



Inefficiencies cost data centers time and money

Data Centre Infrastructure Management

43% of data centers rely on manual methods for capacity planning and forecasting.

A recent survey of 200 data center managers across the US and UK reveals that a large proportion of centers take a manual approach to planning and forecasting.

Despite its limitations, MS Excel emerges as a popular tool and nearly one in ten resort to walking around a data center with a tape measure. Only just over half are able to benefit from using Data Center Infrastructure Management (DCIM) tools.

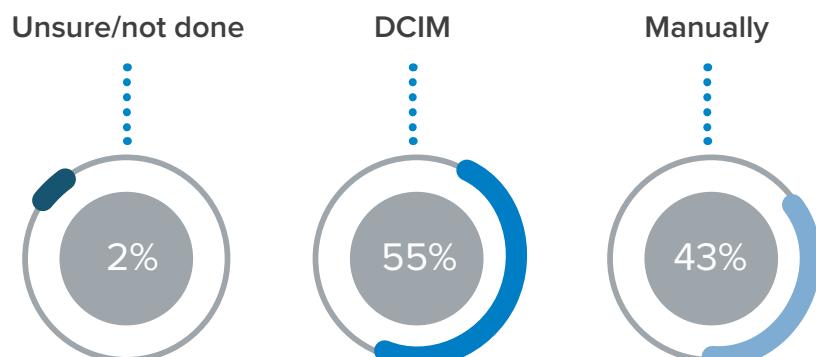
The manual approach is not limited to smaller data centers by any means; the proportion was found to remain the same even amongst the larger data centers (with above 1,500 servers).

When asked why manual methods were employed, 46% said it was because they felt that the alternatives would be too expensive. A further 35% feared they lacked the resources to implement a more automated approach. Whilst both these factors may seem reasonable enough at first sight, both might actually represent false economies in the longer run.

"DCIM makes my work easier, faster and saves money."

- US, IT Director/ Manager

How do you currently do capacity planning forecasting?



Base: 200

56% of manual planners need to devote more than 40% of their time, every month, to capacity planning and forecasting

1 in 5 data centers are relying exclusively on rack level thermal sensors and spread sheets to maximize cooling efficiency

32% of those without DCIM lack enough actionable data to be able to make day to day decisions or long term forecasting

56% of manual planners need to devote more than 40% of their time, every month, to capacity planning and forecasting. This suggests that some people may be locked in a vicious circle – lacking the time and resource to implement a DCIM tool because so much of their time is being wasted on tasks that a modern DCIM is designed to perform automatically.

Cooling efficiency

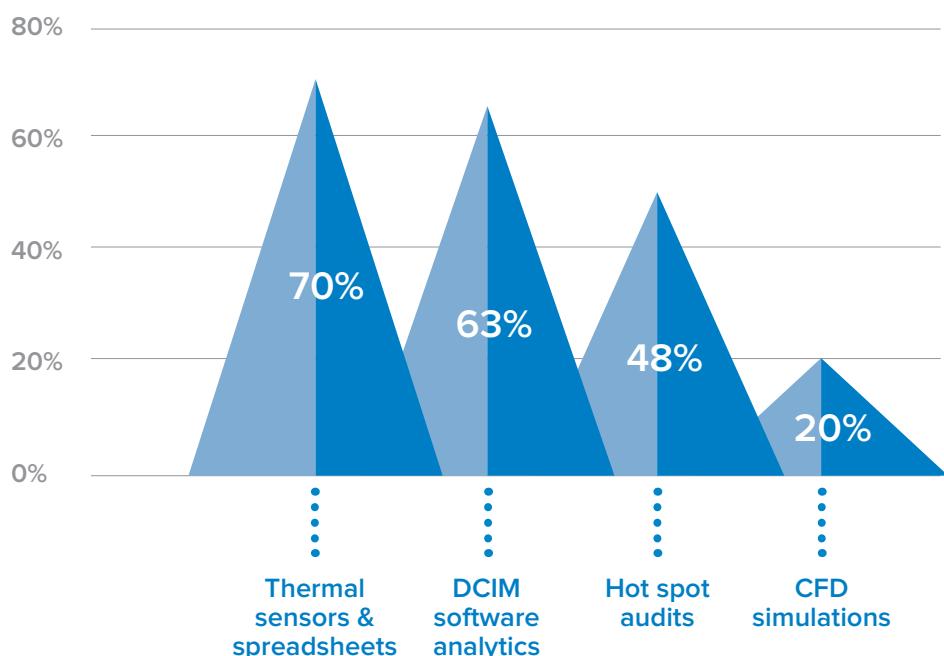
Data centers consume a lot of electricity. In fact, in 2013, US data centers consumed enough electricity to power all the households in New York City twice over.¹ In addition to the cost of powering servers, a significant

