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RESEARCH

DZONE RESEARCH PRESENTS

THE 2014 CLOUD PLATFORM

RESEARCH REPORT

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WELCOME

Dear Reader,

Thanks to your support during the past 17 years, DZone has evolved from a small community of web developers to a technology publisher with over 700,000 members and a worldwide audience of millions. We have published over 25,000 articles and more than 200 Refcardz, always with a focus on listening to you, our audience. In that time, it has become clear that there is a growing need for more resources that help you understand your choices and make informed decisions about complex technology topics.

The report you're reading represents our most ambitious research effort to date, and it's the first of many to come. We talked to dozens of vendors, hundreds of members, and explored thousands of data points to assemble a detailed resource aimed at saving you time and helping you make decisions. We hope you will find that the result is both useful and informative.

It would be impossible to thank everybody individually who has helped us make this report, but we are sincerely grateful to all of you...thank you. Literally hundreds of you responded to our survey, provided great content, and offered insightful review. We also had great help from the many cloud platform and infrastructure vendors featured in the report; and without our research partners, none of this would have been possible.

As previously mentioned, this is the first of many reports to come, and I would like to personally invite you to provide your input so that we may continually improve our efforts to provide you with the best possible research. We welcome your feedback on this report, your thoughts on future topics, and even ideas on other sections to be included.

Thanks again for your support.
Enjoy the report!

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Special thanks to our topic experts Johan den Haan, Matt Butcher, Nicholas Chase, Mark Thiele, as well as Andrew Phillips and Trevor Parsons and our trusted DZone Most Valuable Bloggers for all their help and feedback in making this report a great success.

EXECUTIVE SUMMARY

Software producers are discovering new opportunities every day within the evolving marketplace of cloud platforms. To stay competitive, they need to know about the latest tools and strategies, and they need decision-making data about those tools. The DZone *2014 Cloud Platform Research Report* is a competitive intelligence resource designed exactly for this purpose. Read this report and continue on to its companion site dzone.com/research/cloud to learn about:

- Foundational concepts behind modern cloud platforms
- New approaches to building custom Infrastructure-as-a-Service and Platform-as-a-Service
- Cloud platform usage patterns and preferences of IT professionals
- Comparison data for 40 cloud platform solutions

KEY TAKEAWAYS

> "I want it all, and I want it now."
> -Freddie Mercury

Using cloud platforms in software production is a familiar practice for the majority of IT professionals. Our research reveals how rare it is to see engineering or IT departments with no plans to harness cloud computing benefits in some way.

SOFTWARE LIFECYCLE CLOUD USAGE

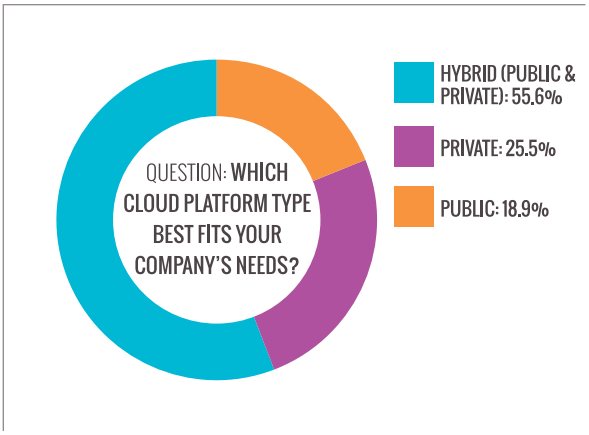
	CURRENTLY PERFORM	PLANNING TO PERFORM	NOT PLANNING TO PERFORM
DEVELOPMENT	52.9%	24.2%	22.9%
TESTING/QA	43.8%	40.7%	15.5%
PRODUCTION/ DEPLOYMENT	52.1%	37.2%	10.7%

DZone's *2014 Cloud Platform Research Report* discovered that PaaS and IaaS solutions are indispensable systems for many successful organizations and that the industry has become accustomed to the features of the initial wave of cloud platforms. Although they are grateful for the benefits that current cloud vendors provide, many forward-thinking organizations are not satisfied with the trade-offs that many cloud platforms make.

Our survey of IT professionals shows us that technologists don't want to make trade-offs or be locked into prescriptive, one-size-fits-all solutions. They don't want to make the choice between the security of private clouds and the elasticity of public clouds, they want both. That's why hybrid clouds have become so popular, and that's why Cisco, Oracle and IBM all announced hybrid-cloud-enabling products in the first month of 2014. [1]

Ideas about what an IaaS or a PaaS can be are changing. PaaS solutions are moving from constrictive, heavyweight systems to modular component chains that impose fewer trade-offs between ease of use and granular control, allowing engineering teams to build tailor-made solutions for the company's use case.

