Sunbird®
DCIM Software

Top Ways to Boost Capacity with Better Data Center Power and Networking Management

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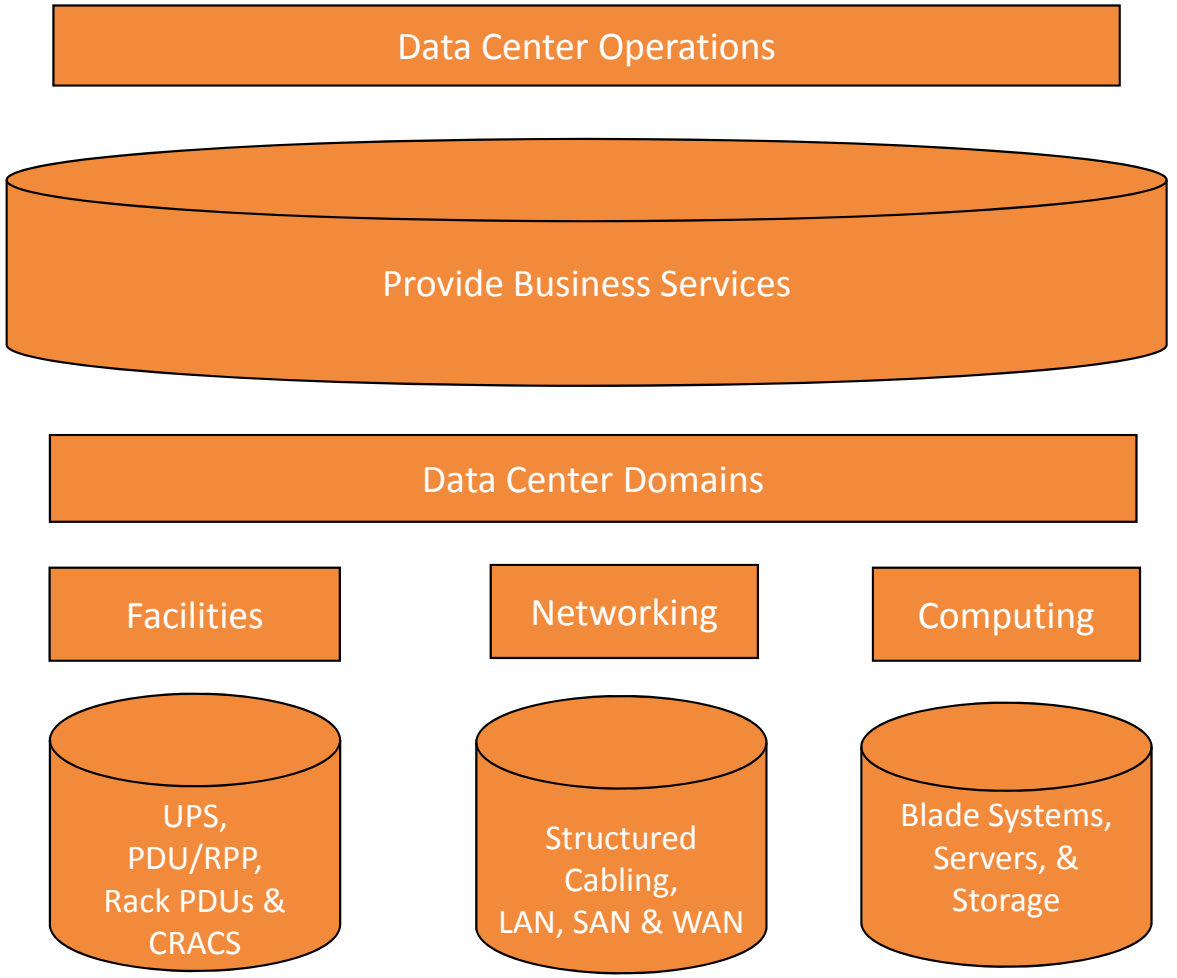
Sunbird Software Sales Engineer

Networking is Often Left Behind



Your Objective

Maintain High Availability with the Least Resources

Networking Hero Mode

Legacy Tools

- Spreadsheets
- 2D Drawings

Manual Effort

- Walk the floor
- Trace cables

Evolution of Data Centers

Data Center
Size + Density

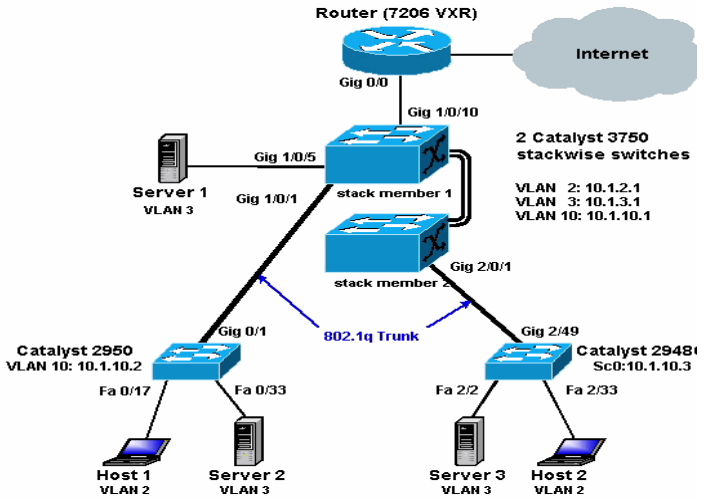
Evolution of Data Centers

Data Center Size + Density

- Explosion in demand for data center hosted service
- Data center consolidations
- Virtualization initiatives

