CIO's Guide to Platform-as-a-Service

Streamline the Application Development Process and Accelerate the Time to Market with a Private PaaS

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Despite having made significant investment in their cloud infrastructure and now deploying applications to their private cloud, enterprises are not seeing the return expected from their investment. They are learning that virtualization alone is not sufficient to streamline the application development process that is necessary to get applications to market faster in order to meet the demands of customers and internal stakeholders.

Virtual machine (VM) instances can be easily created on demand. This speeds up the process of server allocation, but applications still require supporting software to be installed and configured on each server. Before virtualization, provisioning hardware was the bottleneck. With virtualization, configuration management is now the problem.

To maximize their investment in the cloud and streamline the process, enterprises are looking to a Platform-as-a-Service (PaaS) as a solution. A PaaS is a platform that allows developers to develop and deploy their applications without needing to configure the application-hosting environment. This removes the typical infrastructure set-up delays that can accompany the application development process. Companies can now deploy their applications faster, gaining a competitive edge and encouraging innovation in their development teams.

The Role of PaaS in Cloud Computing

As seen in the diagram, there are three key layers in a cloud stack. The bottom layer is the Infrastructure-as-a-Service layer (IaaS). In a public cloud model, cloud service providers like Amazon, Rackspace or HP Cloud Services provide this foundation for developers and enterprises to build upon. In a private cloud environment, the IaaS is hosted internally behind the organization's firewall using solutions such as VMware's or OpenStack, CloudStack, or Eucalyptus. The top layer is the application that is used by end users, whether they are internal employees or external customers.

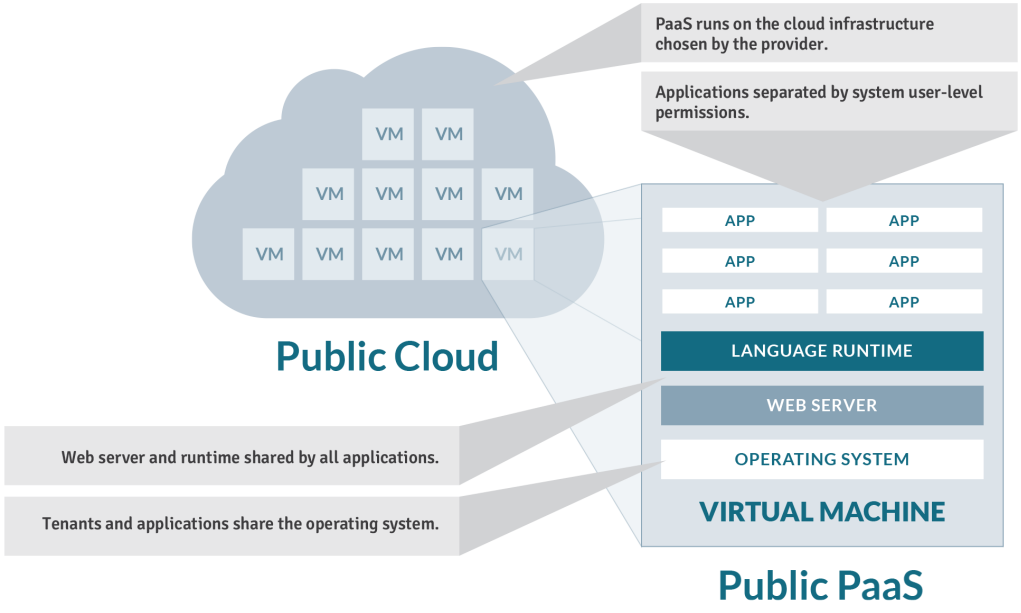
PaaS sits between the infrastructure and application layers. It abstracts application hosting from physical or virtualized hardware and provides the essential middleware necessary for

the application to run: operating system, database, language runtimes, modules, and web frameworks. With a PaaS, developers focus on deploying their applications and do not have to concern themselves with anything but the application code. Source code is pushed to the PaaS which then configures all the required components.

PaaS is essential to cloud-computing efficiency: without a PaaS, each application would vhave to be customized to run on each type (and in some cases, each instance) of infrastructure. This is an expensive and impractical option.

Public vs. Private PaaS

Enterprises with strict policies or compliance requirements use private clouds to leverage the same advantages offered by public clouds while providing additional security, control, and customization capabilities. A public cloud PaaS can serve many enterprise cloud needs, but the public PaaS offerings carry significant drawbacks.



With a public PaaS, applications have to conform to strict coding standards, since choice of language runtimes, application framework modules, web servers, and database engines are typically limited by the provider to keep the stack simple and maintainable. An enterprise can spend time and money to develop or refactor code to run on a specific PaaS, but that introduces daunting switching costs. In the worst case, the tenant becomes locked in to the PaaS provider's technology and proprietary pricing model.