Technologists realize that cloud solutions have become more complex than just IaaS, PaaS and SaaS. This fact, more than any others, illustrates the extreme demand organizations have for the perfect fit when it comes to cloud platforms. The *2014 Cloud Platform Research Report* is aimed at helping you find it.



[1] http://newsroom.cisco.com/release/1324085

KEY RESEARCH FINDINGS

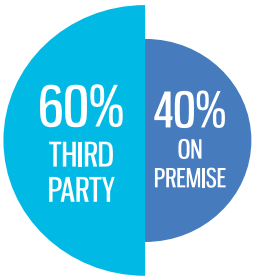
DZone surveyed over 600 IT professionals for the 2014 Cloud Platform Research Report, revealing their preferences, observations, usage patterns and success metrics related to cloud platforms. The respondents' professional roles included software development, IT operations, QA, team management and executive management. These professionals came from a diverse array of company sizes and geographic locations. (You can see the full survey demographics at our companion site dzone.com/research/cloud)

This survey revealed several key findings related to cloud security, PaaS and IaaS usage, cloud applications, cloud benefit expectations, and confirmed cloud benefits.

BEHIND THE FIREWALL OR NOT?

A majority of respondents (56%) see hybrid cloud as their ideal platform, while the other 44% of respondents who picked public (20%) or private (25%) were nearly equal. Our analysis also shows that as companies grow in size, they are more likely to prefer private cloud over public, most likely because larger companies have more technological assets to protect. Although there is a significant interest in private and hybrid cloud platforms, a large segment of respondents (60%) favored third party hosting over on-premises (40%). This data further illustrates that many cloud customers don't want trade-offs. They want security without the overhead of managing their own hosting on-premise.

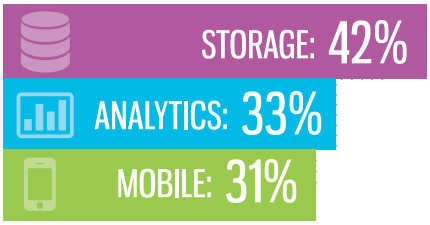
WHICH TYPE OF CLOUD HOSTING DO YOU PREFER?



USING CLOUD FOR THE HEAVY LIFTING

73% of respondents have deployed a web application to the cloud and 52% have deployed enterprise applications. Storage (42%), analytics (33%) and mobile (31%) apps were the top specific application types deployed by respondents, which makes sense because all of these applications benefit significantly from the cloud. Cloud elasticity handles usage spikes for big data analytics applications and scales storage application needs seamlessly. Cloud infrastructure also allows mobile app builders to keep a robust, consistently available backend for mobile apps that have to run on hardware-limited devices.

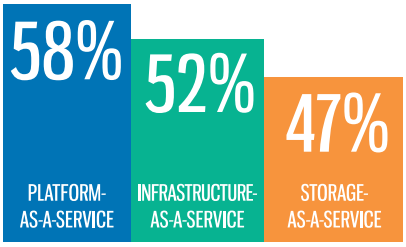
WHAT TYPES OF APPLICATIONS HAVE YOU DEPLOYED IN A CLOUD ENVIRONMENT?



PAAS SLIGHTLY MORE POPULAR THAN IAAS

When asked which cloud-based services they use in software production, the top two answers were PaaS and IaaS. This is not a surprise based on market perceptions, but it is surprising that PaaS is being used by 58% of respondents while slightly fewer are using IaaS (52%). This shows just how far PaaS has come in the last few years, offering more choices and flexibility than ever before. Based on these results, organizations seem to be very interested in the fast development speeds that PaaS can enable.

WHICH CLOUD-BASED SERVICES DO YOU USE IN SOFTWARE PRODUCTION?



SECURITY A PRIMARY CONCERN, BUT SOMEWHAT OVERHYPED

Security is the number one concern among respondent rankings, and it is still a major obstacle for many organizations considering cloud platforms. Security certainly deserves higher scrutiny when it involves third-party hosting and cloud infrastructure, however, another question in our survey asked if respondents expected security challenges with a cloud platform and then asked if they actually experienced those security challenges. While 75% expected security challenges, only 30% actually experienced them. This is the biggest gap in challenge expectations using a cloud platform.

TOP 3 CLOUD CONCERNS

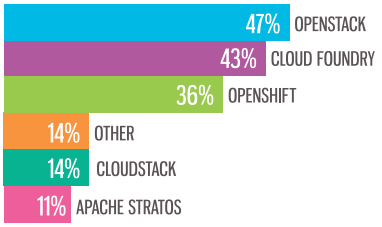
> 75% expected security challenges, **only 30% actually experienced them.**

OPEN SOURCE IS A SERIOUS CONTENDER

41% of respondents have used an open source cloud platform for business applications. That data suggests that open source platforms have nearly as much trust from the industry as proprietary platforms. The most popular platforms among the 41% of respondents who have used open source cloud were OpenStack (47%), Cloud Foundry (43%) and OpenShift (36%). It's clear that open source cloud platforms are no longer viewed as cheap tools for building toy applications, but as competitive options for enterprise-level software. Don't be surprised if open source platforms disrupt the cloud industry for years to come.

