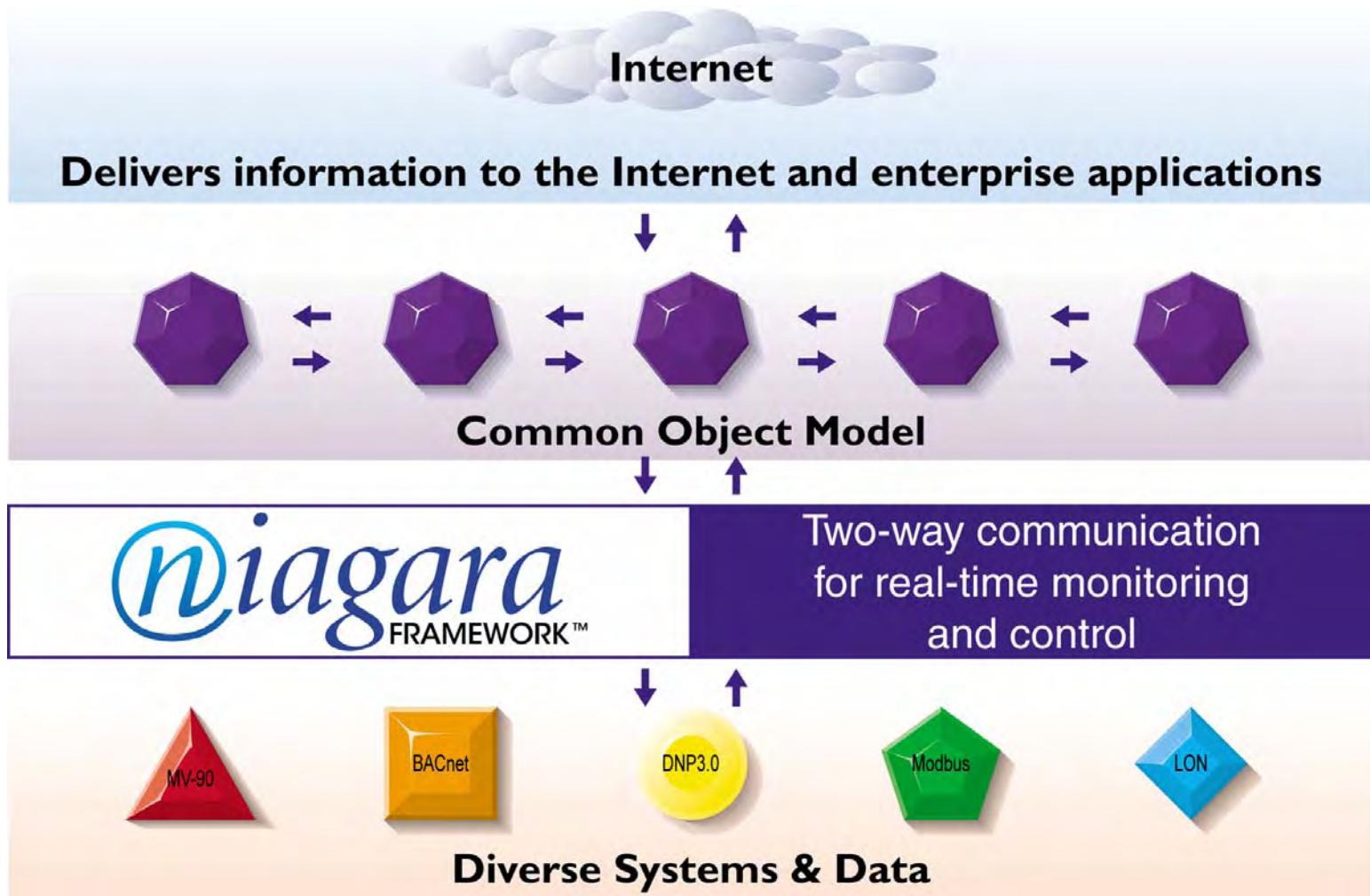
Light Commercial Buildings System Architecture



