
# INTEL® DATA CENTER MANAGER (DCM) OVERVIEW

Get Your Data Center Under Control

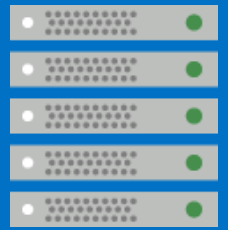
# AGENDA

- THE NEED FOR ON-DEMAND VISIBILITY INTO DATA CENTER PERFORMANCE
- INTEL® DATA CENTER MANAGER (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

These 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

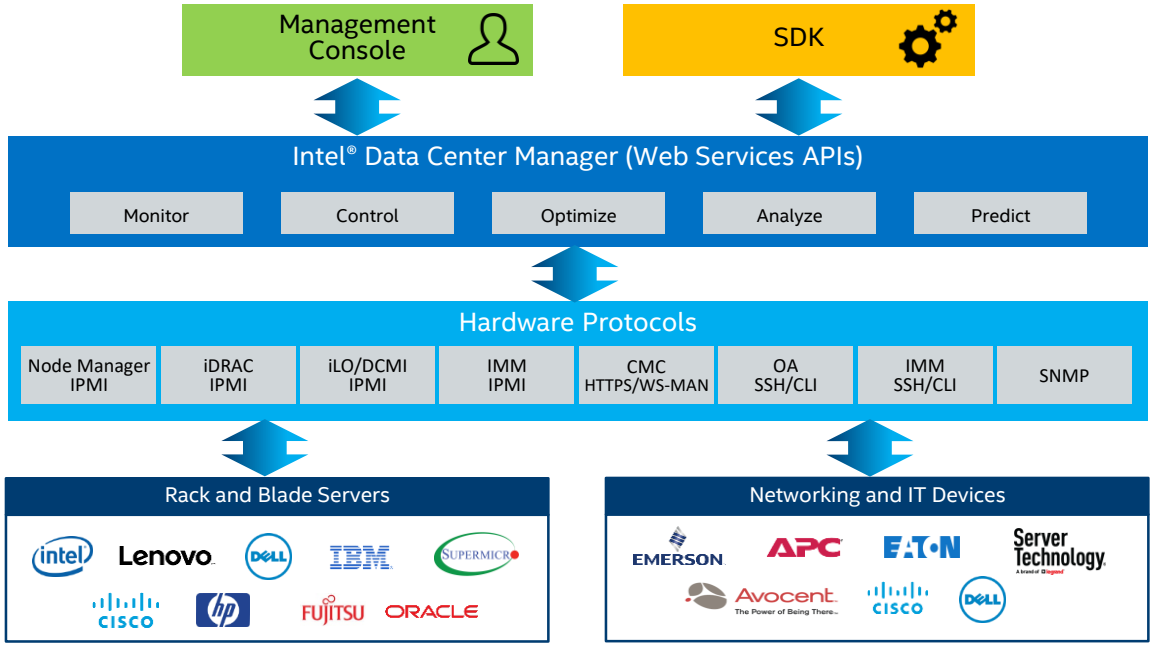
Helps increase rack density,
Decreases costs and improves efficiency

# 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




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

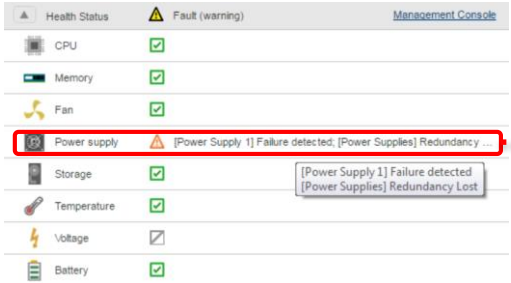

## Direct Customers

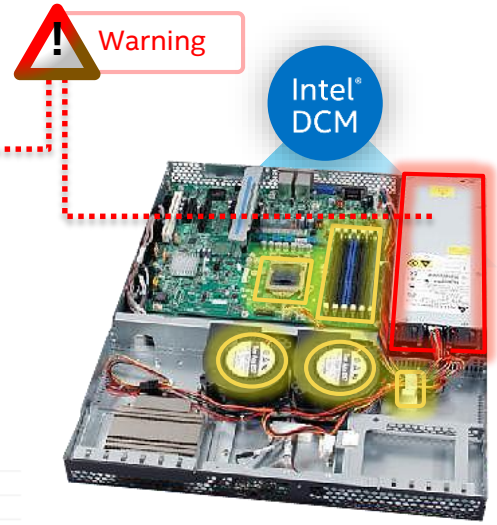
# WHAT CAN YOU DO WITH INTEL® DCM?