HAVE YOU EVER USED ANY OF THE FOLLOWING OPEN SOURCE CLOUD PRODUCTS FOR A BUSINESS APPLICATION?

out of the 41% of people that have used open source cloud solutions



> **41% of respondents** have used an open source cloud platform for business applications.

CLOUD USERS EMBRACE FASTER ACCESS TO INFRASTRUCTURE, BUT NOT THE SAVINGS

Some of the well-known advantages for using a cloud platform include greater scalability, higher availability, faster time-to-market and reduced costs. Our survey discovered which advantages respondents are actually receiving versus their expectations for what they should receive. Faster access to infrastructure resources is the biggest surprise for respondents, with 51% expecting this advantage and 58% receiving it. The biggest disappointment for respondents is the cost. 69% of respondents expected significant cost reductions from using cloud infrastructure while only 37% actually received the savings they expected.

51% EXPECT FASTER ACCESS TO INFRASTRUCTURE RESOURCES:
58% ACTUALLY GET IT

69% EXPECT REDUCED HOSTING COSTS,
37% ACTUALLY GET IT

A MAJORITY OF CLOUD USERS DEPLOY CODE WEEKLY OR DAILY

Perhaps the most inspiring finding from this survey was the correlation between cloud usage and the speed of an organization's software production. After cross-referencing respondents' cloud usage with their speed of deployment, we found that 56% of respondents who currently use a cloud platform for production deployment are able to deploy their code on a weekly basis or faster (on average). 55% of respondents who used the cloud for development and 48% who used it for testing could also deploy at that speed.

56% THAT DEPLOY WEEKLY OR FASTER USE THE CLOUD FOR **DEPLOYMENT**

55% THAT DEPLOY WEEKLY OR FASTER USE THE CLOUD FOR **DEVELOPMENT**

48% THAT DEPLOY WEEKLY OR FASTER USE THE CLOUD FOR **TESTING**

CATEGORIZING THE CLOUD LANDSCAPE: A NEW MODEL

BY JOHAN DEN HAAN

The first thing that newcomers usually learn about the "cloud" is the three main layers of cloud computing: Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS). This three-layer model is known as the SPI model. It's a useful starting point for describing cloud products, but it's far from perfect. An overview of the SPI model can be found in the Understanding the Cloud and Building Your Own article in this report.

Many products are blurring the lines between these categories, or creating new subcategories of their own. The DZone *2014 Cloud Platform Research Report* companion site, dzone.com/research/cloud captures these subcategories using a new two-dimensional model. This new model does not illustrate every existing variant of PaaS or IaaS, but it's much better than the oversimplified SPI model, and it gives decision-makers the ability to make more nuanced comparisons between cloud solutions. This model first appeared in an expanded form in an article by Johan den Haan, CTO of Mendix[1]:

CLOUD-BASED SERVICES MODEL			
SAAS LAYER	Applications provided as cloud services		
MODEL-DRIVEN PAAS LAYER	Model-Driven PaaS	Model-Driven iPaaS	baPaaS (Business Analytics Platform-as-a-Service)
PAAS LAYER	aPaaS (App Server-as-a-Service) and Language Runtimes	Integration PaaS (ESB-as-a-Service) Routing, Messaging, and Scheduling System	DBaaS (Database-as-a-Service)
FOUNDATIONAL PAAS LAYER	Application Containers	Routing, Messaging, and Scheduling System	Object Storage
IAAS LAYER	Virtual Machines	SDN (Software-Defined Networking)	Block Storage
	COMPUTING	COMMUNICATION	STORAGE

Note that the higher layers in this model do not necessarily **need to be built on the exact components below it.*

This review does not include any of the components in the Communication column or the baPaaS component, but some of their definitions can be found in the glossary section of this report. We begin with the lowest layer of the model and move up the chart.

IAAS LAYER

VIRTUAL MACHINES

Server virtualization lays the foundation for all of the scalability and flexibility advantages that cloud computing provides. Most PaaS and SaaS products are internally using some form of virtualized infrastructure in order to provide flexible services. If virtualized infrastructure is being provided to users as an on-demand commodity with additional capabilities, services, and resources, those services are known as IaaS offerings. The additional services are what separate IaaS from basic server virtualization.

