# ADRES Automated Demand Response and Energy Savings BUILDING AUTOMATION SYSTEM INFORMATION RESPONSE

## INFORMATION TECHNOLOGY ADVANTAGES AND CONSIDERATIONS

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#### **IT Department Advantages and Considerations**

Each ADRES Controller includes an embedded cellular modem with a private IP address which transmits all encrypted data to the cellular carrier then passes the segmented data traffic through an IPSEC VPN tunnel to the ADRESpro servers. All servers, switches and other network devices are included in the ADRES first cost setup. See diagram 1-1 and detailed cyber secure network installation drawing below.

The ADRES Controller system with six HVAC units per store would cost \$20k to \$40k less than an equivalent BACnet hardwired Ethernet system. The ADRES Controller does not require the conduit or Ethernet cable that would be run to each of the six HVAC BACnet controllers. The ADRES Controller also does not run on the corporate IT network and is not dependent on the local LAN or local ISP.

Corporate IT Network Advantages and Considerations:

- ADRES Building Automation System (BAS) does not use Corporate WAN or LAN networks.
- ➤ ADRES network 100% Isolated from Corporate IT Network.
- No corporate IT support required for construction, implementation or operations of ADRES BAS.
- ➤ No local server or network is required to monitor or control the ADRES system.
- ➤ ADRES Controller meets the DoD level of cyber security.
  - All controllers have a private IP address that is segmented from other cellular network traffic.
  - All traffic is segmented by carrier and then directly routed through an IPSEC VPN tunnel from the ADRES Servers.
  - Access to the ADRES controllers is provided by a secure HTTPS website through a web browser.
- The ADRES Controller has a built-in over-the-air firmware update utility to allow for changes in firmware to be executed without deployment of HVAC personnel on-site.
- Corporate management and control over buildings, units, and all system users is through the secure HTTPS ADRESpro website.

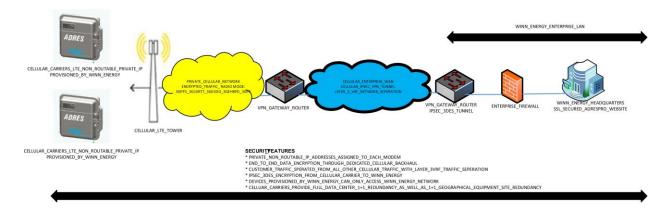


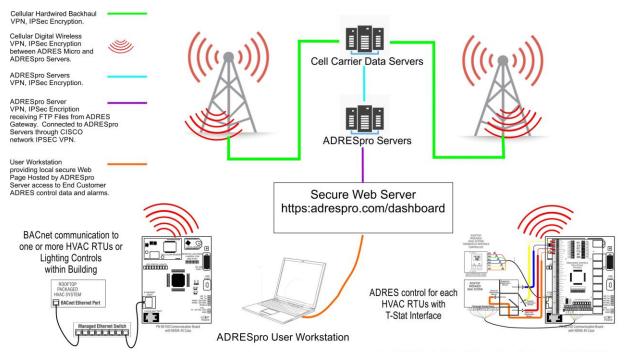
Diagram 1-1 ADRES Cyber Secure Network



#### **ADRES Control Series**

#### Control System Solution

### **ADRES Cyber Secure Installation Overview**



- 1 ADRES BACnet Gateway / Ethernet or RS 485 Serial
- ADRES with Cellular WAN Modem (Private IP and VPN from WEC Server to Carrier to ADRES).
- ADRES Communication Board with Ethernet or RS 485 connected to Managed Switch. ADRES to Poll each BACnet capable RTU for performance data and Alarms. ADRES will push this data to ADRESpro Server to post as secure web page. ADRES will store data in local memory.
- ADRES will not allow remote access from Cell Modem to public internet.
- 5. ADRES has over-the-air firmware update capability.

- 1 ADRES with Relay IO board installed on each HVAC RTU.
- 2. ADRES with Cellular WAN Modem (Private IP and VPN from WEC Server to Carrier to ADRES).
- ADRES Relay IO board connected to T-Stat HVAC interface with room, supply, return, mixed and roof temp and humidity sensors.
- ADRES controls real-time with advanced energy saving logic. ADRES controls VFD indoor fan directly.
- ADRES modulates economizer directly with advanced digital economizer logic.
- 6. Eliminates all ethernet and power wiring.
- 7. Eliminates single point failure.
- 8. Removes all communication from end customer network.