DYNAMIC HVAC OPTIMIZATION

MISSION CRITICAL AND COMMERCIAL BUILDINGS

Bob Thronson
bthronson@vigilent.com

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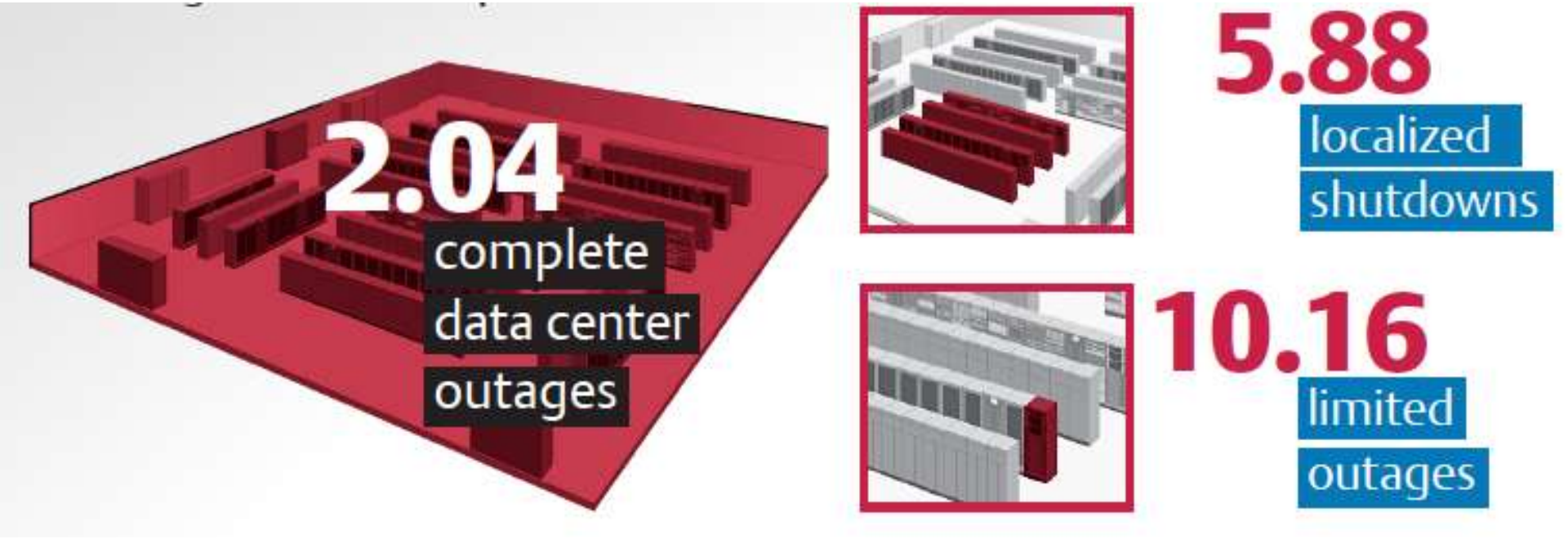
Vigilent®

DOWNTIME IS COMMON ….

A study of 584 U.S.-based data center professionals found that in the past 24 months, the average data center experienced



Source: Ponemon Institute

DOWNTIME IS EXPENSIVE ….