- AUTOMATE HEALTH MONITORING 
- IMPROVE SYSTEM MANAGEABILITY 
- SIMPLIFY CAPACITY PLANNING 
- IDENTIFY UNDERUTILIZED SERVERS 
- MEASURE ENERGY USE BY DEVICE 
- PINPOINT POWER/THERMAL ISSUES 
- CREATE POWER-AWARE JOB SCHEDULING TASKS 
- INCREASE RACK DENSITIES 
- SET POWER POLICIES AND CAPS 
- IMPROVE DATA CENTER THERMAL PROFILE 
- OPTIMIZE APPLICATION POWER CONSUMPTION 
- AVOID EXPENSIVE PDUS AND SMART POWER STRIPS 

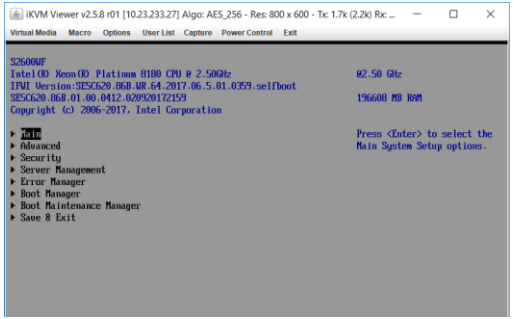
# SYSTEM MANAGEABILITY

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

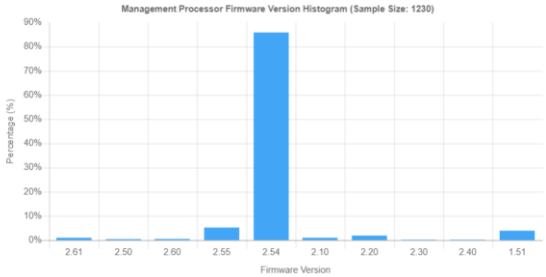


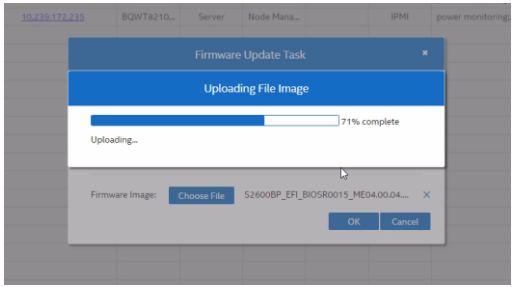

## Remote connect to servers via the integrated BMC KVM




## Check the FW version of servers and identify outliers




## Perform FW updates on Intel Server Systems in batches remotely

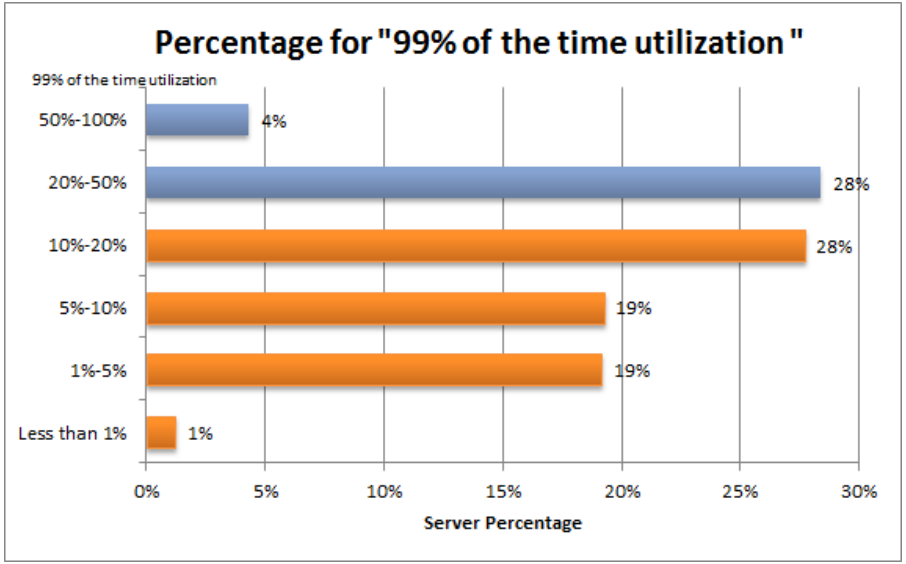


# IDENTIFYING UNDERUTILIZED SERVERS

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%= 25200

# 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

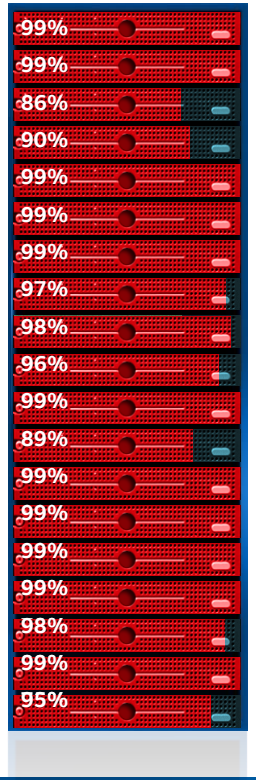
**Real time monitoring with power budget enforcement***

