INTEL® DATA CENTER MANAGER OVERVIEW

Get Your Data Center Under Control

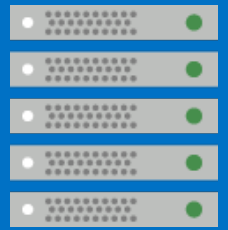
SUMMARY

- THE NEED FOR ON-DEMAND VISIBILITY INTO DATA CENTER PERFORMANCE
- INTEL® DATA CENTER MANAGER (INTEL® DCM) OVERVIEW
- DCM FEATURES AND FUNCTIONALITIES
- USE CASES
- CASE STUDIES
- SUMMARY / CALL TO ACTION

DATA CENTER COMPUTING PROGRESSION

Multiple computing models will persist for foreseeable future

ON-PREMISE



PUBLIC

HYBRID

Data centers demand more visibility and operational control than ever

THE 6 PILLARS FOR A SUCCESSFUL DATACENTER MANAGER

REAL-TIME POWER, THERMAL, HEALTH

Monitoring & analytics
Identify systems with older firmware

HISTORICAL TRENDS AND PREDICTIONS

Improves uptime and helps identify under-utilized devices

CROSS-PLATFORM SUPPORT

Easy to install, integrate and scale

AGGREGATED DATA

To physical groups
(e.g. room/row/rack) & logical groups

BROAD DEVICE COVERAGE

Better inventory and capacity planning
(PDUs, UPSs, SANs, NASs, etc.)

ACCURATE POWER CAPPING

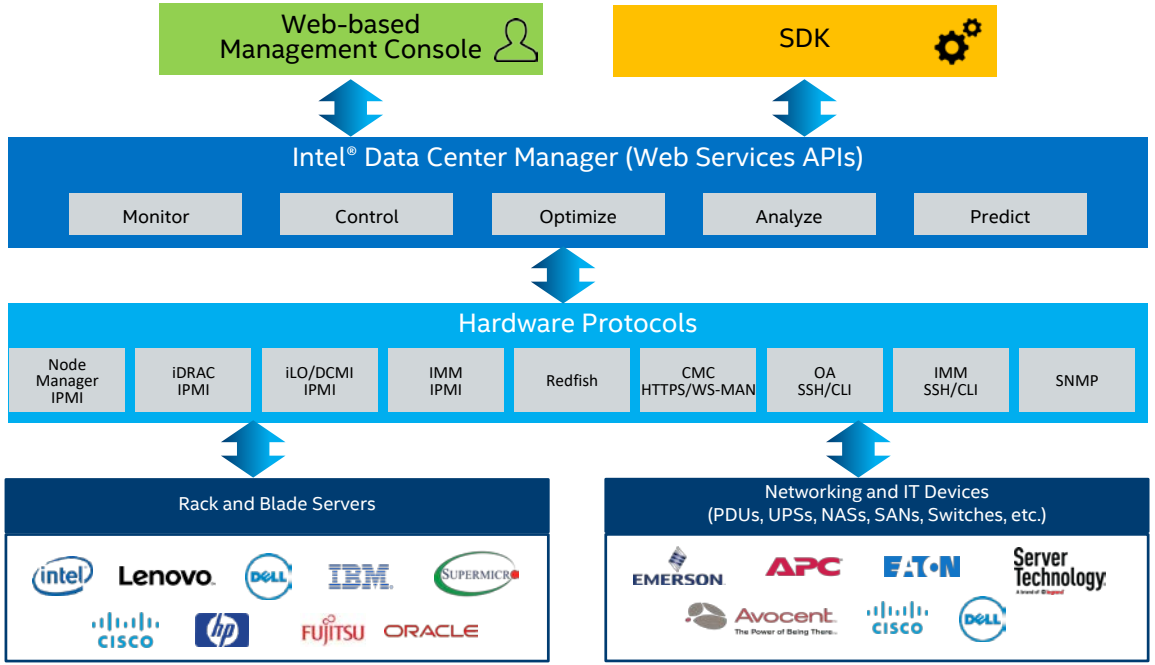
Helps increase rack density,
Decreases costs and improves efficiency

INTEL® DCM OVERVIEW

Intel DCM is a solution for monitoring and managing the health, power, and thermals of servers and a variety of other types of devices.

Intel DCM reduces data center total cost of ownership (TCO) by:

- Improving asset management
- Increasing data center reliability
- Simplifying maintenance
- Optimizing power & cooling efficiency
- Maximizing compute density
- Reducing downtime



Scales to 10Ks of nodes

IPMI = Intelligent Platform Management Interface
IMM = Integrated Management Module
SNMP = Simple Network Management Protocol
WS-MAN = Web Services-Management

iDRAC = Integrated Dell Remote Access Controller
CMC = Chassis Management Controller
CLI = Command Line Interface
DCMI = Data Center Manageability Interface