Source: Ponemon Institute

DOWNTIME IS CAUSED BY HEAT

COOLING FAILURES CONTRIBUTE TO 33% OF ALL OUTAGES

Wikipedia - Data center overheats, causing a global shutdown

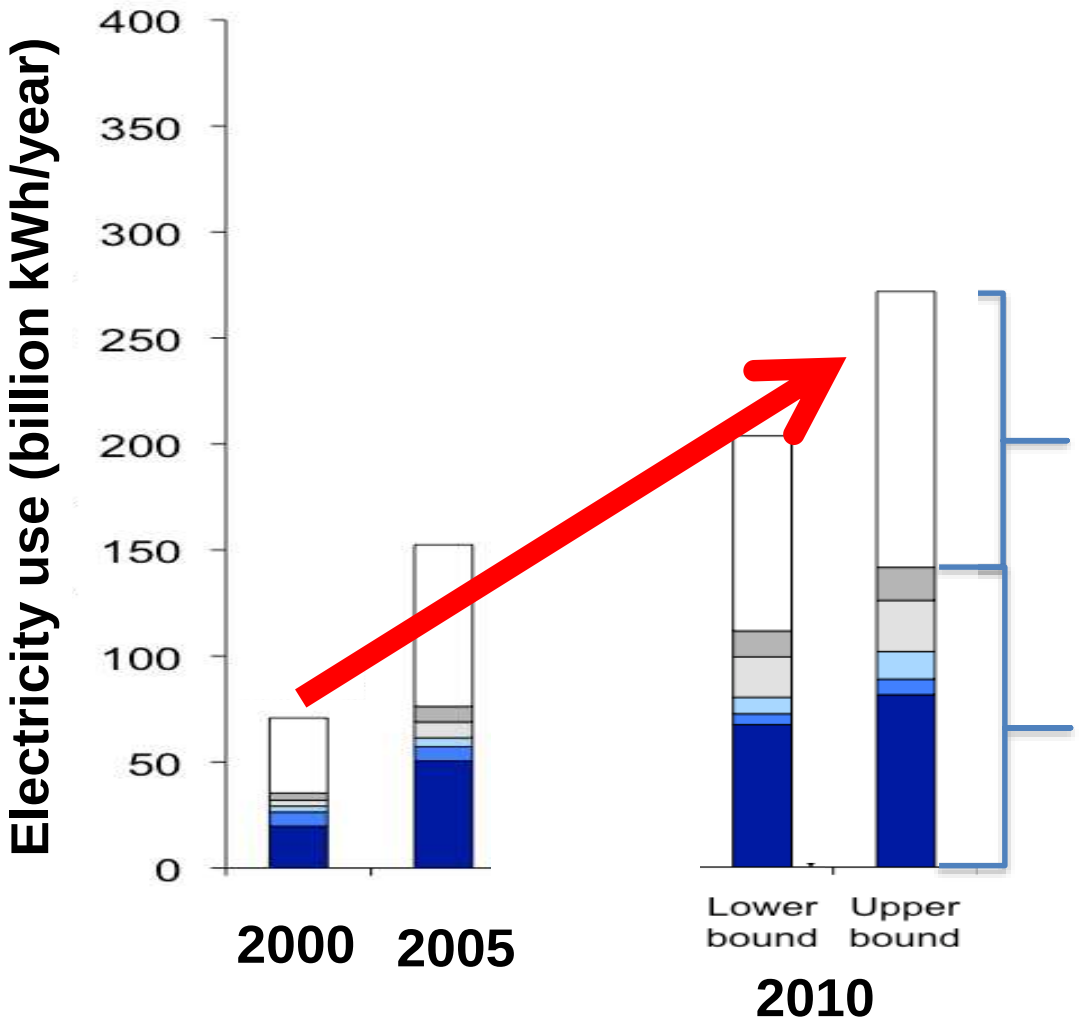
Equinix – Paris facility hit by cooling outage, forcing client to discontinue service

