

This presentation was live at:



Smart Buildings

SHOW

18-19 October 2023 • ExCel London



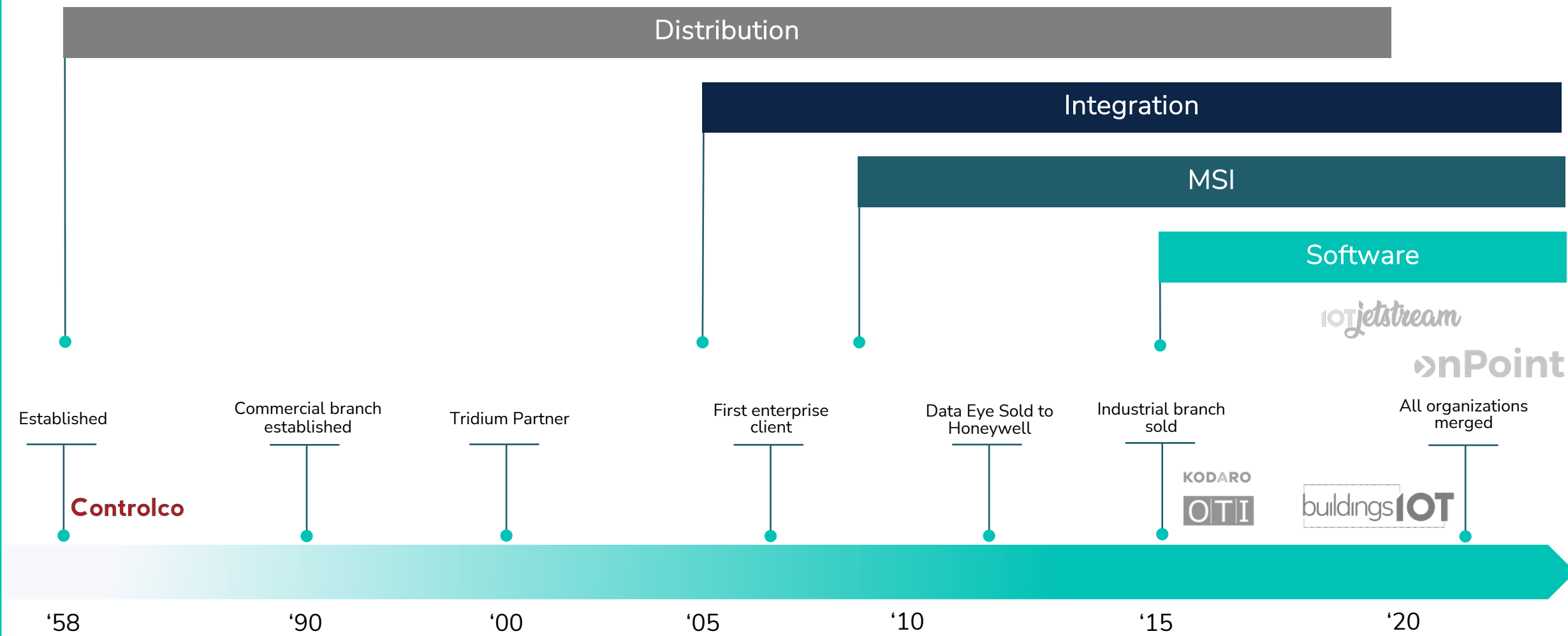
Mark Davenport

buildings**IoT**

Integration !

Enabling Adaptive Buildings

60+ Years of bringing emerging tech to the built environment



Understanding the Reason, What, Who, & Why



What is a Smart Building?

- It means different things to different people
- What determines a Smart Building
 - Integration – Normalization – Unified Interface



Who Wants a Smart Building?

- Investor, Developer, Landlord
- Occupier, Managing Agent
- Tenant,



Why do they want a Smart Building?

- Capitalize on investment, Rental Income
- Attract & Retain talent, Wellbeing
- Create a premium brand, Occupancy management

So the Question is – What exactly determines a Smart Adaptive Building ?



Dynamically in Real Time (DiRT)