amount of energy is also required for cooling – enough to make a significant difference to overall costs.

We found that 63% were using DCIM analytics to help optimize cooling efficiency. Other methods used included rack sensors and spreadsheets and hot spot audits.

Those who weren't using DCIM analytics were also less likely than their peers to conduct hotspot audits and unlikely to be able to perform CFD simulations. Indeed, 1 in 5 data centers are relying exclusively on rack level thermal sensors and spread sheets to maximize cooling efficiency.

How do you identify hot spots or over cooled spots?



Average cost per outage: **\$28,900**

Average time to recover from an outage:
7 hrs 53 mins

Hot spot audits can serve a useful purpose as a way of double checking other measures and to supplement other processes but 7% rely exclusively on hot spot audits as their only means of monitoring temperature. This is despite the fact that, during the past year, 57% of data centers say they have experienced thermal related challenges that have impacted on operational efficiency.

Space & Power Constraints

The constraints within which data centers have to operate are widely acknowledged – floor space constraints (75%) and power constraints (63%) are common issues.

Given such limitations, it is all the more critical that data center resources are managed as efficiently as possible. Unfortunately, it is those without any form of DCIM who were most likely to acknowledge that they struggle with basic planning and decision making. 32% of them said they lacked enough actionable data to be able to make day to day decisions or long term planning.

Outages

It is inevitable that any large data center will face problems with outages and downtime at some stage. The most common challenge is hardware failure, but other issues such as thermal problems and power supply problems are also common.

Outages are expensive but only 59% of data center managers are able to quantify the costs. Those who use DCIM most extensively (for capacity planning and monitoring cooling efficiency) were the most likely to be able to quantify the cost of outages to their business. 72% of them knew the cost to their business, compared to only 14% of those that did not use DCIM at all.

The average cost of an outage, across the 118 data centers that were able to quantify it, was calculated to be \$28,900.

About the Survey

A survey of 200 IT decision makers involved with Data Center management was conducted online by Redshift Research and commissioned by Intel DCM during August 2015. 100 were in the USA and 100 were in the UK.

Results of any sample are subject to sampling variation. The magnitude of the variation is measurable and is affected by the number of interviews and the level of the percentages expressing the results. In this particular study, the chances are 95 in 100 that a survey result does not vary, plus or minus, by more than 6.9 % percentage points from the result that would be obtained if interviews had been conducted with all persons in the universe represented by the sample.

The average time taken to recover from an outage was 7 hours and 53 minutes. Recovery times could vary significantly but almost half claimed that they were usually able to recover within 6 hours and only 14% said that it often took longer than 12 hours.

21% of data centers using DCIM for capacity planning and forecasting said they could typically recover from an outage within 2 hours, compared to just 11% of those without this capability.

Conclusion

Data centers face many complex challenges and the difficulty of balancing the demands of users with space and power constraints cannot be underestimated.

The application of a sophisticated DCIM can help by providing access to valuable information, identifying problems and helping management understand the true costs, implications and causes of problems such as outages.

The cost of DCIM and the investment of time and resources necessary to implement it effectively can seem daunting to those who lack these capabilities at present. However, the absence of automated control necessitates time-consuming manual intervention and, even then, a lack of adequate and timely information can still create problems (or lead to problems and inefficiencies going undetected). Against this background an initial investment of time and resources and money may lead to significant longer term savings.



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