Microsoft – Temperature spikes in data center, causing a Hotmail outage

Last.fm – London data center overheats, causing service outage

Source: Ponemon Institute

ENERGY USE RISING

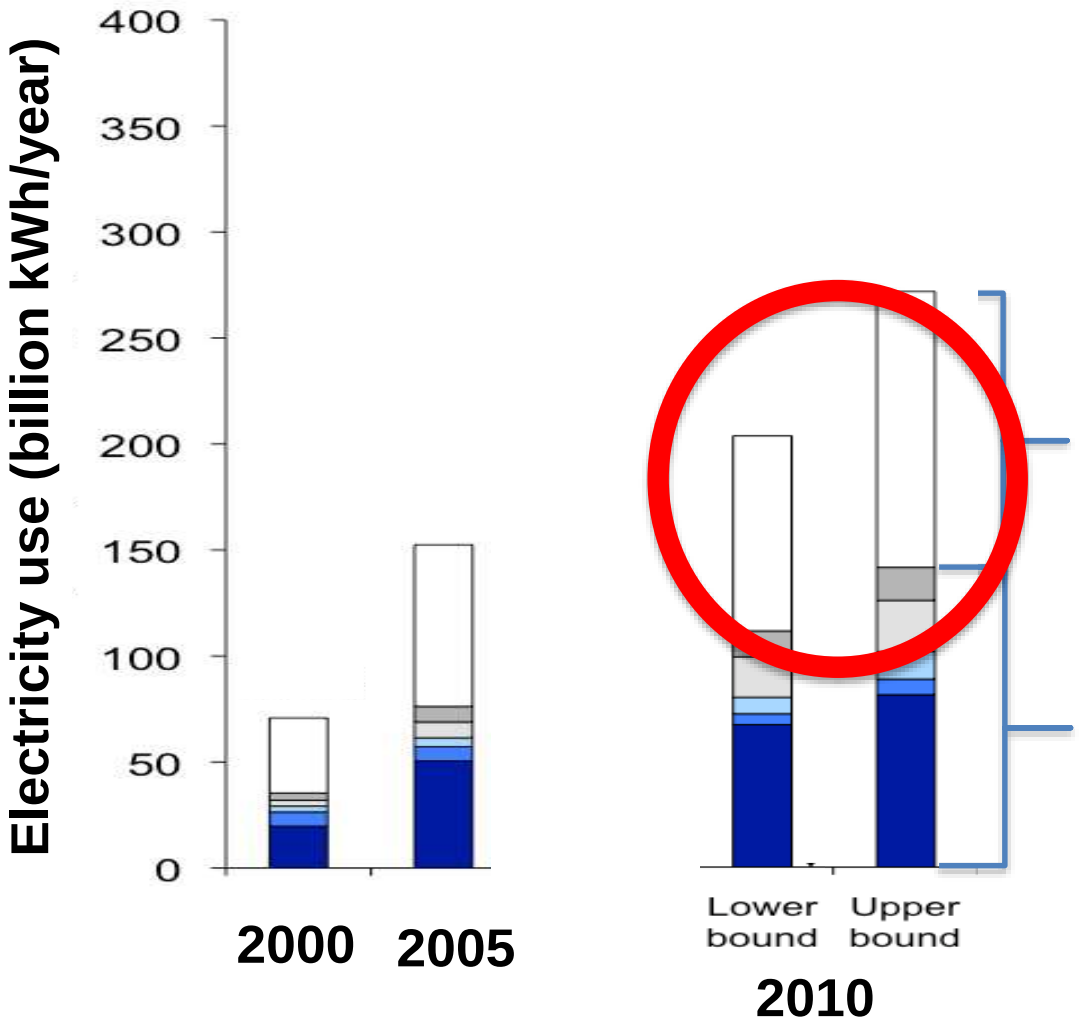


Cooling, Power Distribution

Servers, Storage, Communications

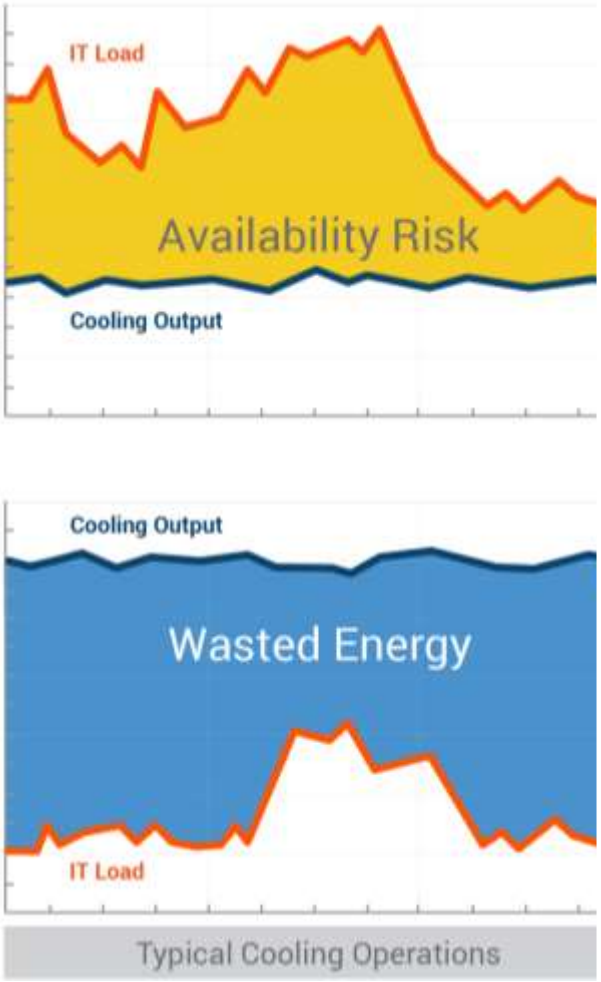
Source: Koomey, Jonathan. 2011. *Growth in data center electricity use 2005 to 2010*. Oakland, CA: Analytics Press.