IaaS offerings are made available through a provider's virtualized datacenter, which means that the provider abstracted the logical view of the servers and pooled them into universal compute resources that users buy on-demand. This is usually cheaper than traditional server hosting because the provider can manage compute resources more easily and use server space more efficiently.
Examples: Amazon EC2, Digital Ocean, Rackspace, Windows Azure

BLOCK STORAGE

Storage virtualization is the third field of the IaaS layer. Decoupling storage volumes from storage hardware allows vendors to manage advanced features like high-availability, caching, snapshotting and others at the software layer, independent of the hardware brand. This opens the door to more flexible optimization and better storage performance.
Examples: Amazon Elastic Block Storage (EBS), OpenStack Cinder

FOUNDATIONAL PAAS LAYER

APPLICATION CONTAINERS

In the foundational PaaS layer, the focus in the computing column moves to application components that are infrastructure-agnostic, which means the language and runtime work consistently, regardless of the compute resources on which the component is running. Once again, this provides additional flexibility benefits similar to the IaaS layer, where compute resources become hardware-agnostic.

To run an application on any computing infrastructure you need to have: compiled programming code (Java, C#, PHP, etc.), a runtime (a Java Virtual Machine, or the Common Language Runtime for example) and sometimes additional middleware (Tomcat, Spring, Ruby on Rails, etc.). A package with these pieces can be deployed in an application container and used as a template for application development and deployment. The container also automates the handling of application dependencies. Dependencies are supplemental programs that are required in order for the application to run. All this allows the developer to concentrate on the application itself rather than the ancillary components required to run it.
Examples: Docker containers, Heroku Dynos, WSO2 Cartridges, Cloud Foundry Warden containers.

OBJECT STORAGE

Unlike block storage, object storage contains data components that are ready to be retrieved and manipulated in an application. An object storage service automatically handles mounting, partitioning, and formatting virtual disks. With cloud-based object storage, the costs are usually low because you only pay to store the objects you actually use. In most cases, you can retrieve objects via an HTTP application programming interface (API).
Examples: Amazon S3, Ceph Storage, Rackspace Cloud Files

PAAS LAYER

APAAS AND LANGUAGE RUNTIMES

While the foundational PaaS layer dealt with binary code, the PaaS layer above it deals with the application code in its human-readable form, before compilation. Developers can just upload their code to an aPaaS without having to worry about compilation or middleware. aPaaS, which is essentially an application server-as-a-service, is the core component of the general PaaS category that is so often talked about in the IT industry. It consists of the programming language-specific runtime that allows customers to run their applications.
Examples: CloudBees, Heroku Buildpacks, Cloud Foundry Buildpacks

DBAAS

Database-as-a-Service (DBaaS) delivers the entire database management system (DBMS) as a cloud service to the customer. DBaaS solutions can be provided as component services of larger PaaS offerings or as individual services unaffiliated with any larger PaaS offering.
Examples: Amazon RDS and RedShift, Lunacloud Cloud Mongo, Heroku Postgres

MODEL-DRIVEN PAAS

The Model-Driven PaaS layer builds on language runtimes and provides additional support for domain-specific languages (DSLs) that make certain kinds of application development faster and less error prone. These DSLs are often easy enough for business-level users with less software development expertise to understand and use effectively. These DSLs won't be able to do some of the deep customizations that standard programming languages can provide, but most model-driven platforms can also harness standard languages when they are needed. This layer can also be considered a subset of aPaaS.
Examples: Salesforce Force.com, Mendix App Platform, Progress Rollbase

MBAAS

Mobile Backend-as-a-Service is a subset of the PaaS layer that includes features shared with iPaaS and DBaaS solutions. However, MBaaS is focused on allowing customers to connect their web and mobile applications to cloud databases while providing user management, push notifications, and integration with social networking services. The MBaaS then delivers these services through one unified API and software development kit (SDK).
Examples: Parse, Kinvey, Kii

[1] "The cloud landscape described, categorized, and compared" http://www.theenterprisearchitect.eu/blog/2013/10/12/the-cloud-landscape-described-categorized-and-compared/

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JOHAN DEN HAAN

Is the CTO at Mendix, where he leads the company's overall technical strategy and research & product development teams. Mendix is an app platform company for the enterprise, enabling companies to build, integrate and deploy web and mobile applications faster and with better results. Johan has been with Mendix from the start and helped shaping the products and growing the R&D teams.

CloudBees: 4 Key Things You Should Know About Platform-as-a-Service

WRITTEN BY
Sacha Labourey
CEO,
CloudBees

The main objective of PaaS is to relieve development teams of time-consuming IT maintenance tasks. PaaS abstracts away infrastructure, allowing engineers to focus solely on software development.

However, PaaS offerings vary greatly. There are four key factors to consider in choosing a PaaS:

- **PaaS Scope:**
  Some PaaS solutions focus only on deployment. Others support the entire application lifecycle from development to production. A PaaS that supports the entire lifecycle returns value throughout the entire lifecycle, not just at deployment.
- **Service vs. software:**
  The "S" in PaaS means "Service," but some PaaS offerings are just packaged software. Using such a platform is trivial, but *maintaining* it is not. The "Service" component is the most important value offered by a true PaaS.
- **Private vs. public cloud:**
  Some PaaS offerings make you choose between public or private cloud, while others support both. Private-only PaaS solutions are typically packaged software (see above).
- **IaaS-like or SaaS-like:**
  Some PaaS solutions are more IaaS-like, offering control over the IT infrastructure. Having control can be good in many cases, but a customized infrastructure will have to be maintained internally; the PaaS provider won't support it. Again, you lose the "Service" part of the PaaS equation.

