MercadoLibre, Inc. Uses OpenStack

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MercadoLibre's Bid for Cloud Automation

When MercadoLibre decided to build an internal private cloud capable of automatically provisioning the resources users need, it turned to OpenStack.

If you live in Latin America (and even if you don't) you most likely know the online trading platform MercadoLibre. MercadoLibre is where 58 million consumers in Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, and Venezuela go to buy and sell. Among the world's e-commerce market leaders, MercadoLibre was recognized in 2010 as one of the top 30 world's hottest brands.

With its success, and accompanying growth, MercadoLibre's reliance on technology accelerated and its data center was filling rapidly with physical servers. At one point, a team of three administrators was managing 500 physical servers. "We were growing so fast that it was becoming challenging for us to get the additional capacity, servers, and new applications to our development teams," says Rodrigo Benzaquen, director of site operations and infrastructure at MercadoLibre.

To speed things up, MercadoLibre's IT team began to virtualize much of their data center. While that effort, largely driven by deploying Red Hat virtual machines, helped to make the operation more efficient, they needed even more gains in agility and speed. "Virtualization saved us time managing physical servers, reduced the data center space and electrical power we needed, and we could create new servers more quickly," Benzaquen says. However, through moving to cloud computing, MercadoLibre's IT team knew there were even more efficiencies – and an improved end-user experience – to be gained.

Toward Infrastructure-as-a-Service

"Virtualization had helped the IT group a great deal," says Mariano Guelar, infrastructure manager at MercadoLibre. "Yet, in terms of user experience, we saw ways for significant improvements. We wanted our internal users to be able to create their own servers, virtual machines, storage, and networks. And with the right cloud computing platform, we could give them that ability. They'd be able to provision themselves instantly with what they needed without having to wait for a system administrator," Guelar says.

To get there, MercadoLibre started investigating OpenStack and the Debian operating system. OpenStack is a large-scale open source cloud computing initiative, founded to drive community established industry standards, end cloud lock-in, and accelerate the adoption of cloud technologies by service providers and enterprises. Currently, OpenStack consists of three core software projects: OpenStack Compute (code-name Nova), OpenStack Object Storage (code-name Swift), and OpenStack Image Service (code-name Glance). These projects, along with a vibrant ecosystem of technology providers and future OpenStack projects underway, deliver a pluggable framework and operating system for public and private clouds.

OpenStack projects are built through a global collaboration of developers and cloud computing technologists who are producing the open standard cloud operating system for both public and private clouds. Already, cloud service

providers, enterprises, and government organizations around the world are taking advantage of the freely available, Apache-licensed software to build massively scalable cloud environments.

Benzaquen explains why MercadoLibre chose OpenStack to build its cloud. Reasons included its diverse and active developer community, its being based on industry open standards, flexibility, and ability to scale. One technical feature they truly appreciate is its Quota functionality, which ensures that users can't try to provision more servers or storage than is available. "That was a big concern," Benzaquen says.

"As we started planning the best way to deploy OpenStack, we had no problem finding the best implementation schema that swited our special needs.

Within weeks, the installation of OpenStack Compute, Object Storage, and Image Service was underway" says Alejandro Comisario, Senior Infrastructure Engineer.

Successful Switch to self-service, automated provisioning

Initially, for testing, the IT team deployed OpenStack Compute on 10 physical servers. Once comfortable with its performance, and their ability to manage the cloud, they trialed OpenStack Compute for a small department. "Because this was our first installation, our main goal was to achieve a new level of agility and flexibility and demonstrate that we could remove the manual work associated with deploying new resources. We achieved this," says Benzaquen. "Before this, we would have had someone physically deploy the server, which would take a day or longer. With OpenStack, we don't have to do that; our developers are now able to create and manage their servers.

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To push it's ability to automate aspects of its cloud even further , MercadoLibre will soon build storage redundancy into the systems as well as the ability for automated network provisioning. "Our goal is to move over time, using OpenStack and other open source tools, to a 'no ops' IT model," says Leandro Reox, Senior Infrastructure Engineer.

In coming weeks, MercadoLibre plans to deploy OpenStack Object Storage (code-named Swift), the source software that makes it possible to create redundant, scalable object storage that utilizes clusters of standardized servers capable of storing petabytes of accessible data, not just with integration with Glance, but for storing the site's pictures (over 10TB of pictures). Also, the team will implement Open vSwitch a multilayer virtual switch designed to enable massive network automation through programmatic extension, and supports standard management interfaces and protocols such as NetFlow, sFlow, and many others.

From the beginning, the IT team has been sure to leverage the resources made available at the OpenStack Community. This is where developers, users, and cloud computing technologists share ideas and potential features, produce the OpenStack projects, and help support other users to maximize their OpenStack efforts. This active community provides many online resources, including meetings, forums, user groups, wikis, blogs, and support pages. "We are very active in the forums, actually Alejandro and Leandro are the first global moderators, both to help learn ourselves and to help others just starting out with OpenStack," Benzaquen says.

Looking ahead, MercadoLibre expects its business to grow even faster, but the IT team no longer will have to spend so much time deploying and managing physical servers. Their developers will be able to provision to themselves automatically the resources they need. "Last month, we would have had to buy close to 400 servers, but instead of that, we simply made additional capacity available within our OpenStack cloud," Benzaquen says.

MercadoLibre, Inc.
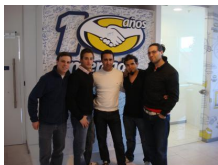
http://Mercadolibre.com
Industry: Other
Headquarters: Buenos Aires
Size: 1,001 to 5,000 employees

OpenStack technologies Mercadolibre uses:

Openstack Compute (Nova)
Openstack Block Storage (Cinder)
Openstack Object Storage (Swift)
Openstack Network
Openstack Identity Service (Keystone)
Openstack Image Service (Glance)

Links About Mercadolibre

- MercadoLibre Website (http://www.mercadolibre.com/) - The corporate website of MercadoLibre
- Business Cloud News Article (http://www.businesscloudnews.com/software-as-a-service/571-openstack-diablo-to-power-global-clouds.htm - MercadoLibre mentioned in discussion about OpenStack's Diablo release.
- MercadoLibre OpenStack Prezi (http://prezi.com/br_dvstqadom/melicloud_boston2011/) - MercadoLibre OpenStack Prezi
- Canonical's MercadoLibre Case Study (http://www.canonical.com/sites/www.canonical.com/files/active/Mercadolibre_CS_WEB.pdf) - Mercadolibre builds 1,000-node Ubuntu cloud for IT on demand