LOTS OF COOLING



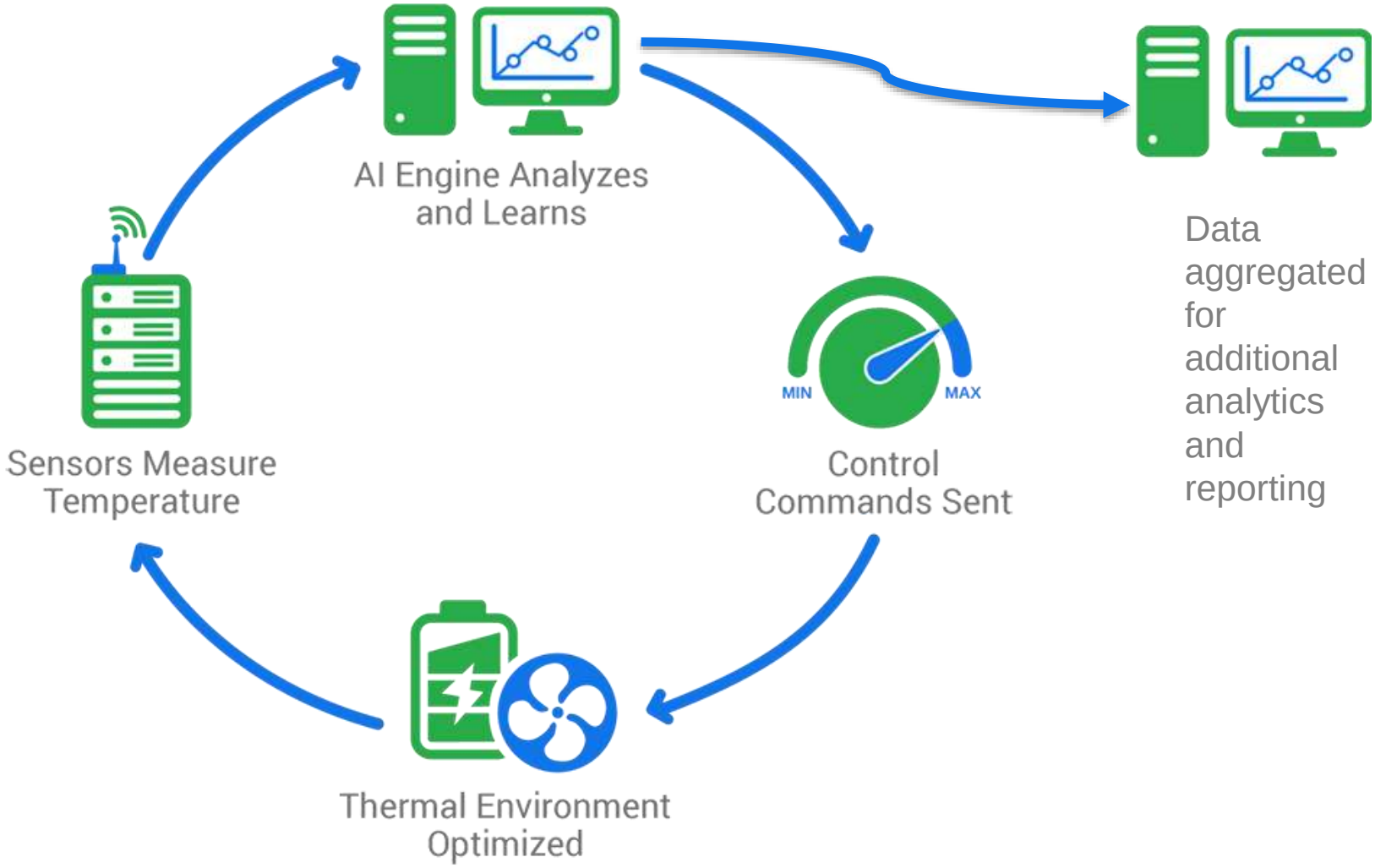
Source: Koomey, Jonathan. 2011. *Growth in data center electricity use 2005 to 2010*. Oakland, CA: Analytics Press.

SOLVE BOTH PROBLEMS AT ONCE?



