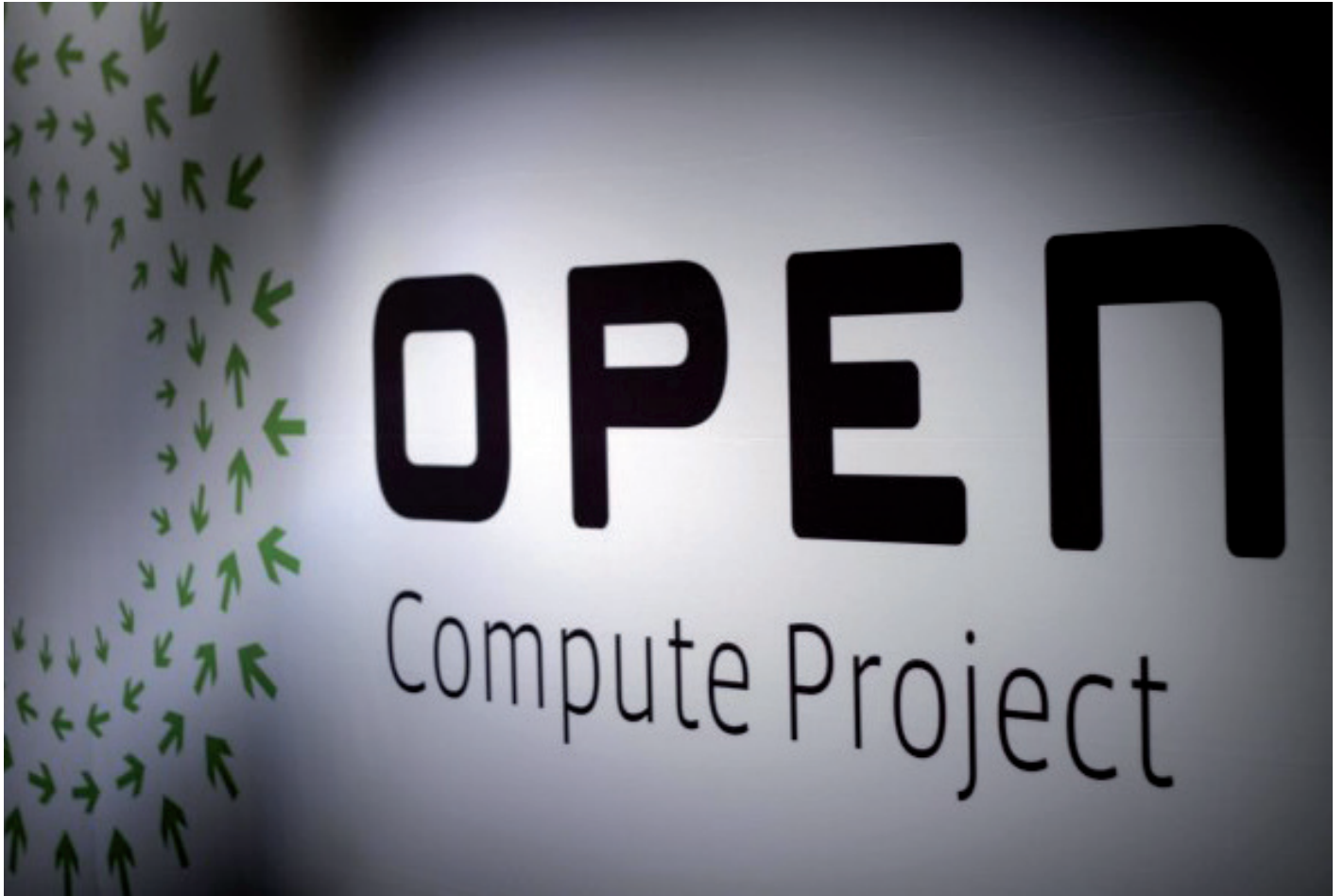


Free, efficient designs for data center equipment and software flow from Open Compute community



The digital world frequently has wavered between attempting to share everything with everyone (code, social media) and trying to closely guard proprietary information (mobile phone technology, digital rights). Currently the pendulum is swinging back toward sharing with the emergence of the Open Compute Project (OCP), an effort that aims to create and openly share details of plans for a wide range of data center hardware and software products.

