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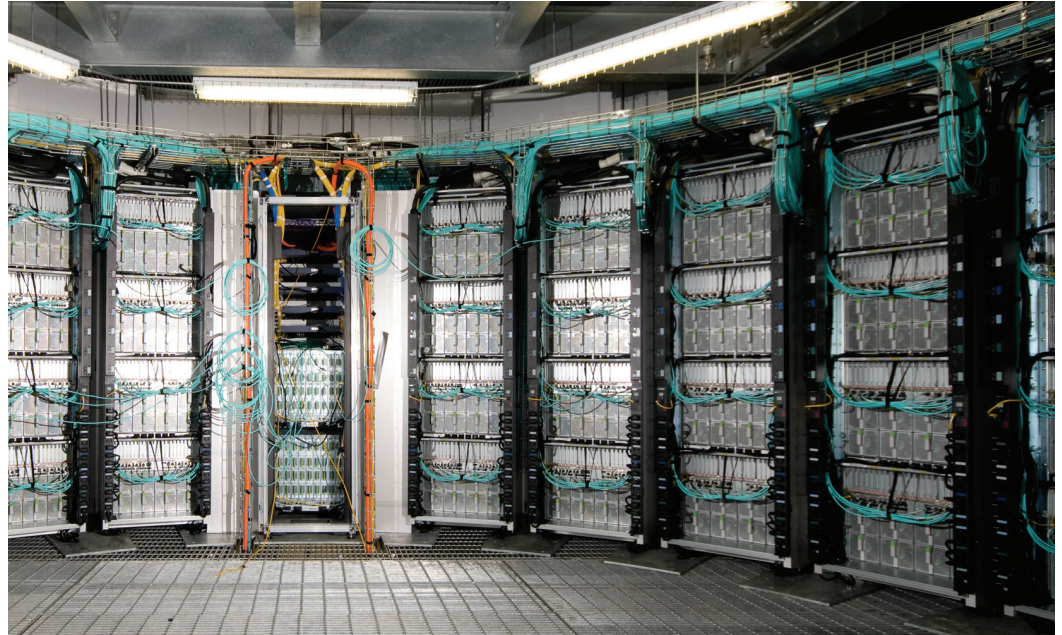
Autodesk, Inc.

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—Jeff Brzycki
CIO
Autodesk, Inc.

Walk the talk.

Autodesk demonstrates commitment to sustainability in major data center upgrade—achieves 62-percent cut in power usage.



Data Centers are currently the largest source of IT-related emissions at Autodesk.

As a leading design software company, Autodesk has a unique opportunity to inspire and enable our customers to enhance the environmental performance of their products and projects. We also focus on demonstrating leadership within our own operations by setting aggressive targets and managing innovative programs to achieve them. Visit www.autodesk.com/sustainabledesign for more information.

Project Summary

In late 2011, Autodesk® completed a significant data center upgrade, overhauling one of the company's Tier-1 data centers and focusing on one of many areas where Autodesk is implementing innovative solutions to help reduce the company's environmental impacts. "Our goal was to modernize the company's core IT infrastructure by upgrading the existing server hardware, changing locations, and switching to a new, revolutionary systems architecture," says Jeff Brzycki, CIO at Autodesk. As a global leader in design and engineering software, Autodesk has developed many of the software products used to plan, design, build, and manage more energy-efficient and sustainable buildings and infrastructure. With the completion of the project, Autodesk hoped to demonstrate that its dedication to the environment extends to its own operations. "Autodesk has an ongoing commitment to cutting costs and reducing the carbon footprint of all of its operations." Data centers are currently the single largest source of IT-related emissions at Autodesk. In 2011, they were responsible for almost four percent of Autodesk's total carbon footprint—approximately 1,870 metric tons of carbon dioxide.

The Challenge

Although that number represented a 16-percent drop in data center emissions from 2010, Autodesk saw the upgrade as an opportunity to do more. Before the upgrade, Autodesk outsourced management of the data center to HCL Technologies, a leading IT services provider. "Because we had a five-year contract, there was no real impetus to upgrade our servers," says Steve Litras, IT Infrastructure Systems Architect at Autodesk. As a result, Autodesk remained unable to fully take advantage of recent advances in server technology and virtualization.