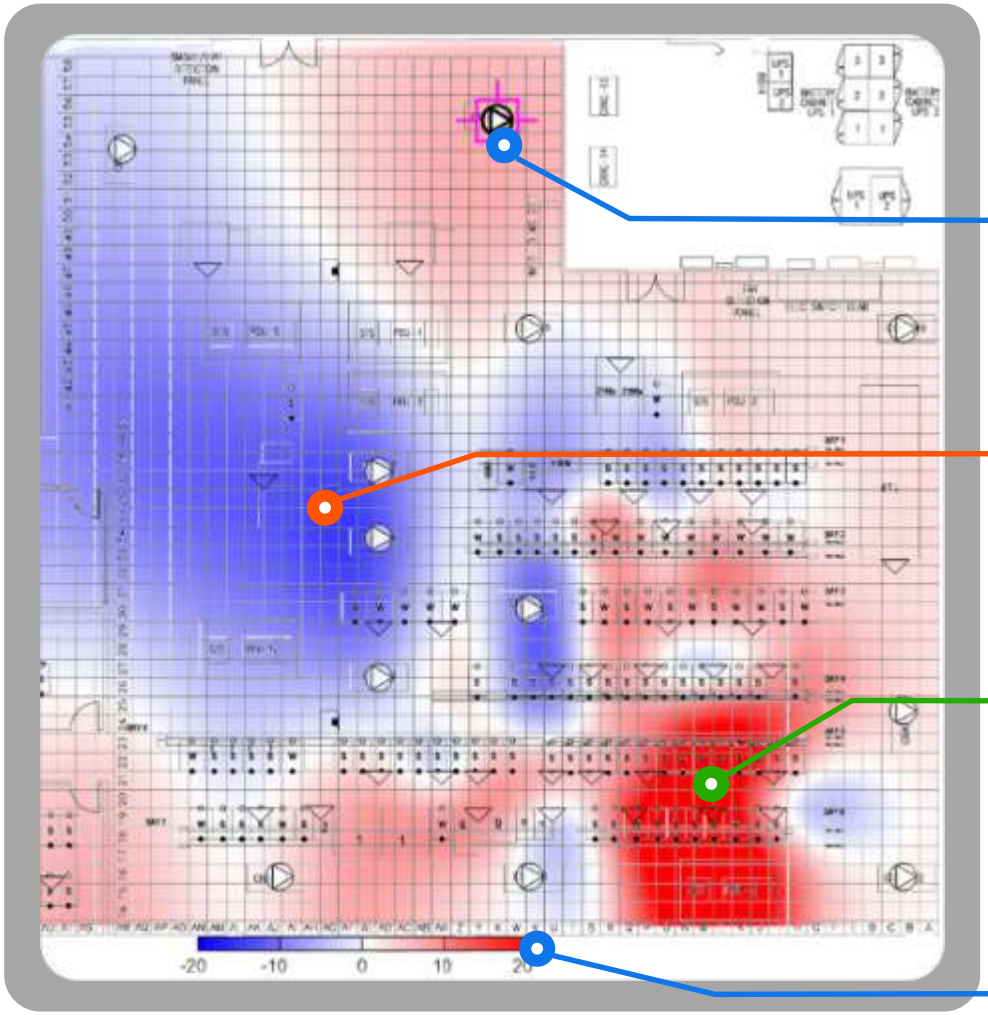
HOW TO SOLVE BOTH PROBLEMS

Automatic, closed-loop control optimizes cooling



PREDICTIVE ANALYTICS

Learn the influences and effects of cooling infrastructure



Cooling Unit Selected