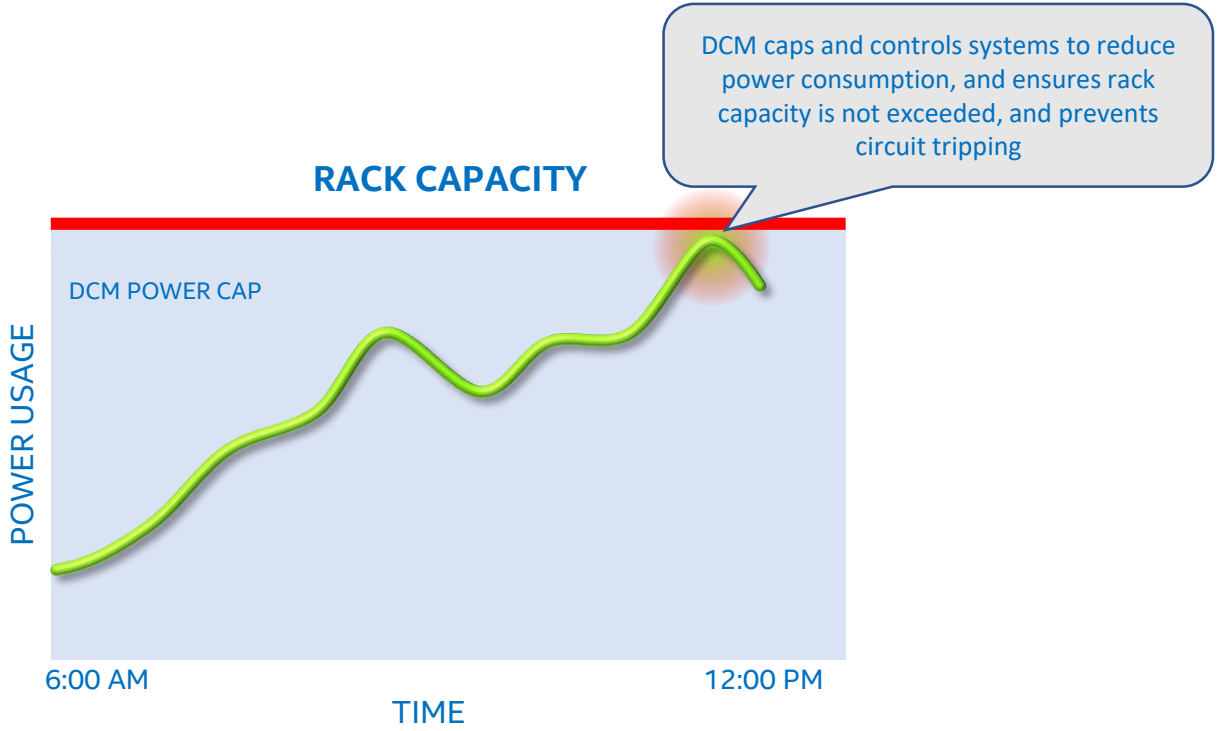
- Actual measurements indicates power/server rarely exceeds 250 W
- Use 250 W as aggressive power/server budget
- Enforce 4,000 W global cap for rare cases
- Install 4,000 watt/250 watt per server = 16 servers