iLO = Integrated Lights-out
OA = Onboard Administrator
SSH = Secure Shell

INTEL® DCM ECOSYSTEM

OEM Partners

ISVs / Resellers

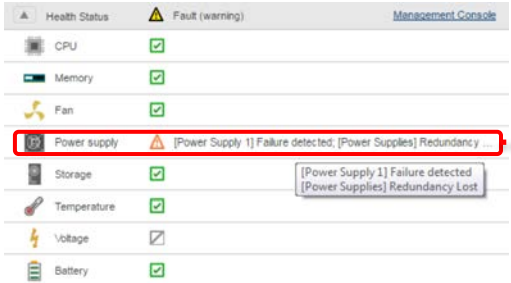
Direct Customers

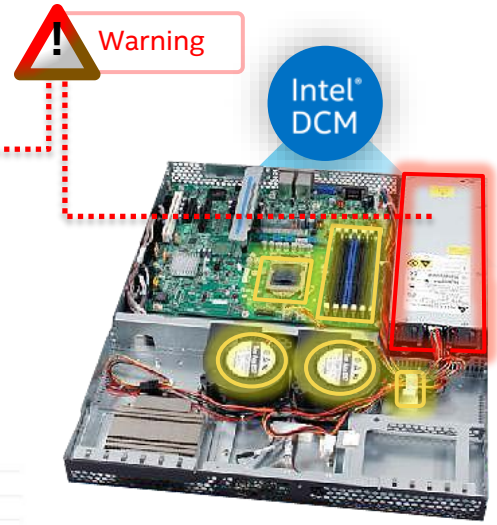
WHAT CAN YOU DO WITH INTEL® DCM?

- VENDOR AGNOSTIC MONITORING / MANAGEMENT
- INCREASE RACK DENSITIES
- SET POWER POLICIES AND CAPS
- IDENTIFY UNDERUTILIZED SERVERS
- MEASURE ENERGY CONSUMED BY DEVICE
- PINPOINT POWER/THERMAL ISSUES
- PREDICT FAN FAILURES & ESTIMATE SSD LIFESPAN
- CREATE POWER-AWARE JOBS AND TASKS
- IDENTIFY SERVER FIRMWARE VERSION OUTLIERS
- SIMPLIFY CAPACITY PLANNING
- IMPROVE DATA CENTER THERMAL PROFILE
- OPTIMIZE APPLICATION POWER CONSUMPTION
- AVOID EXPENSIVE PDUS AND SMART POWER STRIPS
- INTEGRATE INTO OTHER MANAGEMENT SOLUTIONS

SYSTEM MANAGEABILITY

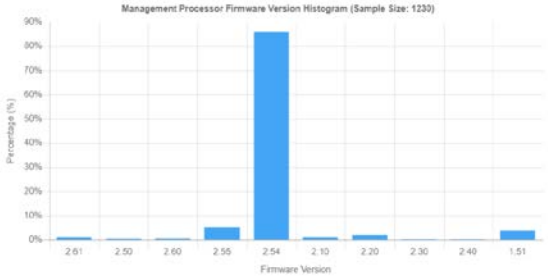
Monitor server and sub-component health in real time and get alerts



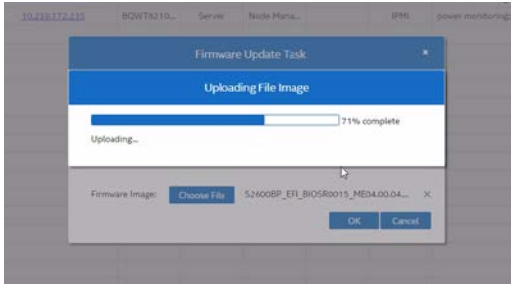


Remote connect to servers via the integrated BMC KVM

Check the FW version of servers and identify outliers



Perform FW updates on Intel Server Systems in batches remotely

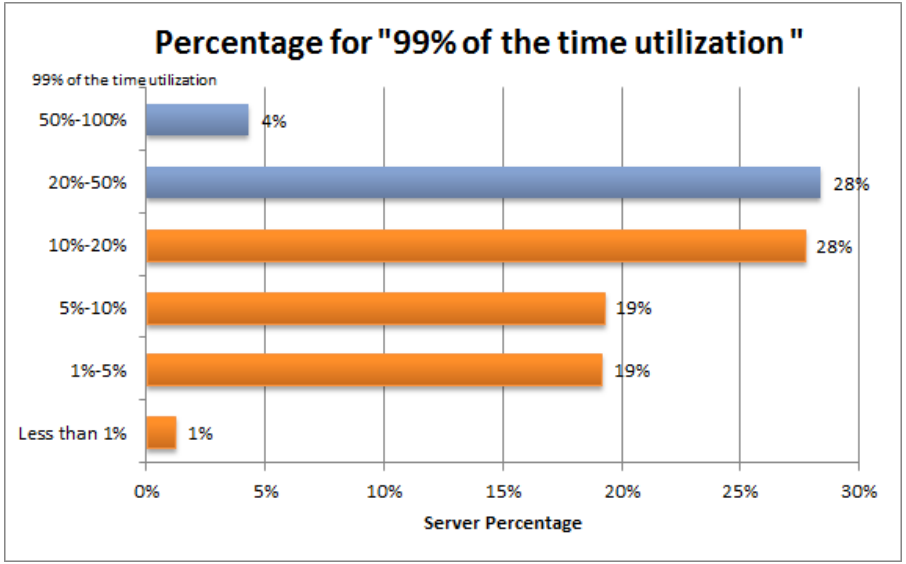


IDENTIFYING UNDERUTILIZED SERVERS

Identifying underutilized or “ghost” servers can be tricky, but can save significant costs

DCM uses historical utilization and power data to determine if servers have not been utilized for a long time

That way you can decide to decide to shut down remotely



PoC Report

POWER OFF LOW-UTILIZED SERVER SAVING $25,200 PER YEAR

Note: 0.1kw x 0.08/kwh x 1.8 x 24 x 365 x 1000 x 20%= 25,200

RACK PROVISIONING AND CAPACITY PLANNING

Use case: Provision rack with 4 KW available power

Goal: Fit as many servers as possible within 4,000 W envelope

Traditional method: static provisioning

- 650 watt power supply rating
- Use 400 watts as safe bet from lab measurements for expected configuration
- Install 4,000 W/400 watt per server = 10 servers

