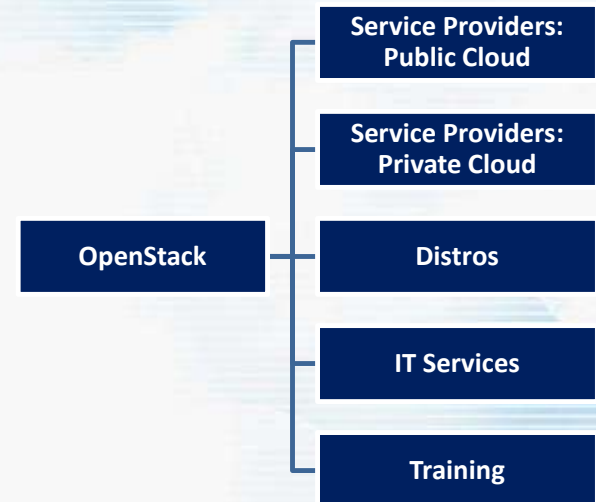


Open Source Cloud Platforms: OpenStack

This Market Monitor overview report on the OpenStack marketplace provides updated vendor estimates through Q4 2016. OpenStack, the open source cloud project, was established in 2010 and has quickly garnered much industry attention. This report provides updated estimates and a five-year growth forecast for the OpenStack market and five sub-segments: Public Cloud Providers, Private Cloud Providers, Distributions, and IT Services and Training. Our analysis is based on results from bottom-up market sizing that incorporates revenue estimates and forecasts for 88 competing OpenStack market participants.

This report leverages 451 Research's deep knowledge of and relationships within the OpenStack market, resulting in a proprietary forecast based on an analysis of individual vendors' current revenue and growth expectations through 2021. This analysis was developed and will be maintained with the support of our qualitative sector analysts, primarily Al Sadowski, Research Vice President, Infrastructure and Jay Lyman, Research Manager, Cloud Platforms. Included in the report is our OpenStack taxonomy, market-sector revenue estimates, growth forecasts and a view of the competitive landscape for each of the sectors outlined above.



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About 451 Research

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88

Vendors included in analysis with individual estimates and forecasts

Our OpenStack database contains individual models on 88 vendors in the market. Each model contains intelligence specific to that company (i.e., customers, pricing, deal sizes and trends) with a forecast that incorporates the unique traits, strengths and weaknesses of the vendor.

100%

Of market estimate and forecast based on individual vendor estimates, no black-box ‘other’ category

A bottom-up analysis entails creating individual estimates and forecasts for each market participant in lieu of relying on historical or related data, applying broad assumptions or extrapolating market totals based on input from a handful of large vendors (a top-down approach).

8 out of 10

Vendors we have briefed directly to support our findings

This analysis leverages our deep knowledge of and relationships within the OpenStack marketplace, resulting in proprietary forecast of industry revenue based on a bottom-up analysis of each vendor’s current revenue and growth expectations.



15,000	Vendor briefings as a company annually
100	Sector analysts support estimates
12	Financial analysts contribute to MM
1k+	Financial/banking clients provide insight
CXO	Executive-level access across IT landscape
6	End-user surveys performed annually





- **OpenStack was born in 2010 out of NASA's and the industry's desire for an open source cloud alternative to Amazon Web Services.**
- **NASA ran into limitations in what it could do with Eucalyptus code, which was also aligned with Amazon's proprietary APIs. Thus, its choice to start a project with Rackspace highlights how OpenStack was originally conceived as an 'even more open' option.**
- **OpenStack has steadily grown over the years into a platform for C-suite strategy consideration regarding cloud computing implementations.**
- **Participating companies in 2012 totaled 150, and current participation includes up to 643 supporting organizations.**

