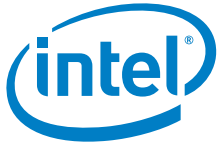# Case Study

Prognose™ proves elevated temperature data center business case for Intel

Intel, a world leading supplier of microprocessors and communications products, evaluated Romonet's Prognose software suite to explore the use and the business case for designing, building and operating large scale data center operations at higher ambient temperatures.

Challenge

As a pioneering IT enabler and technology driver, Intel's objective was to demonstrate to clients that the modern data center operating environment does not require the level of cooling traditionally thought necessary to guarantee reliable performance. Given the significant energy cost and capital expense associated with cooling technology, there would be considerable potential for dramatically reducing TCO by designing and building data center facilities that run at a higher ambient temperature.

Demonstrating the validity of this approach required an accurate and straightforward way to scientifically prove how TCO could be reduced without business risk or compromising IT performance. Intel needed a dependable solution that would rapidly allow a detailed assessment of the entire data center environment under varying workloads and conditions, holistically and at an individual component level.

Solution

Using Prognose, Intel was able to rapidly and accurately evaluate the impact of changing a wide variety of variables by modeling and predicting the effect on cost, capacity, energy efficiency, equipment performance, and risk throughout the entire data center life cycle.

Benefits

By simulating a multitude of 'what if' scenarios, Prognose enabled Intel to accurately assess how data center facilities behave over time when configurations, IT loads and environmental conditions are changed. This transparent view of cost, energy consumption and risk across the supply chain was crucial in helping understand and optimize data center performance.

Result

Prognose has provided Intel with the facts their clients need to make informed decisions about designing, planning and operating more efficient data centers by demonstrating how TCO can be reduced without business risk.

Profile: Intel

Intel is the world leader in silicon innovation, developing processor technologies and supporting global initiatives that continually advance how people work and live.

Intel is committed to delivering solutions that benefit everyone – in technology, education, culture, manufacturing and social responsibility.

Pushing the boundaries of data center design and operation

As a major technology innovator and trusted adviser to some of the world's most successful corporations, Intel is familiar with the tough challenges faced by today's data center owners. At the heart of these challenges, the ability to optimize a facility across its lifetime for energy consumption, capacity, TCO and risk, without compromising IT service provision, is critical.

Charles Rego, Chief Data Center Architect, Data Center Group, Intel, says: "The big issue these days is how to optimize the data center of the future. How do you model for capacity and predict the technology inflexion points? How do you know when to implement the right technologies to deliver the greatest return on investment? What happens to cost and risk if you challenge the accepted operational parameters and push the boundaries? These are the kind of insights we need to help our clients design and operate world-class data centers."

However, in the past there has been no reliable way to accurately assess the financial and operational impact of future changes to IT compute environments and data center architectures. Without a real understanding of the effects of change on total cost and risk at both an inter-dependent component level and an entire facility level, optimizing the data center for energy efficiency and TCO against variable workloads and external conditions has been problematic.

The faster way to accurately predict and optimize for cost, energy and capacity

With the Prognose software suite, Intel can quickly and reliably answer all the critical 'what if' questions. Using sophisticated mathematic computation and computer aided simulation, Prognose is able to model and predict energy usage, capacity, asset utilization, cost and risk over time against a wide range of changing variables – from IT equipment, components and workload, to operating temperature, climate conditions and geographic location. For Intel's clients, Prognose rapidly identifies opportunities to remove risk, improve performance and add value.

"Prognose enables us to rapidly address our clients' real issues and concerns using facts not assumptions," explains Rego. "It allows us to model and compare any data center environment over any time period against the specifications, utilization rates and parameters we set. In a couple of hours we can now run a multitude of scenarios to determine the lowest risk and the highest reward."

Prognose is now an essential tool for Intel in advising clients on the most effective, risk-free ways to deploy resources efficiently, reduce data center TCO and pioneer new and innovative approaches. "Using Prognose, it's straightforward to take a snapshot of data center operational efficiency today, and then compare and contrast that picture with a view of the future where configurations and variables have been changed," adds Rego. "The outputs allow our clients to clearly understand the consequences of change and help reinforce our position as trusted advisers."

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Pioneering IT Accountability

www.romonet.com

Romonet Ltd.
Corinthian House.
17 Lansdowne Road,
Croydon, CR0 2BX
United Kingdom

T. +44 (0) 20 8256 0250

Romonet Inc.
2121 N. California Blvd.
Suite290,
Walnut Creek, CA 94596
USA

T. +1 (415) 658 5763