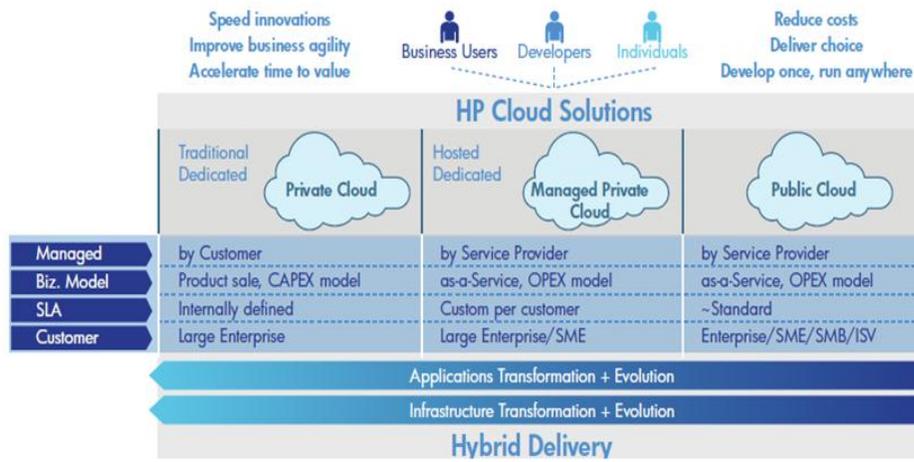


## HP Cloud Strategy – 2012

HP recently provided an overview of their cloud strategy, which it calls [HP Converged Cloud](#). HP Converged Cloud consists of HP's cloud architecture, as well as the hardware, software and services necessary to implement and manage HP's standard cloud delivery options: public, private, managed (by HP) private and hybrid cloud options. With its cloud architecture and solutions that can be used in a variety of cloud environments, HP provides customers with the ability to choose the right cloud environment for their needs. See figure below.



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As HP very accurately points out, the many decisions that need to be made about the design, implementation and management of a cloud environment require a significant amount of sophisticated knowledge and experience to be done correctly. These critical decisions are what will determine the success or failure to fully realize and optimize the benefits of cloud.

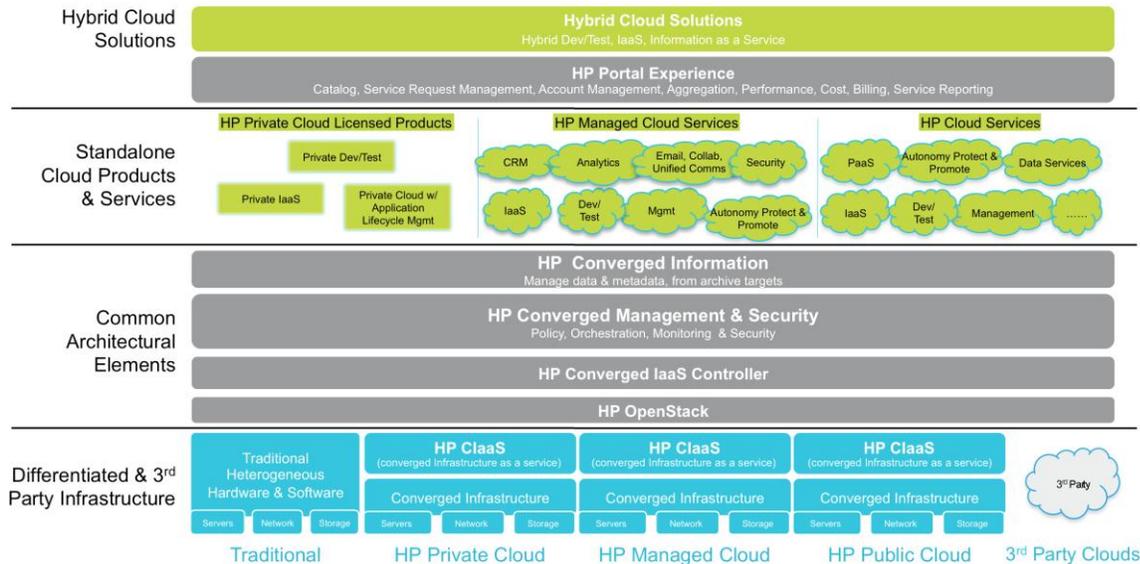
HP's solution to the problem is two-fold. One, embrace and promote standards for cloud computing. Two, standardize implementation on a 'converged' HP architectural platform, which provides customers with the flexibility to choose between multiple delivery paths.