Evolution of Data Centers

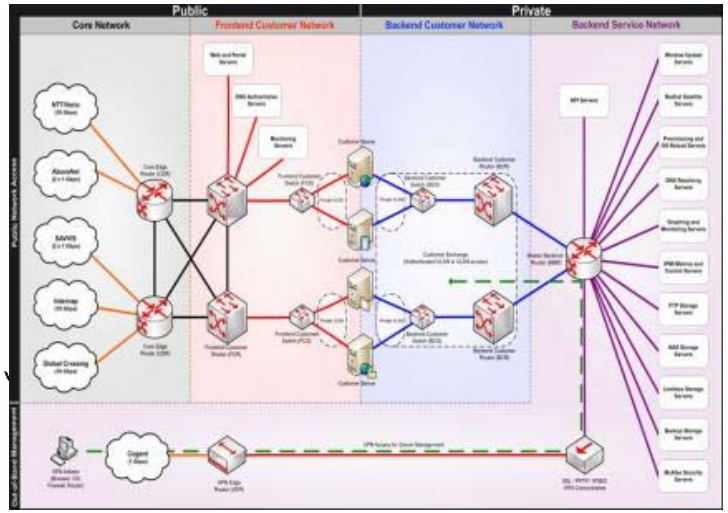
Data Center Complexity



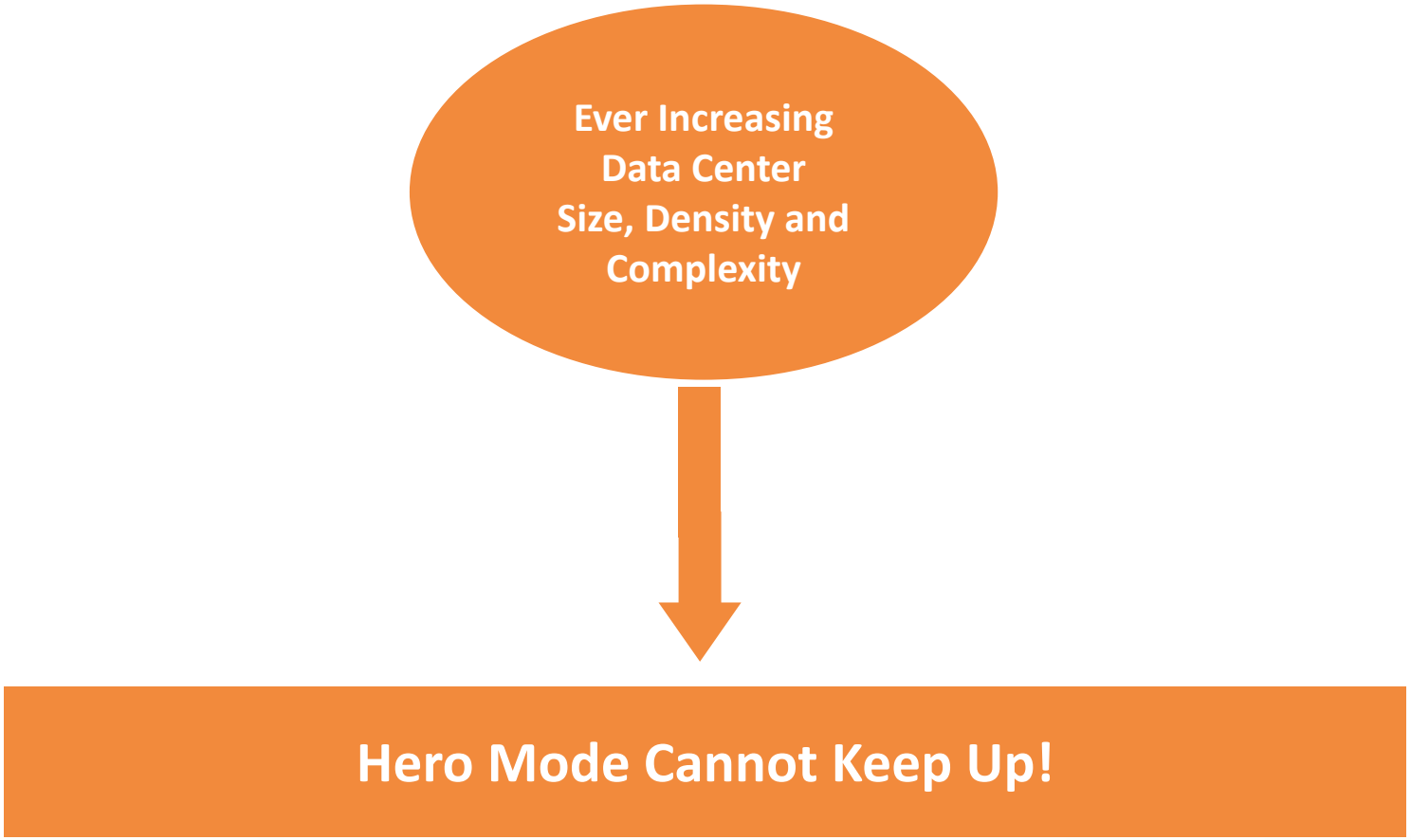
Evolution of Data Centers

Data Center Complexity

- Complex computing
- More dynamic environment
- Do more with less



Evolution of Data Centers



Evolution of Data Centers

Second Gen DCIM

Super-Fast Deployment Time

Complete Suite of Capabilities

Zero-Configuration Analytics

Automation Via Integration

Compatibility with What You Have

Extreme Scalability

Ease of Use

Data-Driven Collaboration

AI and Machine Learning

The best data center built is one that is not.