BMS

Manage & Optimize

Integration

Seamless Data Management
Independent Data Layer IDL
Cross Functional benefits

Lighting

Smart Sensing enables Smart data &
Occupancy Management

Air Con

Enable adaptive demand

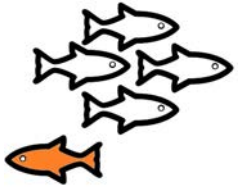
Space Management

Understand what's happening, where
and when

Energy

Profile and optimize

Let's evaluate the **journey**



Disruptive



Client



Resistance



Workshops



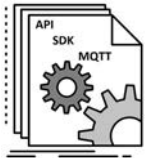
Enhanced Design



Define Integration



Normalize



Integration Tools



Integration
Dependencies



3 Stages



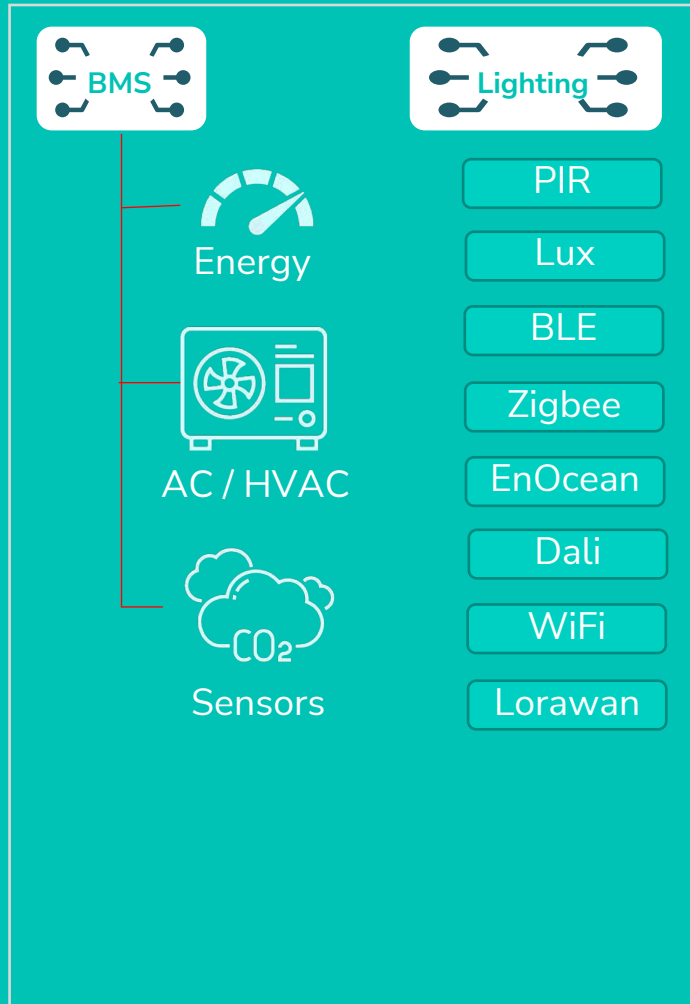
Digital Services



Simple User
Interface

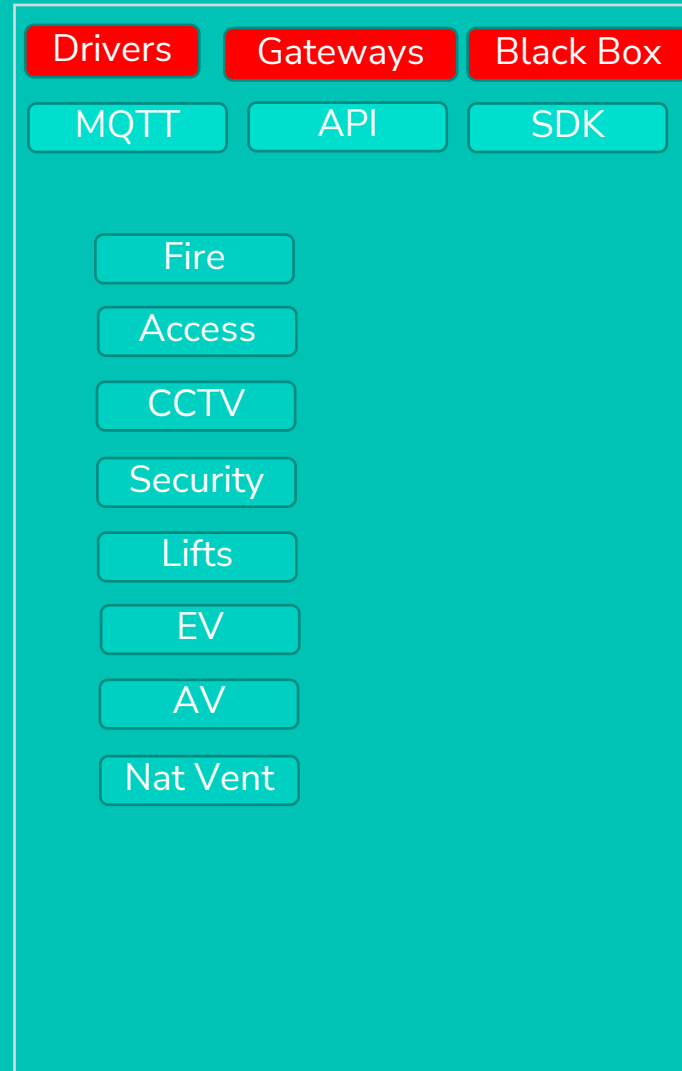
Stage.1 Core

Primary Systems Enabler



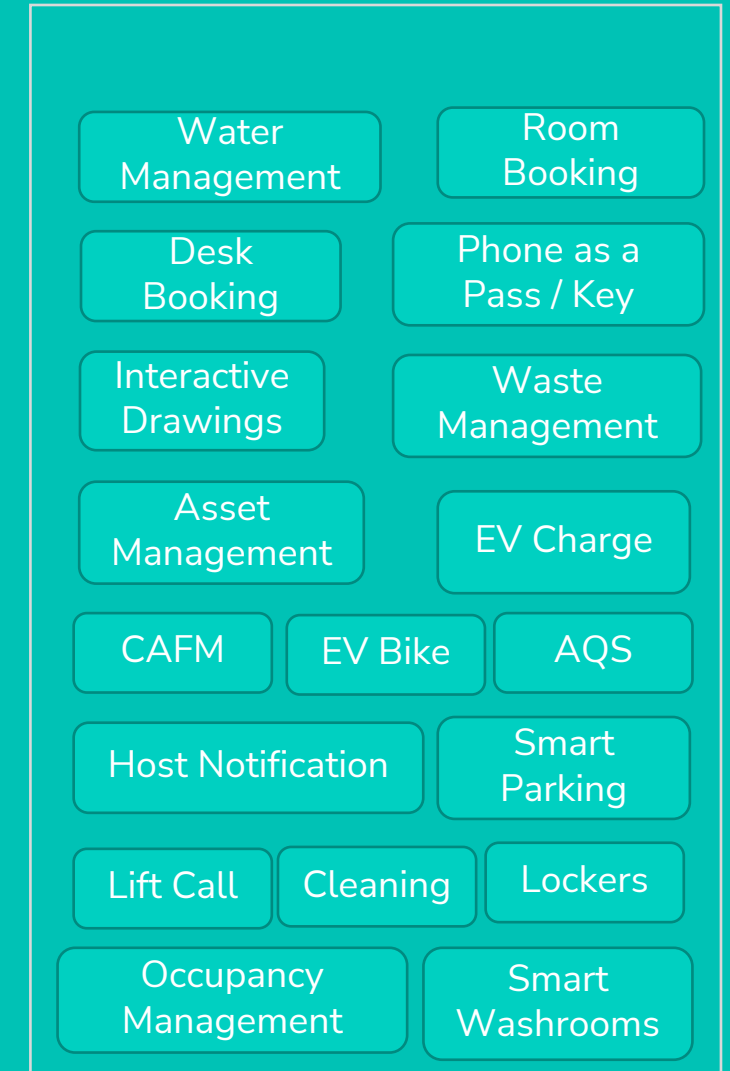
Stage.2 Integration

Traditional Systems



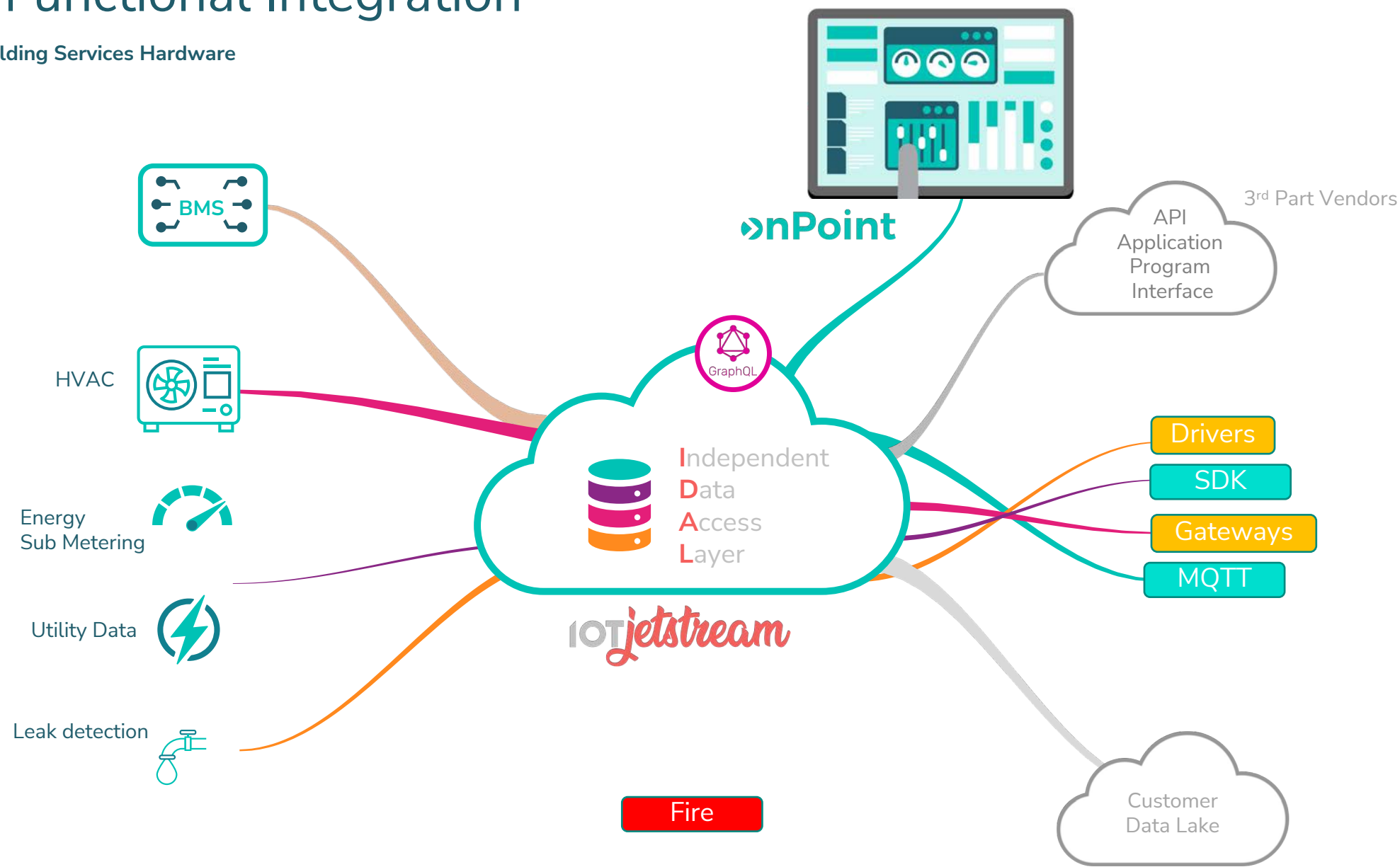
Stage.3 Soft

User Journey - Experience

