

## Clarification Request

**References:** BTL Test Plan

**Date of BTL-WG Response:** August 4, 2016

### Background:

When our BACnet device issue ConfirmedCOVNotification, we send it to BMS via unicast, and when our BACnet device issue UnconfirmedCOVNotification, we send it via broadcast. But, one BMS company insists UnconfirmedCOVNotification should be sent to BMS via unicast.

I found ASHRAE Journal, November 2010. It says "Unconfirmed services are broadcast if they are intended for processing by multiple recipients".

### How BACnet Uses Broadcasts

There are two main uses of broadcasts in BACnet: 1) transmission of "unconfirmed" application layer service requests; and 2) dynamic binding. Unconfirmed services are broadcast if they are intended for processing by multiple recipients. Such messages include routine change-of-value and event notifications, time synchronization messages, and Who-Is, I-Am, Who-Has, and I-Have. Unlike "confirmed" application layer service requests that are always sent to a single recipient and must always be explicitly acknowledged via a BACnet "ACK" message, unconfirmed messages are often sent to multiple recipients but are designed such that, if a response is desired, only a single recipient responds. Rather than sending a BACnet ACK, whose use is limited to confirmed services, the recipient responds by sending its own unconfirmed service request.

Existing DS - COV - A testing in this area is test 8.10.2:

#### 8.10.2 Unconfirmed Notifications Subscription

Purpose: To verify that the IUT can initiate a SubscribeCOV service request for unconfirmed notifications.

Test Steps:

1. RECEIVE SubscribeCOV-Request,
  - 'Subscriber Process Identifier' = (any valid process identifier),
  - 'Monitored Object Identifier' = (any identifier for a standard object type for which COV reporting is defined),
  - 'Issue Confirmed Notifications' = FALSE,
  - 'Lifetime' = (any non-zero value)
2. TRANSMIT BACnet-SimpleACK-PDU

In 135.1-2013, the section 9.2.1 are Positive ConfirmedCOVNotification Service Execution Tests, but there are no section 9.2 (or elsewhere) Positive UnconfirmedCOVNotification Service Execution Tests.

Conversely, DS - COV - B Tests 8.3.1 through 8.3.4 in 135.1-2013 (and long unchanged in this regard) are like:

**8.3.1 Change of Value Notification from an Analog Input, Analog Output, and Analog Value Object Present\_Value Property**

Purpose: To verify that the IUT can initiate UnconfirmedCOVNotification service requests conveying a change of the Present\_Value property of Analog Input, Analog Output, and Analog Value objects.

Test Steps: The steps for this test case are identical to the test steps in 8.2.1 except that the SubscribeCOV service request in step 1 shall have a value of FALSE for the 'Issue Confirmed Notifications' parameter, all of the ConfirmedCOVNotification requests shall be UnconfirmedCOVNotification requests, and there is no acknowledgment of the unconfirmed services. The MAC address used for the notification message shall be such that the TD is one of the recipients.

stating in the last sentence:

The address used for the notification message shall be such that the subscribing device is one of the recipients.

So either unicast or broadcast are permitted.

The following point, which is MS/TP specific, is subtle and might be and overlooked. From 135-2012 clause 6.5.3

The local broadcast MAC address may be used in response messages, although it is discouraged. It is preferable that a device note the SA associated with the original request and reuse that SA in the response. For MS/TP networks, in order for MS/TP master devices to use the local broadcast MAC address in a response, a Reply Postponed MAC frame shall be sent in response to the BACnet Data Expecting Reply frame and the response may then be sent when the MS/TP master device receives the token. MS/TP slave devices are unable to use the local broadcast MAC address for responses because they never receive the token.

**Problem:**

BTL Test Plan does not ensure that a BMS which insists UnconfirmedCOVNotification should be sent to BMS via unicast, is called out for this defect in testing.

**Question:**

Should BMS testing include proper execution of UnconfirmedCOVNotification sent via broadcast?

**Response:**

**No. As IC135-2012-16 stated: A server sending subscribed UnconfirmedCOVNotifications has to send them as unicast to the address of the subscriber(s).**