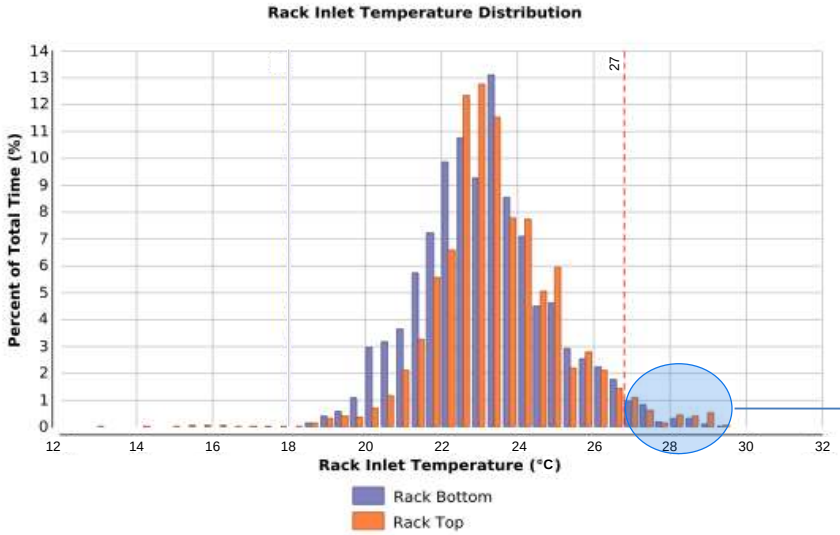
Cooling Impact

Heating Impact

Measured influence

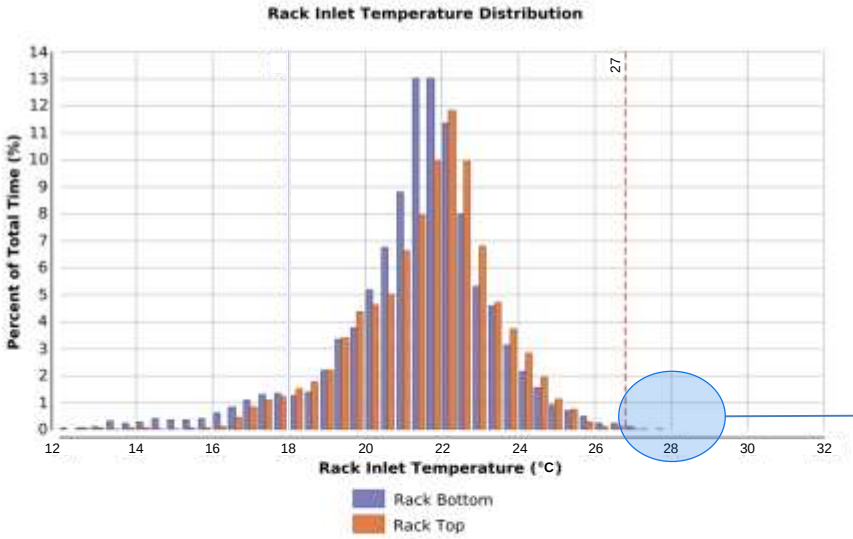
THERMAL STABILIZATION

98% reduction in hot spots across your facility



Baseline

3,799 Hot spot hours