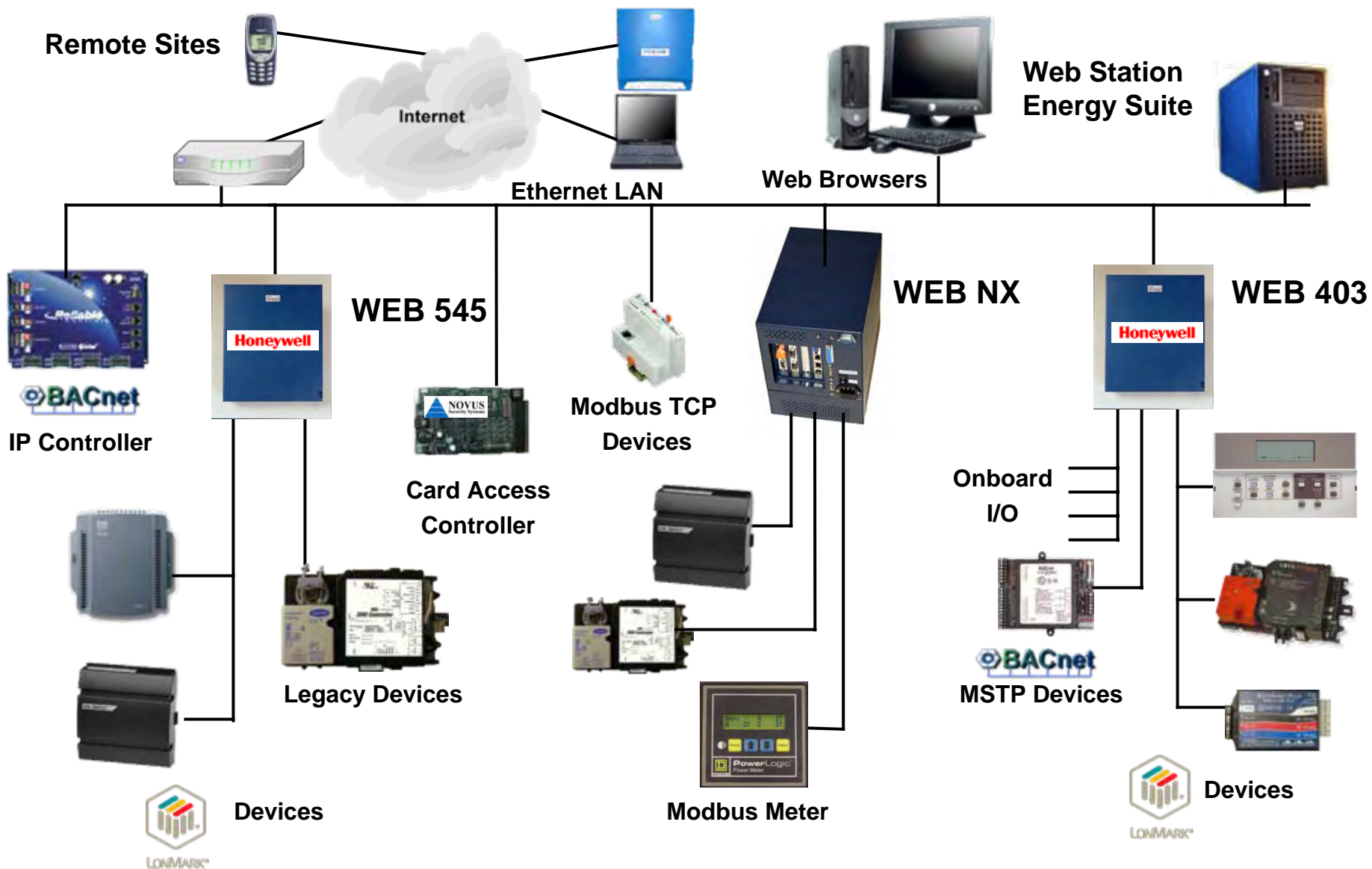
Excel 5000 Architecture

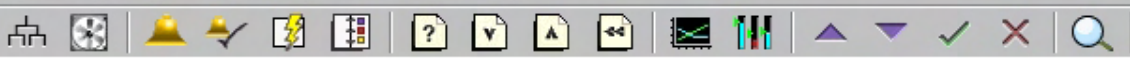
Honeywell



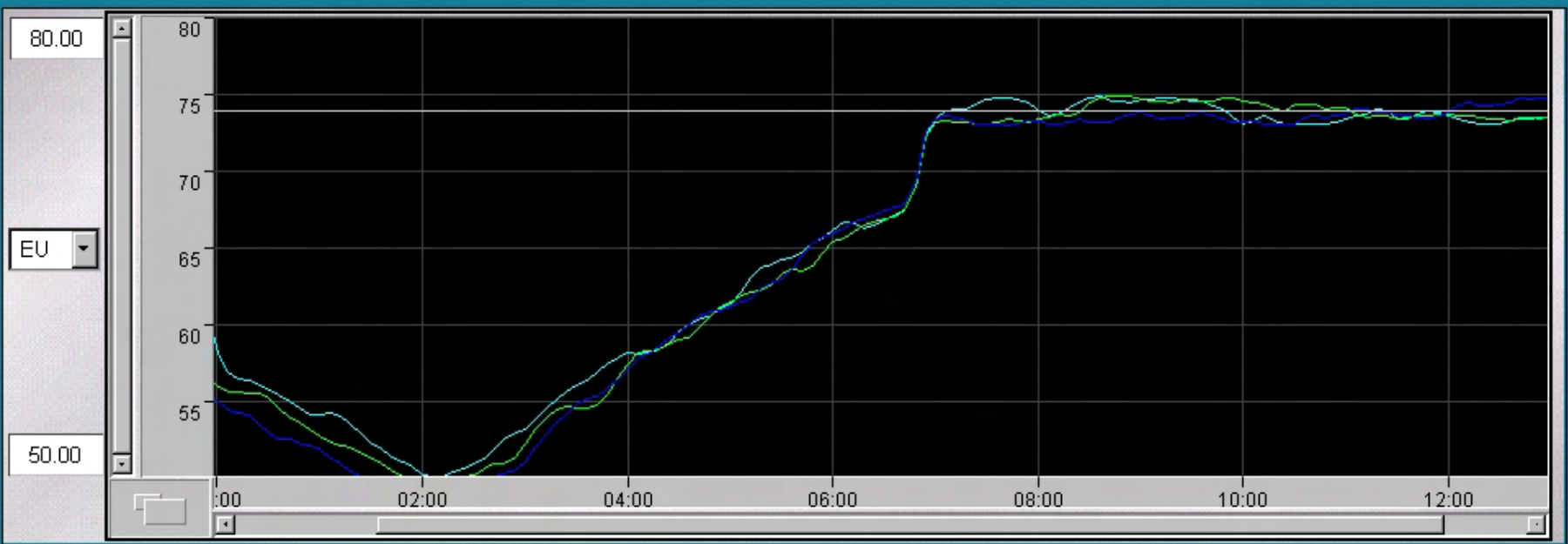


Typical Architecture





Trend 1 Floor Temperatures Type Multiplot Samples 130 Interval 6 min avg



Pen on/off	Point ID	Parameter	Description	value at:	14:03:55
<input checked="" type="checkbox"/>	Zone1Temp	PV	Zone Temperature	74.894592	Deg F
<input checked="" type="checkbox"/>	Zone1Temp	SP	Zone Temperature	74.000000	Deg F
<input checked="" type="checkbox"/>	Zone2Temp	PV	Zone Temperature	74.448708	Deg F
<input checked="" type="checkbox"/>	Zone2Temp	SP	Zone Temperature	74.000000	Deg F
<input checked="" type="checkbox"/>	Zone3Temp	PV	Zone Temperature	73.997574	Deg F
<input checked="" type="checkbox"/>	Zone3Temp	SP	Zone Temperature	74.000000	Deg F
<input checked="" type="checkbox"/>	Zone4Temp	PV	Zone Temperature	73.997574	Deg F
<input checked="" type="checkbox"/>	Zone4Temp	SP	Zone Temperature	74.000000	Deg F