Data Centers are often over-provisioned and excess capacity typically exists. With DCIM tools, you can find that stranded capacity, use it with confidence, and delay spending millions to build your next data center.

Do you know how much power capacity you have?

- Power consumption gauge
- Power capacity forecast trend
- Trending load by data center, room, rack, or customer

Real-Time Visibility for Better, Faster Decisions

Forecast Capacity with Real-Time Resource Management

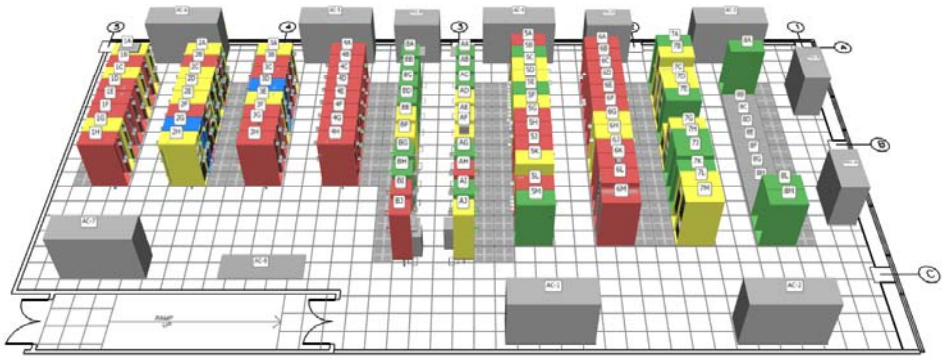
Look into the future to plan adds, decommissions, and other changes that impact your data center capacity:

- View available and in-use resources based on a date for just-in-time capacity management, including assets that are planned to be decommissioned
- Plan and reserve capacity that will become available later, even if that capacity is currently used for other projects
- Use what-if analyses to determine the impact of changes to your data center before they happen and without impacting your current equipment
- Leverage real-time data to forecast remaining "days of capacity" left so you'll know when you need to purchase more—before you run out of capacity

US Government Data Center Optimization Initiative

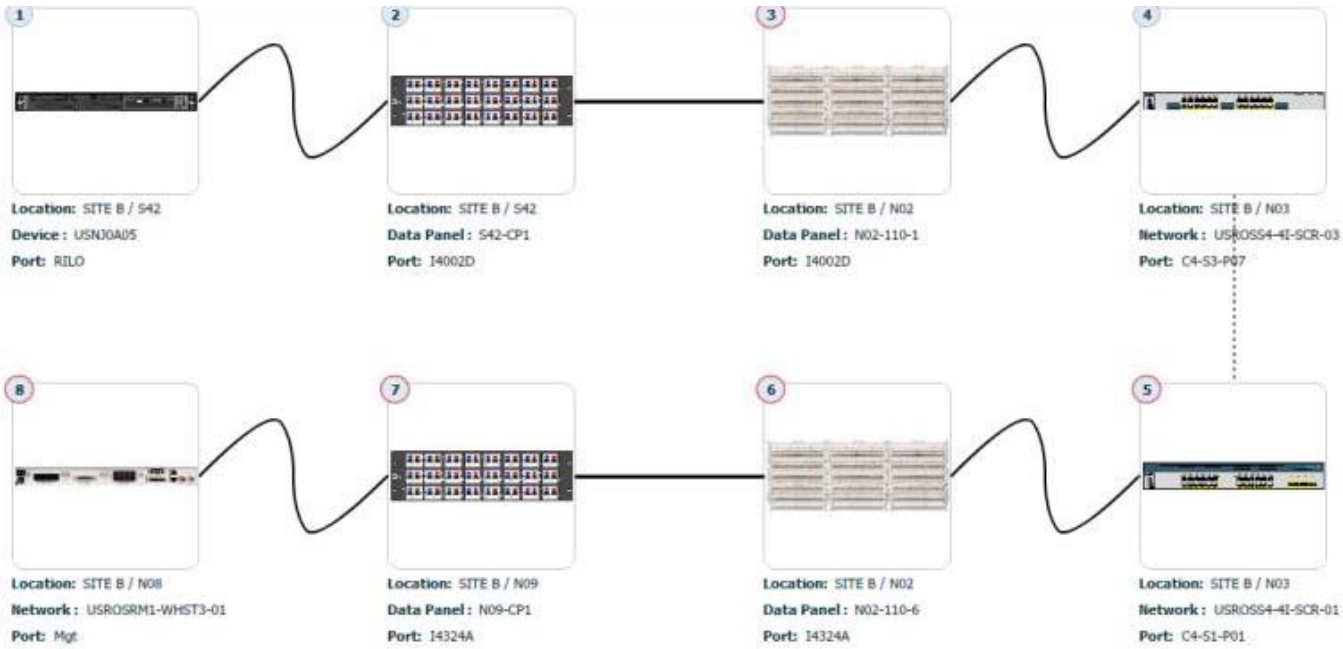
Visualize Your Capacity

- **Corollate available resources for:**
  - Space
  - Power
  - Cooling
  - Data Ports
  - Structured Cabling



Full Network Connectivity Management

- View Network relationships quickly and easily to trace for trouble shooting and audit purposes
- Automatic validation