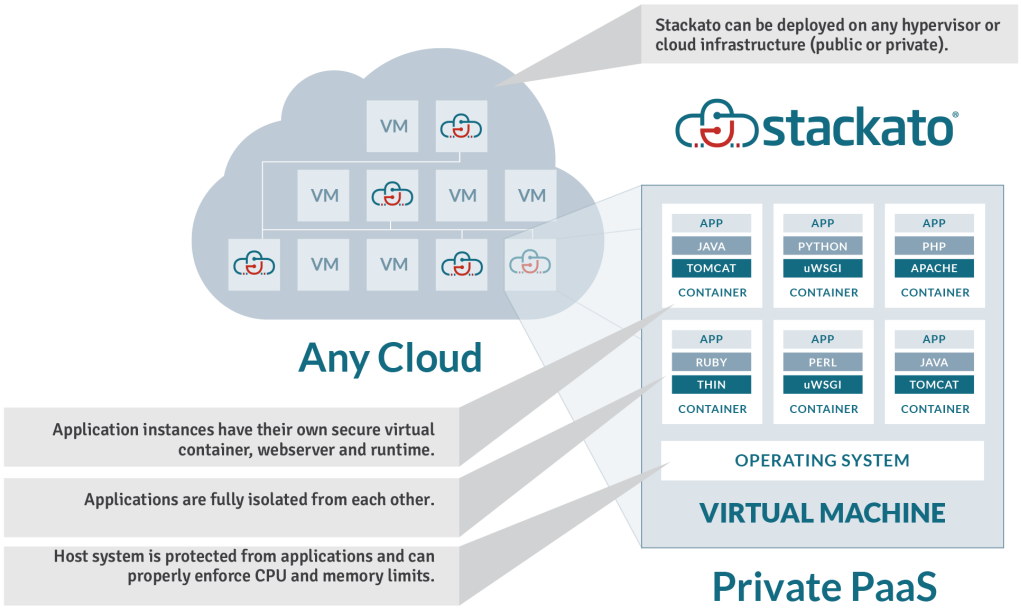
An enterprise starting development from scratch might be able to commit to a single vendor and produce new apps to fit a hosting provider's guidelines. However, most enterprises are not starting from scratch. It would be prohibitively expensive to rewrite legacy applications when they move to a new service provider.

To provide elasticity, public cloud architectures rely on multi-tenancy. Multi-tenancy is part of what makes the cloud attractively elastic—essentially, it is a place where multiple apps

share the same cloud, moving around to accommodate shifts in business applications or data demands. In a public PaaS security model, typically one wall surrounds multiple apps. However, the shared tenancy model is only as safe as its tenants' weakest vulnerability. A successful attack on one application can compromise all applications within that multi-tenant space. This model is not secure enough for most organizations.

Why Choose a Private PaaS: Security, Flexibility and Control

In order to overcome the limitations of a public PaaS, organizations are looking at what a private PaaS can do for them with the respect to security, flexibility and control.



Security of Private PaaS

Stackato private PaaS is inherently more secure than a "one big wall" public PaaS alternative. Whether deployed to a private, public, or even hybrid cloud, Stackato's containerization technology envelops individual applications, shielding them from a rogue applications' potential bad behavior, whether it is one container taking up too many resources or something more malicious. Maintaining data security means staying ahead of attacks, and there is no way to say with absolute certainty that a data protection wall cannot be breached. However, with Stackato's secure middleware technology in place, the focus is on preventing one container from compromising the other applications in the cloud infrastructure.

Flexibility for Developers

Using Stackato, developers, release engineers, and administrators have more freedom and flexibility. Now organizations can push applications developed in any language or framework to a multi-language, multi-framework, flexible private PaaS. With Stackato, those enterprises can take advantage of PaaS capabilities, while maintaining control and governance over systems and data.

IT Control

In the Stackato private PaaS model, an organization's IT department becomes the service provider, cutting out the middleman and keeping the application hosting framework and data

storage completely under the control of the organization's own IT department. For enterprises that have already implemented a private cloud, Stackato adds a self-service conduit for developers and DevOps groups to push applications to that cloud without the need to rely on IT staff. The same easy workflow provided by third-party PaaS can be offered in house, under the control of corporate IT.

Even more critically, data stays under the control of the enterprise. Instead of relying on a third-party, corporate IT manages its own applications and enjoys complete oversight.

Future Proof the PaaS Layer

Stackato works with all types of cloud infrastructures so your organization will never be locked-in to only one. Stackato is available for all of the major hypervisors, so if there is a change in virtualization platforms, or a move from a public IaaS to a private cloud or hybrid, organizations will have the freedom to change strategic direction and know that they can migrate their Stackato environment with minimal effort and cost.

Stackato: A Private PaaS for Your Agile Enterprise

Organizations have been investing in cloud infrastructure, but without a PaaS layer they are not taking full advantage of what the cloud has to offer. Stackato intelligently packages, extends, and integrates the capabilities of various proven open source packages, including Cloud Foundry and Docker, to meet the ever-evolving needs of enterprise development and IT departments.

By incorporating Stackato as part of the cloud stack, enterprises can deploy applications faster by empowering their developers and streamlining the development process so organizations can be more responsive to the market and gain a competitive advantage. With PaaS, enterprises can maximize the benefits of cloud computing while maintaining the control and security they require.

ActiveState Software Inc.
1700 - 409 Granville Street
Vancouver, BC V6C 1T2
stackato-sales@activestate.com

Phone: **1.778.786.1100**
Fax: **1.778.786.1133**
NA Toll-free: **1.866.631.4581**