## 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



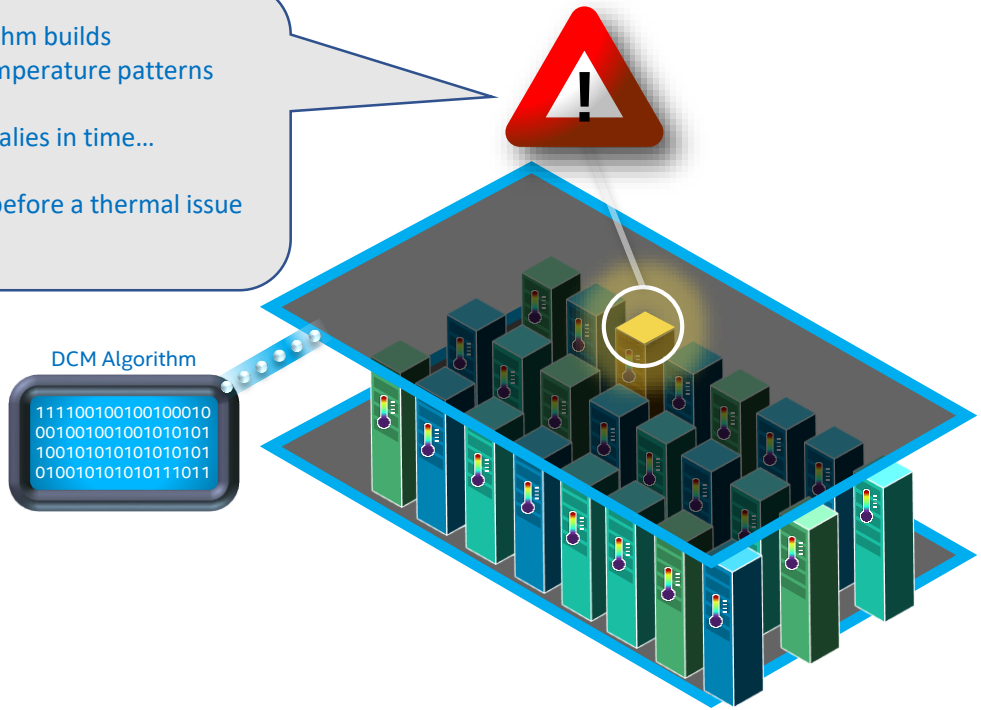



# PREDICTIVE DETECTION OF COOLING ANOMALIES

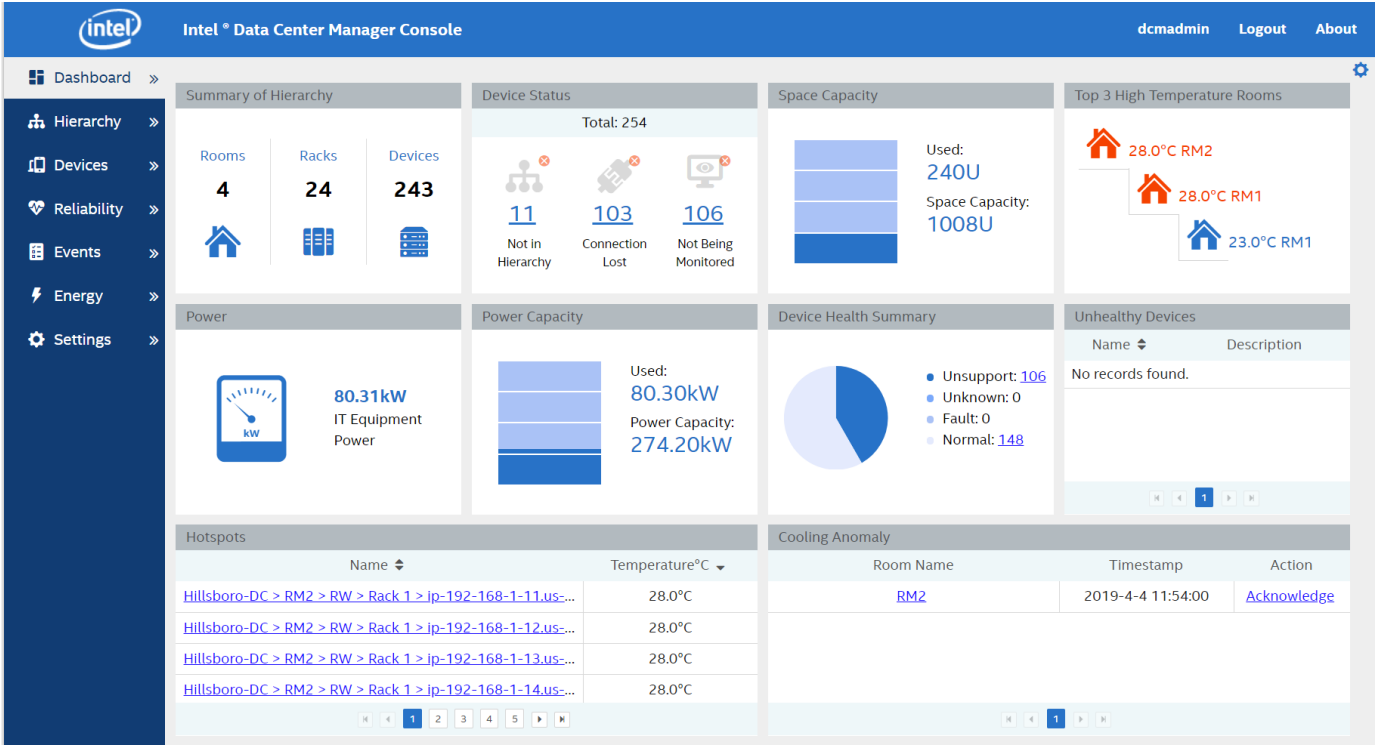
A patented algorithm builds
a model of the temperature patterns