Network Interface Card Connector, Media, Color Code & Protocol and Data Rate

The Compute Device

Network Connectivity Points

Switch

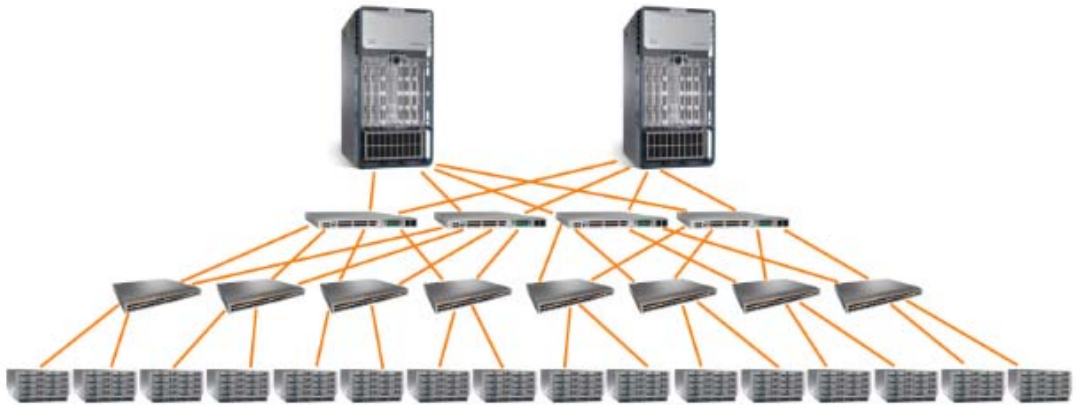
Patch Panel

Increase Utilization of Existing Data Ports

Visualize All Your Network & Data Circuits

From end to end, document and understand every node in your data circuits to identify single points of failure and decrease troubleshooting time.

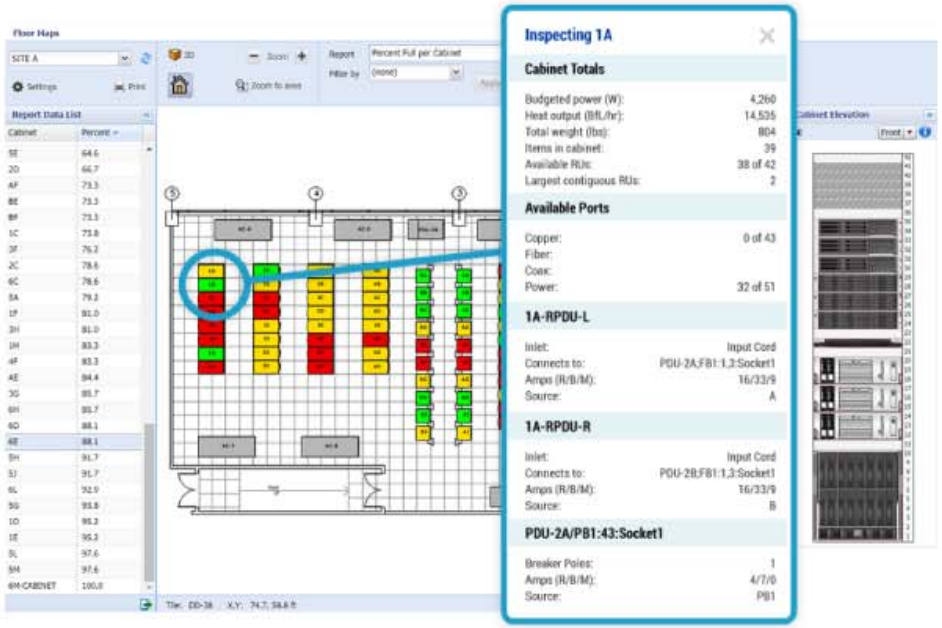
- Server with Copper or Fiber Data Connection
- Edge Switching (e.g., Top of Rack/End of Row)
- Core Routing or Switching Equipment
- Patch Panels
- Multiplexing Equipment
- Demarcation Points
- Carrier Wide Area Network
- Even KVM and Serial Console Ports & Connectivity



