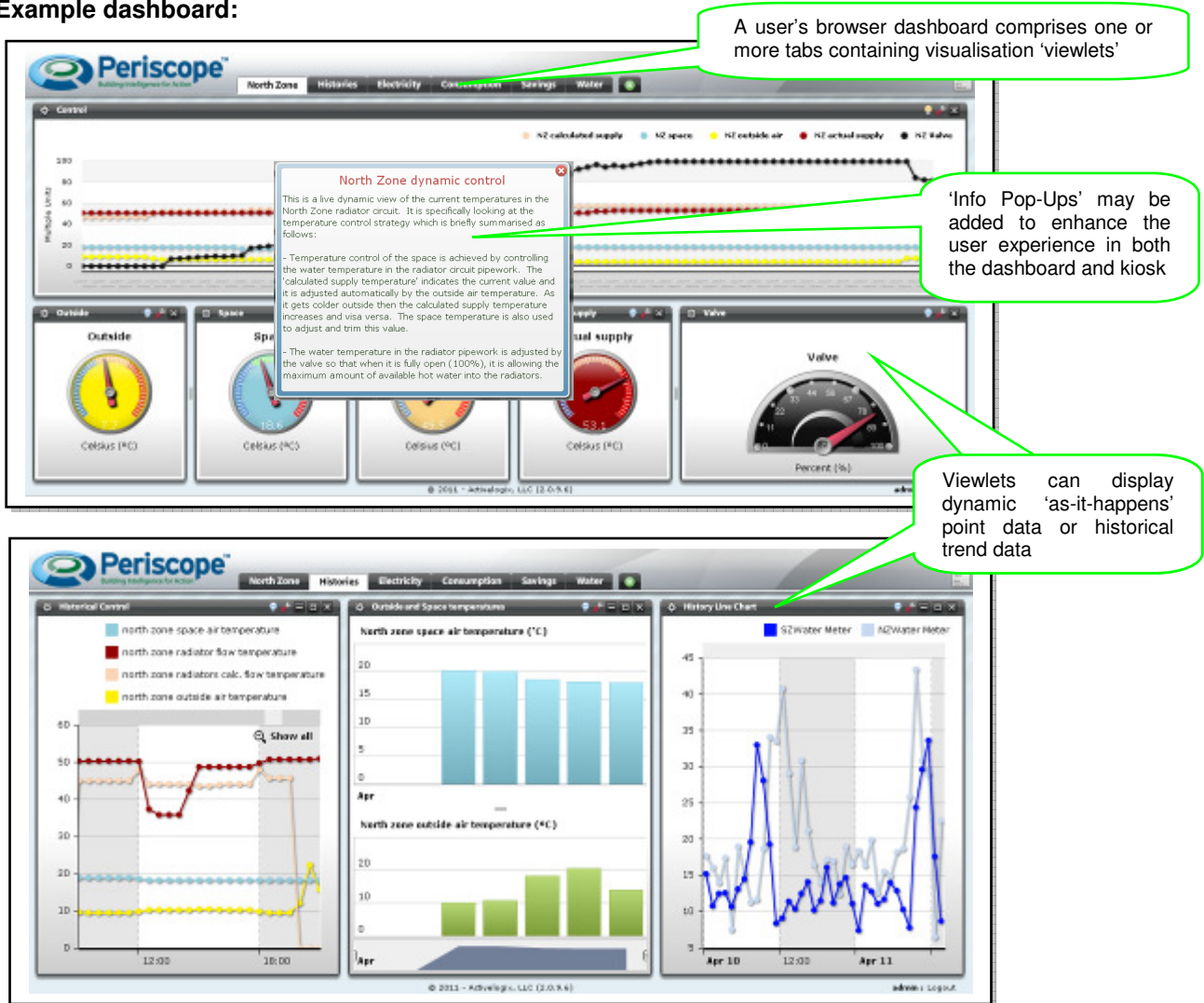
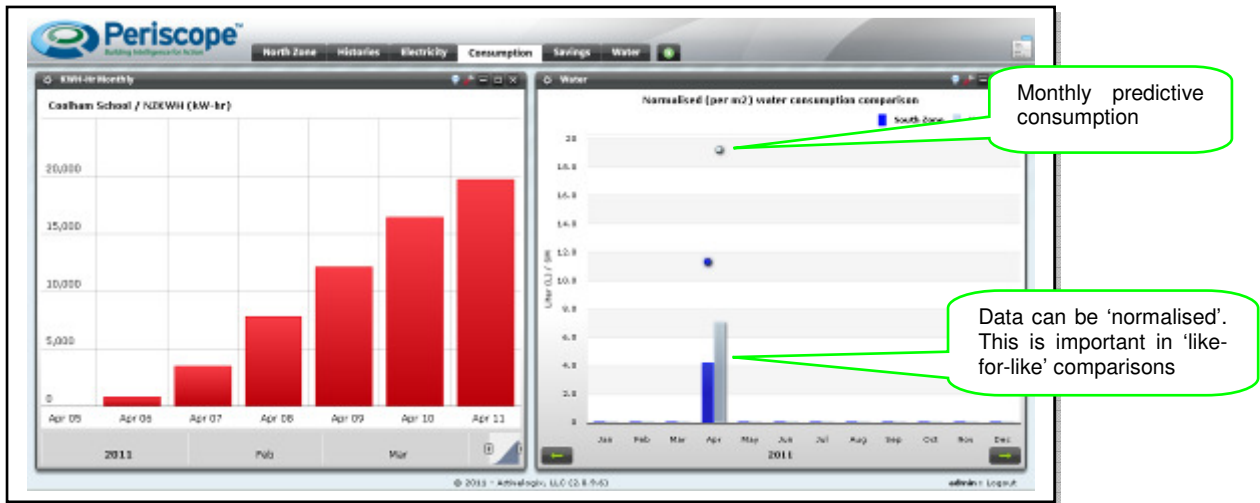