History offset: 0:00:00

Honeywell



Office Building

Laboratory

Security

[Bomb Threat](#)

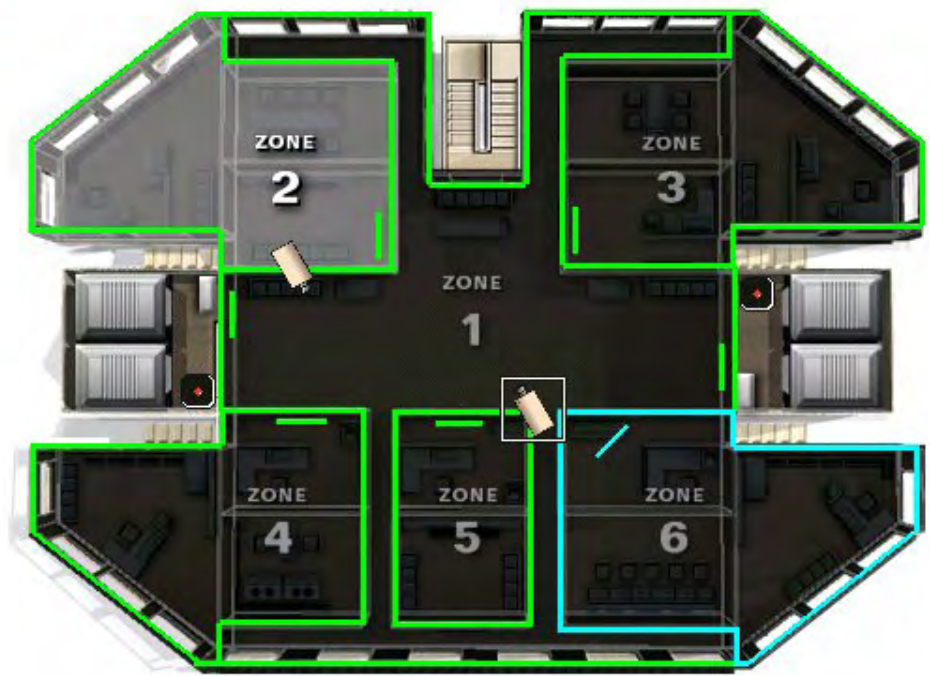
[Evacuation](#)