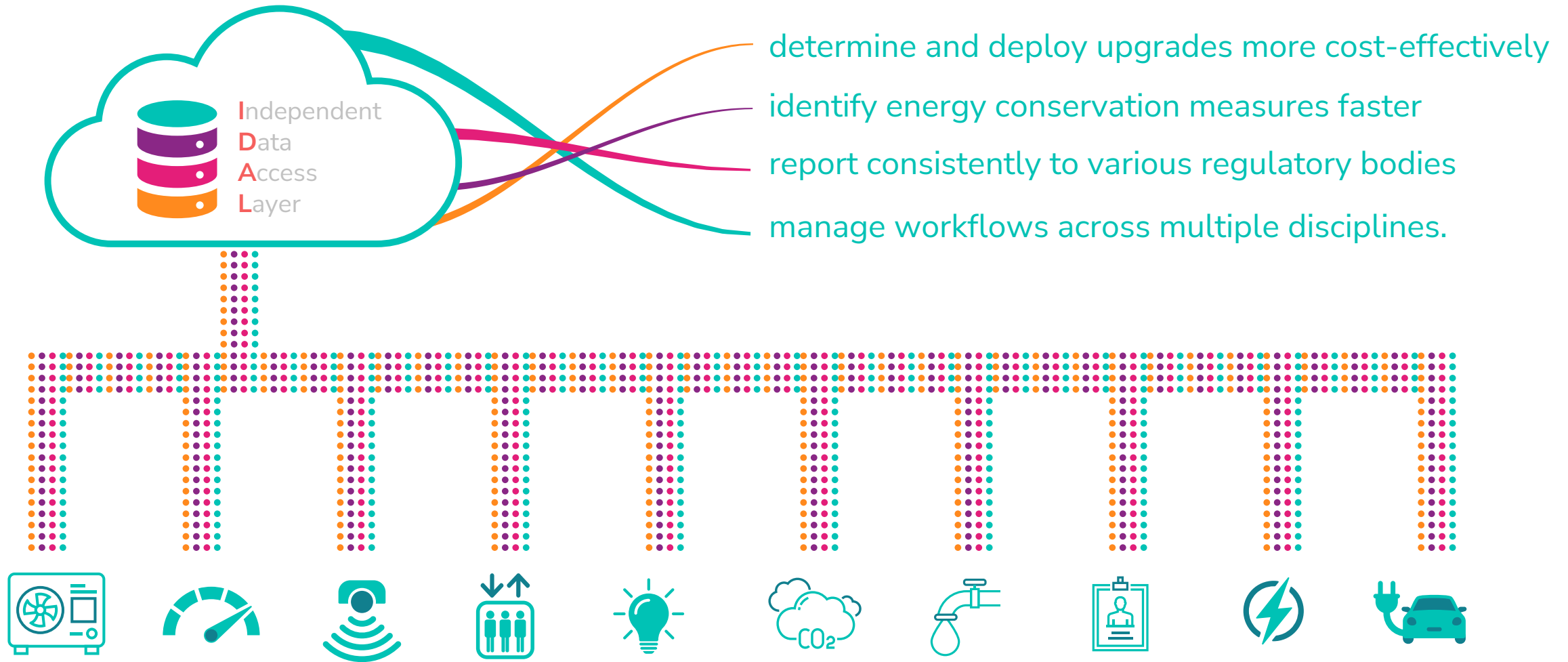


Cross Functional Integration

Building Services Hardware

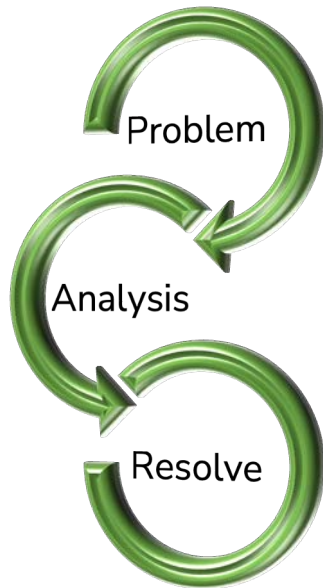


When all your building system data looks the same
(to both humans and machines), and is accessible via a single source, you can:



User Journeys Who & Why

- Within any building there are several different user journeys that are required.
- Just as the question is Who wants a Smart building – the same applies to the different users
- So, who could the users be and what journey would they want? Let's take a look !
- Building Operator
- Service Engineer
- Managing Agent
- Tenant / Occupier
- FM Company
- Owner
- Energy Manager
- Visitor



In general, the reason for navigating the system is the same.

The level of detail changes on a per user basis.

For instance, an engineer would need more granular data.

The resolve should be driven by the insights and analytics of the system.