and detects anomalies in time…

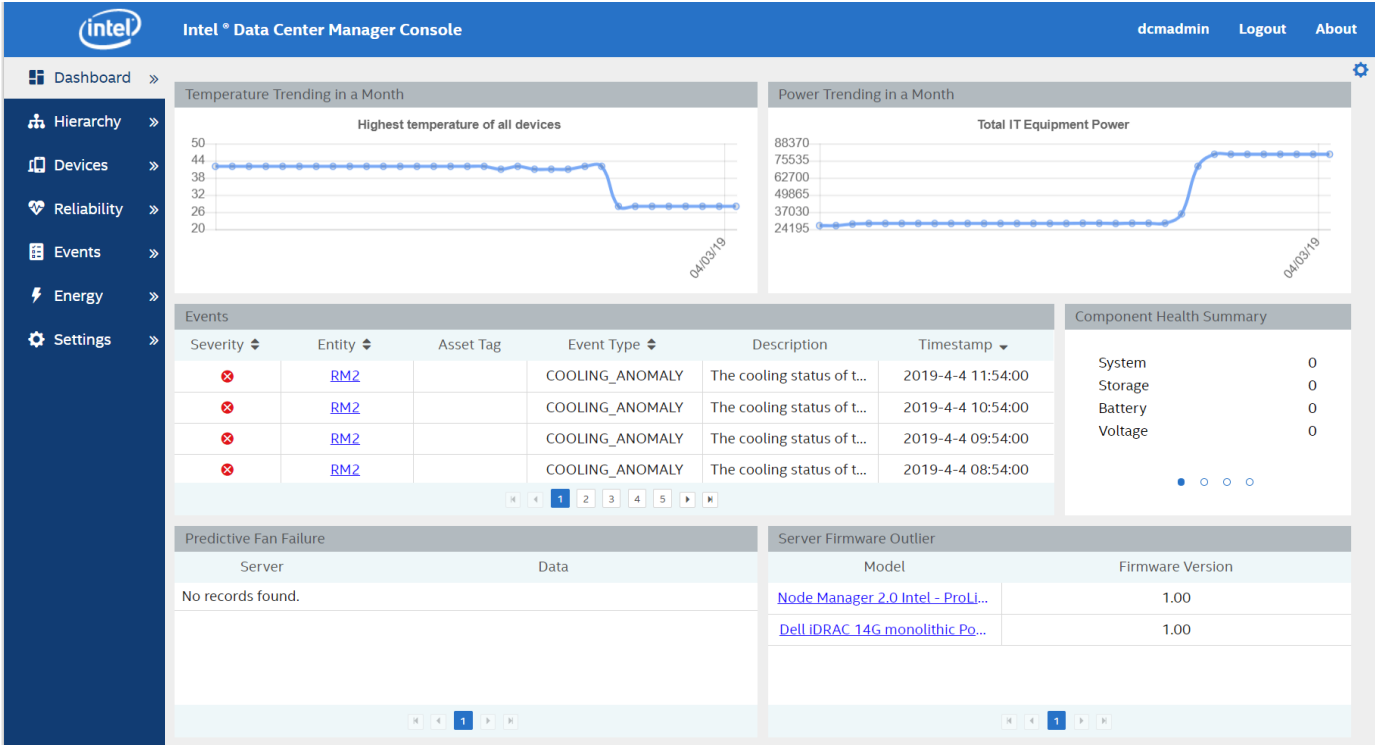
… to be resolved before a thermal issue occurs.



