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OpenStack Platform Delivers for Private Cloud Users

Organizations show preference for trusted third parties vs. DIY

DECEMBER 2016

PREPARED FOR

redhat.

About 451 Research

451 Research is a preeminent information technology research and advisory company. With a core focus on technology innovation and market disruption, we provide essential insight for leaders of the digital economy. More than 100 analysts and consultants deliver that insight via syndicated research, advisory services and live events to over 1,000 client organizations in North America, Europe and around the world. Founded in 2000 and headquartered in New York, 451 Research is a division of The 451 Group.

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Without question, OpenStack has cemented its place as the leading open source option for building private cloud environments. While broad-scale adoption is still in its early stages, the momentum behind OpenStack is undeniable. Scaled out, OpenStack is usually a less-expensive option than commercial platforms.

Meanwhile, supported distributions show a clear total-cost-of-ownership benefit over the do-it-yourself (DIY) approach. Using our Cloud Price Index, which is a range of benchmark indicators that together show the average price of small-scale private cloud, we can compare the cost of infrastructure, software and management for managed private clouds, as well as public cloud. With the Index, we can determine the average market price per hour per virtual machine in the 'basket of goods.' What we found is that if an OpenStack distribution can increase the number of virtual machines an engineer can manage by about 6%, then a distribution is of superior value compared to a DIY approach. OpenStack distributions are very likely to achieve this through easier installation and management.

Launched just six years ago, the OpenStack community has more than 60,000 members – double the number a year ago, and almost every single major technology vendor in the world supports and is a member of the foundation. Our research shows the global OpenStack market will grow at a very healthy 35% CAGR at least through 2020.

The success of OpenStack in the near-term will be concentrated in the on-premises, private cloud space. Additionally, OpenStack excels at providing the orchestration for public cloud integration with private on-premises and hosted private OpenStack environments. As it is, in a recent survey conducted by 451 Research, 90% of user organizations surveyed cited increased security as the top benefit of private cloud. And 70% of these organizations cited global compliance, enhanced IT control, flexibility and data management as further benefits of private cloud.

As the OpenStack software and its market mature, 451 Research expects to see more enterprise and service provider success stories because many businesses are now beyond initial and pilot projects, moving into production use. Below are two case study examples.

Case Study: Science and Energy Laboratory Amps up OpenStack Private Cloud

A major national laboratory became an early adopter of OpenStack. The laboratory undertakes basic and applied research to resolve compelling problems in energy and security. Employing more than 5,000 workers, the laboratory also works closely with the private sector to speed its research into the broader marketplace.

The laboratory has been using OpenStack for several years in support of its aggressive cloud-first strategy. Developing and running web-based applications heads the list of use cases for its private-cloud-based platforms, closely followed by managing and migrating legacy workloads and applications to the cloud. Interestingly, 451 has found that the appeal of OpenStack has historically been limited for legacy applications, a limitation that the laboratory clearly has been working hard to set aside.

The laboratory was initially motivated in its OpenStack efforts by a desire to increase operational efficiency and to program via APIs. In addition, the laboratory cited features and functionality, service and support capabilities, and system availability as the most important factors in selecting its commercial distribution of an OpenStack solution.

At present, the laboratory is managing about 2,000 cores or CPUs in its OpenStack environment. This compute

power is most commonly deployed on the following workloads: big-data services, data analytics and business intelligence, database and data-warehousing services, and engineering R&D. To help run its OpenStack environment, the laboratory uses additional tools and platforms including Linux, a virtualization platform for traditional workloads, and a hybrid cloud management tool.

To this point, the laboratory's IT staff has not architected its OpenStack environment to interoperate between its public and private clouds. While its OpenStack usage is strictly internal for now, the team is investigating a hybrid cloud management tool to leverage public cloud into its researchers' workflow. The hybrid cloud management tool is designed to provide unified management and operations in today's increasingly hybrid IT environments, where various models of cloud computing exist alongside traditional, non-cloud infrastructure.

Case Study: University Turns to Private Cloud for Operational Efficiency

The versatility of OpenStack in private cloud environments is further demonstrated at a major university in the Far East, which has more than 33,000 students enrolled and is among the world's largest technology-focused universities. With more than 14,000 undergraduate and graduate students, its College of Engineering is among the world's largest. It is also a leader in e-learning, being among the first universities anywhere to establish a campus-wide wireless network.

A relative newcomer to OpenStack for private cloud, the university launched its developer-led OpenStack initiative early in 2016. The developers were motivated by a higher-level mandate to explore open source, but additionally sought increased operational efficiency while avoiding the vendor lock-in common in non-open-source initiatives. Because it has tens of thousands of active users campus-wide, the university, not surprisingly, ranked availability/uptime as the most important factor in selecting an OpenStack on-premises private cloud platform.

With 140 virtual CPUs in its OpenStack environment, the university is currently focusing its OpenStack private cloud on two main workloads: engineering R&D and application development services. To support the platform, the university is also running Linux, a hybrid cloud management tool, and a software-defined storage platform that supports both block and unified storage.

The low-hanging fruit for use cases at the university and its OpenStack private cloud platform is developing and running cloud-native applications, as well as managing legacy workloads. The university has about 10% of its prodigious computing infrastructure hosted on private on-premises clouds and expects that 15% of all workloads will run in this OpenStack private cloud environment within a year.

Leveraging a trusted partner

Given the open source nature of the software, some user organizations prefer to travel the OpenStack path alone, but the fact is that most organizations choose a trusted partner to help them. In fact, 451 Research's Voice of the Enterprise research survey shows that nearly 63% of users choose a vendor's distribution of OpenStack or simply sign on with a service provider, which also may well use a popular distribution. Just 21% of organizations choose a do-it-yourself course.

With a lingering shortage of OpenStack engineering expertise available in the general market coupled with excellent commercial distributions (which themselves are bolstered by the large and growing OpenStack community), organizations will continue to favor trusted partners for their OpenStack-based private cloud efforts.