EN-47: Adding a dashboard and kiosk

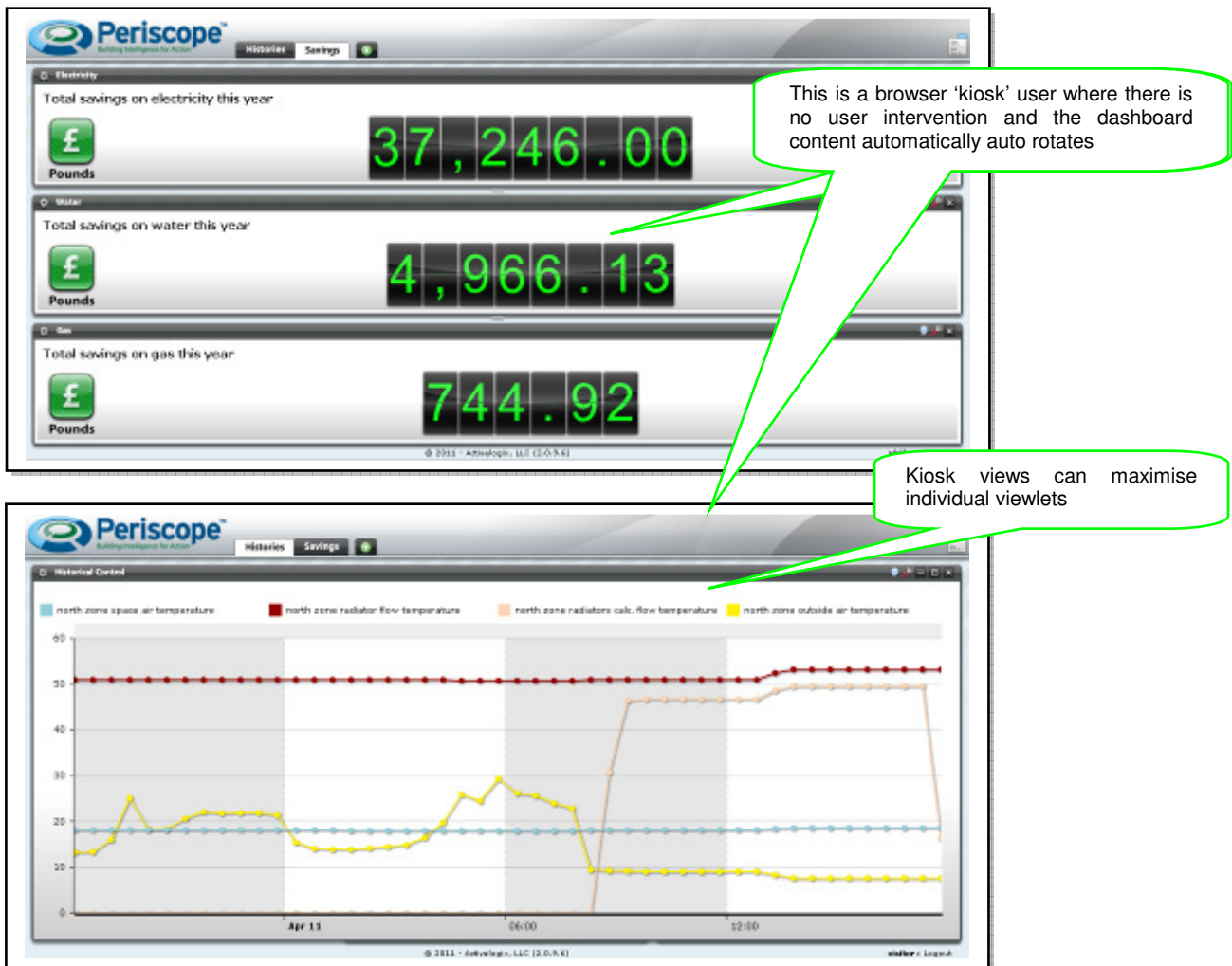
- Vykon HVAC dramatically simplifies the process of creating heating, ventilating and air-conditioning control applications. When these applications are implemented, it is often requested that a means by which the application's historical and real time point "data" can be presented to users in the form of useful "information". If the data can be converted into information, or "visual knowledge" then it will provide an opportunity for users to quickly identify issues, assess relationships and take action in order to optimise resource efficiencies.
- A "Dashboard" is a browser method of information visualisation that provides identification of real time and historic trends through one or more visualisation 'viewlets'. A "Kiosk" is a means of displaying a dashboard by maximising its views in an automated rotating sequence and displaying information to the masses.
- An "easy-to-implement solution" which complements the simplified engineering of Vykon HVAC to provide dashboards and kiosks is needed and such a product is available from *ActiveLogix*. This engineering note illustrates how *Periscope™* from *ActiveLogix* can be added to a Vykon HVAC station to easily provide browser based dashboards and kiosks directly from the JACE®.