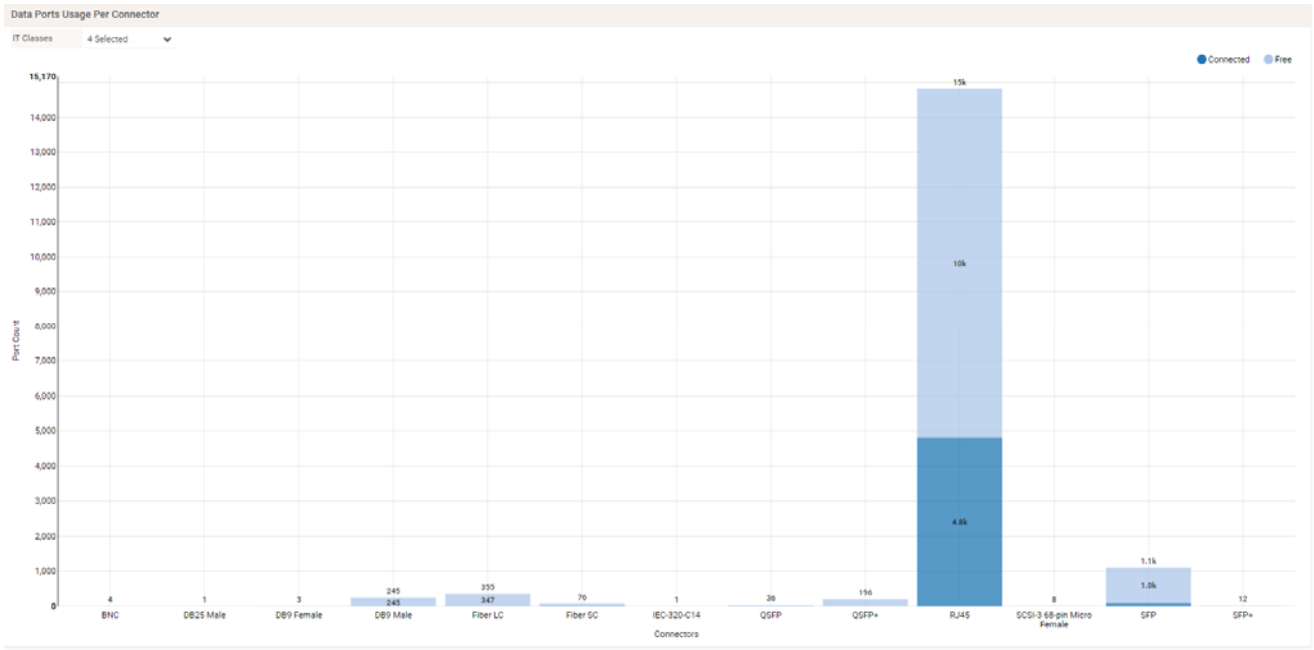
View Port-Level Capacity at Every Rack

Drill down from the data center health floor map and instantly get a real-time view of granular rack capacity, down to the port level.

- Available space
- Budgeted power
- Weight
- Available RUs
- Potential power
- Copper, fiber and power ports
- Number of items in cabinet
- Largest number of contiguous RUs