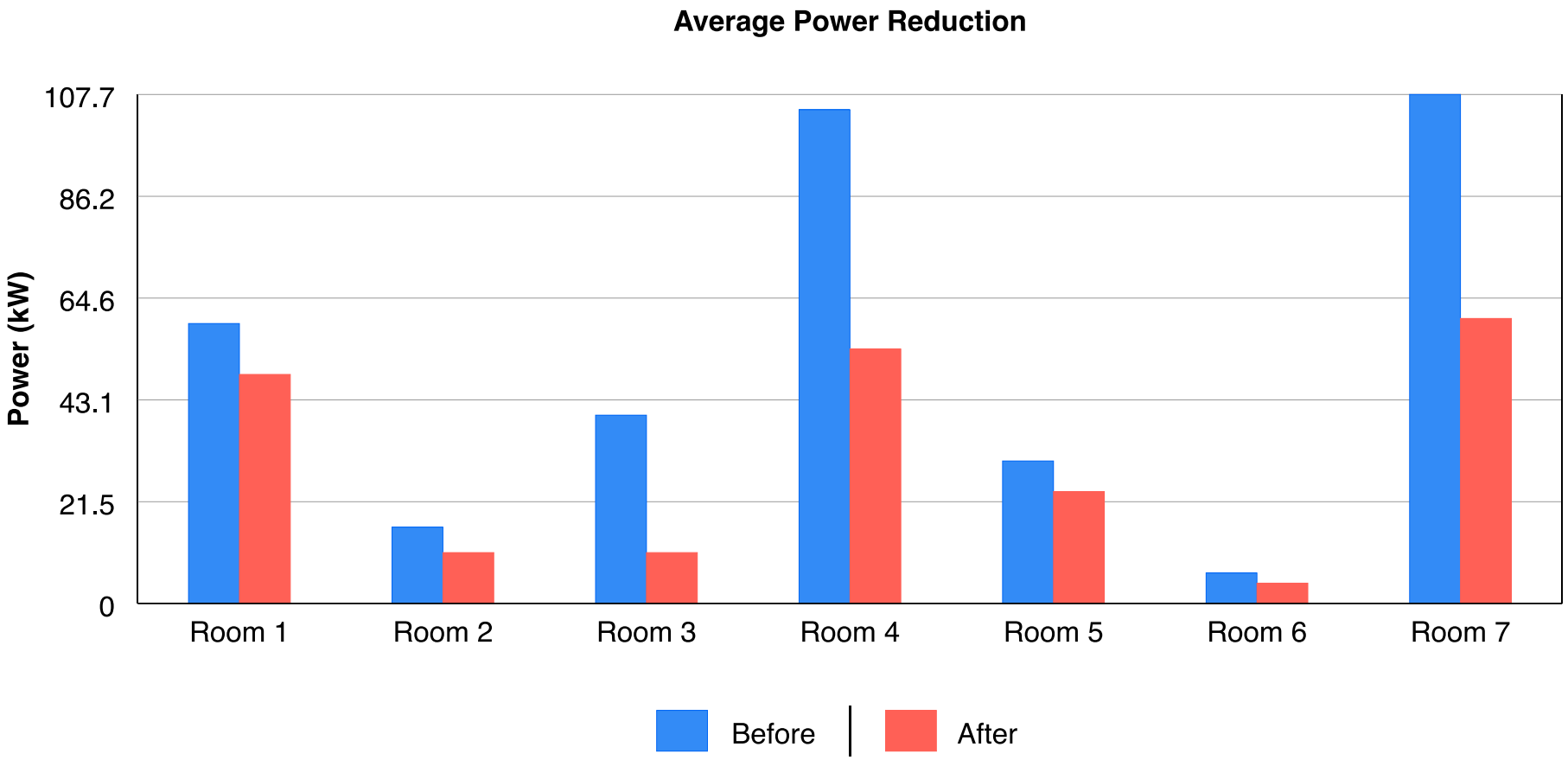
98% Reduction in Hot Spots

After Control

91 Hot spot hours

ENERGY SAVINGS

Cooling energy reduced by 41%



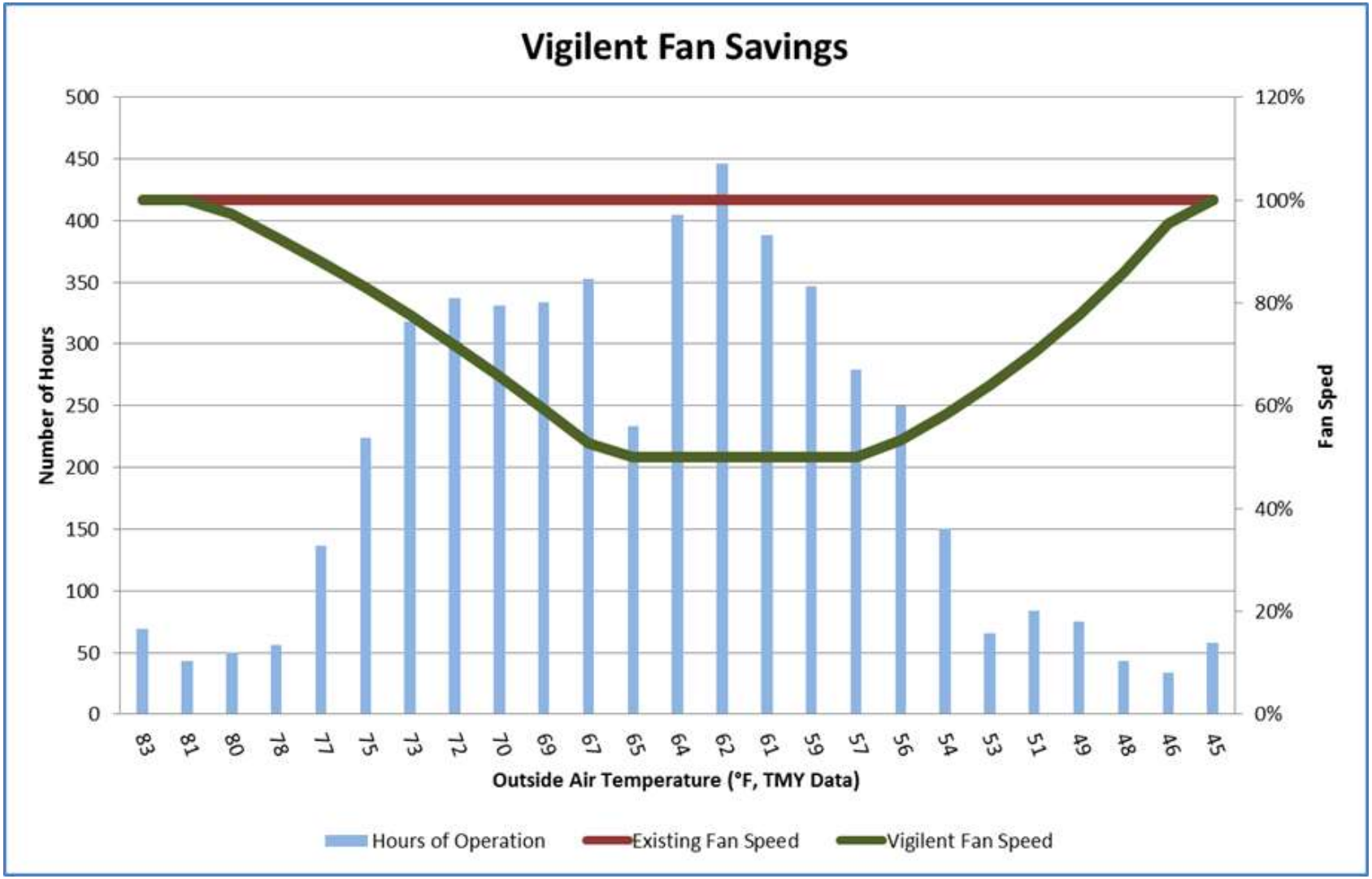
41% Cooling Energy Reduction

WHAT ABOUT BUILDINGS?