Example dashboard:





Example kiosk:



Periscope™

- Periscope™ is created by *ActiveLogix* who are based in the USA. Periscope™ is distributed and supported in the EMEA region by *ControlsPlus Solutions Ltd.* Please contact this distributor at <http://www.controlsplus.uk.com> if you are looking for availability, support, pricing or delivery information of Periscope™
- Periscope comprises a NiagaraAX Framework® compatible 'alxPeriscope.jar' file, an 'ActiveLogix.license'. and an 'ActiveLogix.certificate' The jar file, license and certificate must be installed in the Niagara host device using AX Workbench commissioning in the normal manner
- Periscope is designed to run as a module on a NiagaraAX station in either a 'Supervisor' or 'JACE®', and utilises the trusted Niagara licensing and security model. The Periscope service is then accessible to all end users through a standard browser interface, such as Internet Explorer, Mozilla Firefox, and Safari
- The browsing device must have access to the internet while the dashboards and kiosks are being used in the browser. This is to enable updates to the license to be deployed to the host platform without any AX Workbench intervention and also to ensure that the *Adobe Flash* 'viewlets' are all operating with the latest software revision
- This engineering note is not intended to reproduce the extensive Periscope documentation which is available from the distributor. Rather it illustrates the steps that you need to take to add Periscope to a Vykon HVAC station, specifically running in a JACE®

Step 1 – Add the Periscope jar module, license and certificate to the Workbench platform

The image shows three sequential screenshots of the AX Workbench file explorer interface, illustrating the installation of Periscope files into a Niagara station.

Top Screenshot: Shows the 'modules' folder selected. The file list includes 'alxPeriscope.jar' (1,883 KB, Executable Jar File), which is highlighted with a red box. A yellow callout box points to this file with the text: "Add Jar, Jace license and Jace certificate to your install... Workbench folders".

Middle Screenshot: Shows the 'licenses' folder selected. The file list includes 'Qnx-NPM6-0000-1190-91F0.license' (1 KB, LICENSE File), which is highlighted with a red box. A yellow callout box points to this file.