As the contract with HCL neared expiration, Autodesk began planning a parallel data center that would replace more than 85 percent of the existing technology stack and move from a Solaris-based system to Linux and Windows. "We basically changed the underlying platform," says Litras. In terms of potential business impact, the project was quite risky; the center's servers house numerous mission-critical core business applications. "If those applications stop, Autodesk stops."

The new data center helped reduce energy and IT infrastructure costs by 15 percent of the company's IT infrastructure budget.

The solution

Server virtualization played a key role in the design of the new center. In the old facility, server utilization often hovered around five percent, driving up energy costs, wasting space, and increasing data center cooling costs. "In the new center, we pushed for extensive virtualization, with multiple enterprise applications on a single physical server whenever possible," says Litras. By increasing utilization rates—and reducing the number of physical servers by 75 percent—Autodesk was able to reduce the nameplate power requirements of the new data center by 62 percent.

The new center also included a smart storage allocation system. "We selected a dynamic, tiered approach that automatically stores frequently used data on solid state drives (SSDs) that offer instant access, while storing less frequently accessed data on slower, higher-capacity drives," says Litras. SSDs typically consume one-fifth of the energy required by traditional servers.

Xsigo's I/O Virtualization technology rounded out the physical upgrades, enabling Autodesk to reduce the number of cables by 60 percent, thus improving airflow, reducing cooling requirements, and cutting scope-3 emissions.

During the upgrade, Autodesk also instituted an automatic provisioning system that enabled developers to create virtual servers to support development and testing in minutes instead of days. This capability enabled them to ramp up system resources in response to increased demand and then reclaim those resources when demand dropped off. "In the old center, the servers would have been used at peak for a few weeks and then left running with minimal utilization," says Litras.

In preparation for the upgrade, Autodesk conducted a comprehensive vendor selection and procurement process that helped Autodesk locate the new center in a building that's in process to be LEED™ certified and Energy Star®-rated. To dispose of unwanted hardware, Autodesk took a very methodical approach that started with a review of existing assets and sold what was serviceable and recycled the rest through a certified green recycler. "We sold them, not for the purpose of being profitable, but because it's really just good practice. The equipment will go through its full life and not create any waste," says Chris Lin, VP of IT Infrastructure at Autodesk.

The result

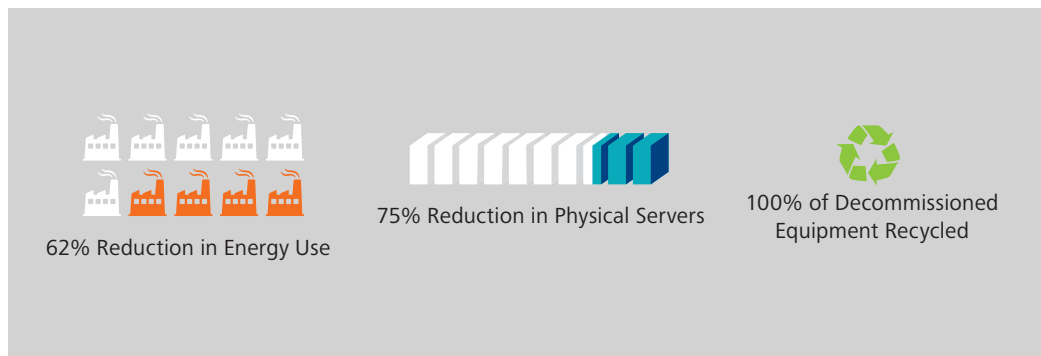
After a 10-month design and testing process, the new center went live in late 2011. Server virtualization in the new center now averages 86 percent. "The upgrade was a significant success for Autodesk," says Lin. "We hit all the targets we set out to achieve—increased data center performance, a reduced carbon footprint, and significant cost and energy savings."

In fact, the upgrade helped reduce energy and IT infrastructure costs by an impressive 15 percent of the company's IT infrastructure budget—and produced zero waste. "The project represented a major step in Autodesk's quest for greater efficiency and sustainability," says Brzycki. "We definitely plan to replicate this success model in our other data centers."

To learn more about Autodesk's commitment to the environment, read the Autodesk Sustainability Report.

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—Chris Lin
VP of IT Infrastructure
Autodesk, Inc.



The Autodesk data center upgrade yielded a multitude of sustainable outcomes.

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