OCP originated in April 2011, when Facebook began publishing designs for energy-efficient equipment it was building for a new data center in Oregon. This initiative rapidly evolved into a movement, which was promoted by the Open Compute Project Foundation, a non-profit organization. Today more than 150 suppliers and contributors are members of this group; and at its March 2015 summit meeting, scores of vendors and nearly 3,000 users and providers came together to share thoughts on the latest Open Compute offerings.

The driving force behind Open Compute is to simplify and even commoditize hardware and software components for data centers to make each device more efficient and flexible in its use. Participants in the program develop plans for servers, power supplies, power protection, cooling, storage, racks, power distribution, network switches and associated software, all of which are openly published and available free of charge to any data center engineers who want to build and

install these devices in their own facilities. Open Compute may not be appropriate for colocation centers but can be a boon to large users with multiple, homogeneous data centers.

“When an OCP member submits a design for a server or storage device, for instance, manufacturers can take that design and produce it,” explains ABB North America Data Center Initiative Director Mark Reed. “They can submit the hardware or software they create for testing to an Open Compute lab, which provides a stamp of approval for the data center community. In effect, the community is sharing the functionality of devices, not the hardware.”

Open switches and servers

As an example, instead of using a branded, dedicated network switch from Cisco or Juniper, data center developers can install bare-metal, generic switches from the OCP community that operators can use with any software they choose for control. These switches are “disaggregated” so that components within each switch can be swapped out. The same philosophy applies to other devices, such as servers, which might be produced without cases for easy maintenance and access to components. A maintenance technician may repair an Open Compute server in just 5 to 10 minutes with minimal tools.

[Data Center Dynamics](#) describes the goal of disaggregation as “someday being able to switch processors, memory, network cards or other components without having to switch entire servers in the data center.”

“Open Compute devices provide flexibility cost effectiveness, and ease of maintenance,” Reed observes.

Racking up easy installation

Other benefits can be found in Open Compute racks. Companies now are beginning to build triple-wide racks with the server hardware already installed within them, so data centers can buy a whole rack equipped with servers and power supplies and have it up and running in a day. No longer do they need to order the racks, order the servers and cables, plan for when each component will arrive on site, track parts in a warehouse and install them many days later. With Open Compute, administrators simply specify the number and types of servers they want, and companies will ship them to the data center as a completely racked out and tested unit.

Open Compute software pros and cons

Software is available through Open Compute, as well. A member of the OCP community may develop new software that performs diagnostics on hardware or maintains applications on the hardware. That software is offered openly to users with no licensing fees. The Thomas & Betts unit of ABB, in fact, already is employing a CRM system that uses open-source software.

The choice to use OC software offers pros and cons. It certainly costs less than software from companies like Salesforce.com and Microsoft; OC software is license-free. But those vendors provide support for the software, keep

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it updated and map out future improvements. With Open Compute, Thomas & Betts experts provide the support themselves, implement updates, work on bugs and answer questions. So there remains a cost associated with this “free” software.

In the end, Open Compute designs aim to offer improved efficiency and ease through commoditized product designs, leveling the playing field for many producers trying to compete with larger, global providers of data center products. But those providers are eager participants in the Open Compute Project, with many of the biggest suppliers of data center infrastructure and IT technology serving as active members of the OCP Foundation. ABB is evaluating how it can best contribute power and automation infrastructure offerings to OCP.

Clouds for everyone with OpenStack

At the same time, data center administrators are monitoring another open-source community called OpenStack. Unlike OCP, OpenStack focuses on cloud computing, rather than on-premises hardware and software. Members of the nonprofit OpenStack Foundation provide free software tools with which to build and manage cloud computing platforms for public and private clouds. The Foundation says it intends “to serve developers, users, and the entire ecosystem by providing a set of shared resources to grow the footprint of public and private OpenStack clouds, enable technology vendors targeting the platform and assist developers in producing the best cloud software in the industry.” The organization has attracted more than 18,000 members from 140 countries.



Open Source and OpenStack are certain to transform data center construction and operations. Engineers, construction firms, infrastructure and IT providers, consultants and users all will be watching the progress of the open-source movement eagerly to discover new efficiencies and cost reductions.

Visit the [Open Compute Project](#) and [OpenStack](#) websites to learn more.

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