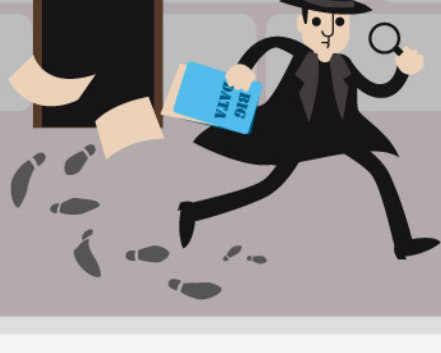


LET DCIM BE YOUR

# DATA CENTER

# INTELLIGENCE AGENT



130–1,227 EXABYTES

Amount digital data grew between 2005 and 2010

5.1 TRILLION HARD DRIVES

Estimated amount of data consumed every day in the U.S.

## DATA: THE MOTIVE FOR ACTION

5.6 BILLION MILES OF BOOKS

To equal what's currently processed by business servers worldwide, fill up the pages of all those books with data and multiply the stack by 20

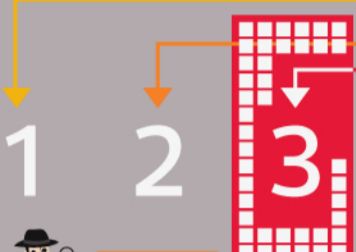


## WHERE DOES ALL THIS DATA GO?

1,000–5,000 SQ. FT. Range for what is considered a small data center

15,400 SQ. FT. Size of the average enterprise-level data center

62,000 SQ. FT. Size of Facebook's deep-storage facility in Prineville, Ore.



## SURVEILLING THE DOLLARS AND CENTS

\$60 BILLION

Amount U.S. small businesses spend annually on energy

\$24.7 BILLION

Approximate amount wasted each year on server management, energy and cooling for lightly used or unused servers

By using data center infrastructure management (DCIM) tools, organizations will save money and be better informed

\$86,000

Energy cost savings from a 10% reduction in power consumption in a data center with 1,000 servers

\$175,000

Amount that same data center could save annually by using blade servers

\$10,000–\$15,000

One organization's single-year savings from raising data center temperature to upper 70s

## SPYING OUT THE ENERGY SITUATION



2.2 MEGAWATTS

Average IT load for an enterprise facility

2.8 MEGAWATTS

Power requirement for expanded facilities



55 WATTS

Current ENERGY STAR standard for an idle 1U rack server (down from 100 watts)

100 55



<15%

Percentage of original-source energy used for IT equipment



12%

EPA estimate for annual growth rate of data center energy consumption



54%

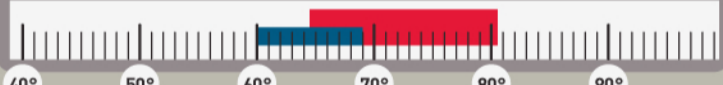
Percentage of IT workers who have or are developing programs to manage data center power demands

## KEEPING IT COOL UNDER PRESSURE



60°–69°F

Thermostat range for old-school data centers



64.4°–80.6°F

Range set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) for the temperature of air entering IT equipment

115°F

Exhaust temperature of a typical server rack

30°F WARMER

Difference in temperature between the air entering IT equipment and the air exiting it



## GREEN COOLING MISSIONS IN HOT & COLD CLIMATES

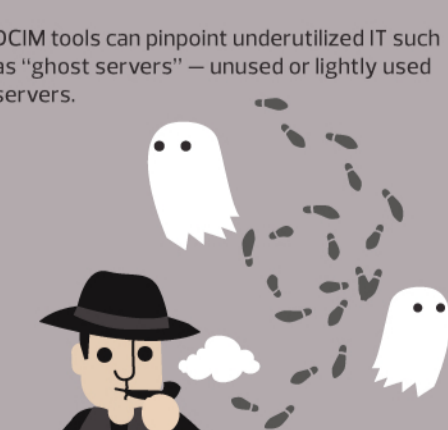


Average low: 81°F  
Place: Phoenix, Arizona  
Method: With temperatures running upwards of 115°, eBay cools its data center using 87° water

Average high: 23°F  
Place: Hamina, Finland  
Method: Google uses naturally frigid air and arctic waters of the Gulf of Finland

## ELIMINATING THE GHOSTS IN THE MACHINE

DCIM tools can pinpoint underutilized IT such as "ghost servers" — unused or lightly used servers.



15%

Percentage of ghost servers in any given data center

70%–85%

Percentage of power that ghost servers consume compared with servers running at 100% capacity

60%

Rate at which racks are typically filled with servers

30 TO 40 VMs needed on a single physical host to approach an 80% utilization rate

5%

Percentage of devices doing the most computing and disproportionately consuming 85% to 90% of power and cooling

## SOURCES:

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