Multi-site integrated cloud based analytics platform

This document outlines the minimum requirement for a single web enabled network based diagnostic platform that should be scalable to support multiple enterprise locations over a wide geographical area. The purpose of such a solution shall enable the Client with a single window of approach towards the health of his/her facility and enable the client's organization to make outcome based decisions, which in turn shall positively impact / improve the facilities assets, improve indoor air quality, legally comply to local state codes for building performance and provide the occupants with a safe and secure environment as a minimum.

Graphical representation of the facility

The one integrated platform shall use various tools such as Digitized Maintenance based service programs that improve service personnel efficiency while increasing the life of assets, Service Management Systems via a mobile / PC based portal to triage service cases instantly or prioritize, based on the criticality of the nature of fault or breakdown.

The web portal that shall be used to carry out maintenance activities remotely shall be graphical in nature and provide various valuable insights to the service technicians and the Client via easy to access login sign-on from a secure computer either inside the Client's organization or from outside the Client's network through a secure username / password.

The graphical representation to conduct successful remote Digitized Maintenance activities shall include at a minimum but not be restricted to:

A facility dashboard with

- A graphical total comfort performance of the facility over time, ranging from 0% - 100% categorized as – Poor, Average, Good & Excellent or similar
- A graphical percentage based representation of the actual vs target comfort performance over several months
- An on-going indicator showing the energy consumption of the facility with a calculated base-line
- A snapshot of the total number of service cases with an online status of – open, in progress, closed, etc with priority based bar charts such as low, medium, high, critical and planned, that are related to the nature of the equipment's involved in the maintenance schedule are to be identified and logged into the service management system
- A snapshot of the critical asset performance with asset uptime and availability of the entire facility's assets

One of the key requirements for the facility summary shall be:

- Selecting the legend shall display the respective zones in that category
- Comfort performance selections shall include – outside air temperature (min, max.), comfort over time including last year's performance, comfort performance by zone, comfort-related service cases
- Static images of the total facility footprint, client logo, client name and a selection side bar shall be displayed
- All tooltips on the dashboards shall provide meaningful real-time and live data related to the associated graph or chart

Other dashboards shall include:

Detailed comfort performance dashboard

- Service cases associated to this dashboard shall indicate the type of faults that triggered the service case (comfort, energy, operations, others)
- A visible link between the service case and its associated comfort performance (such as zone too hot, too cold, etc.) shall be available
- Service cases shall be triggered before the identified fault degrades the performance of the equipment.
- In the case of a degraded equipment, system, associated service cases that were triggered and mitigation actions taken shall also be visible on the same dashboard
- While service case details are descriptive in nature, a graphical representation of the combining factors stated above shall be made visible on the dashboard

Energy consumption dashboard

- Service cases associated to this dashboard shall indicate the type of faults that triggered the service case (comfort, energy, operations, others)
- A visible link between the service case and its associated energy performance (such as zone too hot, too cold, etc.) shall be available
- Live monthly energy consumption comparisons from this year to last year for electricity, gas, fuel and water meters shall be displayed on this dashboard with a separate graph showing individual meter consumption
- While service case details are descriptive in nature, a graphical representation of the combining factors stated above shall be made visible on the dashboard

Zone out of temperature range dashboard

- This dashboard shall showcase a detailed heatmap of various HVAC equipment's and allow for a pictorial representation of comfort scenarios for year to date, last 7 days and this weeks to last week's performance at a minimum
- Scenarios may include options such as – very hot, hot, just right, cold, very cold, unoccupied and no value
- All scenarios shall be colour coded for easy identification of the status of an HVAC equipment at a given date or time

Asset availability dashboard

- The asset availability program shall analyse the actual time an asset has been available and compared to its programmed availability requirement
- This dashboard shall allow for selection of assets through asset type and display asset availability for that set of assets
- A comparison between the current vs previous asset state shall be displayed via upward / downward indicators and percentage bar lines or similar
- Service cases associated to this dashboard shall indicate the type of faults that triggered the service case (comfort, energy, operations, others)
- A visible link between the service case and its associated asset (such as planned maintenance, breakdown, fault etc.) shall be available

Fault summary dashboard

- This dashboard shall display the entire list of faults with its duration in hours and occurrences in numbers, over the lifetime of the asset based on the last 7 days and 15 days' selection criteria
- It shall be possible to individually select assets and drill down to its device fault details
- Service cases associated to this dashboard shall indicate the type of faults that triggered the service case (comfort, energy, operations, others)
- A visible link between the service case and its associated asset fault (such as planned maintenance, breakdown, fault etc.) shall be available

Service cases dashboard

- This dashboard shall include a detailed representation of all the service cases currently IDENTIFIED, IN PROGRESS OR COMPLETE at the respective client's facility
- Selection of a service case shall lead to further pop-up information of the individual case which shall include details such as – date created, case number, priority, assign to group, cost, asset name, value, outcome target, source, location, description and resolution description.
- It shall be possible to triage a service case either from an independent service management system mobile application or through the digitized maintenance service cases dashboard

All dashboards shall ensure similar KPI comparisons when switched between dashboard pages and allow for date range filtering such as – this month, last month, last 3 months, last 6 months, year to date and last year at a minimum.

The software shall have the capability to store historical data on the cloud for upto 5 years at a minimum.

Analytics software

The Digitized maintenance graphical dashboard shall be able to connect multiple integrated building management systems and transmit building data using industry standard protocols and / or programs. The interface between the building management system and the cloud connected analytical software with its digital platform may use a hardware or software interface to ensure seamless and continuous flow of data from the facility to the cloud. The data shall be transmitted to the cloud based servers / software every 15mins at a minimum. Manual intervention to attempt the data transfer via .csv files or excel shall not be acceptable.

Processed building management system data shall be analysed via machine learning tools and a minimum of 100+ algorithms to ensure all assets and basic logic requirements are covered. Service cases shall be auto generated to the dashboard portal. While manual generation of service cases may be allowed, it shall not be the acceptable way of analysing and resolving service cases in general.

The outcome of the service cases, asset performance and fault summary shall be delivered via a monthly report to the Client with clearly identified KPIs aligned and resolved to meet with the Client's business requirement.

Network (TO BE COMPLETED)

Cyber security (TO BE COMPLETED)