Bottom Screenshot: Shows the 'certificates' folder selected. The file list includes 'ActiveLogix.certificate' (1 KB, CERTIFICATE File), which is highlighted with a red box. A yellow callout box points to this file.

Bottom Text: "Add the Periscope jar, license and certificate to Workbench"

Note: You will need to **restart** Workbench to register the added module

Step 2 – Add the Periscope jar module, license and certificate to the Jace host platform

Using **Workbench** access your Jace host platform

Using License Manager install the **license and certificate**

Using Software Manager install the **alxPeriscope.jar** file

Note:
You will need to **reboot** the Jace to register the changes

Add the Periscope jar, license and certificate to the Jace host platform

Step 3 – Add the Periscope Service and Obix Network to the Station

Using **Workbench** open the Palette and drag an **ObixNetwork** and the **PeriscopeService** into the Station

Note:
Periscope is now installed but you will need to configure it before you can use it. There is **no** other configuration or setup required for the ObixNetwork or PeriscopeService in Workbench:

- The **PeriscopeService** is configured with the Browser
- Adding the **ObixNetwork** automatically enables Obix browser data exchange from the Station

Add the Periscope Service and Obix Network to the Station

Step 4 – Configure the Periscope Service

The image shows two screenshots of a web browser. The top screenshot is the login page for the Periscope service. The browser address bar shows `http://192.168.1.123/periscopeconfig`. The page title is "Login - Mozilla Firefox". The login form includes a "Username" field with "admin" entered and a "Password" field. A "Login" button is visible. A callout box points to the address bar with the text: "Using your **Browser**, open a session with the Jace Station using: **periscopeconfig**". Another callout box points to the login fields with the text: "Login with the Vykon HVAC Superuser/password account: **admin** <blank>". A green callout box contains a note: "Note: Your Browser will automatically connect to the Activelogix web site to check for license and Viewlet updates".

The bottom screenshot shows the main interface of the Periscope application. The browser address bar shows `http://192.168.1.123/periscopeconfig`. The page title is "ActiveLogix - Periscope - Mozilla Firefox". The "Locations" tab is selected in the navigation menu. A callout box points to the "Locations" tab with the text: "Create a navigation tree with your **Locations**". The "Location Properties" form is displayed, with fields for "Name", "Country", "Address", "City", "State", "Postal Code", "Conditioned Floor Area (m²)", "Electricity Cost (£ / kW-hr)", "Gas Cost (£ / therm)", "Water Cost (£ / L)", "Sewer Cost (£ / L)", and "CO2 Emission Rate (lbs/HW-hr)". A callout box points to the "Conditioned Floor Area" field with the text: "For each location add its specific **Properties**". A "Save" button is highlighted with a red box, and a callout box points to it with the text: "and...**Save**".

Configure the Periscope Service Locations

Step 4 – Configure the Periscope Service (continued)

Select the **Trends** tab

Note: You will find that Periscope automatically discovers all the histories in the station. These are histories that Vykon HVAC has also automatically created

Drag selected histories into the **Dashboard**

Note: You can adjust the Name and location of the history as it is dragged in

When you have added and adjusted all your Trends don't forget to hit the **Save** button

Device	Name	Unit
demoHVAC	heater control valve_40c01	percent
demoHVAC	heating plant_csk_common flow temperature_	
demoHVAC	heating plant_status_	
demoHVAC	north zone outside air temperature_211003	
demoHVAC	north zone radiator control valve_	
demoHVAC	north zone radiator temperature_211001	celsius
demoHVAC	north zone radiators_csk_flow temperature_	celsius

Dashboard Name	Unit
demoHVAC	north zone outside air temperature_211003

Device	Name	Type
demoHVAC	Outside air temperature	Celsius (°C)

Dashboard Name	Unit	Location
Outside air temperature	Celsius (°C)	North Zone
Space air temperature	Celsius (°C)	North Zone
Water Meter	Cubic Meter (m³)	North Zone
Water Meter	Cubic Meter (m³)	South Zone

Discover Check Validity Add Edit Remove Save

Configure the Periscope Service Trends

Step 5 – Setup a user dashboard

Using your **Browser**, open a session with the Jace Station using: **periscope**

Login with the Vykon HVAC Superuser/password account: **admin**
<blank>

Note:
Your Browser will automatically connect to the Activelogix web site to check for license and Viewlet updates

Highlight the default Tab, Hit the **F2** key and change its name to something meaningful

Setup a user dashboard Tab

Step 5 – Setup a user dashboard (continued)

Hit the add button and select a **New Viewlet** such as History Line Chart

Hit the wrench button on the Viewlet

Adjust any display **Options**

Select the appropriate **Unit Filter**

Set appropriate **Colours**

Note:
This dialogue will display all the Trends which have been configured as long as they meet the **Unit Filter** criteria

Apply and you're done!

