

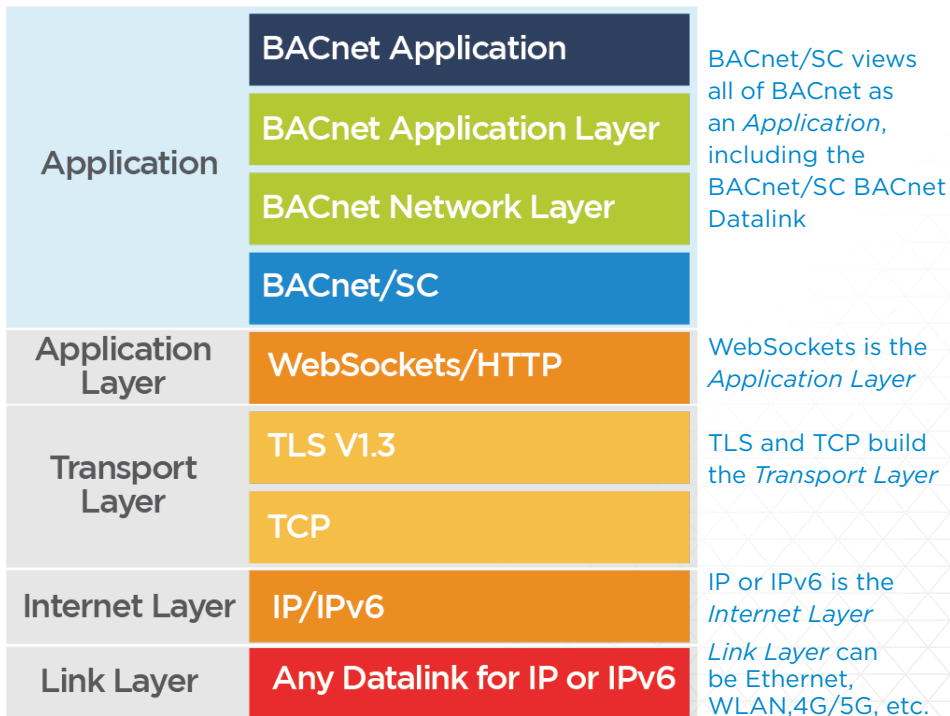
BACnet/SC & niagara⁴

PRODUCT DEFINITION

The ASHRAE BACnet Committee has released an addendum to the Building Automation Control network (BACnet) protocol known as BACnet-Secure Connect or BACnet/SC. It defines a secure, encrypted datalink layer that complies with evolving IT best practices. BACnet/SC connectivity is supported in Niagara Framework® as of Niagara 4.11. This support builds upon Tridium's long-standing commitment to stay aligned with ASHRAE standards for open communication among building automation devices from different manufacturers. BACnet link-layers currently supported in Niagara include:

- BACnet/MSTP for RS-485 serial communication
- BACnet/Ethernet for Ethernet communication
- BACnet/IP for IP based communication using *unencrypted* UDP packets
- And now, BACnet/SC for *encrypted* communication via HTTPS over Transport Security Layer 1.3 (TLSv1.3)

SECURE & IP-CENTRIC SOFTWARE STACK



FEATURES

Given escalating cybersecurity threats, property owners, facility managers, and IT professionals are demanding that their operational technology (OT) meet enterprise IT cybersecurity standards. Niagara 4's support for BACnet/SC addresses these concerns by adding the following features:

- Provides encrypted communication for BMS networks and associated devices
- Enables communication via HTTPS over Transport Security Layer 1.3 (TLSv1.3)
- Extends compatibility to existing BACnet devices through typical BACnet routing
- Leverages a Domain Name System (DNS) to avoid static IP addressing for every device
- Eliminates network broadcasting dependencies avoiding potential broadcast storms
- Eliminates BACnet Broadcast Management Device (BBMD) configuration dependency for device discovery
- Eliminates need for UDP traffic or non-standard ports that are often blocked by firewalls

HOW IT WORKS

BACnet/SC requires that each Secure-Connect node initiate and maintain an outbound connection to a primary hub in its network. Niagara Supervisors, JACE 8000s and other Niagara Framework®-powered hardware devices can host BACnet/SC hubs, as long as they have BACnet/SC license features. These license features will be standard as of Version 4.11. The hub directs unicast messages between nodes and distributes broadcast messages to all nodes connected to it. In addition to the required connection to the hub to receive broadcast messages, a node can direct-connect to other BACnet-device nodes to exchange unicast messages.

The basic components of the BACnet/SC topology in the context of a network under the supervision of Niagara Framework is illustrated below. [Click here](#) to read an ASHRAE whitepaper that provides a more general overview on the topic of BACnet/SC and recommended topologies.

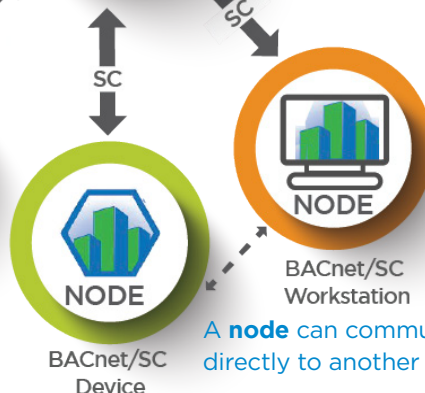
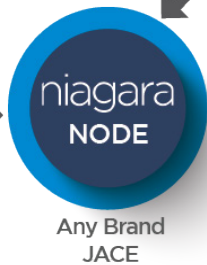
ORDERING INFO

BACnet/SC is a standard feature of Niagara 4 as of Version 4.11.

Part Name	Description
SUP	Can be licensed as a BACnet/SC hub or a BACnet/SC node
JACE	Can be licensed as a BACnet/SC hub or a BACnet/SC node
NPSDK (Powered by Niagara offerings)	Can be licensed as a BACnet/SC hub or a BACnet/SC node
EDGE-10	Can be licensed as a BACnet/SC node only

BACNET/SC TOPOLOGY

At least one **hub** is required for a BACnet/SC network. A **hub** directs traffic between any number of connected nodes. Both a Niagara Supervisor and a Niagara JACE can host a BACnet/SC hub.



BACnet/SC is made more robust through support for system redundancy. →

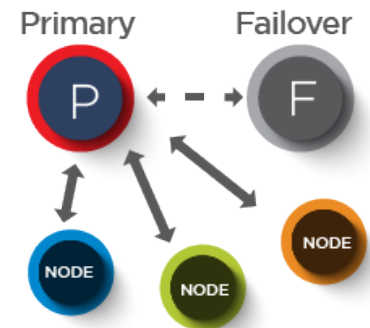
A **node** can be a:

- Device Controller
- Single Thermostat
- Facility Workstation
- Router to an existing BACnet system

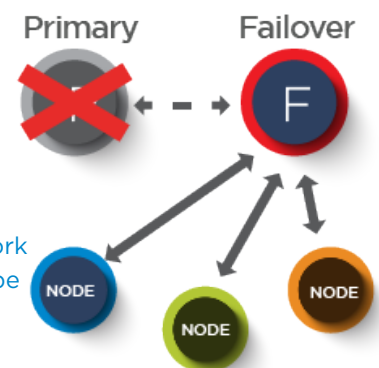
A **node** can communicate directly to another node

A Failover **hub** is not required for a network to operate, but all nodes *are* required to be capable of using a failover hub. →

NORMAL SITUATION



FAILOVER SITUATION



Locations and customer support, worldwide

Headquarters
North America
1 804 747 4771

Support
North America & Latin America
1 877 305 1745

Contact your Niagara Partner to learn more.

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