5 Clicks

Intuitive

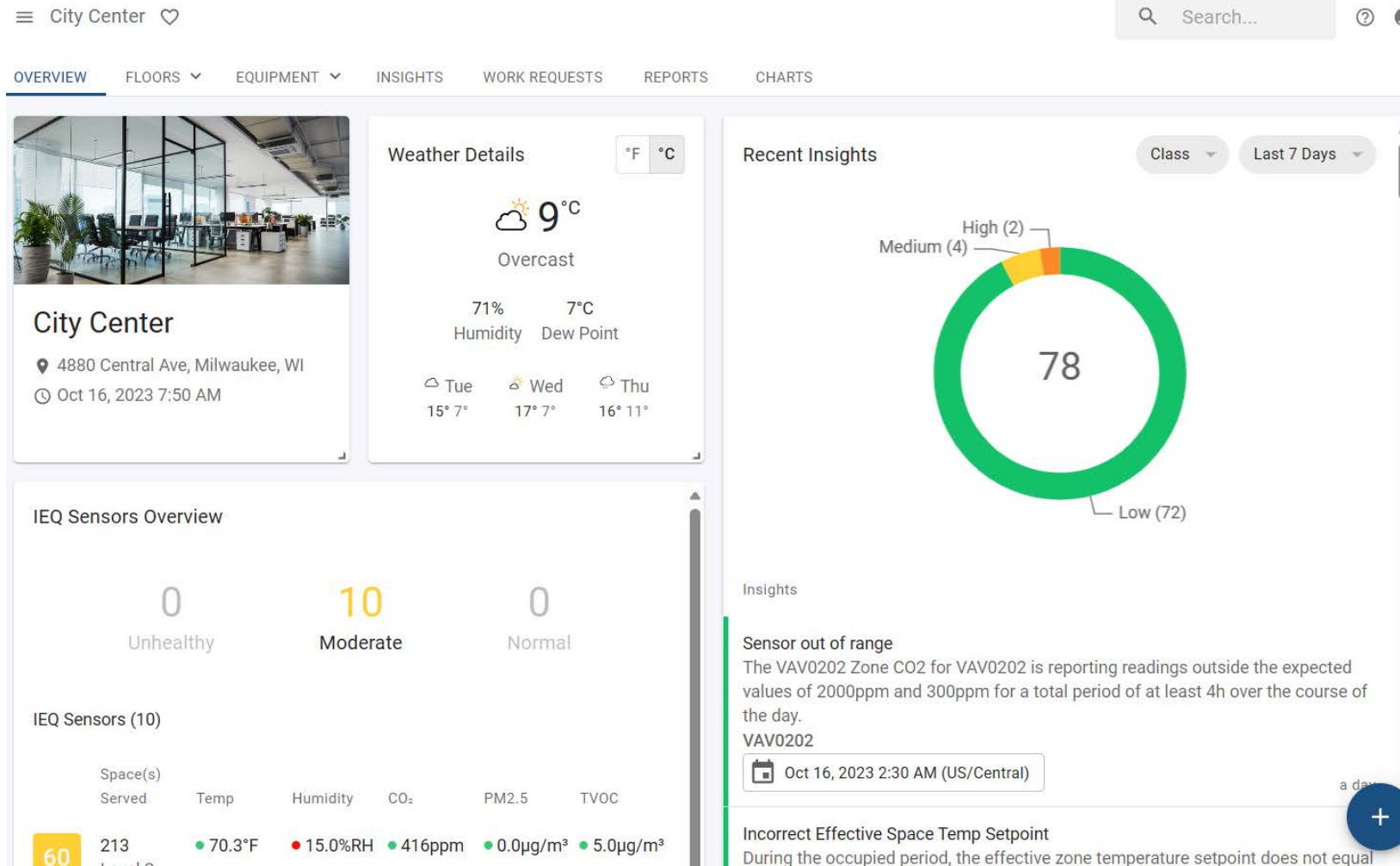
Flow



User Journeys Building Operator

Too Hot / Cold

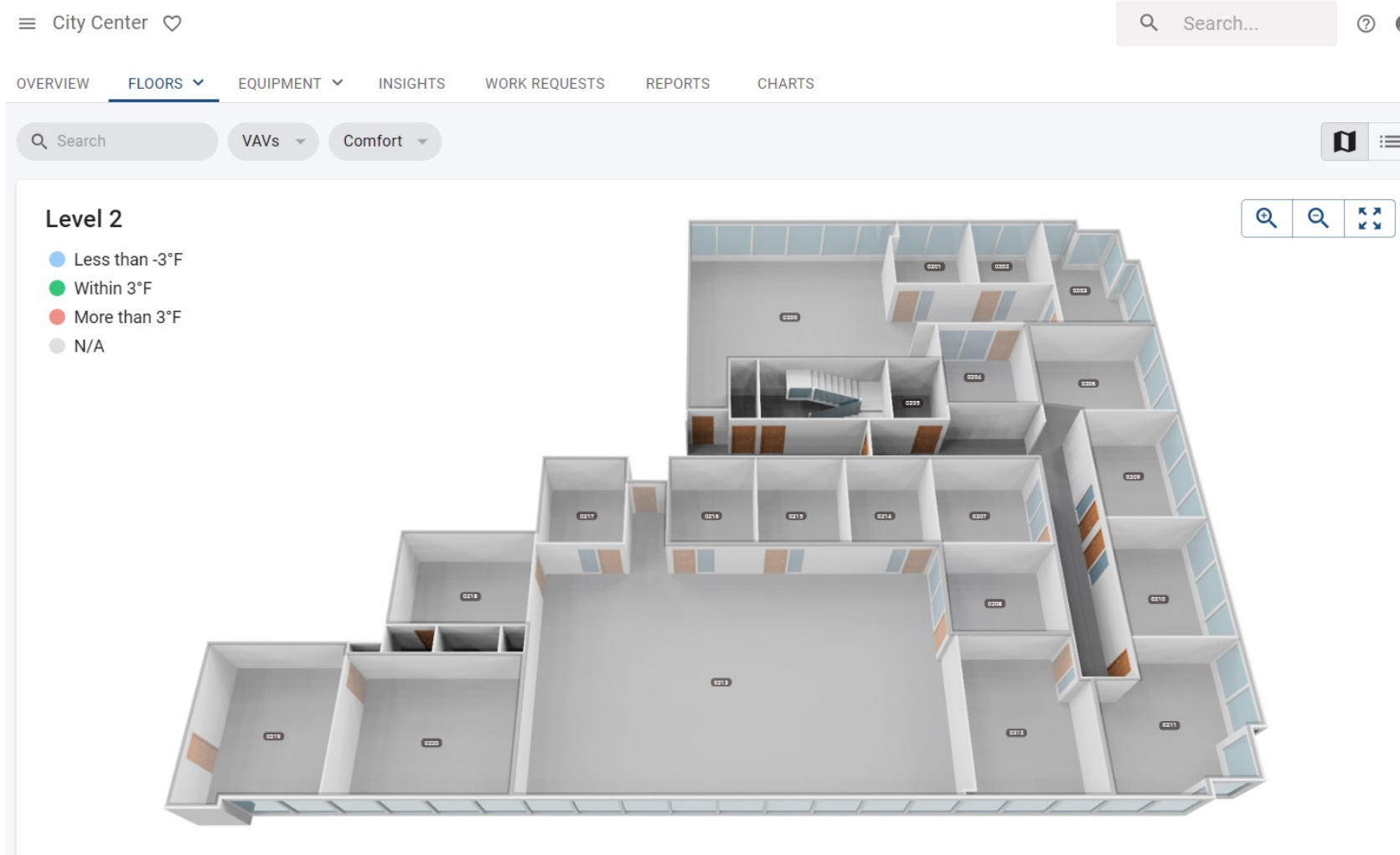
1. Unique Widget View
2. Personalized Snapshot
3. Add widgets to your view
4. Fully Customizable



User Journeys Building Operator

Too Hot / Cold

1. Open the OnPoint Platform
2. Select the floor
3. Identify the equipment



User Building Operator

City Center

Search...

OVERVIEW FLOORS EQUIPMENT INSIGHTS WORK REQUESTS REPORTS CHARTS

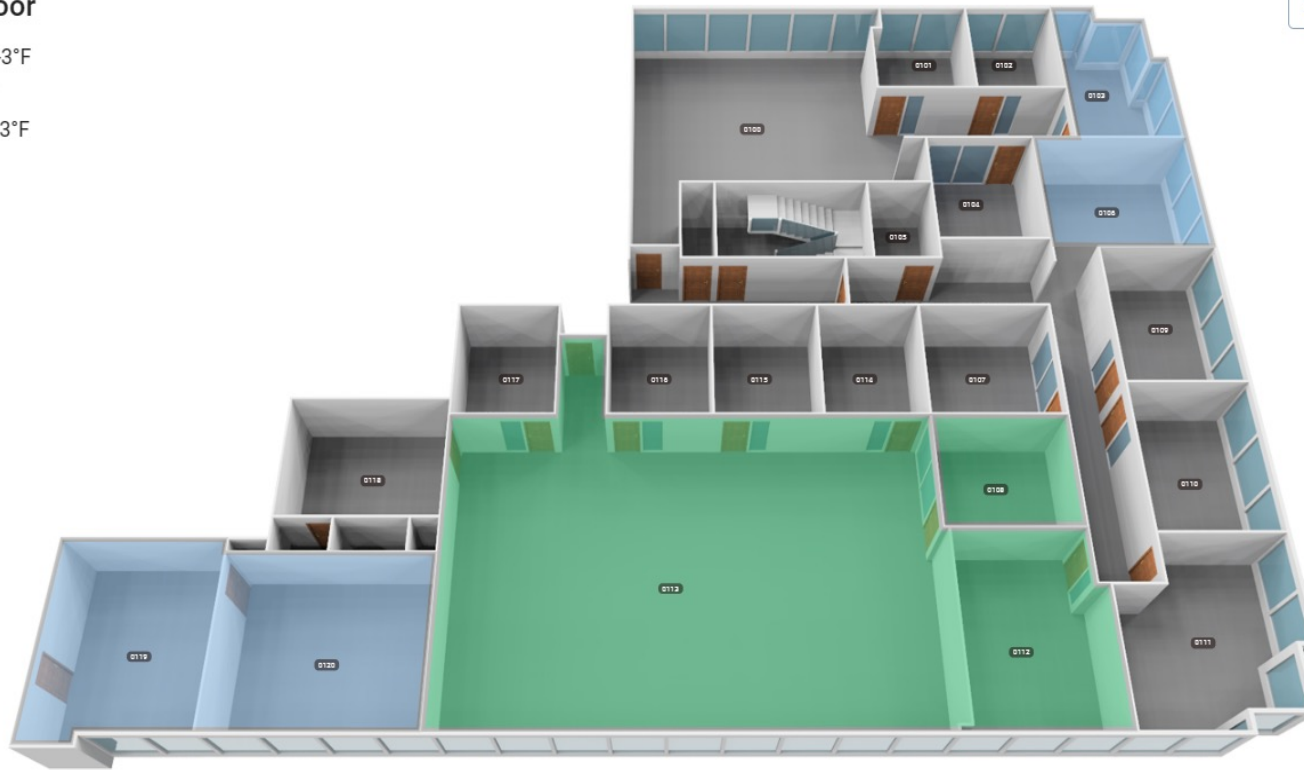
Search

FCUs

Comfort

Ground Floor

- Less than -3°F
- Within 3°F
- More than 3°F
- N/A



1. Performance Rule
2. Snapshot Comparison
3. Performance Color map
4. Select and Drill down

User Journeys Building Operator

The screenshot displays the City Center building operator interface. The left sidebar shows a 3D floor plan of the Ground Floor with a legend indicating temperature ranges: Less than -3°F (blue), Within 3°F (green), More than 3°F (red), and N/A (grey). The main content area is titled 'HVACZn0106' and includes tabs for 'EQUIPMENT' and 'INSIGHTS'. The 'EQUIPMENT' tab is active, showing details for a Fan Coil Unit (FCU0106) and a Variable Air Volume Unit (VAV0106).

