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# Niagara Case Studies

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# Identifying Hot Zones

Terminal Unit Analytics

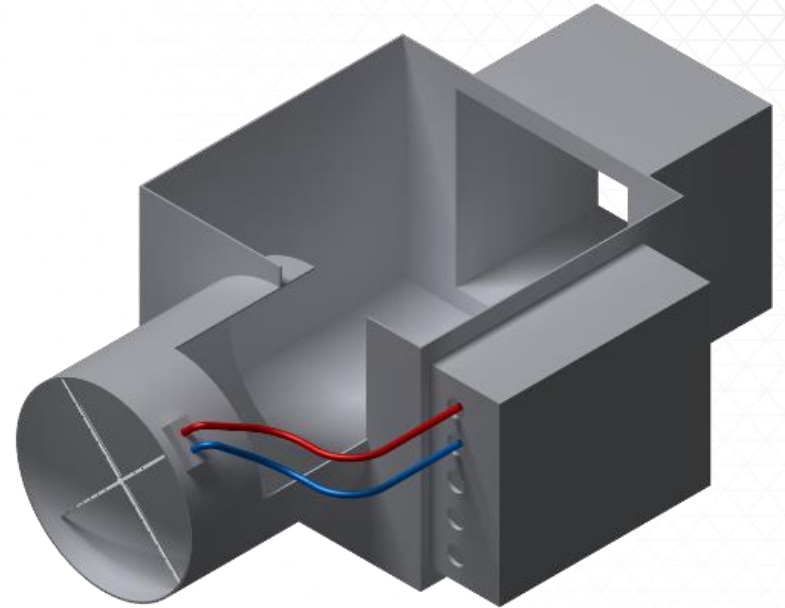
# Identifying Hot Zones – Approach

## Traditional Approach

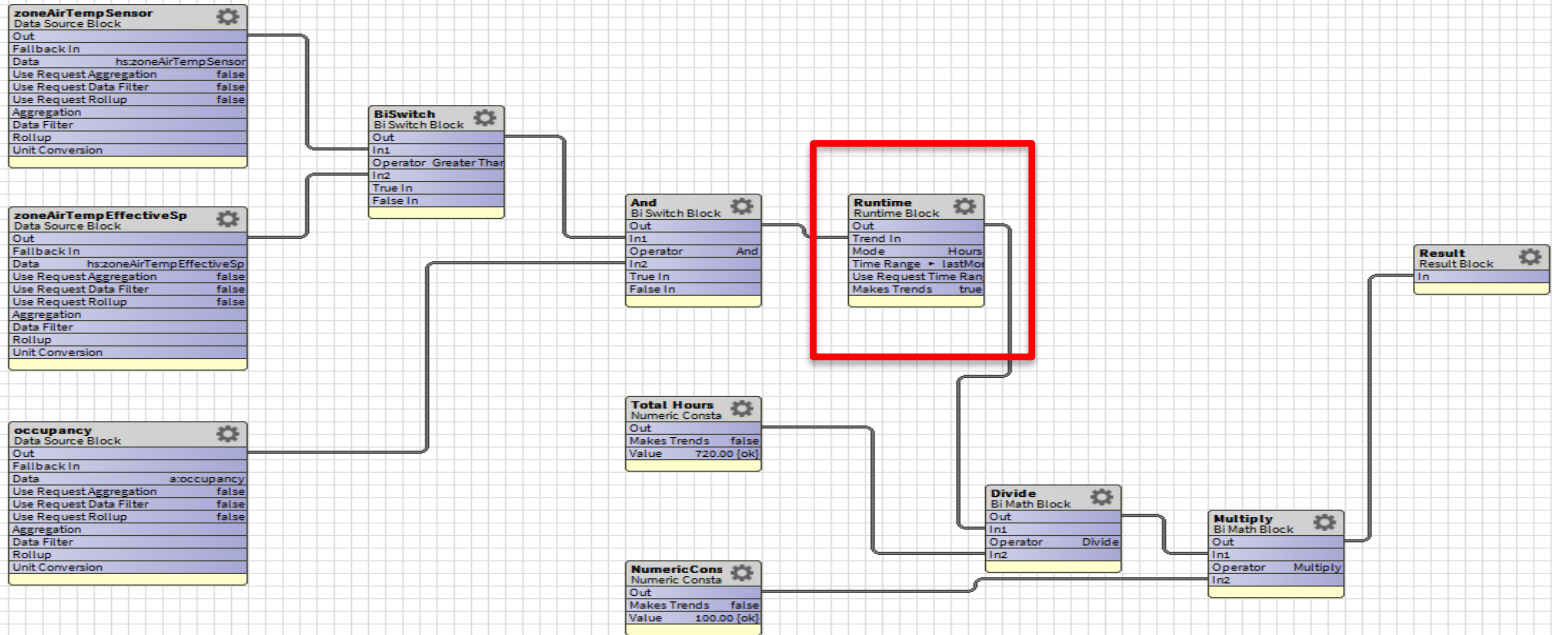
Raise an alarm if zone temperature is above setpoint