Note:
You have now successfully completed the setup of a dashboard for the 'admin' user. You can add more Tabs and more Viewlets to each Tab to enhance the user's dashboard

Setup a user dashboard Viewlet

Location	Trend Name	Sel	Color
North Zone	Outside air temperature	<input checked="" type="checkbox"/>	
North Zone	Space air temperature	<input checked="" type="checkbox"/>	

Step 6 – Creating a Kiosk

When you have created your user dashboard, hit the Dashboard Option Menu...**Kiosk Timing Manager**

Setup the **Timing** for each Tab as required

Note:
Your Kiosk will automatically cycle through the Dashboard, maximising each Tab to its setup timing

Select the **Kiosk [Dashboard]** from the Dashboard Option Menu

Viewlet Title	Viewlet Type	Maximize Timing (seconds)	InfoPopup Timing (seconds)
Water usage normalised comp	Resource Consumption	15	5

Creating a Kiosk

Doing More...Vykon HVAC Objects

This example illustrates how a number of Vykon HVAC “objects” may be discovered by Periscope using the ‘ObjectLinker’ and a ‘Numeric Writable’...

The image shows a Periscope configuration interface. On the left, a tree view shows the project structure under 'Station (demoHVAC)', with 'HeatDistribution' highlighted. Below it, a 'Palette' window shows 'vykonHvacPalette' with various object types like 'ObjectLinker' and 'Numeric Writable'. The main area is a 'Wire Sheet' where several objects are configured and linked. A red box highlights 'ObjectLinker' in the palette, and a yellow callout explains its use. Another yellow callout explains linking 'ObjectLinker' to 'Numeric Writable' objects. A third yellow callout explains filtering numeric points in the 'Numeric Points' tab. A fourth yellow callout explains discovering numeric points in 'PeriscopeConfig' and dragging them into the dashboard.

In a wire sheet, Drag in several ObjectLinkers and link each to selected Vykon HVAC objects

Link each ObjectLinker to a Numeric Writable object and set their 'Facet' properties appropriately

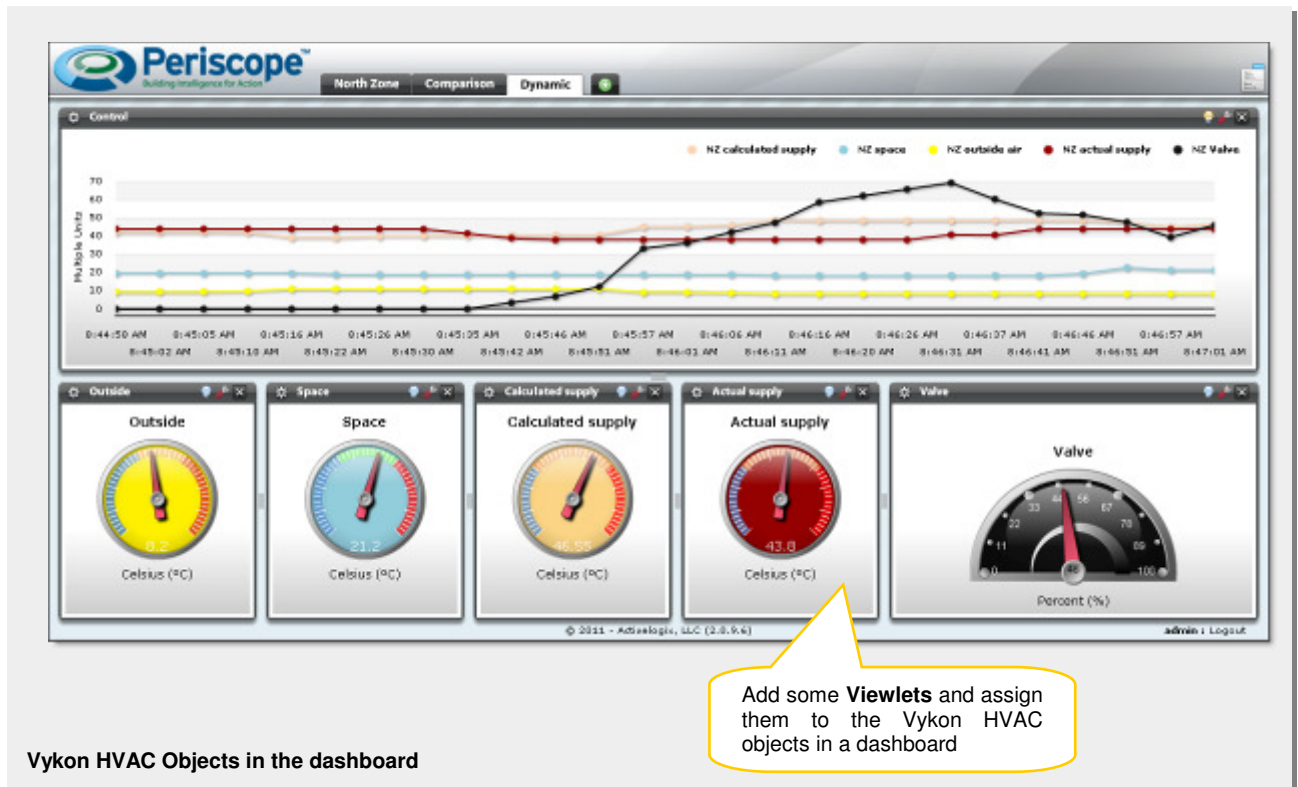
Tip: You can sharpen your search with **Filter**