Before

After

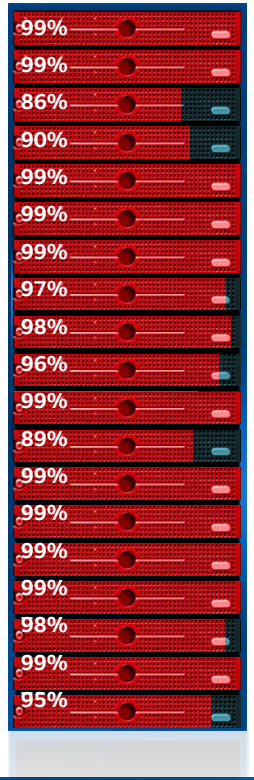
Real time monitoring with power budget enforcement*

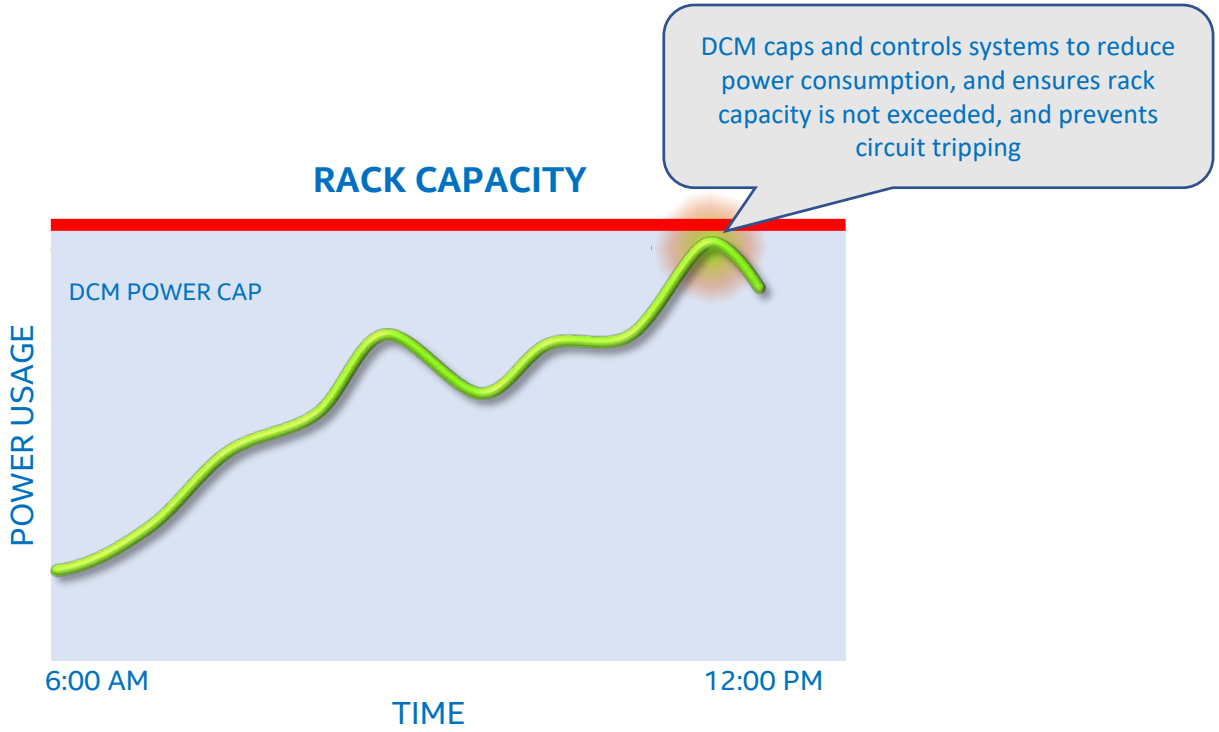
- Actual measurements indicates power/server rarely exceeds 250 W
- Use 250 W as aggressive power/server budget
- Enforce 4,000 W global cap for rare cases
- Install 4,000 watt/250 watt per server = 16 servers

PAYOFF: INCREASING RACK DENSITY BY UP TO 60%

*Calculations are based on lab measurements and typical specifications of dual-socket servers provisioned with Intel® Xeon® 5500 or 5600-series processors. Results may vary depending on actual conditions.