Not all PaaS platforms are created equally. The four areas discussed above are a good starting point to help you choose wisely. The key advantage of PaaS is to allow development to focus solely on software delivery, not IT maintenance.

> Development time is typically consumed by IT infrastructure maintenance activities. With PaaS, developers can focus solely on application delivery.

CloudBees Platform *PaaS*

CloudBees

PHONE: (323)843-4483 | **EMAIL:** info@cloudbees.com | **TWITTER:** @cloudbees

STRENGTHS

- Full lifecycle PaaS
- Jenkins for Continuous Integration and Continuous Delivery
- Full production quality JVM-based runtimes
- Mobile continuous integration and backend services support
- Extensive partner network to integrate APM, DBaaS and other SaaS dev tools

NATIVELY SUPPORTED LANGUAGES

Java, PHP, JavaScript, Groovy, Clojure, Scala

FREE TRIAL

5 applications, 300 build mins per month

SERVICES

- ☐ Virtual Machines
- ☐ Block Storage
- ☐ Object Storage
- ☐ Routing, Queuing, & Scheduling System
- ☑ Application Containers
- ☑ App Server-as-a-Service
- ☑ Integration PaaS (ESB-as-a-Service)
- ☑ Database-as-a-Service
- ☐ Mobile Backend-as-a-Service (MBaaS)
- ☐ Model-Driven PaaS

FULL PROFILE LINK dzone.com/r/NHtN

DESCRIPTION

The CloudBees Platform-as-a-Service accelerates application delivery by automating development and deployment processes across the application lifecycle and running applications in production. Utilizing Jenkins, the CloudBees Platform enables development and DevOps teams to perform Continuous Integration and Continuous Delivery of applications and feature releases.

NOTABLE CUSTOMERS

- Netflix
- ChooseDigital
- Groupe Adeo
- Bullhorn Inc.
- Viridity Energy
- Lose It

CUSTOMER SUCCESS STORY

Movellas, a social story-sharing website, is constantly adding new features to the Java applications that power their site. However, their developers weren't able to quickly provision new instances with traditional hosting, so they decided to move to a PaaS solution. They wanted to use Amazon Web Services and they needed strong support for the Jenkins CI engine. CloudBees was their choice because it has Jenkins-as-a-Service and is built on AWS. With CloudBees, Movellas didn't have to change any of their existing applications, and their instance provisioning and configuration took minutes instead of hours.

WHEN CHOOSING A CLOUD PLATFORM, "THE BEST" IS RELATIVE

BY MARK THIELE

Some companies insist that public clouds are the only clouds that can truly harness all the advantages that cloud computing has to offer, yet behind the scenes they are also building private clouds.

On the other side of the debate, many private cloud providers are also trying to sell hybrid cloud services. There are also massive ecosystems of vendors and customers building software that will enable private cloud management, yet much of the support and interest is coming from service providers.

There's a lot of tough talk from both sides of the Public vs. Private cloud debate, but the truth is clear: the industry needs both. Cloud platforms should not be perceived as a sum of cheap parts or the aggregate of features on a spec sheet. Organizations need to search for a cloud platform that can give their customers the best possible experience.

COMMON PRIVATE VS. PUBLIC CLOUD DECISION THEMES

The themes of public and private cloud have been fairly consistent since the two definitions have been in existence. Here is a review of the features for each:

PUBLIC CLOUD THEMES	PRIVATE CLOUD THEMES
Elasticity: Scale to any amount of compute resources dynamically based on traffic spikes and other changes.	**Control:** Have complete control of the environment, what's shared, who has access, where data lives, etc.
Cost: Enable global distribution, elasticity and scalability while only paying for what you use.	**Cost:** Manage the environment more cost effectively by having it in house if the environments have well understood workloads and/or limited geo-distribution.
Staffing: Skip hiring extra internal staff to cover spikes in demand and don't worry about finding appropriately skilled talent.	**Security:** Keep IT inside company facilities and maintain the organization's well-defined access privileges. Protect and retrieve your data on your own terms.
Support structure: Follow the cloud provider's instructions for resolving issues.	**Support structure:** Have a well-defined chain of responsibility and knowledge of who to call for each type of problem. Support must be internal in certain cases.
Global distribution: Spin up instances in a different region instantly without having to contract, hire or build local resources in that region.	**Compliance:** Simplify the process for managing compliance requirements.
Options: Have flexible buying options for geographic distribution, performance, pricing models, storage and more.	**Familiarity:** Be familiar with company infrastructure to quickly assess risks and implement changes.
Workload distribution: Utilize the public cloud provider to distribute workloads across multiple regions instead of attempting to build and manage multiple datacenter locations.	**Well understood usage:** Manage costs with a consistent workload behavior on well-defined internal infrastructures.
Ecosystem of partners: Enable cloud provider partnership options that might otherwise be difficult to create in a private environment.	**Legacy applications & infrastructure:** Maintain a common infrastructure for legacy applications and new applications, making the entire system easier to handle in some cases.
Compliance requirements: Explore compliance oriented solutions by some public cloud providers that still provide the same scalability and elasticity benefits.	**Compliance requirements:** Provide better, more flexibile service internally with organizational knowledge of compliance requirements.

