

## CLAIMS:

1. A computer implemented data center operating system comprising:
  - a memory component that stores inventory data for a plurality of data centers;
  - an interactive interface that receives one or more user inputs;
  - an API input that receives data from one or more data center systems; and
  - a processor, coupled to the API input, memory component and the interactive interface,the processor configured to perform the steps comprising:
  - receiving, via the API input, monitored data from a plurality of data centers at one or more locations;
  - automatically generating, via the processor, an interactive data center floorplan that comprises the monitored data at a device-level for a specific data center;
  - displaying, via the interactive interface, the interactive data center floorplan in one or more views wherein the one or more views comprises detailed data for a particular rack in the specific data center;
  - generating, via the processor, a first interactive graphical user view comprising the interactive data center floorplan, the interactive data center floorplan comprising a bird's eye view of a data center space with a plurality of rows, each row comprising a plurality of racks, each rack comprising a display of one or more devices with corresponding power measurements;
  - providing, via an interactive display, the first graphical user view including an integrated and interactive top bar including a user selectable site dropdown, a search function, and a plurality of features relevant to the context of a current view including measured power and total racks;
  - receiving a selection of a specific rack from the interactive data center floorplan;
  - in response to the received selection, generating a second interactive graphical user view comprising detailed information for the selected rack, the detailed information including a rack view with each device in the rack labeled and displayed in an order, the order including various sections, each section representing an individual device or subset of the rack, the detailed information further including a calculation of measured power consumption, a power summary, forecasted power, and power distribution; and
  - providing, via the interactive display, the second graphical user view;

generating a third interactive graphical user interface directed to grouping racks into patterns based on hardware, the third interactive graphical user interface showing a power reduction scenario and identifying racks that are at risk; and providing, via the interactive display, the third graphical user interface.

2. The computer implemented system of claim 1, wherein the monitored data comprises real-time power measurements.

3. The computer implemented system of claim 1, wherein the monitored data comprises sensor data for a predetermined period of time.

4. The computer implemented system of claim 1, the processor further configured to perform the steps of:

enabling a user input to adjust capacity data; and  
generating, responsive to the adjusted capacity data, power reduction data.

5. The computer implemented system of claim 4, the processor further configured to perform the step of:

generating, responsive to the adjusted capacity data, racks at risk data.

6. The computer implemented system of claim 5, the processor further configured to perform the step of:

for the racks at risk, automatically generating site data, most at risk rack data and power overage data.

7. The computer implemented system of claim 1, further comprising:  
a recommendation engine that receives a request for change and generating a response that maximizes utilization of data center assets.

8. The computer implemented system of claim 7, wherein the request for change has a corresponding demand profile that is managed by a pattern module that highlights existing analysis on corresponding equipment.

9. The computer implemented system of claim 7, wherein the recommendation engine receives data from a supply pool defined by a combination of design factors and monitoring points that identify limitations of a data center.

10. The computer implemented system of claim 1, wherein the one or more views comprises a rack view that visualizes live and historical monitored data for a particular rack within the specific data center.

11. A computer implemented method that operates a data center system, the method comprising the steps of:

receiving, via an API input, monitored data from a plurality of data centers at one or more locations;

automatically generating, via a processor, an interactive data center floorplan that populates the floorplan with the monitored data;

displaying, via the interactive interface, the interactive data center floorplan in one or more views wherein the one or more views comprises detailed data for a particular rack in a particular data center, wherein the API input receives data from one or more data center systems; the interactive interface receives one or more user inputs; the processor is coupled to the API input, a memory component and the interactive interface;

generating, via the processor, a first interactive graphical user view comprising the interactive data center floorplan, the interactive data center floorplan comprising a bird's eye view of a data center space with a plurality of rows, each row comprising a plurality of racks, each rack comprising a display of one or more devices with corresponding power measurements;

providing, via an interactive display, the first graphical user view including an integrated and interactive top bar including a user selectable site dropdown, a search function, and a plurality of features relevant to the context of a current view including measured power and total racks;

receiving a selection of a specific rack from the interactive data center floorplan; in response to the received selection, generating a second interactive graphical user view comprising detailed information for the selected rack, the detailed information including a rack

view with each device in the rack labeled and displayed in an order, the order including various sections, each section representing an individual device or subset of the rack, the detailed information further including a calculation of measured power consumption, a power summary, forecasted power, and power distribution; and

providing, via the interactive display, the second graphical user view;

generating a third interactive graphical user interface directed to grouping racks into patterns based on hardware, the third interactive graphical user interface showing a power reduction scenario and identifying racks that are at risk; and

providing, via the interactive display, the third graphical user interface.

12. The computer implemented method of claim 11, wherein the monitored data comprises real-time power measurements.

13. The computer implemented method of claim 11, wherein the monitored data comprises sensor data for a predetermined period of time.

14. The computer implemented method of claim 11, further comprising the steps of: enabling a user input to adjust capacity data; and generating, responsive to the adjusted capacity data, power reduction data.

15. The computer implemented method of claim 14, further comprising the step of: generating, responsive to the adjusted capacity data, racks at risk data.

16. The computer implemented method of claim 15, further comprising the step of: for the racks at risk, automatically generating site data, most at risk rack data and power overage data.

17. The computer implemented method of claim 11, further comprising the step of: receiving, via a recommendation engine, a request for change and generating a response that maximizes utilization of data center assets.

18. The computer implemented method of claim 17, wherein the request for change has a corresponding demand profile that is managed by a pattern module that highlights existing analysis on corresponding equipment.

19. The computer implemented method of claim 17, wherein the recommendation engine receives data from a supply pool defined by a combination of design factors and monitoring points that identify limitations of a data center.

20. The computer implemented method of claim 11, wherein the one or more views comprises a rack view that visualizes live and historical monitored data for a particular rack within the specific data center.