POWER MONITORING AND CONTROL



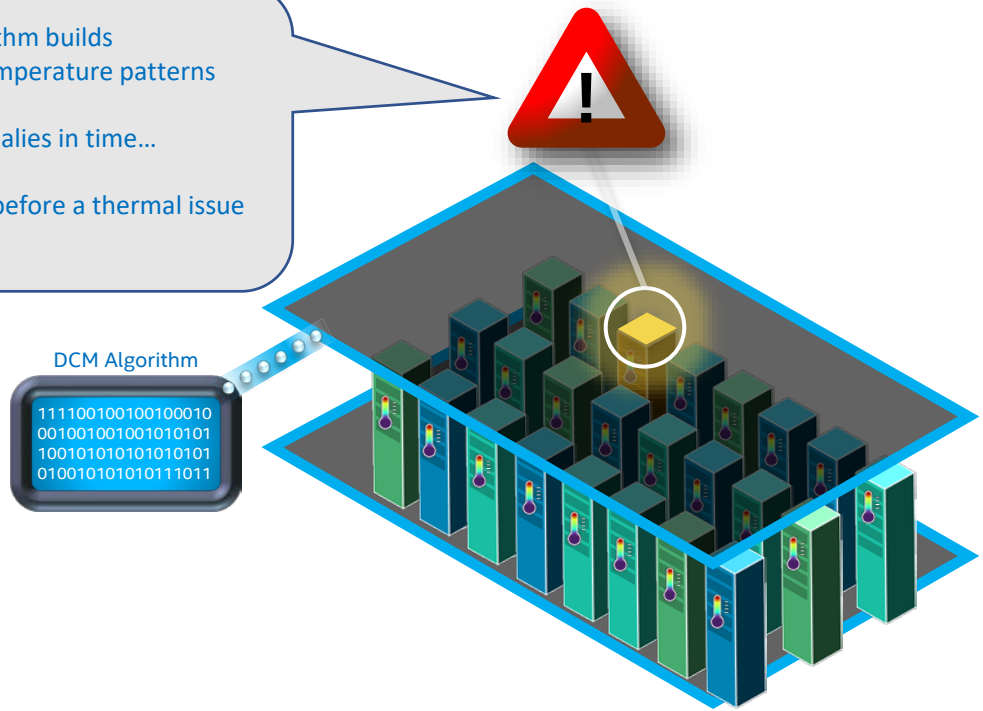


PREDICTIVE DETECTION OF COOLING ANOMALIES

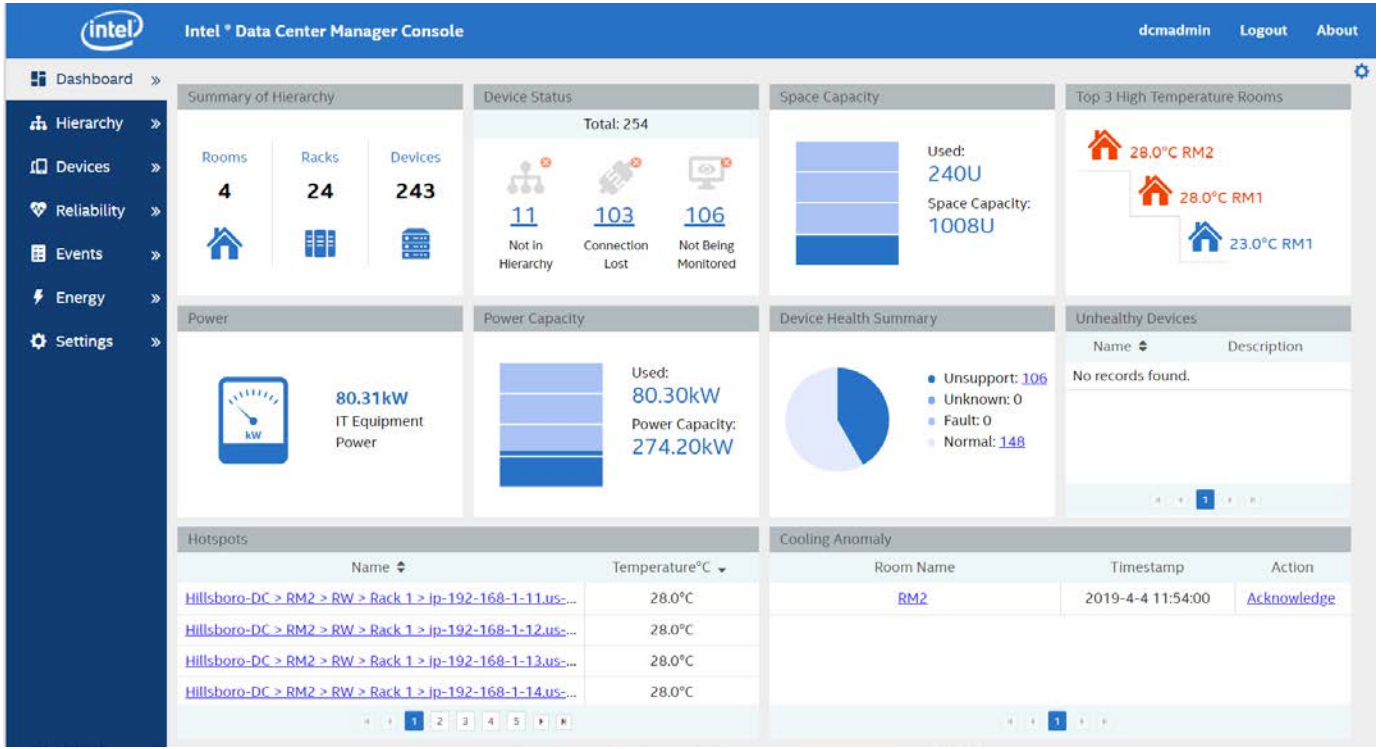
A patented algorithm builds
a model of the temperature patterns