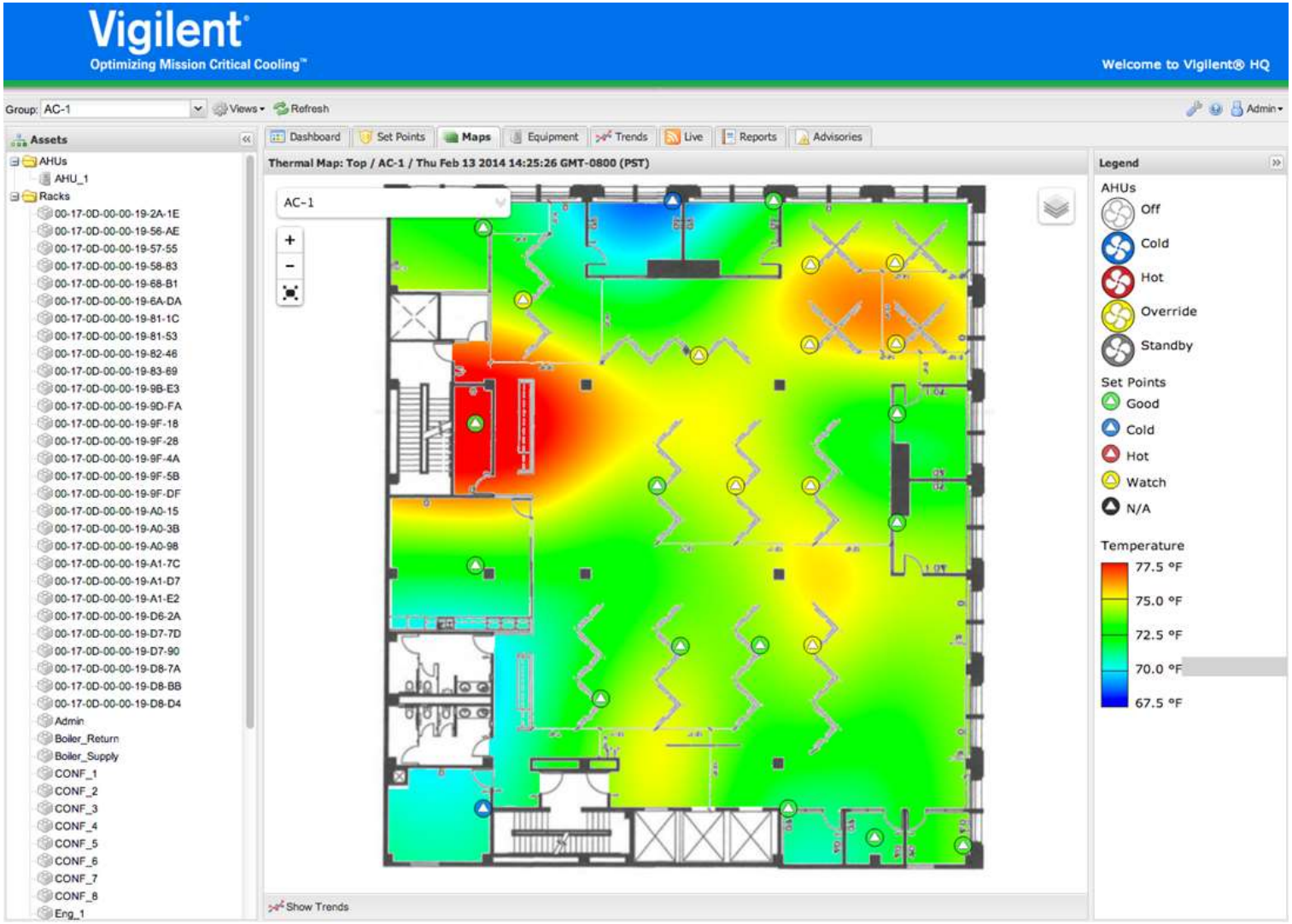
“60% of savings of traditional VAV retrofit at 30% of the cost.”

- Anna Levitt, UCSD

OPTIMIZED FAN SPEEDS



VISIBILITY


Vigilent
Optimizing Mission Critical Cooling™
Welcome to Vigilent® HQ
Group: AC-1
Views
Refresh
Admin
Assets
AHUs
AHU_1
Racks
00-17-0D-00-00-19-2A-1E
00-17-0D-00-00-19-56-AE
00-17-0D-00-00-19-57-55
00-17-0D-00-00-19-58-83
00-17-0D-00-00-19-68-B1
00-17-0D-00-00-19-6A-DA
00-17-0D-00-00-19-81-1C
00-17-0D-00-00-19-81-53
00-17-0D-00-00-19-82-46
00-17-0D-00-00-19-83-69
00-17-0D-00-00-19-9B-E3
00-17-0D-00-00-19-9D-FA
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00-17-0D-00-00-19-9F-4A
00-17-0D-00-00-19-9F-5B
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00-17-0D-00-00-19-A0-15
00-17-0D-00-00-19-A0-3B
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00-17-0D-00-00-19-A1-7C
00-17-0D-00-00-19-A1-D7
00-17-0D-00-00-19-A1-E2
00-17-0D-00-00-19-D6-2A
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00-17-0D-00-00-19-D8-7A
00-17-0D-00-00-19-D8-BB
00-17-0D-00-00-19-D8-D4
Admin
Boiler_Return
Boiler_Supply
CONF_1
CONF_2
CONF_3
CONF_4
CONF_5
CONF_6
CONF_7
CONF_8
Eng_1
Dashboard
Set Points
Maps
Equipment
Trends
Live
Reports
Advisories
Thermal Map: Top / AC-1 / Thu Feb 13 2014 14:25:26 GMT-0800 (PST)
AC-1
Show Trends
Legend
AHUs
Off
Cold
Hot
Override
Standby
Set Points
Good
Cold
Hot
Watch
N/A
Temperature
77.5 °F
75.0 °F
72.5 °F
70.0 °F
67.5 °F

GEISEL LIBRARY – UC SAN DIEGO

- 490,000 ft2
- 22 AHUs
- VFDs installed
- BACnet integration w/JCI
- Software turn-up in 1 day
- Results:
  - Fans individually controlled / average 65%
  - Tight temperature space set points met
  - $280,000 annual savings

“ROI, aided by energy efficiency incentives, was achieved in about one second.”

– Glen Brandenburg, Sustainability Advisor, Associated Students of San Diego State University

ARCHITECTURE

Automatic, closed-loop control optimizes HVAC