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On the Radar: GigaSpaces Technologies Cloudify 3.x

Publication Date: 16 Jan 2015 | Product code: IT0022-000285

Laurent Lachal

Summary

Catalyst

GigaSpaces Technologies (GigaSpaces) has started anew with version 3.0 of its Cloudify orchestration framework that shipped in July 2014, followed by version 3.1 in December. Cloudify handles the installation, configuration, management, and monitoring of complex multi-tier on and off-premise applications. In addition to a new architecture that delivers better functionality, integration, and scalability, version 3 supports the Topology and Orchestration Specification for Cloud Applications (TOSCA) cloud application blueprint portability specification, and aligns very closely with the open source OpenStack infrastructure-as-a-service (IaaS) platform. These are the two primary reasons why this version is not so much an upgrade as a rebirth.

Key messages

- Cloudify combines blueprints/recipes and scripts/workflows to automate the lifecycle of complex multi-tier, mission-critical applications and their underlying middleware and infrastructure stacks.
- Cloudify 3.0's support for OpenStack eases enterprises' and independent software vendors' (ISVs) migration to public and private OpenStack-based clouds.
- Support for TOSCA and OpenStack, among other specifications and platforms, is ongoing with TOSCA/OpenStack as well as Cloudify still evolving, and needs to mature further.

Ovum view

The more organizations that use cloud computing in all its incarnations, from private to public clouds, and every option in between, the more they need tools that help them automate and manage these various environments. Many vendors claim to meet this requirement, but few can do so effectively. While many tools are written for either a specific cloud (Amazon Web Services, for example) or a specific capability, such as compute, Cloudify supports multiple clouds and capabilities including compute, storage, and networking. Its new design and capabilities make it a strong shortlist contender as both a cloud application automation framework and a cloud abstraction layer, especially for organizations interested in OpenStack. It supports a wide range of applications from cloud-native to legacy, and use cases including network function virtualization (NFV), an up-and-coming use case for OpenStack.

Recommendations for enterprises

Why put Cloudify on your radar

Cloudify helps:

- Developers automate the development process and deploy the multi-tier application stacks of their choice without forcing any code or design change (it does not restrict the nature, version, and configuration of the underlying platform components, such as, for example, web server and load balancer).

- Enterprises build private clouds, reach out to public ones, support hybrid deployments, such as private-public cloud hybrids as well as VMware-OpenStack hybrids, and move up from IaaS to platform-as-a-service (PaaS).
- Cloud service providers (CSPs) migrate multi-tier JEE and big data applications onto their OpenStack cloud and quickly launch new services.
- ISVs in their efforts to migrate to, and manage, software-as-a-service (SaaS) offerings.
- Telecoms providers and their suppliers create software defined networking (SDN) and NFV-based services.

Highlights

Cloudify 3.0 turns TOSCA-based blueprints into deployments to execute workflow scripts (using dedicated Python API) that issue tasks (commands), which agents execute via plugins (Python facades for third-party tools integration), and report back on. It delivers what GigaSpaces calls "topology-driven monitoring" to keep monitoring in sync with actual deployments. There is no need for discovery capabilities to map current and future components, as well as their relationships and dependencies. Version 3.1 uses real-time data to identify if an application is behaving as expected, and takes auto-scaling and auto-healing corrective action if it is not. GigaSpaces is working on adding historical data to real time data to improve the relevance of corrective actions.

Cloudify is available in two editions: a Premium edition and the Cloudify Free (to-download) open source version licensed under the Apache License Version 2.0. GigaSpaces is also working on a trial service for prospects to give Cloudify a test drive online without downloading and installing the software.

The premium edition features a better interface, and includes blueprints for popular technologies as well as premium plugins for third-party tools. While there is nothing in Cloudify Free that helps design, manage, and update blueprints, workflows, and plugins, the premium edition's blueprint catalog allows enterprises to use any Git repository. This is a good starting point, but a limited one. Ovum's advice therefore is to opt for paid-for support from GigaSpaces to get (some) custom blueprint, workflow, and plugin support.

GigaSpaces has built Cloudify 3.0 on open source technology, making it easier to, in turn, open source Cloudify. It also has a much more scalable architecture and a brand new plugin integration framework that allows users to plug in almost any element of their application, from cloud plugins (AWS cloud plugin, for example) to configuration management (CM), automation, and monitoring plugins, among others. More importantly, GigaSpaces has rewritten and redesigned Cloudify to reflect OpenStack's technologies and design principles. First, it shifted from Java to Python, the language in which OpenStack is written. Second, it delivers better integration with OpenStack services. GigaSpaces is also involved, with other vendors, in incorporating TOSCA as an official part of OpenStack via the OpenStack Heat orchestration project, which Cloudify also leverages. In the first phase of its integration with Heat, Cloudify executes Heat templates instead of calling the OpenStack components' APIs directly as it did originally. Cloudify itself can also be provisioned on an OpenStack environment using a Heat template.