Ground Floor

- Less than -3°F
- Within 3°F
- More than 3°F
- N/A

HVACZn0106

Name: HVACZn0106 | Floor: Ground Floor | Rooms Served: Reception (0119), Retail (0120)

Comfort Status: Within | Ventilation Status (CO₂): 474ppm

Fan Coil Units (1)

Name	Zone	Effective Zone Temp Cooling Sp	Effective Zone Temp Heating Sp	Discharge Fan Speed Cmd	HVAC Mode Status	Occ Status	Filter Status	Run Status
FCU0106	67.5°F	74.0°F	68.0°F	Middle	HEAT	Occupy		ON

Variable Air Volume Units (1)

Name	Zone Temp	CO ₂	Inlet Air Flow	Effective Air Flow Sp
VAV0106	62.0°F	474ppm	33cfm	450cfm

1. Equipment Diagnostics
2. System Parameters
3. Real Time Performance Analytics
4. Flip to Insights

User Journeys Building Operator

The screenshot displays the 'HVACZN0106' equipment page in the 'City Center' building management system. The interface is divided into two main sections: a 3D floor plan on the left and a detailed equipment/insights panel on the right.

Left Panel (Ground Floor):

- Navigation tabs: OVERVIEW, FLOORS (selected), EQUIPMENT, INSIGHTS, WORK REQUESTS.
- Search bar and filters: FCUs, Comfort.
- Legend for temperature status:
 - Less than -3°F (Blue)
 - Within 3°F (Green)
 - More than 3°F (Red)
 - N/A (Grey)
- 3D floor plan showing rooms 0119, 0120, and 0117.

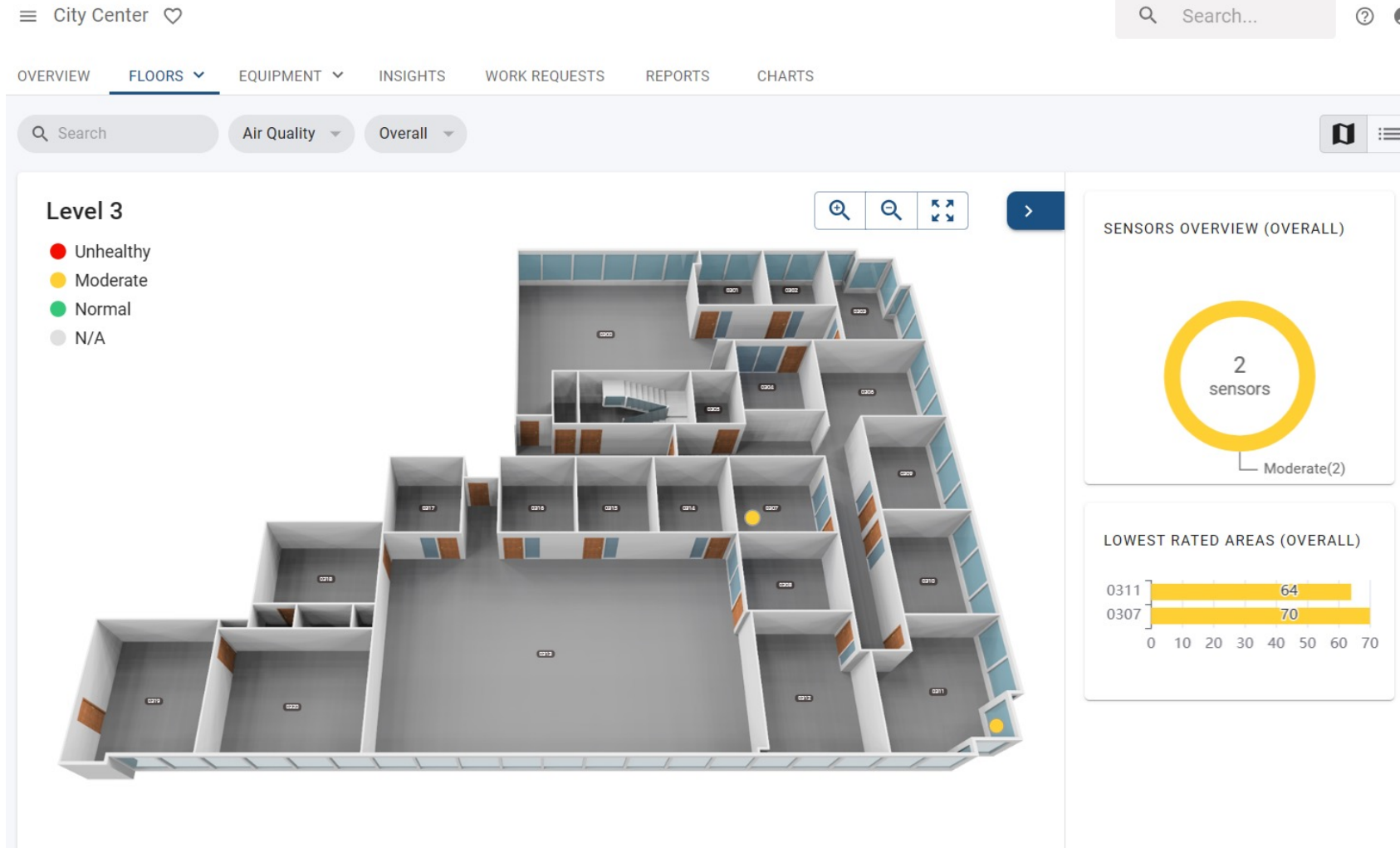
Right Panel (HVACZN0106 Details):

- Equipment Name: HVACZN0106
- Floor: Ground Floor
- Rooms Served: Reception (0119), Retail (0120)
- Comfort Status: Within (Green dot)
- Ventilation Status (CO₂): 474ppm (Green dot)
- Navigation tabs: EQUIPMENT, INSIGHTS (selected).
- Search bar and filters: Equipment, Priority, Class, Work Request Status.
- Insights (2) table:

Insight	Priority	Equipment	Duration	Last Occurrence
VAV airflow less than setpoint The VAV box airflow sensor for VAV0106 was below setpoint for more than 4h. The damper position is fixed at 10% open for that time.	● Medium General	VAV0106	6 days	Oct 16, 2023 12:00 AM US/Central
VAV Damper Position Less than Predicted Inlet Air Damper Command was below the predicted limit for at least 10h.	● Medium PM	VAV0106	5 days	Oct 15, 2023 12:00 AM US/Central