and detects anomalies in time…

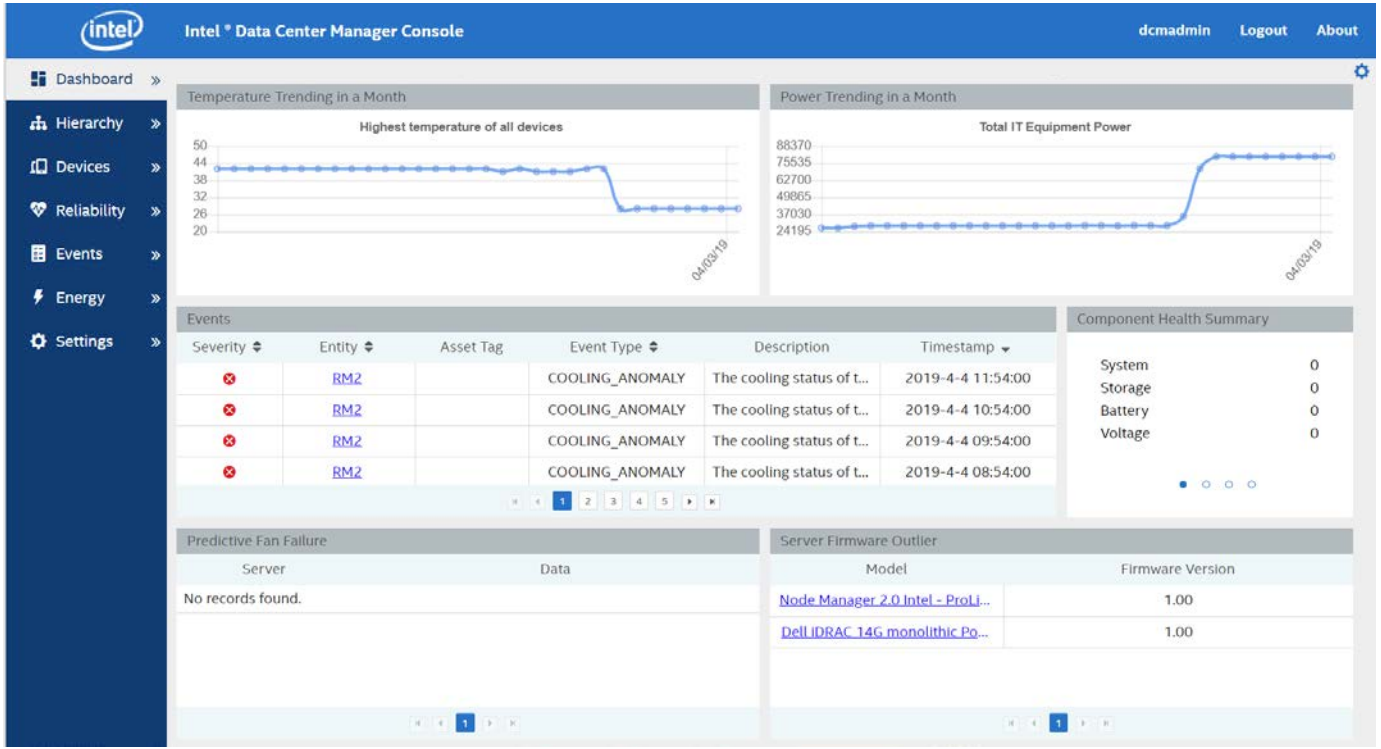
… to be resolved before a thermal issue occurs.