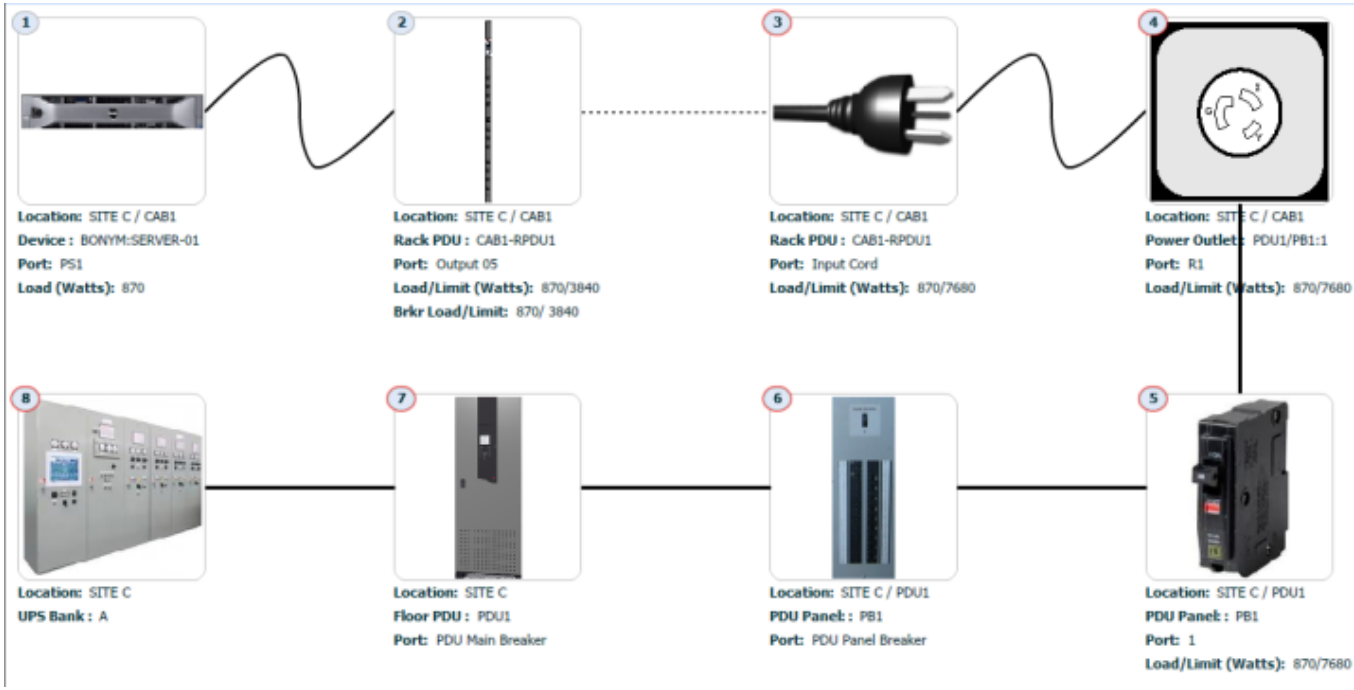


Track Data Port Capacity and Usage

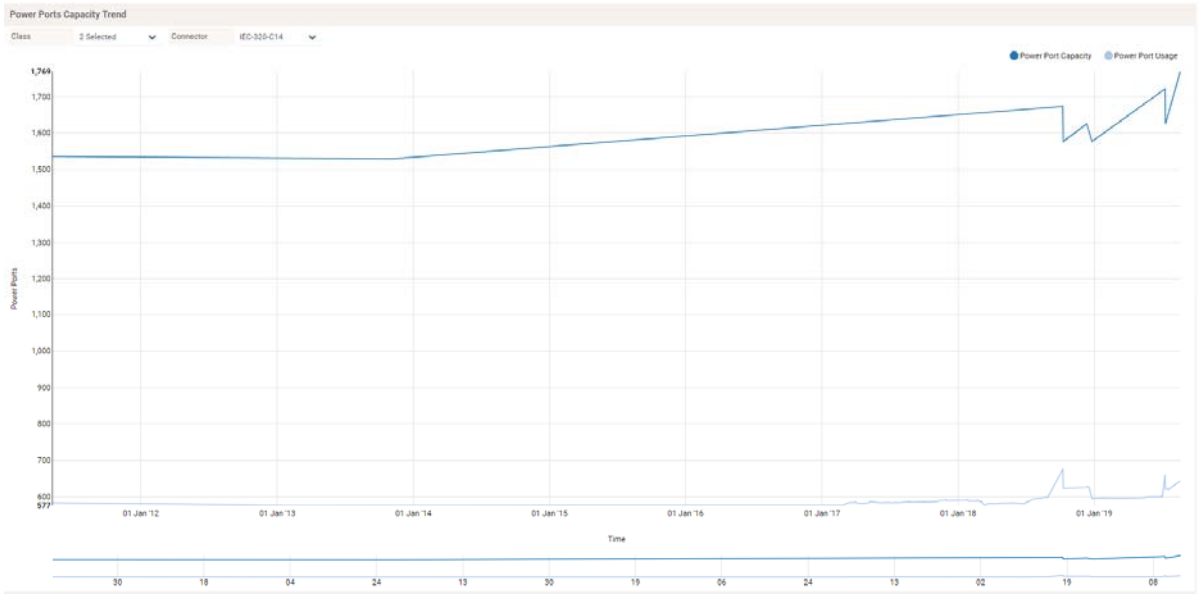


Full Power Connectivity Management

- View power chain quickly and easily to trace for trouble shooting and audit purposes
- Automatic validation



Power Port Trends



Power Connectivity Points

- **Rack iPDU – Inlet, Line and Circuit Breakers**

Inlet Readings

PDU Element	Voltage (V)	Current (A)	Active Power (W)	Apparent Power (...	Power Factor	Active Energy (Wh)
Inlet 1	214	1.3	404	466	0.87	4,121,340

Line Readings

PDU Element	Voltage (V)	Current (A)	Unutilized Capacity (A)
⊟ Inlet 1			
L1	214	1.3	22.7
L2	214	1.1	22.9
L3	216	1.3	22.7

Circuit Breaker Readings

Circuit Breaker	Current (A)	Unutilized Capacity (A)
Circuit Breaker 1 (C1)	0.7	19.3
Circuit Breaker 2 (C2)	0.6	19.4
Circuit Breaker 3 (C3)	0.9	19.1

Power Connectivity Points

- **Rack iPDU – Outlets**

Outlets

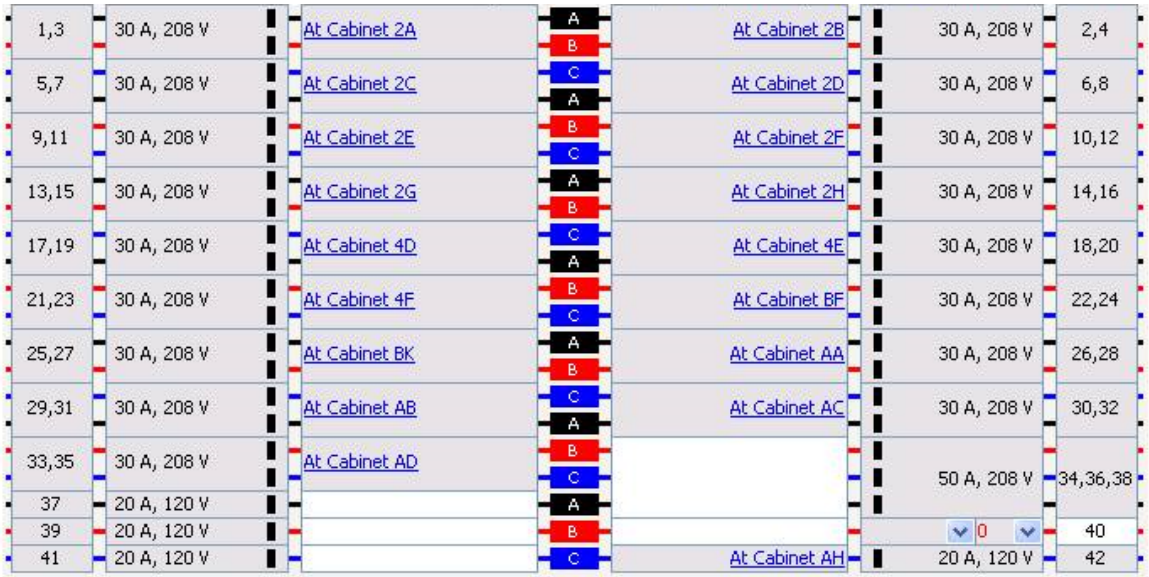
Power Control

#	Outlet	IT Device	Active Power ...	Apparent Pow...	Voltage (V)	Current (A)	Unutilized Ca...
1	HP DL140.122	HP DL140.122	112	122	120	1.025	10.975
2	DRAC 860.120	DRAC 860.120	89	93	120	0.776	11.224
3	Win XP.122	Win XP.122	82	85	120	0.719	11.281
4	Windows XP.122	Windows XP.122	107	112	120	0.926	11.074
5	Linux.122	Linux.122	102	107	120	0.903	11.097
6	Cisco 2500.122	Cisco 2500.122	19	30	118	0.261	11.739
7	Vista.122	Vista.122	89	89	118	0.756	11.244
8	Win2K.122	Win2K.122	78	82	118	0.701	11.299

There are 8 outlets on this device.