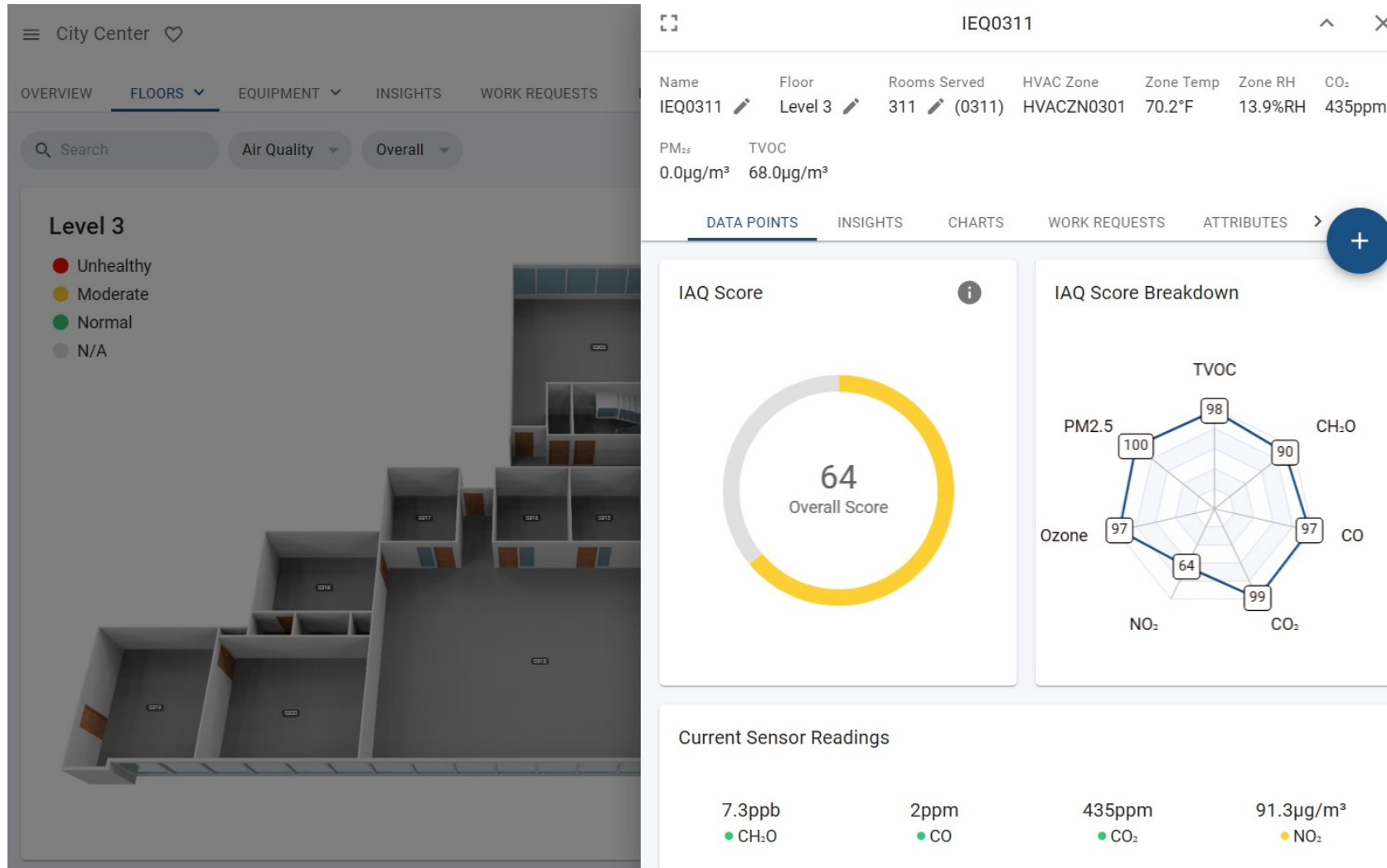
1. Detail Cause Information
2. Output effect data
3. Historical Analysis
4. Change priority Category
5. Manage Work Request

User Journeys Service Engineer



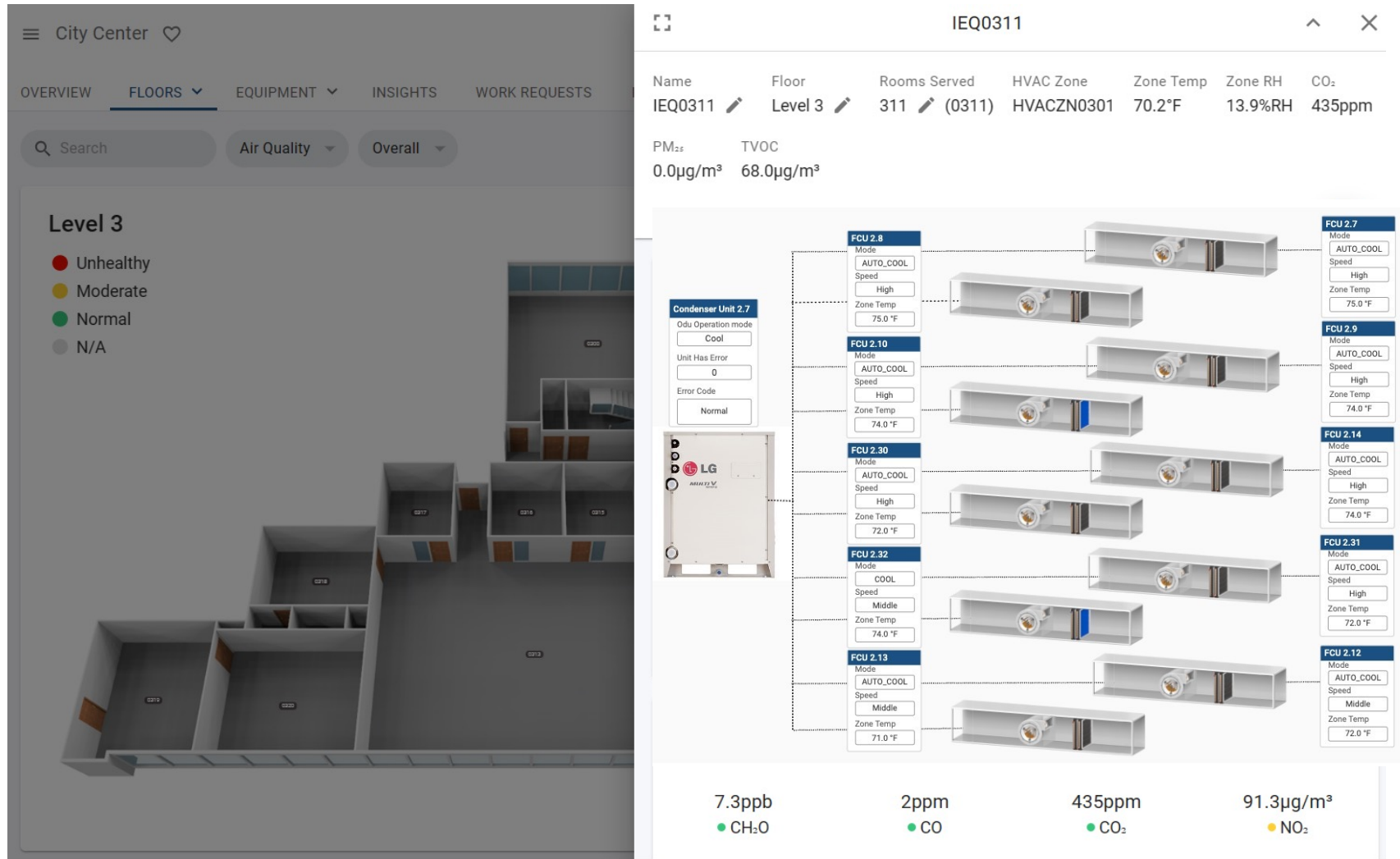
1. New engineer to this site
2. Similar View different content.
3. Asset Location
4. Select Asset

User Journeys Service Engineer



1. In-depth Real Time insights
2. Performance data
3. Outstanding Work Requests
4. Asset Attributes
5. Asset Associations

User Journeys Service Engineer



1. Typical BMS GUI
2. Same interaction
3. Engineer's view

User Journeys Service Engineer

1. Comprehensive Reports
2. Scalable
3. Transportable



Top Comfort Issues

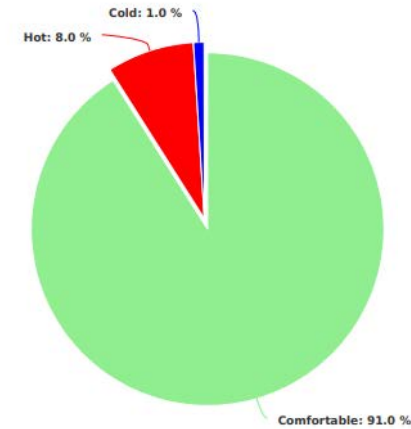
INSIGHT	PRIORITY	ALARM MESSAGE	HELP MESSAGE
WSHP03:Low Discharge Air Temperature	Low	The discharge air temperature is less than 48°F for 2h. This may be an indication of low airflow and may result in occupant discomfort.	Check fan speed, fan belt tension, and/or filter.
WSHP01:Low Discharge Air Temperature	Low	The discharge air temperature is less than 48°F for 2h. This may be an indication of low airflow and may result in occupant discomfort.	Check fan speed, fan belt tension, and/or filter.
DOAS0502:Discharge Air Temp greater than setpoint	Low	The Discharge Air Temp of DOAS0502 is higher than the Discharge Air Temperature Heating Setpoint by at least 3Δ°F for 4h.	Check the compressor or cooling valve function.