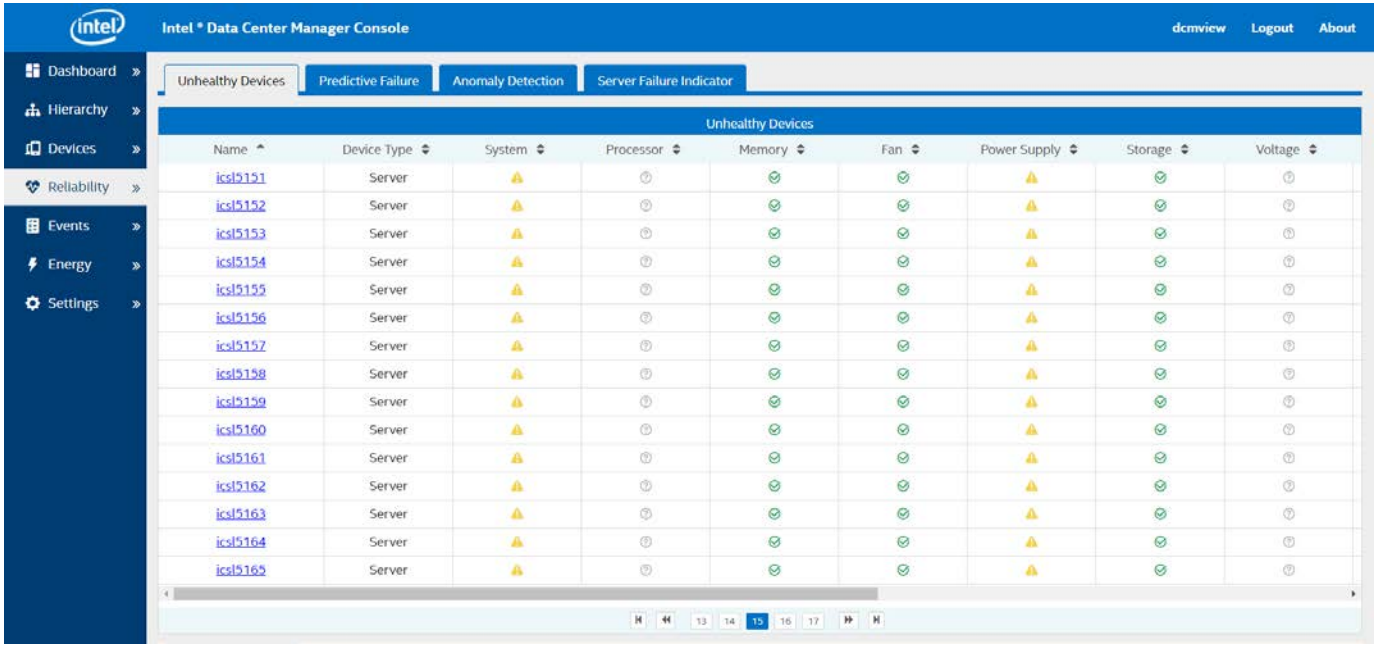
INTEL® DCM CONSOLE DASHBOARD



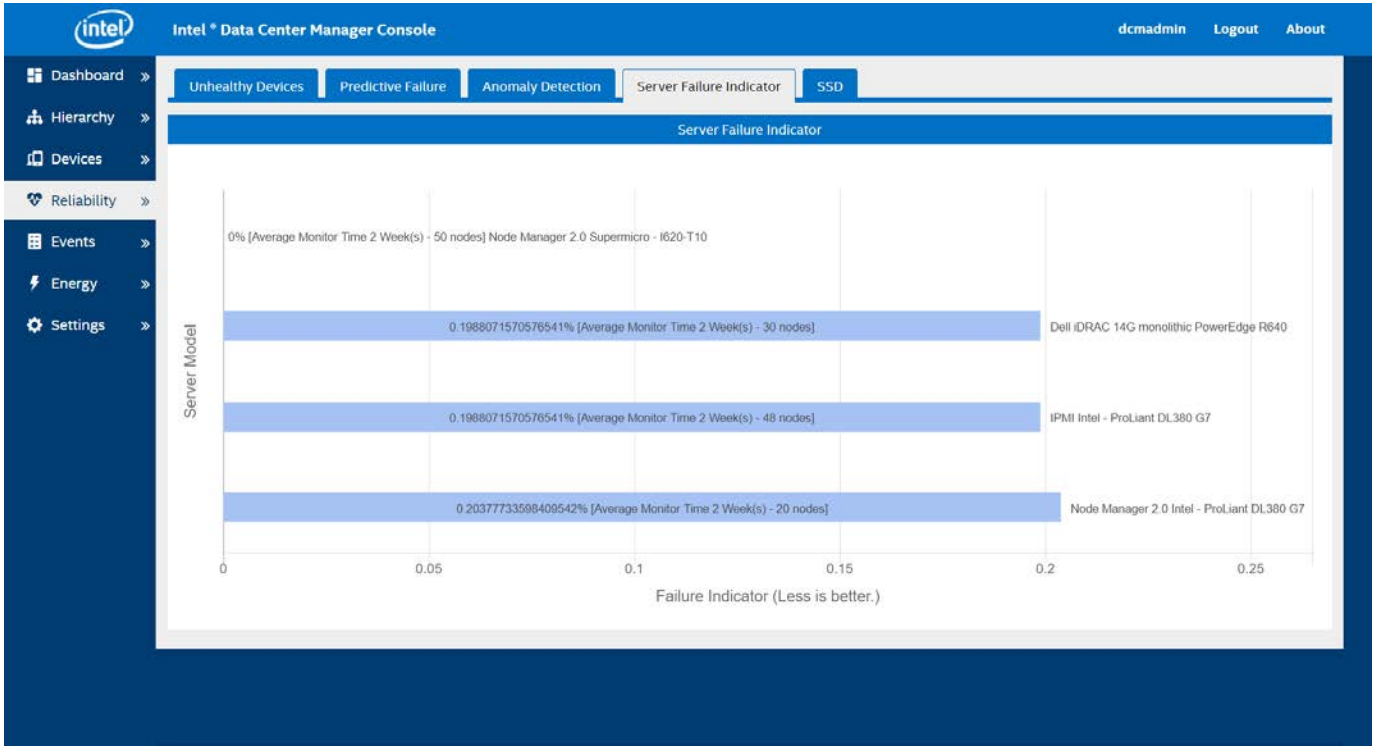
DASHBOARD CONT'D



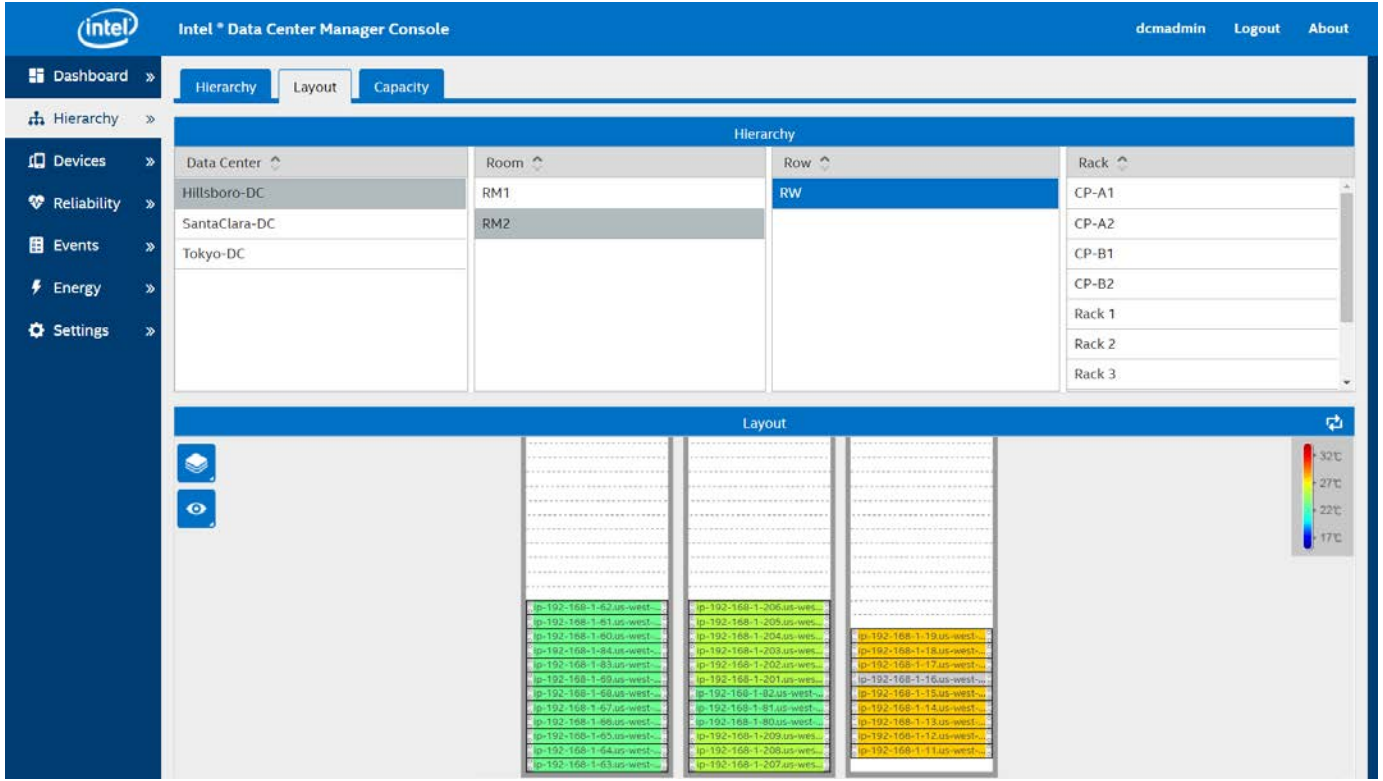
DEVICE HEALTH MONITORING



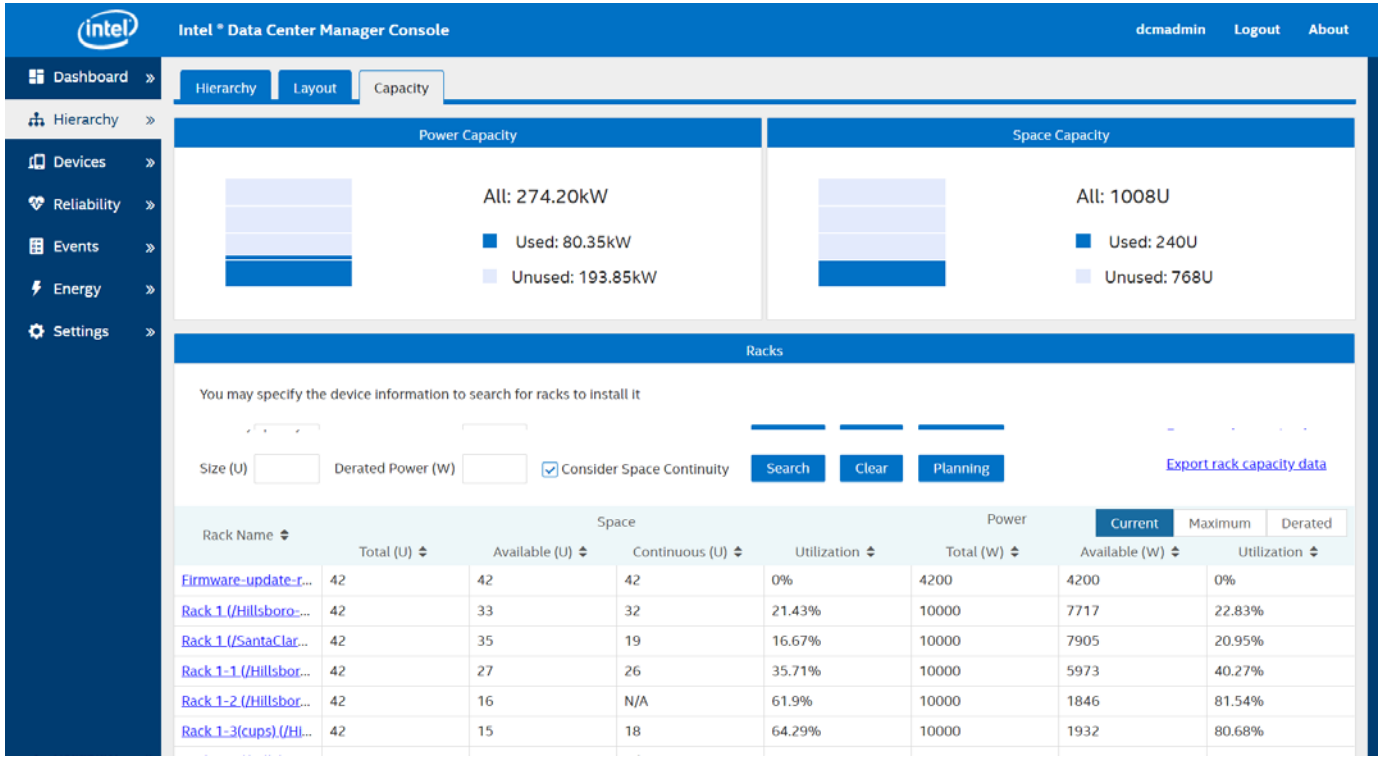
SERVER RELIABILITY INDICATOR



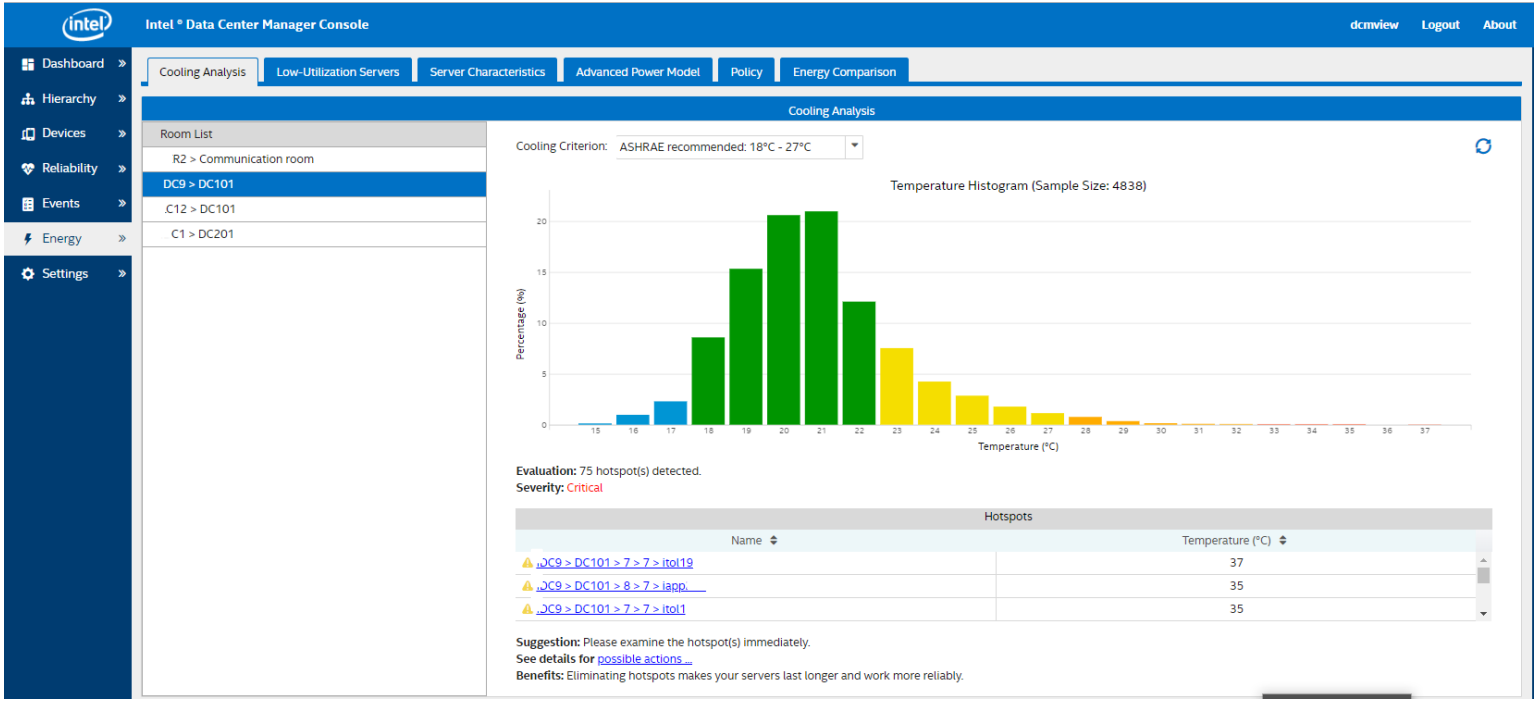
LAYOUT MANAGEMENT



CAPACITY MANAGEMENT



COOLING ANALYSIS



RECENT CUSTOMER WHITEPAPERS

Use	Power Monitoring	Increase Rack Density	Ghost Server Identification	Identify Power/Thermal Failure	Improve Thermal Profile	Power Management	Reducing Labor and HW Costs	Remote Access
Customers	Reduced monthly datacenter electricity bill while peak power demand kept increasing	Large PRC IPDC Allowed customers to increase rack density by 71% by implementing Intel DCM	Identified 10 – 15% of underutilized servers and virtualized those systems	UPS uptime can be extended up to 15% with limited performance impact during power outage	Thermal data collection allows users to see 2D heat maps of the datacenter	