FIND THE RIGHT FIT

It is a popular assumption within the tech community that cloud infrastructure will become increasingly commoditized, and the biggest players (Google, Microsoft and Amazon) will strengthen their advantage while startups struggle to make the margins necessary to survive. Some users also see cloud platforms as a sum of cheap parts, but there are many who disagree with these assumptions. When the best fitting parts are combined in the most advantageous way for a given organization, with the right people, process and software, it's a very different story.

If 1,000 engineers were given servers, storage and networking, the result would probably be around 500

> As companies look to making infrastructure choices, they must first keep in mind that it's not infrastructure they're selecting, it's an enablement platform.

different solutions. Each of these solutions would differ depending on scripts, accelerator products (RAM, Flash, Infiniband) and different software options. In some cases, the capabilities of these solutions might be roughly equal to each other, but many will differ significantly. Technologists and their organizations need variety and flexibility, not just the cheapest option that satisfies baseline operations. Some vendors do offer tuned solutions alongside their one-size-fits-all commodity images, but that does not mean they are a fit for any scenario.

The benefits of a cloud platform are often much more than the apparent sum of its spec sheet. Although there are many applications that will run adequately on most cloud platforms, there are many more that will run better on a cloud platform that is the right fit for a particular application or use case. This depends largely on what the end user values the most (page load time, security, cost, etc.). Still, this doesn't stop many cloud providers from trying to be the *right fit* for everyone.

TRYING TO FIT EVERYONE'S USE CASE

Even though it's feasible that a cloud provider could offer all of the public and private features that are widely touted (and there are some that try to), the vast majority of customers will have very specific custom requirements, and the changing landscape of solutions will shift demand as creative technologists create new requirements for the cloud and better solutions.

Hybrid cloud is advertised as a solution with the attributes of both public and private cloud. Most hybrid solutions involve a private cloud combined with public cloud resources to offer protection when handling one-off demand spikes, disaster recovery, regional distribution, or regular interval spikes. However, the integration and smooth flow of data between the public and private infrastructures can be a challenge that some companies are not equipped to handle. When choosing a cloud provider, it's important to know your organization's capabilities and not just the features of the provider.

NEAR TERM CLOUD ADOPTION EXPECTATIONS

The way each company approaches moving applications to a cloud platform will depend on a number of variables including but not limited to: strength of the internal team, developer mentality, growth and dynamics of the business, global distribution and current IT leadership. As companies make infrastructure choices, they must first keep in mind that it's not just infrastructure they're selecting, it's an enablement platform. The important criterion isn't just who owns the cloud or whose servers or storage underpin it, but whether it will provide the capabilities needed by the business.

It's very likely that niche markets for cloud verticals will still exist many years from now, and that private cloud will still be in the enterprise ten years from now. It's also likely that the majority of existing applications aren't written to take advantage of cloud infrastructure, so there isn't an ROI associated with moving them to cloud. Once more applications are refactored to take advantage of cloud infrastructure, the pricing of public and private clouds could experience rapid change.

When choosing a cloud provider, it's important to know your organization's capabilities and not just the features of the provider.

STAY TUNED

The road to the future of cloud computing is likely to get bumpier before it smoothens out. There are a huge number of vendors selling very specific fixes for the cloud market along with some very innovative companies who are attempting to solve real infrastructure ownership and capability issues. While it's fairly likely that Amazon, Google, HP, Microsoft and Rackspace will continue to grow, there are other cloud vendors who are less well known that have the opportunity to stake some territory in this land grab for cloud customers. They just need to become the right fit for a handful of use cases that the large companies don't address that well. The cloud landscape will continue to be as diverse as the end-user needs that drive its growth.

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MARK THIELE

Is Executive Vice President of Data Center Tech at Switch, the operator of the SUPERNAP data center, located in Las Vegas, NV. Switch houses digital data for approximately 1000 clients that include over 40 cloud service providers, Fortune 100, federal, state & local government agencies.

Progress: Don't be an App Hole!

WRITTEN BY
Mark Troester
Senior Director of Pacific Product Management and Solution Marketing, **Progress**

Creating new apps at a rapid pace can be a challenge. Apps have become the building blocks of the business. Constant requests for new and updated functionality are commonplace. If your current development methods can't scale to meet this demand, you've got to step up your game. Here are a few points to consider:

Is your department a place where requests for new applications go and never return? Let us help.