INSIGHT	TIMELINE
WSHP03:Low Discharge Air Temperature	SUN 24TH MON 25TH TUE 26TH WED 27TH THU 28TH FRI 29TH SAT 30TH
WSHP01:Low Discharge Air Temperature	SUN 24TH MON 25TH TUE 26TH WED 27TH THU 28TH FRI 29TH SAT 30TH

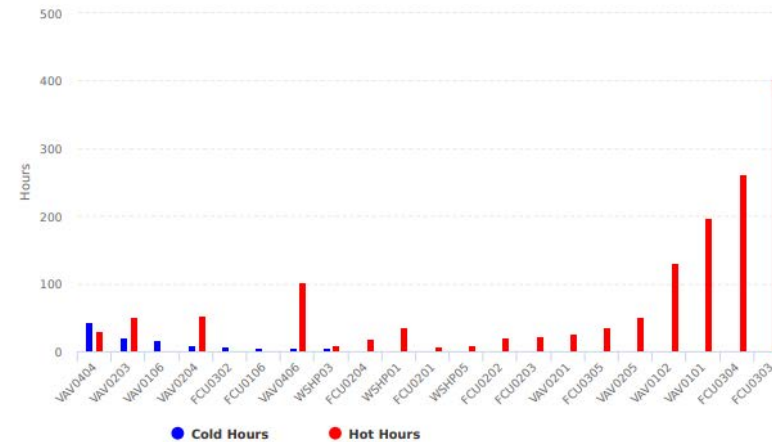
powered by **onPoint**

2 City Center September 2023

Zone Comfort Summary



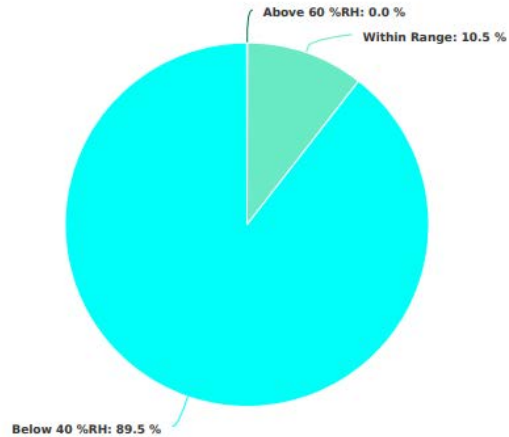
Zone/Equipment Occupied Hours Outside Comfort Thresholds



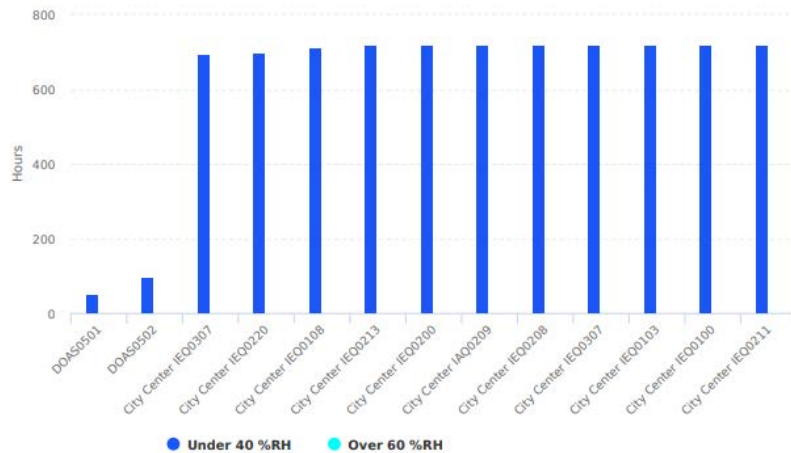
User Journeys Service Engineer

3 City Center September 2023

Zone Humidity Summary



Zone/Equipment Occupied Hours Outside Recommended Humidity Levels



powered by **nPoint**

4 City Center September 2023

CO2 Concentration Above Threshold



● In Compliance (%)
● Moderate (%)
● Unhealthy (%)

Zone/Equipment	Out of Compliance (Hrs)
VAV0203	69.0
VAV0204	19.0
VAV0401	16.0
City Center IEQ0108	14.0
VAV0105	12.0

4 City Center September 2023

Report Section Descriptions

Zone Comfort Summary

This report section displays the total fraction of occupied hours for all zones in which the zone temperatures were comfortable, hot(over 75°F) or cold (under 68°F).

Zone/Equipment Occupied Hours Outside Comfort Thresholds

This report section displays the occupied hours for equipment that were unable maintain to comfort levels to within the range recommended for thermal comfort (68-75°F).

Zone Humidity Summary

This report section displays the total fraction of occupied hours for all zones in which the humidity levels were within, above, and below the range recommended by ASHRAE for the control of infectious aerosols, 40 %RH and 60 %RH.

Zone/Equipment Occupied Hours Outside Recommended Humidity Levels

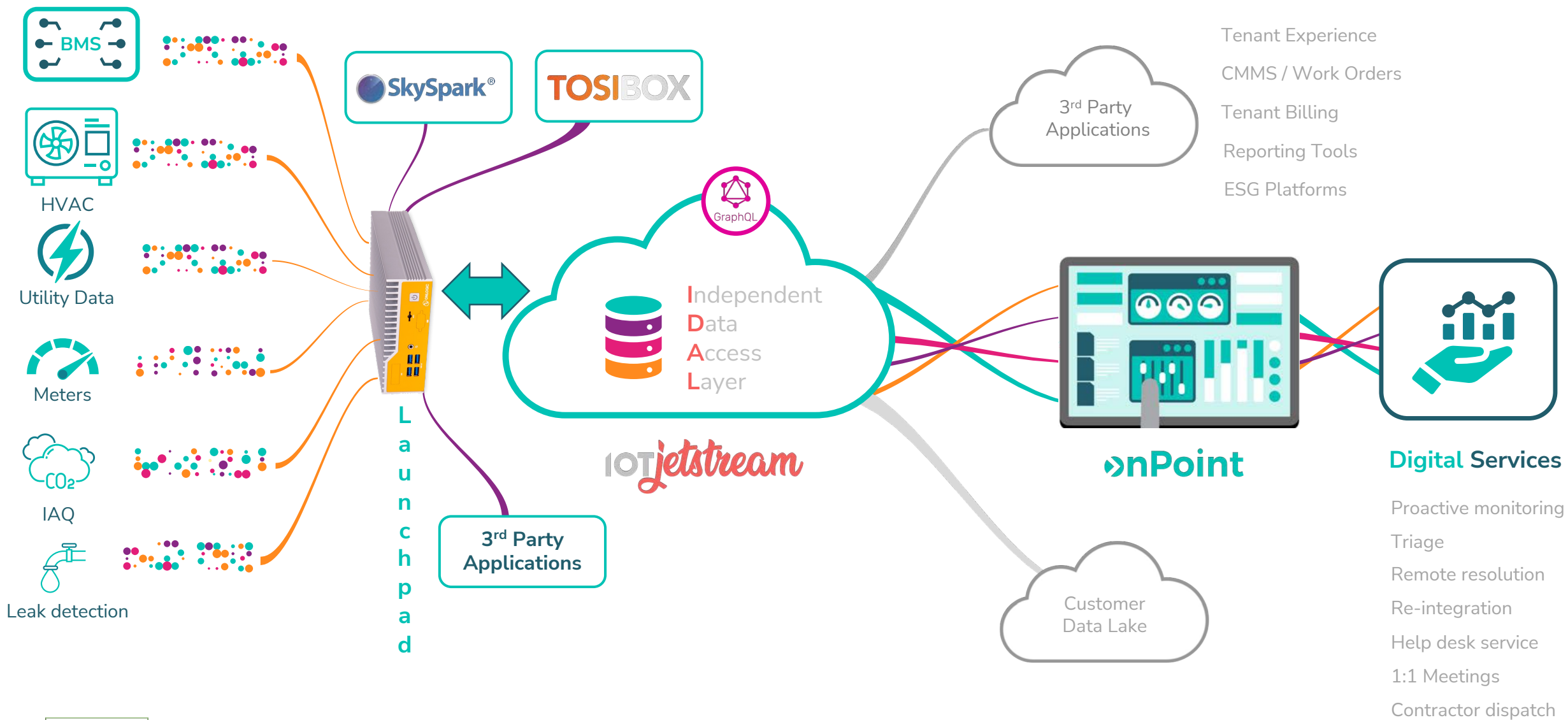
This report section displays the occupied hours for equipment that were unable to maintain humidity levels within the range recommended by ASHRAE for the control of infectious aerosols, 40 %RH and 60 %RH.