Power Connectivity Points

- **PDU – Power Panel**



1,3	30 A, 208 V	At Cabinet 2A	A	At Cabinet 2B	30 A, 208 V	2,4
5,7	30 A, 208 V	At Cabinet 2C	B	At Cabinet 2D	30 A, 208 V	6,8
9,11	30 A, 208 V	At Cabinet 2E	C	At Cabinet 2F	30 A, 208 V	10,12
13,15	30 A, 208 V	At Cabinet 2G	A	At Cabinet 2H	30 A, 208 V	14,16
17,19	30 A, 208 V	At Cabinet 4D	B	At Cabinet 4E	30 A, 208 V	18,20
21,23	30 A, 208 V	At Cabinet 4F	C	At Cabinet BF	30 A, 208 V	22,24
25,27	30 A, 208 V	At Cabinet BK	A	At Cabinet AA	30 A, 208 V	26,28
29,31	30 A, 208 V	At Cabinet AB	B	At Cabinet AC	30 A, 208 V	30,32
33,35	30 A, 208 V	At Cabinet AD	C		50 A, 208 V	34,36,38
37	20 A, 120 V		A			
39	20 A, 120 V		B		0	40
41	20 A, 120 V		C	At Cabinet AH	20 A, 120 V	42

Downstream Power Sum

Phase	Volts	Nameplate Sum Power (kW)	Nameplate Sum Current (Amps)	Budget Sum Power (kVA)	Budget Sum Power (kW)	Budget Sum Current (Amps)	Measured* Current (Amps)
A	208	2.49	23.96	1.25	1.25	11.98	0.00
B	208	2.49	23.96	1.25	1.25	11.98	0.00
C							0.00
Totals		4.98	23.96	2.49	2.49	11.98	0.00