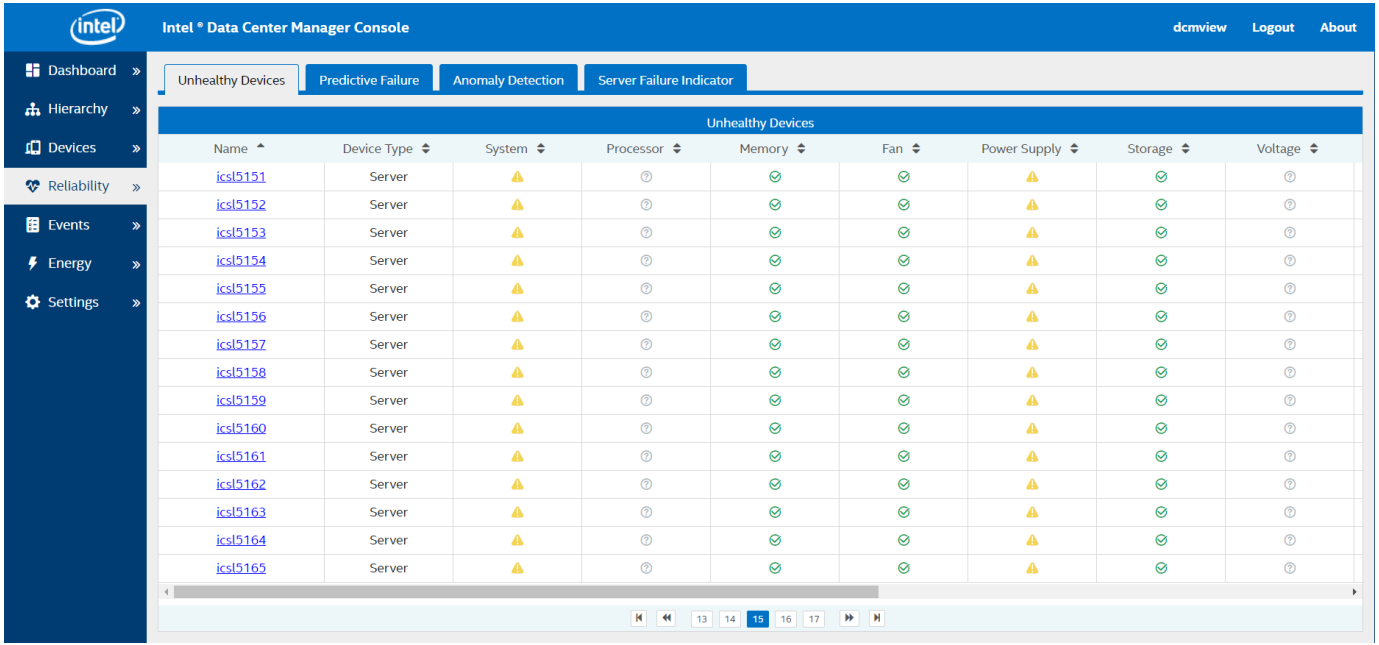
# INTEL® DCM CONSOLE DASHBOARD



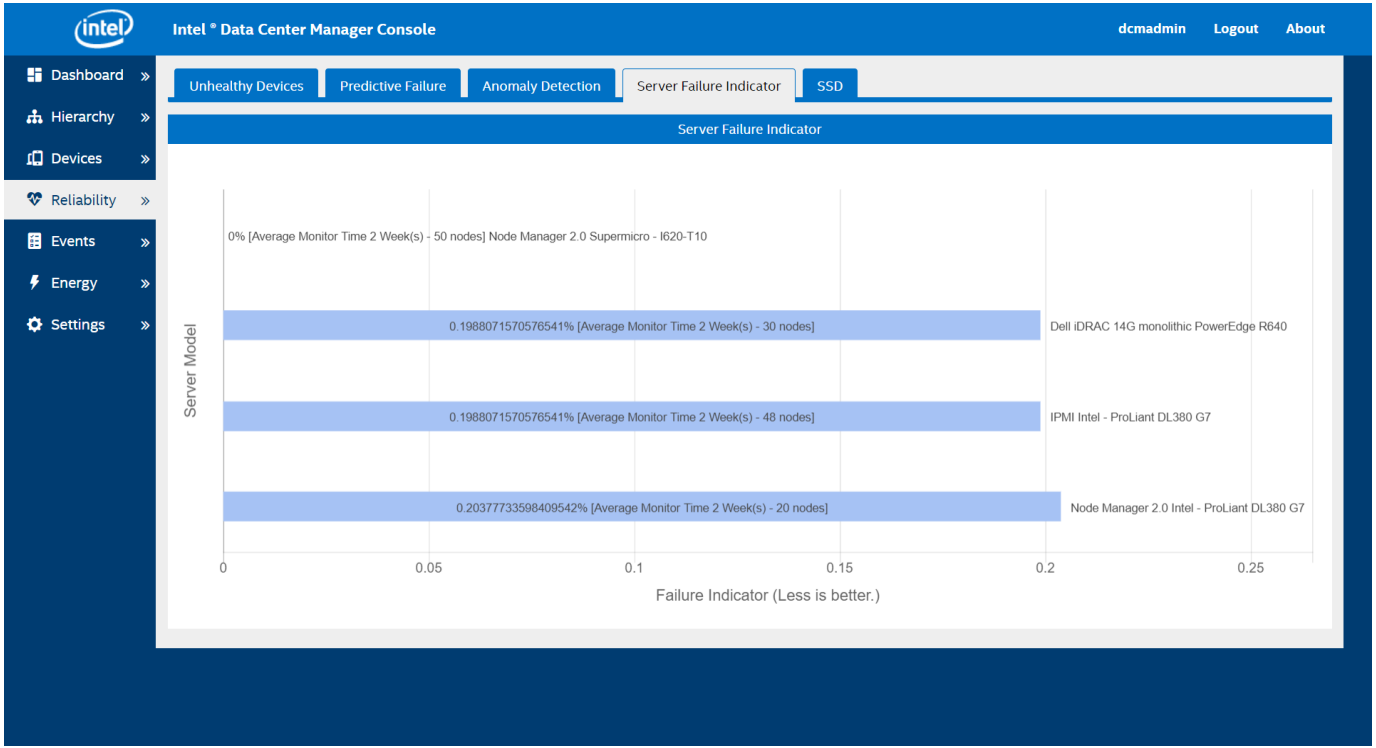
# DASHBOARD CONT'D



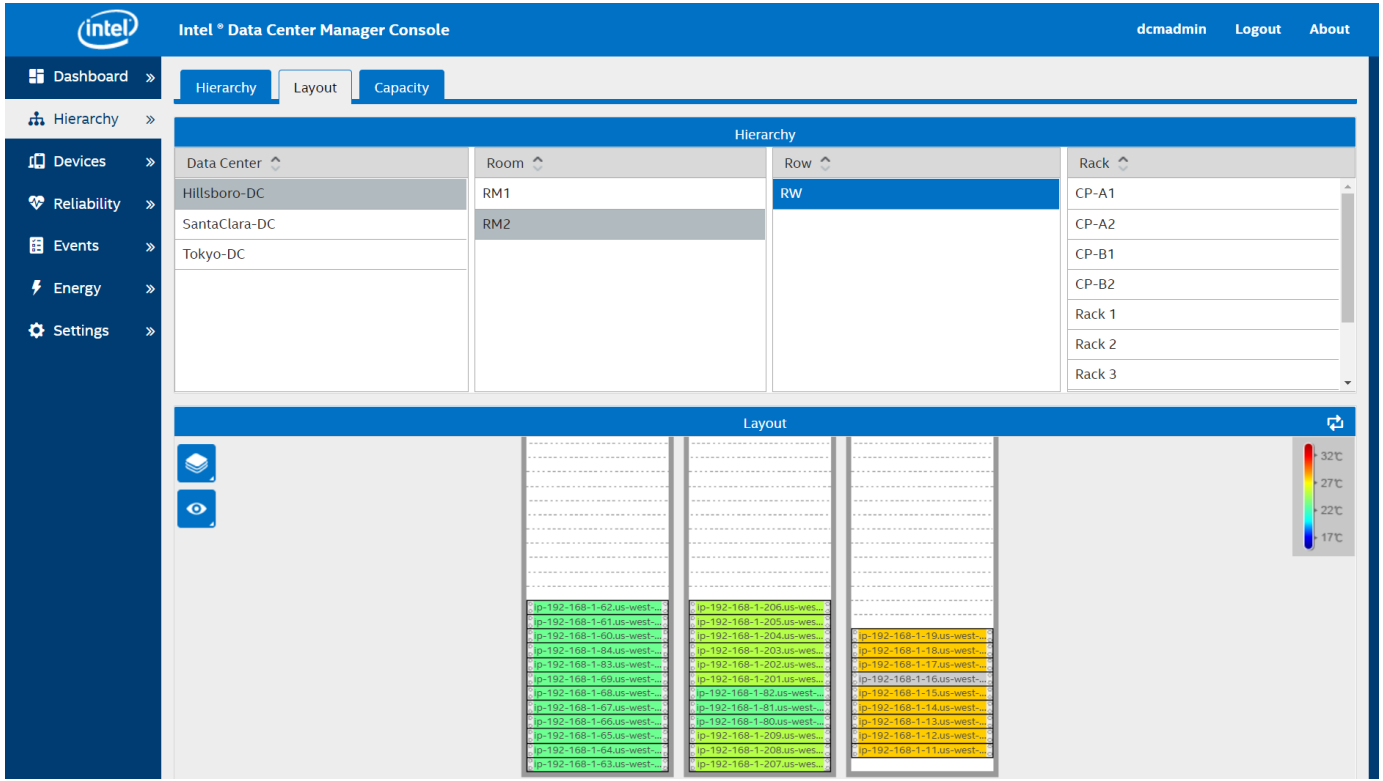
# DEVICE HEALTH MONITORING



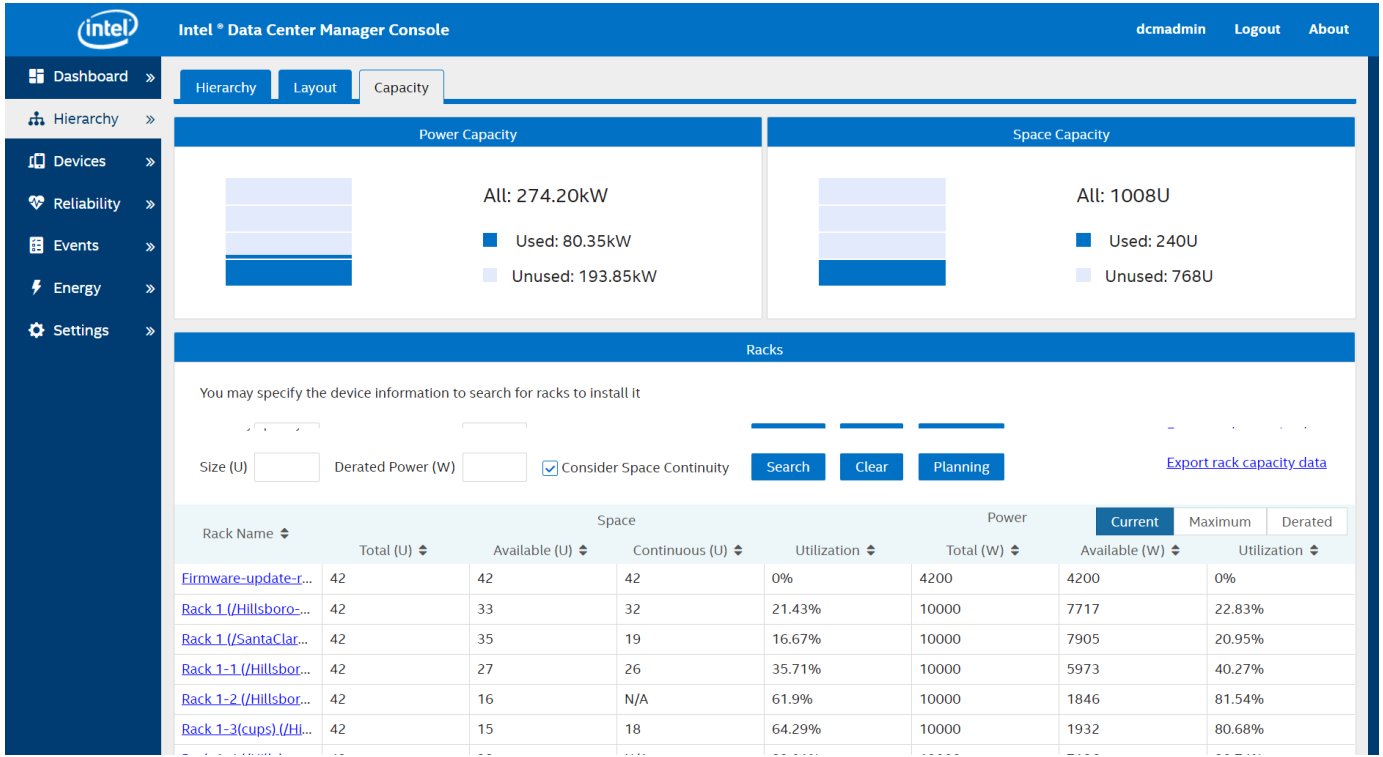