Decreased power by 18% of KWh with little/no impact on performance	Reduced the costs of manually managing server health by $200K per year	Remotely turning off idle servers saved Sohu.com $94K per year
	Charge back system allows facilities to correctly charge colo and other service users	Up to 83% rack density increase within same power envelope with power management policy	With 13% of servers underutilized, one compute geo improved usage or terminated devices	Prolonging business continuity time by up to 25% during power outage	Raised server room temp by 3°C, a potential 9% savings of annual energy	Saved 15% power without performance degradation	Eliminated the need to purchase 600 intelligent PDUs saving $60K	Remote diagnosis and remediation of 150K servers
	Identifies peak electrical usage and reduces usage by 18% during peak hours	Monitoring capabilities and power consumption ceilings allowed up to a 60% increase in rack density.	Large PRC IPDC $630k can be saved in 3 years for a 10k datacenter by consolidating low utilization servers	Existing alert infrastructure sped up market launch of new product	4°C increase expected to save 32% in power consumption for cooling	25% savings on power consumption with DCM ED and Node Manager	Significantly improved PUE due to reliability of interoperable health monitoring	Remotely switching servers on/off helped conserve power resulting in $24K annually

SUMMARY

Whatever your infrastructure is, make sure you are taking advantage of platform telemetry to optimize your datacenter and cloud operations

Make sure you have real-time insights into their power consumption, performance, thermals, utilization, and health

Learn more about Intel® DCM and download the unrestricted 30-day evaluation version of the DCM Console @ www.intel.com/dcm

Check all the latest Intel® DCM customer testimonials and whitepapers too

Reach out to us: dcmsales@intel.com

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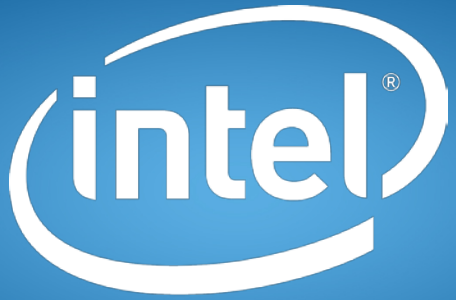

experience
what's inside™