Discover the Numeric points in PeriscopeConfig, and drag them into the Dashboard

Vykon HVAC Objects for Periscope configuration

Name	Ord	Unit	Location
N2KW Meter	HVAC/Meters/N2KW) Meter	kiow	
N2KVAR Meter	HVAC/Meters/N2KVAR) Meter	kiow	para reactive hour
N2PowerFactor	HVAC/Meters/N2PowerFactor		0.96
Dashboard Name	Unit	Location	
N2 Valve	Percent (%)	North Zone	
N2 space	Celsius (°C)	North Zone	
N2 outside air	Celsius (°C)	North Zone	
N2 actual supply	Celsius (°C)	North Zone	
N2 calculated supply	Celsius (°C)	North zone	

Doing More...Vykon HVAC Objects (continued)



Persicope viewlet summary

Here is a summary of the available viewlets in Periscope. For more information please consult the Periscope literature.

Diagnostics viewlets

- **Cross Correlation Analysis**
The Cross Correlation Analysis viewlet provides an easy to use method to compare two separate trends. This viewlet uses linear regression analysis to provide actual correlation values.
- **Cooling vs. Supply Air Temperature**
The Cooling vs. Supply Air Temperature viewlet shows the performance of the cooling cycle.
- **The Demand Duration viewlet**
The Demand Duration viewlet enables the display of the amount of time a variable is above a specific level during the selected interval.
- **Heating vs. Supply Air Temperature**
The Heating vs. Supply Air Temperature viewlet shows the performance of the heating cycle.
- **Network Health**
The Network Health provides a mechanism to view the hierarchy of a network. Frequently used to portray the components and health of the Niagara network.
- **Space Temperature Compliance**
The Space Temperature Compliance viewlet shows the relationship between the space temperature and the cooling and heating setpoints.
- **Utility Performance**
This viewlet provides a KPI-style visualization of Utility Usage versus efficiency for multiple locations, and is an excellent way to identify and prioritise opportunities for improvement in energy efficiency among all the buildings in a campus or enterprise.
- **Weather Normalisation**
The Weather Normalisation viewlet uses linear regression analysis of degree day and consumption data to find a best fit line. Once found, actual consumption data is base-lined against the predicted data based on weather trends which allows the visualisation of performance independent of weather.

General viewlets

- **General Totaliser**
This viewlet can be configured to show the current value of any monitored variable, its rate of change or the total value measured over a user defined time period. For example, "Total Savings to Date", "Avoided CO2", "Campus kWh this Month", etc.
- **PX**
The PX viewlet enables the user to add any Niagara PX page or View (e.g. Alarm Console, etc.) to a viewlet window.
- **Web**
The Web viewlet enables the user to subscribe to any internet or intranet web site and display the page in a viewlet window.