GigaSpaces is not only leveraging open source technologies, but also launching open source projects of its own to reach out to developers. For example, in 2012 it launched the CloudifySource website

(currently known as Getcloudify) to provide access to source code, demos, and documentation for the free-to-download open source version of Cloudify. The website enables developers to contribute code, suggest/vote on new features, and collaborate on recipes and plugins. It has yet to gather much momentum. However, the redesign of Cloudify 3.0, based on popular open source projects, as well as its close mirroring of OpenStack design and technologies could help it do so.

Background

GigaSpaces is a privately held company originally launched in 2000. It has offices in the US (New York and San Jose), UK, Hong Kong and Israel. The company, which last raised capital in 2005-2008, claims to have been cash flow positive/profitable for the past three years, but, considering its Cloudify ambitions, now might be the time to raise additional capital. Its current OpenStack-centric positioning could certainly help it do so.

GigaSpaces has built its original success on XAP (originally an acronym for eXtreme Application Platform), an application platform that combines caching, in-memory computing, event processing and messaging bus capabilities and targets stateful distributed high-throughput, low-latency mission-critical Java and .NET applications. XAP still generates most of GigaSpaces' revenues, but Cloudify's share is growing. Its portfolio of XAP professional services is larger than that of Cloudify, but the later is expanding.

Current position

Both XAP and Cloudify are sold direct as well as via OEMs and a budding network of channel partners. They also rely on mid-size implementation partners. GigaSpaces currently claims 500 large customers worldwide, up from 350 in early 2011, over 50 of which are Fortune-listed. It has more enterprises customers than OEM/ISV ones but the latter generate a large portion of its revenue. The company has OEMed both XAP (Magic Software in 2013, Wolters Kluwer in 2012, Gresham Computing in 2011, Amdocs in 2011) and Cloudify (Alcatel-Lucent (NFV platform) and HP (Cloudify Application Catalog) in 2013). It also works closely with IBM, which currently uses Cloudify to orchestrate some of its data-warehouse-as-a-service offerings in order to SaaS-enable them on IBM SoftLayer cloud and also to orchestrate customers' enterprise applications on SoftLayer.

GigaSpaces claims thousands of registered Cloudify deployments, but has many fewer paying Cloudify customers). It asserts that, in September–October 2014, Cloudify was mostly used with OpenStack (45% of deployments), which explains why it is betting so heavily on OpenStack, followed by AWS (20%), IBM's SoftLayer (8%), and Apache CloudStack (3%). GigaSpaces is now launching its VMware vSphere plugin and also expects to see a significant number of its users coming from there. Version 3.1 also adds a Docker plugin.

To start with, GigaSpaces positioned Cloudify as a multi-public cloud-based workload migration and management tool. It now positions it more as a private cloud and workload migration enabler, in line with OpenStack's current positioning. Overall, though, it still supports a variety of private and public cloud platforms, including VMware vSphere, OpenStack, and CloudStack-based platforms. It also supports AWS and Microsoft Azure, with Google Compute Engine (GCE), IBM SoftLayer, Rackspace, and VMware vCloud support forthcoming. While Cloudify 3 is built with the purpose of allowing multiple cloud service provider (CSP) usage, and strongly relies on TOSCA's portability credentials in this context, it needs to make it easier to deploy, manage, and optimize workloads across clouds, and

to continue to push for TOSCA to mature. GigaSpaces' goal is to use the TOSCA 1.2 specification instead of its current TOSCA like domain specific language (DSL).

In addition to broader multiple cloud support and deeper OpenStack, TOSCA, and Docker support, the next version (3.2) will deliver better monitoring, security, and availability capabilities. To be released by the end of the first quarter of 2015 (some capabilities may ship in January), it will also support IPv6, which is needed for NFV customers, among other new features.

Data sheet

Key facts

Table 1: Cloudify

Product name	Cloudify	**Product classification**	Orchestration framework
Version number	3.1	**Release date**	December 2014
Industries covered	Any	**Geographies covered**	Any
Relevant company sizes	Midsize to large	**Licensing options**	On-premise, subscription
URL	http://getcloudify.org	**Routes to market**	Direct and indirect
Company headquarters	New York, US	**Number of employees**	80

Source: Ovum

Appendix

On the Radar

On the Radar is a series of research notes about vendors bringing innovative ideas, products, or business models to their markets. Although On the Radar vendors may not be ready for prime time, they bear watching for their potential impact on markets and could be suitable for certain enterprise and public sector IT organizations.

Further reading

Amazon Web Services' OpsWorks: Boosting Cloud Automation, IT017-004107 (March 2013)

On the Radar: Ravello Systems, IT017-004109 (March 2013)

Author

Laurent Lachal, Senior Analyst, Software – IT Solutions

laurent.lachal@ovum.com

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