- **Look for browser-based tools:** What could be simpler than using a browser to access development tools? A Platform-as-a-Service (PaaS) can provide a development environment that is more accessible to workers. Your company can develop SaaS apps easily in the cloud.
- **Speed up your processes:** The better an organization is at rapid application development, the greater chance it has to retain its foothold in the market. Instead of assigning a team to each new project, decision-makers can deputize workers, from Web developers to business analysts, and set them to work – FAST!
- **Connect your data:** The ability to connect your application in a simple, fast way to cloud data regardless of source – SaaS apps, big data stores, or social networks sources – is extremely valuable to your business. You need a PaaS solution that is purpose-built for data.

With Progress Pacific PaaS you can build applications in less time and get back to developing innovative applications rather than coding them. Free up the App Hole of development.

For more information, please visit:

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Progress Rollbase *PaaS*

PROGRESS

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STRENGTHS

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- Move your Salesforce1 applications and CRM data to Rollbase
- Create a mobile version of your application with just a few actions and options
- Simplify application delivery and deployment
- Proven cloud platform on which to build all of your custom business apps

NATIVELY SUPPORTED LANGUAGES

Rollbase has its own DSL drag-and-drop language

FREE TRIAL

30 day free trial

SERVICES

- ☐ Virtual Machines
- ☐ Block Storage
- ☐ Object Storage
- ☐ Routing, Queuing, & Scheduling System
- ☐ Application Containers
- ☑ App Server-as-a-Service
- ☐ Integration PaaS (ESB-as-a-Service)
- ☐ Database-as-a-Service
- ☐ Mobile Backend-as-a-Service (MBaaS)
- ☑ Model-Driven PaaS

FULL PROFILE LINK dzone.com/r/vvX9

DESCRIPTION

Progress Rollbase is a cloud platform that allows the creation of SaaS business apps using point-and-click, drag-and-drop tools in a standard Web browser. Rollbase is part of the Progress Pacific PaaS, which allows you to build business apps and connect them to cloud infrastructure. SaaS and other data can be quickly deployed to any cloud or in-house infrastructure.

NOTABLE CUSTOMERS

- Brixxs
- Carego International
- InWolk

CUSTOMER SUCCESS STORY

Brixxs is already making an impact with Progress Rollbase by helping registered taxi companies in the Netherlands to quickly comply with new regulations and improve the quality of their services in large cities. By using Progress Rollbase, Brixxs has developed and updated applications that have allowed taxi companies known as Allowed Taxi Organizations (ATOs) to comply with strict new regulations introduced by the Dutch government, within just 3 days of them coming into effect. Progress Rollbase made this possible by allowing Brixxs to rapidly build their apps using an intuitive, easy-to-use web interface.

UNDERSTANDING THE CLOUD AND BUILDING YOUR OWN

BY NICHOLAS CHASE

It was a momentous advancement when applications began to harness virtualization, a computing strategy that allows more than one person or application to share a single computer by creating virtual machines. The rise of cloud environments was another revolution in the IT industry.

We are currently in the midst of a new technological disruption where organizations can build their own complete cloud management platforms using their own infrastructure in conjunction with open source software. This article details the high-level model of cloud computing solutions, and surveys the open source options for building your own cloud.

VIRTUALIZATION VS. CLOUD

> No matter what implementation you choose, you will want to adjust your business processes to account for the increased agility that cloud provides.

In many enterprises, there's a great deal of confusion between virtualization and cloud. While it's true that cloud does involve virtualization, at its heart cloud computing involves more than just the separation of the logical plane and the physical hardware.

The term cloud has been fairly overloaded in the past few years, with some people referring to essentially anything a user does over the internet as being "in the cloud." The reality is much more complicated. True cloud services start with Infrastructure-as-a-Service (IaaS), move up to Platform-as-a-Service (PaaS), and then Software-as-a-Service (SaaS). These three layers (also known as the SPI model) are explored at a more detailed level in the Categorizing the Cloud Landscape: A New Model section of this guide.

Virtualization involves the creation of one or more virtual machines on a single piece of hardware. IaaS takes virtualization a step further by including additional capabilities, services and resources. These additional capabilities can include compute, storage and networking services. Another key differentiator between basic virtualization and IaaS is a feature called self-service provisioning.

INFRASTRUCTURE-AS-A-SERVICE

Self-service provisioning means that a user can request resources on demand, usually from a web-based interface, eliminating the step of waiting for the IT department to allocate a virtual machine, install an operating system and so on. The availability of IaaS makes it possible for users to achieve rapid elasticity by spinning up resources when they're needed and destroying them when they're not. This capability makes it possible to provide greater speed of development for new projects and functions that might otherwise have been considered wasteful. Why dedicate resources to a report that runs only once a day, or even once a month, and have those resources sit idle the rest of the time? The ability to quickly recover resources also makes experiments more practical, as the resources dedicated to failures can be quickly reclaimed.