## Analytics-based Approach

Monitor zone performance over a period of time



# Identifying Hot Zones – Logic



# Identifying Hot Zones – Logic

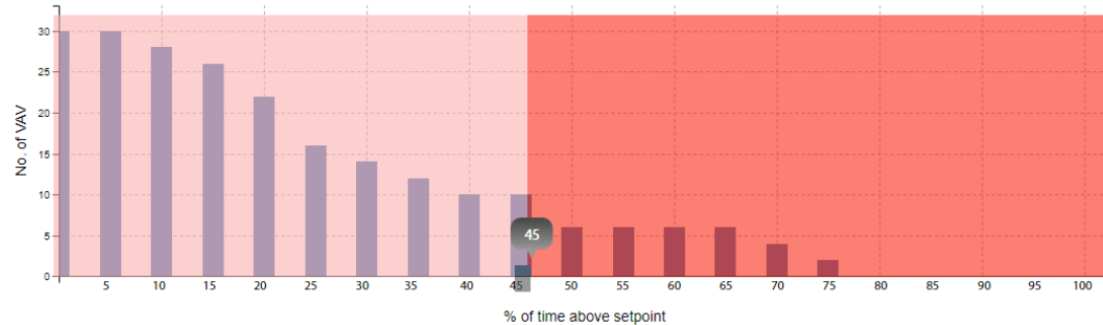
Adjust the Time Range of the Runtime Block to a suitable period

The screenshot shows the configuration interface for a 'Runtime' block within the 'Application Director'. The 'Property Sheet' for the 'Runtime (Runtime Block)' is displayed. The 'Time Range' property is highlighted with a red box and is set to 'Last Month'. Other properties include 'Mode' (Hours), 'Use Request Time Range' (false), and 'Makes Trends' (true).

Property	Value
Mode	Hours
Time Range	Last Month
Use Request Time Range	false
Makes Trends	true

# Identifying Hot Zones – Representation

Sr. No.	Equipment	Hot %	Area Served
1	VAV_1_4	45	Cafe_1004
2	VAV_1_8	65	Medical Room_1008
3	VAV_2_2	70	Office Room_2002
4	VAV_2_3	75	Open Area_2003
5	VAV_2_5	45	Team Work Room_2005
6	VAV_2_9	45	Corridor_C2002
7	VAV_3_3	65	Open Area_3003