HP's Converged Cloud is built on a common architectural foundation consisting of:

- Comprehensive & Extensible Cloud Fabric – taking an open, model-based approach for hybrid access and delivery using a common infrastructure, applications and information
- HP Converged Infrastructure – integrates infrastructure and facilities into shared pools of interoperable resources
- HP OpenStack software stack – implemented with standards-based connectivity extended to meet enterprise-grade management and security requirements
- HP Converged Infrastructure as a Service Controller – using a common abstraction layer for physical, virtual and cloud infrastructure – supporting HP & 3rd party devices
- HP Converged Management & Security – closed loop DevOps and sec/ops environment with service automation, monitoring, security & orchestration
- HP Converged Information – Unstructured data, structured data, and metadata from archive targets

- Common Portal and Marketplace – common experience & aggregation, including service & accounting performance

The result is the implementation architecture pictured here:



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Overall, HP’s approach makes a lot of sense. HP’s Converged Cloud differs from other cloud vendor approaches in one major way. The cloud software platform which underlies their solution is OpenStack, a scalable Open Source cloud operating platform, which is distributed under the Apache 2.0 license. HP is the first major vendor to incorporate OpenStack as an exclusive architectural building block in its cloud offerings. It provides HP customers the assurance that they will be able to operate and move easily among OpenStack-based cloud solutions.

HP is committed to including OpenStack as an embedded part of its cloud operating software stack. As an Open Source product, OpenStack benefits from the collective collaborative efforts freely contributed by developers and cloud computing technologists around the world. The code is contributed and the platform is distributed for free. The OpenStack organization has implemented extensive testing before accepting contributed code. However, the task of fully integrating extensions and additions has traditionally been the responsibility of the consumer. As a core piece of HP’s cloud architecture, the OpenStack software will be embedded in HP’s cloud software stack for HP cloud customers. This is a major benefit for OpenStack adoption, and simplifies the update process for customers.

HP’s standards-based approach for cloud relies on the open source nature of OpenStack. The biggest unknown at this point is whether market adoption will move OpenStack into the

de facto standard category or not. HP's use of OpenStack bodes well for increasing the adoption of OpenStack, at least for HP customers. The low cost of open source is another major plus. If OpenStack is widely adopted in the future, HP's cloud offerings will be well positioned. But the risk still remains in the lack of adoption by the broader market, for whatever reason.

From a standards perspective, even if OpenStack is broadly adopted in the future, HP still must integrate OpenStack and its cloud operating platform with other non-HP solutions to address the issue of interoperability with non-OpenStack cloud platforms. In order to provide cross-platform interoperability, HP and OpenStack must work through the industry standards bodies to ensure that OpenStack will easily interoperate with other cloud platforms and is sufficient portable to accommodate moves by customers that change their minds. More work remains to be done on this front for HP and OpenStack, and for that matter, for the industry as a whole.

There remain a lot of unanswered "ifs" around HP's cloud strategy, but that is not at all unusual for new emerging technologies and markets, which cloud is. If HP and OpenStack play their cards right and execute well, this could put them in a very good position in the future. This is especially true if they are able to effectively address the issues around interoperability and portability with non-OpenStack cloud implementations.

The popularity of open source, which has gained followers for other open source software (for example, Linux) for philosophical and financial reasons, has the potential to attract additional users for OpenStack and HP. This could turn out to be a brilliant strategy for HP, but only time will tell.

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