OFFICE BUILDING

OFFICE LEVEL

- 8  
- 7  
- 6  
- 5  
- 4  
- 3  
- 2  
- 1  

 SECURITY
 FIRE
 LIGHTING
 TEMP



DOORS



-  OPEN UNLOCKED
-  FORCED
-  CLOSED UNLOCKED
-  CLOSED LOCKED

PIRS


-  NORMAL
-  ALARM

LEVEL 7

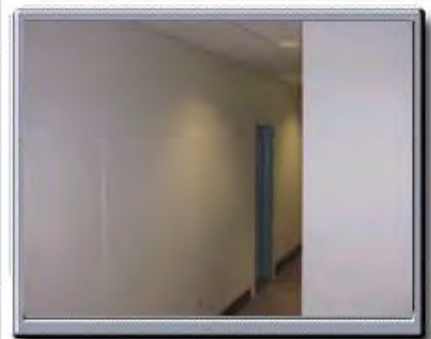
EXECUTIVES FLOOR
SECURITY DETAILS

 Occupied
 Normal

ZONE 2

 CLOSED LOCKED

CAMERA 2



ZOOM      
FOCUS  

10-Sep-02 19:09:05 ebide China CAMERA U 00 DVM camera failed FAILED

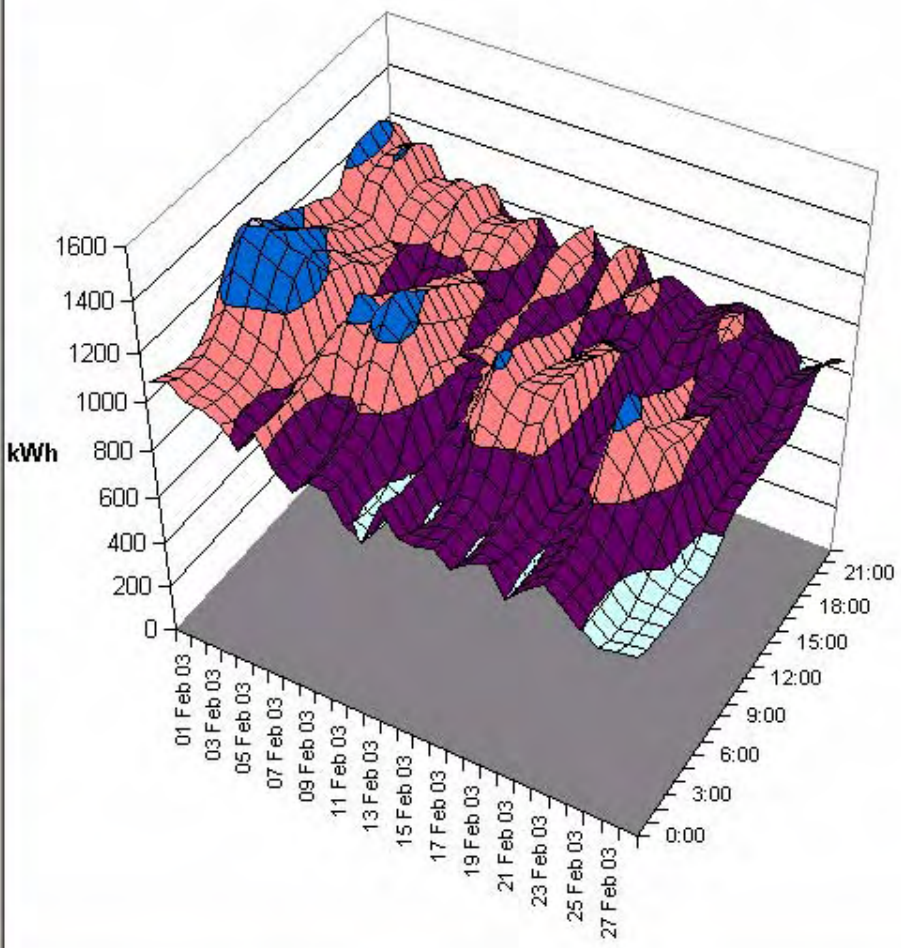
Energy System Browser

View: Enterprise tree

Find: GO

- Enterprise tree
 - SyncPulse
 - ZeusCorporationEnterprise
 - ZeusCorporationHQ
 - ZeusCarpark
 - ZeusCorporationHQ-Ele
 - ZeusCorporationHQ-Wa
 - ZeusCorporationHQ-We
 - ZeusHouse
 - ZeusLaboratory
 - ZeusEngineering
 - ZeusLabs-Electric
 - ZeusLabs-Fumehoooc
 - ZeusLabs-Fumehoooc
 - ZeusLabs-Fumehoooc
 - ZeusLabs-Fumehoooc
 - ZeusLabs-Fumehoooc
 - ZeusLabs-Fumehoooc
 - ZeusLabs-Gas
 - ZeusLabs-Water
 - ZeusRegionalOffices

Electrical Consumption Contour Map



- 1400-1600
- 1200-1400
- 1000-1200
- 800-1000
- 600-800
- 400-600
- 200-400
- 0-200

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Thank You

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