Move the slider to identify the most problematic zones

# Saving Fan Energy

Complex Sequences



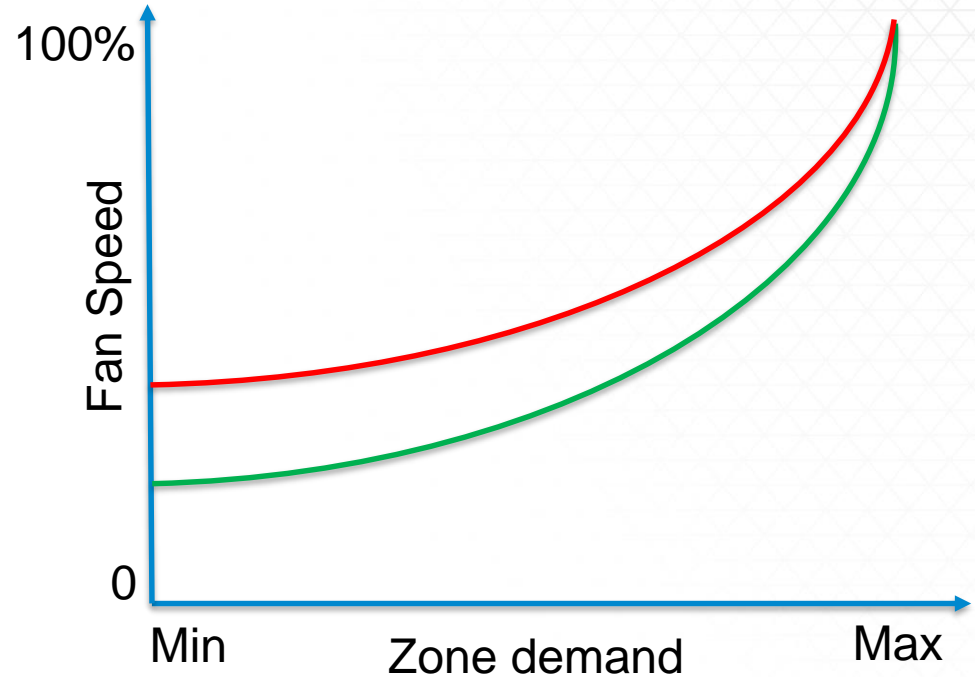
# Saving Fan Energy – Approach

## Traditional Approach

Maintain a constant duct static

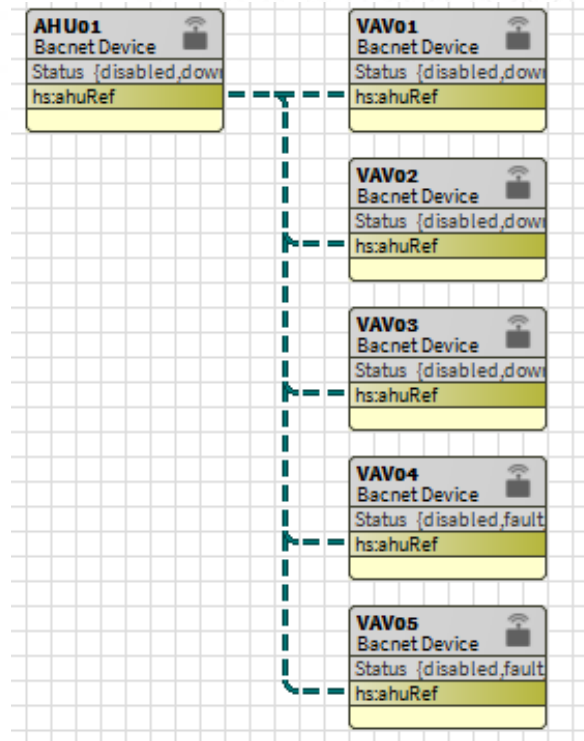
## Analytics-based Approach

Adjust the duct static using a trim and respond algorithm

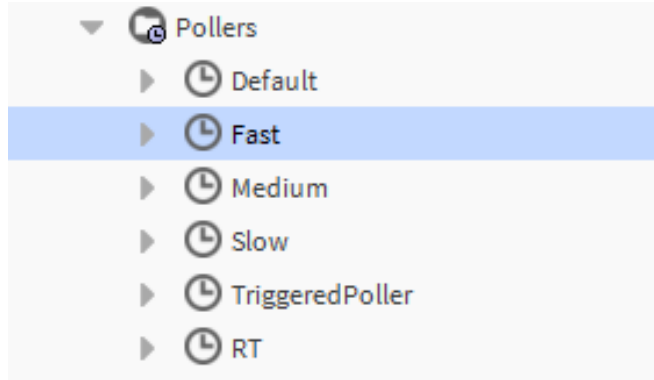


# Saving Fan Energy – Parent Child

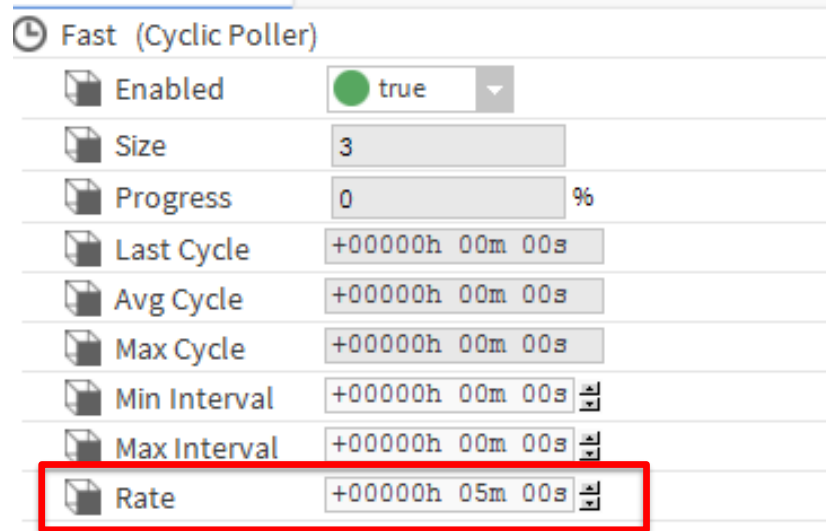
Associate each VAV with the AHU that serves it



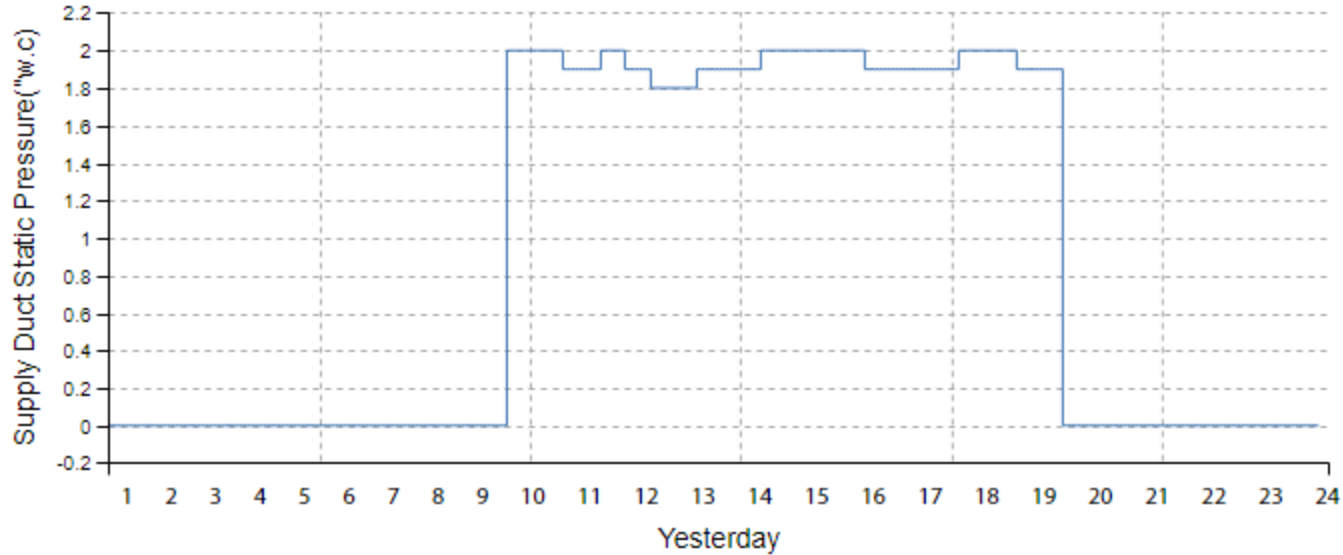
# Saving Fan Energy – Timed Execution



Adjust the polling rate to execute the algorithm every 5 minutes



# Saving Fan Energy – Rogue Zones



Rogue zones are making the sequence ineffective

# Saving Fan Energy – Representation

AHU\_1

Rogue Count

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Static pressure SetPoint Reset



Adjust the number of rogues zones to make the reset effective

# Summary

Use Analytics to:

- Track the performance of systems over time
- Establish relationships between systems
- Implement complex sequences
- Demonstrate results visually