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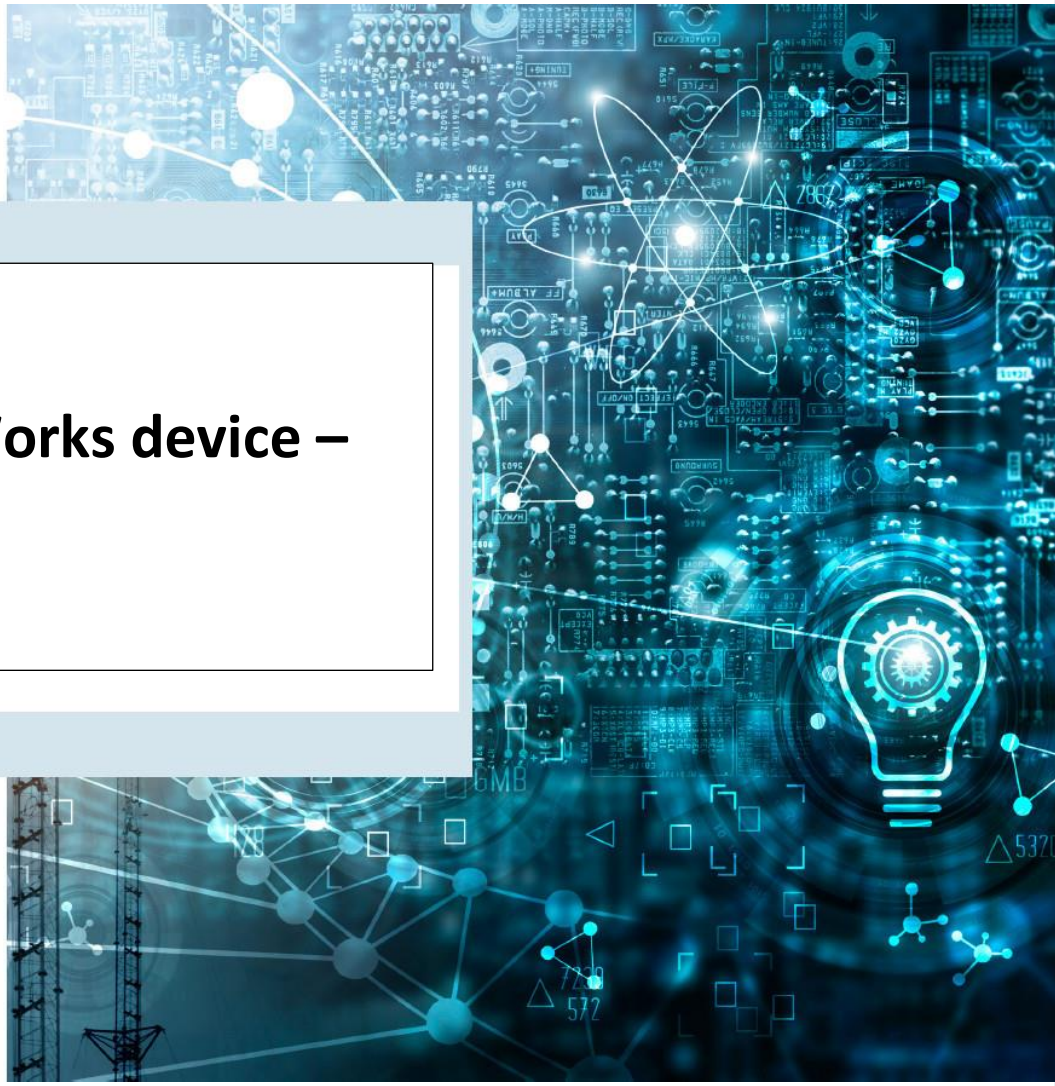

Case Study

Trane LCI-C LonWorks device – BACnet IP

Overview

This case study revolves around a client who sought assistance from Chipkin to replace an existing protocol integrator gateway with a FieldServer QuickServer Gateway. The objective was to integrate LonWorks data from a Trane LCI-C device into BACnet IP.

The unique aspect of this project was the client's requirement to ensure that all the points visible through the previous integrator gateway were accurately mapped. The client provided a list of points that were accessible from the previous gateway, serving as a reference for the mapping process.

However, certain points, including Current, Voltage, Number of Starts, and Runtime, posed challenges due to their classification as User-defined Network Variable Type (UNVT) points within the XIF file. As the name implies, these points were customized by the user, resulting in variations in byte arrangement and length configurations required to obtain the correct values for these data types. This complicated the integration requiring troubleshooting, data validation, and confirmation to overcome these challenges.

Chipkin's approach to the solution

Along with the FieldServer QuickServer gateway, Chipkin recommended custom configuration services as a solution to complete the integration.

With this solution, the client provided the XIF file as the input information for creation of the configuration file, Chipkin scheduled a phone call meeting where both the parties – i.e., Chipkin and the client reviewed the XIF file together and selected the points which the client required as per the reference point list from the previous integration.

Doing the cross-referencing with the previous protocol integrator device helped Chipkin (and the client) to ensure that no points were missed in the process of replacement existing Gateway with the QuickServer.

Current, Voltage, Number of Starts and Runtime points:
As mentioned above, these points present some challenges because these are UNVT types and therefore the programmers and engineers from the manufacturer entity (in this case Trane) have programmed the arrangement of the bytes, their order, and the lengths to be read to obtain the proper values for these points. In essence, they are not standard across all sites.

In order to help the client, get the proper values from these points, Chipkin scheduled a live – on the phone and via remote login access – technical support session whilst the client was on the site and when the QuickServer Gateway was connected to the rest of the communications assembly.

During this live technical support session, Chipkin checked and noted the raw values which were obtained by the FieldServer device from the Trane LCI-C (LonWorks) device on the respective consecutive data array offsets within the respective data arrays dedicated to each of these UNVT points.

Then Chipkin tested some move functions over these raw values on the consecutive offsets and derived some possible values depending on various combinations and orders of the consecutive bytes for each of these UNVT points – i.e., Current, Voltage, Number of Starts and Runtime.

Chipkin then presented these possible values to the client and asked them to confirm which values of all these different values are nearer to what they expect to see at each of these points – i.e., Current, Voltage, Number of Starts and Runtime.

And the client selected the values which they expect to see at each of these points that confirmed which combinations of the moves and the byte orders were accurate from our trial-and-error effort.

[Important Note: The efficiency of this approach depends significantly on whether the client knows what values to expect on the tested points.]

With the above conclusions, the integration was successfully completed, earning Chipkin a happy client.

As a comment, the client provided Chipkin with the following kind words:

"I received confirmation on the values for the chillers, and we were correct in our assumptions. Looks like the attached file is the final revision. Thanks for the help and expertise.