# SERVER RELIABILITY INDICATOR



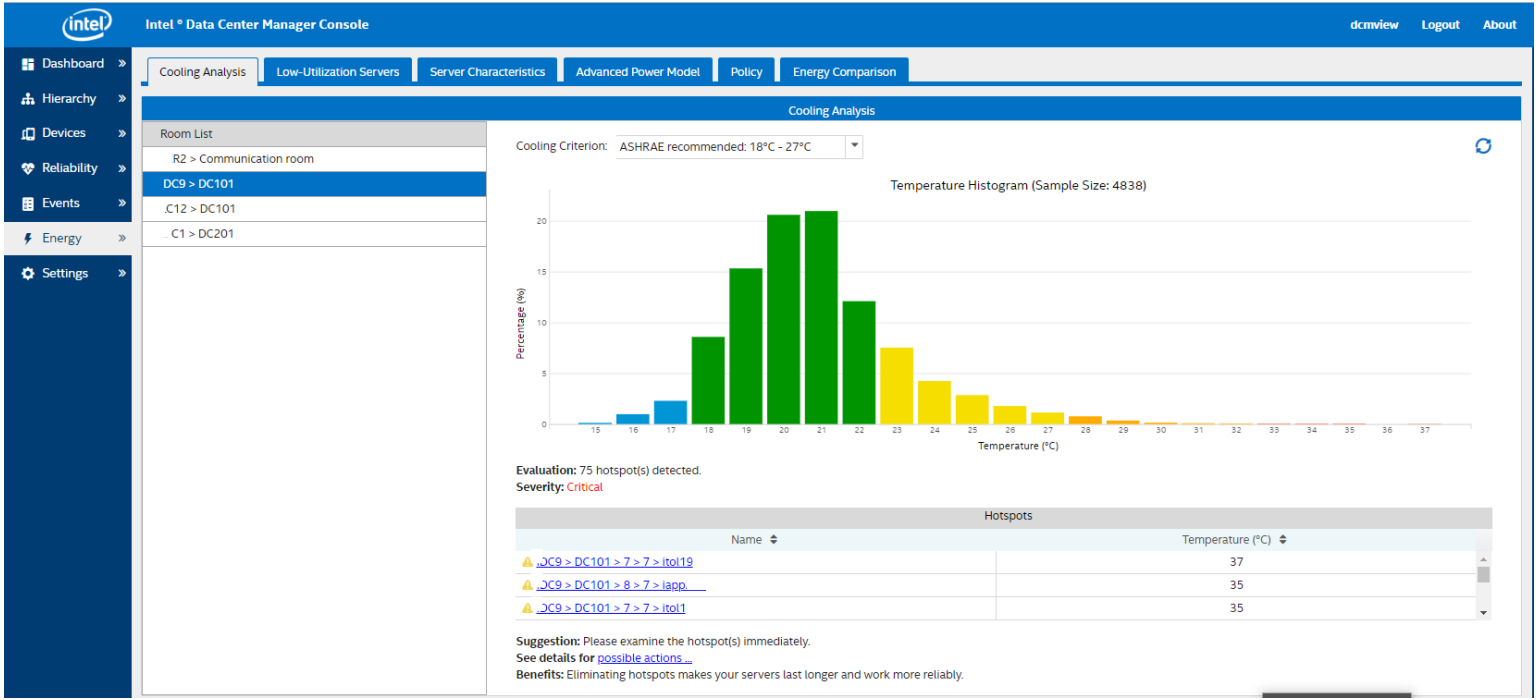
# LAYOUT MANAGEMENT



# 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<br>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<br>$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 |

# AGENDA

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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No computer system can be absolutely secure.

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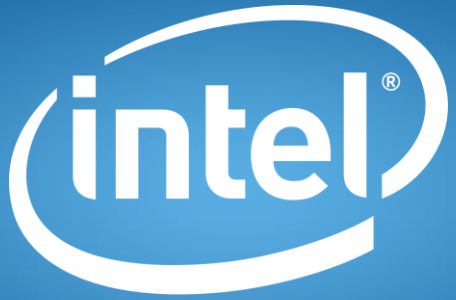


experience
what's inside™