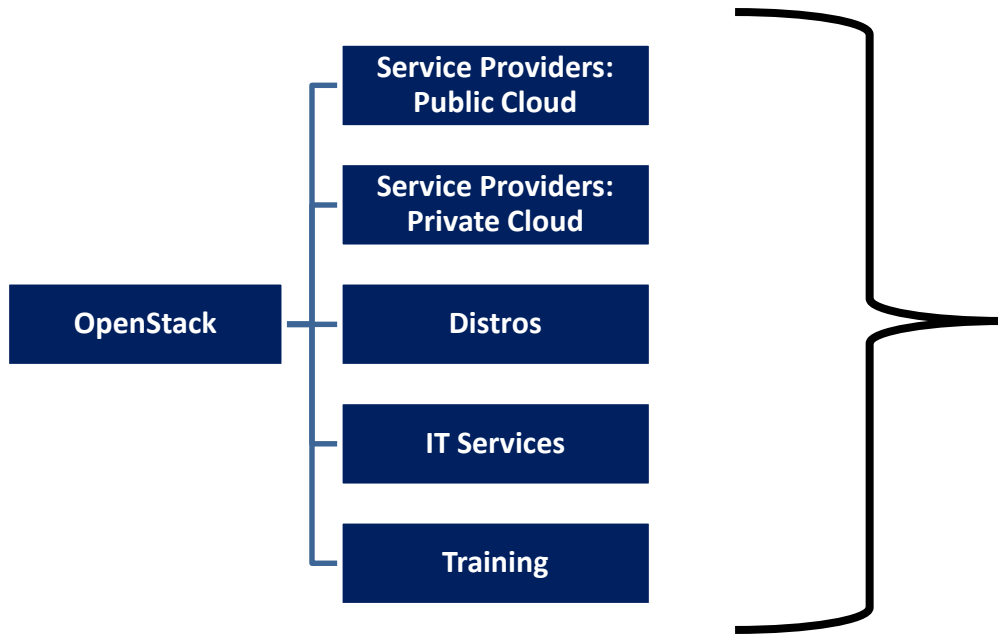


OpenStack Features

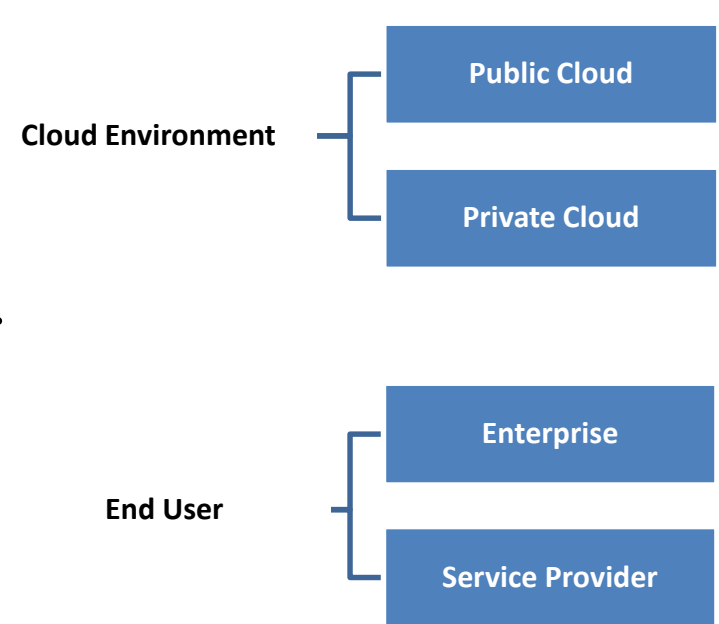
- **Technically, OpenStack itself is an IaaS framework that consists of subcomponents for compute, storage, networking and other functionality.**
- **The OpenStack framework and main components are written mostly in the open source Python programming language.**
- **All of the OpenStack software is open source and licensed under Apache License v2.0. Backers and users of the project say it benefits from a clean, modular architecture, which has no central control or overlap across compute, network or storage controls.**
- **As the open source cloud project has grown, so have the components and subprojects, which now include block storage, identity services, dashboard, container management, bare-metal services and metering.**



Revenue by Segment



Revenue by cloud environment & end user



- We now track OpenStack Cloud Management as an auxiliary OpenStack market segment. While cloud management products are being adopted by users in OpenStack environments, these tools are not built specifically for OpenStack.
- We believe the cloud management market provides a barometer of enterprise adoption of OpenStack as investments in this level of management of OpenStack environments indicates a level of acceptance and commitment to the technology.

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