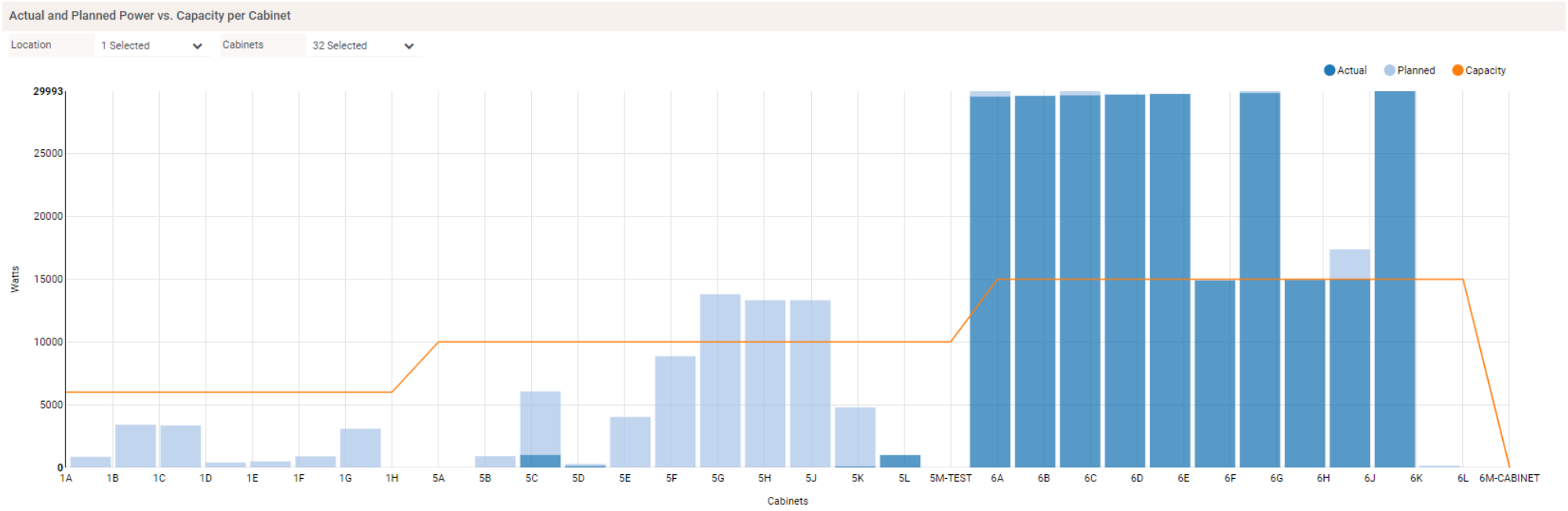
*From selected Node

Power Chain Management to Maximize Resources

Nameplate = 500W
Budget = 400W
Actual Load = 300W
Saving = 25%

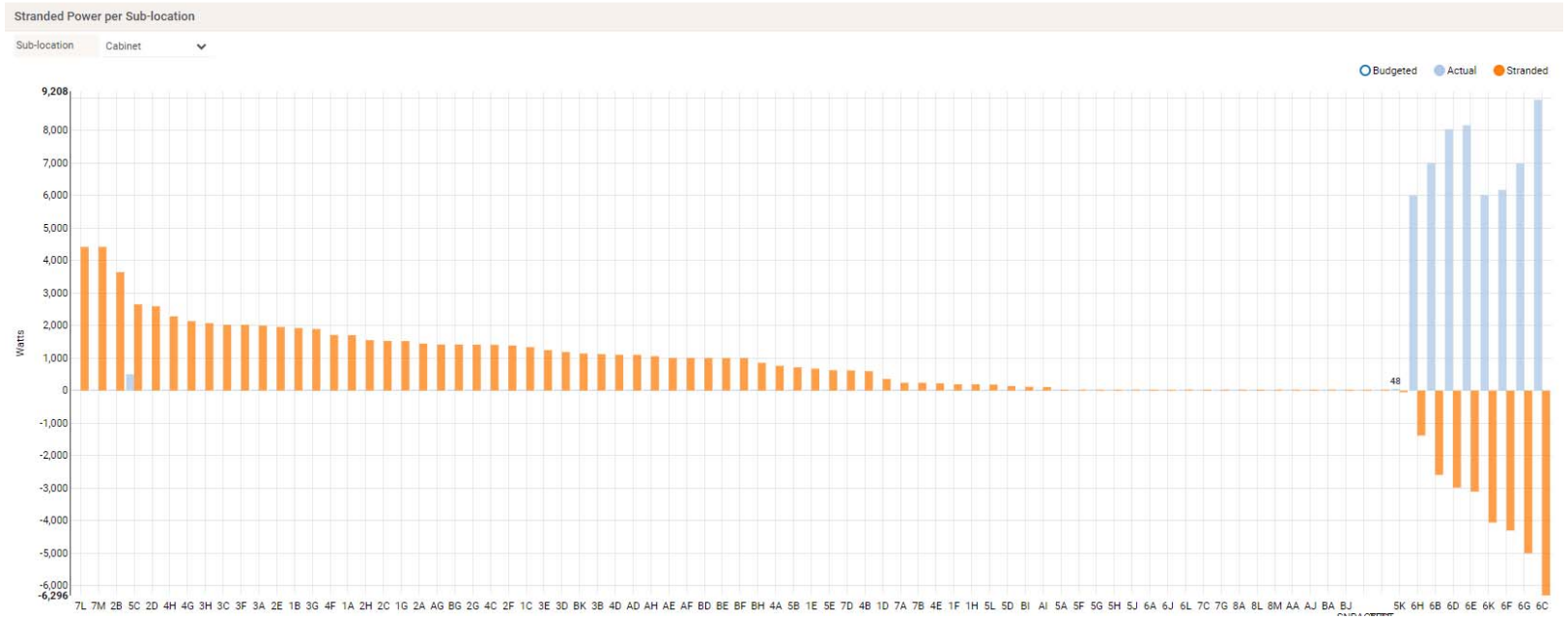
- Monitoring Maximum Load Under Compute Stress over Long Period of Time

Track Cabinet Power Utilization



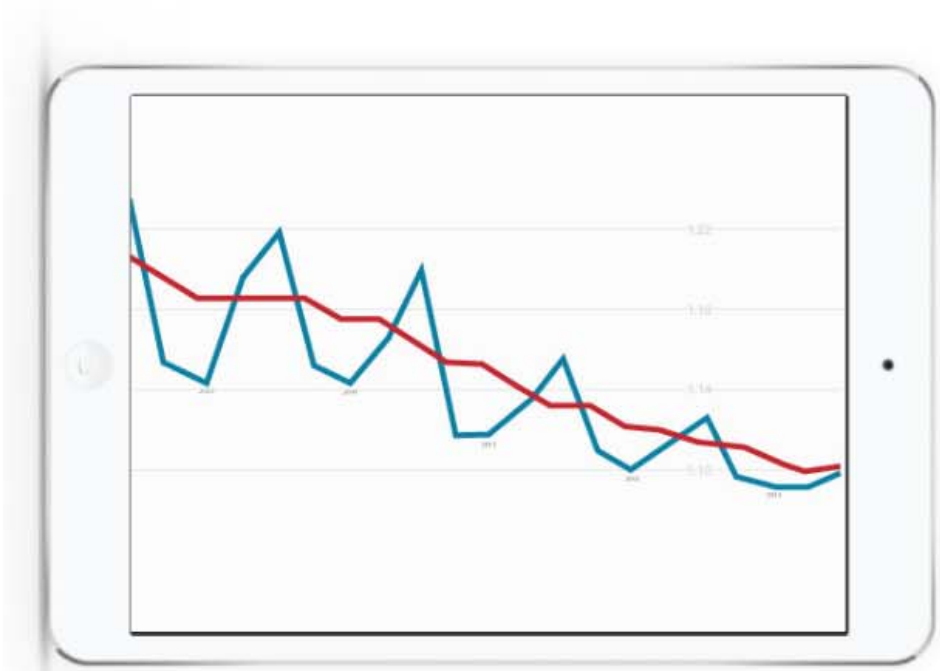
Track Stranded Power Per Model

How to Eliminate Stranded Power



Charge Back to Drive Efficient Use of Capacity

Power Usage Effectiveness



Real-time PUE is now at your fingertips. **It's automatic**

- Automatically collect data from Building feeds, IT loads, and non-IT loads
- Automatically calculate and trend PUE in all data centers across the world
- Immediately see the impact of energy efficiency initiatives
- Compare your PUE Year over Year and with industry peers

Benefits

- **Reduce and/or Defer Capital Expenses**
  - Maximize utilization of existing resources through better capacity planning
  - Increase utilization of power systems by better balancing of 3-phase power
  - Identify unused structured cabling to defer need to install new cable runs

Thank You