CO2 Concentration Above Threshold

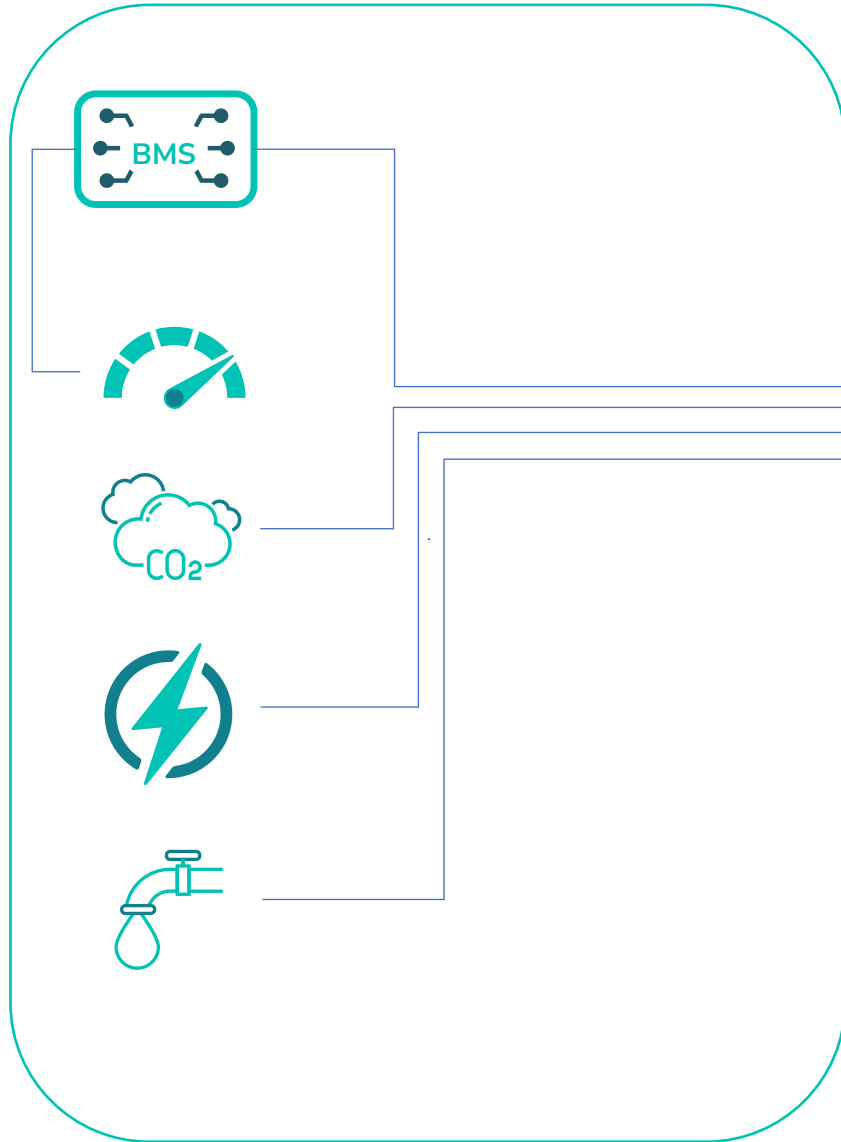
This report section calculates the total percentage of occupied time that facilities CO2 sensors report a concentration greater than the threshold (defaulted to 600ppm, the RESET Air Standard for High Performance Buildings).

1. Customizable
2. In Depth
3. Flexible outputs

Unified, highly available data for a whole building solution

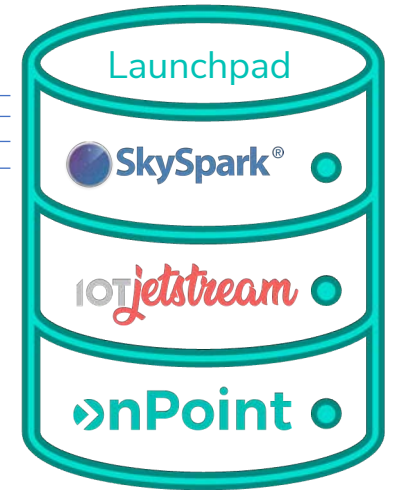


Networked Independence



Tagging Options

Tags can be embedded within the device hardware
Systems like Tridium support this out of the box
Disparate systems can be tagged within the DB



Independent
Data
Access
Layer

Defining an Adaptive Building



Adaptive Buildings are:

- Data Rich
- Responsive to their environment
- Adaptively interactive
- Seamlessly integrated



They produce data that:

- Can be consumed at various levels
- Both Horizontally & vertically
- Providing a portfolio view
- For different audiences across space & time



Crucially:

- Know how and when to use the data
- Outcomes that affect positive changes
- For the Owners, Operators & Occupants

200M+ sq.ft. deployment

b ^{IoT} Projects Completed with MSI and IBMS Use Cases								
Projects Name	Approx. sq. ft.	BAS Integration	Lighting Int.	Electrical & Metering	Unified User Interface	Lighting control	Electrical systems	Integrations w/3rd party apps
Airport	1M	✓	✓		✓	✓	✓	
Bank	1M	✓	✓			✓	✓	
Corporate real estate	11M	✓	✓	✓	✓	✓	✓	
Data centers	500k	✓		✓	✓	✓	✓	✓
Gov't buildings	10M	✓	✓	✓	✓	✓	✓	
Healthcare facility	10.8M	✓	✓	✓	✓	✓	✓	✓
Manufacturing and distribution	3M	✓	✓	✓	✓	✓	✓	✓
School & University	3M	✓	✓	✓	✓	✓	✓	
Shopping mall	208M	✓	✓	✓	✓	✓	✓	✓

Why Buildings IOT?

60%

Improved Comfort

25%

Energy Savings

40%

Operating Efficiency



*"We found Buildings IOT to be highly experienced in providing us a **truly unified platform** that brings all our systems together and achieves a single harmonious output. Together, we're **improving building performance** and **standardizing operations**."*

- Ryan Knudson, **Macerich**



*"We were committed to developing a **first-class project** in terms of technology. We have a robust technology platform called onPoint. It's a dashboard on a **single pane of glass** that controls all systems in the building."*

- Peter McEneaney, **Thor Equities**



*"Buildings IOT gets my award for the **unsung hero**. Their solution is **near perfect** and is a key **enabler to our efficiency**."*

- Paul Vaccaro, **STACK Infrastructure**



Customer success - See how data makes a difference



Woodland Mall

Peak demand
reduction



Melbourne University

Achieving Carbon
neutrality



Monash University

Data
Standardizations

Resources



onPoint Demo



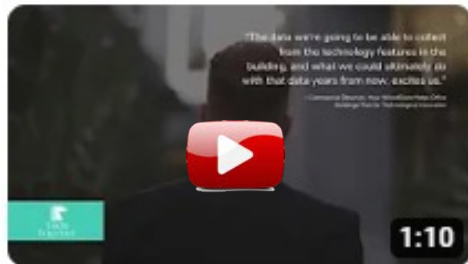
Changing the Future of Building Automation with Data Driven Service and Maintenance



Macerich uses enterprise energy management with command and control...



Discover the Power of onPoint



800 Fulton uses onPoint to manage building systems



Introducing Streamlined Innovation: IOT Jetstream



Standardizing the Standards: Introducing the OAP



How to Improve Maintenance Management Using onPoint

Thanks for listening



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We look forward to seeing you in 2024