History viewlets

- **Baseline**
The Baseline viewlet enables comparison of the value of any trended variable, such as energy consumption, production, resource usage, etc. for the "Current" time period vs. a prior time range, such as a "Baseline" period. The comparison may be visualized either in direct units, or a "Delta" showing the net "Current" minus "Baseline" values.
- **Column Chart**
The Column Chart viewlet can be used to plot the aggregate or relative value for multiple variables over time. For each interval over the selected time period, the viewlet can plot the Max, Min, Average, or Sum of the variable.
- **Dual Axis**
This viewlet enables the ability to plot any two history variables on the same display, even if the units are different types. Useful for visualising correlation between any two variables over a common timeframe.
- **Event History Timeline**
The Event History Timeline provides a powerful stacked chart view for consuming large amounts of information. This viewlet also has capability to drill down into smaller time periods and display user configurable events.
- **History ColourGrid**
The History ColourGrid is used to analyze complex arrays of data using color visualization of variations in the values of the data being analyzed. This feature is useful in rapidly detecting instances of cyclical data variations over user selectable time periods.
- **History Chart**
The History Chart viewlet can be used to plot the value for multiple similar variables over time. For each interval over the selected time period, the viewlet can plot the Max, Min, Average, or Sum of the variable.
- **Pie Chart**
The Pie Chart Viewlet can be used to show the relative value of multiple variables over time. For each interval over the selected time period, the viewlet can plot the Max, Min, Average, or Sum of the variable.
- **Ranking Chart**
The Ranking Chart enables the user to display comparative values for similar variables, ranked in either increasing or decreasing order. If appropriate, values may be normalized based on certain criteria, such as conditioned area (SF).
- **Resource Consumption**
The Resource Consumption viewlet can be used to display the monthly or daily consumption of a utility resource (e.g. Electric, Water, Gas, etc.) for one or multiple locations over time.
- **Utility Accounting**
The Utility Accounting viewlet displays historical values for consumption, monthly bill amounts and cost/unit information for the Electric, Gas and Water utilities for a location, based on historical trend data. Information is presented in a Pie Chart (Normal View) or a combination Pie, Column, Line and Table chart (Expanded View).
- **Weather Correlation**
The Weather Correlation viewlet enables the ability for a user to visually evaluate the relationship between a location's historical outside temperature (OAT) and a chosen building variable, such as energy consumption (e.g. kWh). This feature can be used for ruling "In" or "Out" weather as a likely contributor to a change in consumption over a user defined time range.
- **Year-Over-Year**
The Year-Over-Year viewlet provides a side-by-side comparison of the monthly value of a variable, such as energy consumption, over multiple years for one or more selected months. This is useful for a quick analysis of year-over-year trends for one variable at one location.

Point viewlets

- **Circular Gauge**
The Circular Gauge provides a "Speedometer" style display to monitor the real-time value of any variable in the network.
- **Drilldown Pie Chart**
The Drilldown Pie Chart allows the user to see aggregated point data for a variable and progressively "drill-down" into the data to see the value contribution of the configured points. For example, show the aggregated consumption ratio of real-time BTU for a site with multiple locations, each containing a gas and electric meter. Drill down to show the contributions from each location/meter.
- **Point Table**
The Point Table provides a tool to configure and view real-time values of any variable in the network.
- **Point Line**
The Point Line viewlet enables the user to create a "strip-chart" style display from one or more real-time point variables.
- **Semi-Circular Gauge**
The Semi-Circular Gauge provides a Speedometer style display in a compact format to monitor the real-time value of any variable in the network.
- **Utility Meter**
The Utility Meter viewlet enables the simultaneous digital display of kWh, kW, KVAR and Power Factor for a designated meter. The parameter shown on the Main display is user selectable. Multiple Meter viewlets may be used simultaneously to display information from different meters.

Sustainability viewlets

- **Solar Energy Generation**
The Solar Energy Generation viewlet is composed of four different views for focusing on solar generation data compared to on-site consumption. It contains sliders to gauge real-time performance, counters that display live energy generation and equivalents such as CO₂, a slideshow of solar tips and a slide with various charts to view historical energy data.