PLATFORM-AS-A-SERVICE

One level up from IaaS is Platform-as-a-Service (PaaS), which provides an environment for easy development and deployment of applications. For example, a PaaS system might provide an environment that lets a user self-provision a web server, database and filesystem, then build an application on them. A PaaS might also make it possible to deploy a self-sufficient application container based on a system such as Docker, which enables developers to package all of the application's requirements directly in the container.

By taking advantage of PaaS, users can accelerate development even further. One of the biggest benefits of PaaS is the significant increase in the pool of qualified developers that have the appropriate skills to use the environment. This occurs because more of the complex system administration tasks such as software installation are already taken care of by the PaaS software.

SOFTWARE-AS-A-SERVICE

Finally, the top of the stack is Software-as-a-Service (SaaS), which is the most familiar level of cloud computing for the general population. This is the level where users no longer need to install software

on their local systems. Instead, they do their work over the internet and let the SaaS vendor handle all administration, programming and infrastructure tasks. Examples include Salesforce.com, TurboTax and Gmail.

BUILDING YOUR OWN CLOUD

When we say "the cloud," it's important to understand that we're not talking about a single homogenous environment. There are multiple Cloud Management Platforms (CMPs) available to an organization. CMPs encompass all of the software that is used to build cloud infrastructure and services, and it manages the compute, networking and software resources on which the cloud runs. Some widely known examples include Amazon Web Services and Windows Azure, but for the enterprise looking to build a private cloud, there are generally four open-source alternatives:

OPENSTACK: Founded by NASA and Rackspace, and headed by the OpenStack Foundation, OpenStack counts among its major sponsors AT&T, IBM, Ubuntu, Red Hat and HP. It has a diverse array of projects including:

- **Nova**: Cloud computing fabric controller
- **Swift**: Object storage-as-a-Service
- **Cinder**: Block storage-as-a-Service
- **Neutron**: Software-defined networking (SDN)
- **Keystone**: Identity services
- **Heat**: Composite cloud application orchestration
- **Savanna:** Data Processing-as-a-Service
- **Solum**: Platform-as-a-Service on OpenStack
- **Trove**: Database-as-a-Service for OpenStack

Some of these projects (Solum, Trove, Savanna) are in the very early stages, but this list illustrates how broad OpenStack's influence on IT could become. The easiest way to install OpenStack is with a distribution such as Mirantis OpenStack[1], Red Hat Enterprise Linux Platform[2], SUSE Cloud[3], or Piston Enterprise OpenStack[4]. There's also a testing sandbox for OpenStack called TryStack[5].

EUCALYPTUS: Headed by Eucalyptus systems, Eucalyptus provides compatibility with a subset of the Amazon Web Services APIs and mirrors AWS capabilities. Eucalyptus was an early arrival to the open source CMP space, giving it the benefit of maturity and experience within the company. You can try it out or download Eucalyptus[6] from the Eucalyptus site.

CLOUDSTACK: Created by Cloud.com and then purchased by Citrix, CloudStack is now a top-level Apache proejct. The project is used by a few high-profile companies including Spotify, Disney and Verizon. CloudStack also offers compatibility with a subset of the Amazon Web Services APIs. You can download the CloudStack source code[7] from the Apache site.

OPENNEBULA: Headed by C12G Labs, OpenNebula was another early open source CMP. Like the other projects, OpenNebula also supports the AWS EC2 and EBS APIs. You can download OpenNebula binaries[8] for various Linux distributions.

> Virtualization involves the creation of one or more virtual machines on a single piece of hardware. IaaS takes virtualization a step further by additional capabilities, services and resources.

Which CMP is best for you will depend on your own individual situation. Do you have an existing cloud with which you need to maintain compatibility? What sort of capabilities do you need? Do you anticipate needing custom functionality down the line? Do your engineers and system administrators have development and operations skillsets? What sort of community structure are you looking for? Are you comfortable with a single company guiding the platform's development, or are you looking for more of a community environment?

No matter what implementation you choose, you will want to adjust your business processes to account for the increased agility that cloud provides. In some cases, this will mean acquiring new skills or employees with new skill sets. Fortunately, training and service organizations are readily available, and the gains in productivity are more than worth it.

[1] http://software.mirantis.com/
[2] https://www.redhat.com/products/enterprise-linux/openstack-platform/
[3] https://www.suse.com/cloud
[4] http://www.pistoncloud.com/download/
[5] http://trystack.org/
[6] https://www.eucalyptus.com/eucalyptus-cloud/get-started/try
[7] http://cloudstack.apache.org/downloads.html
[8] http://opennebula.org/software/

AUTHOR BIO

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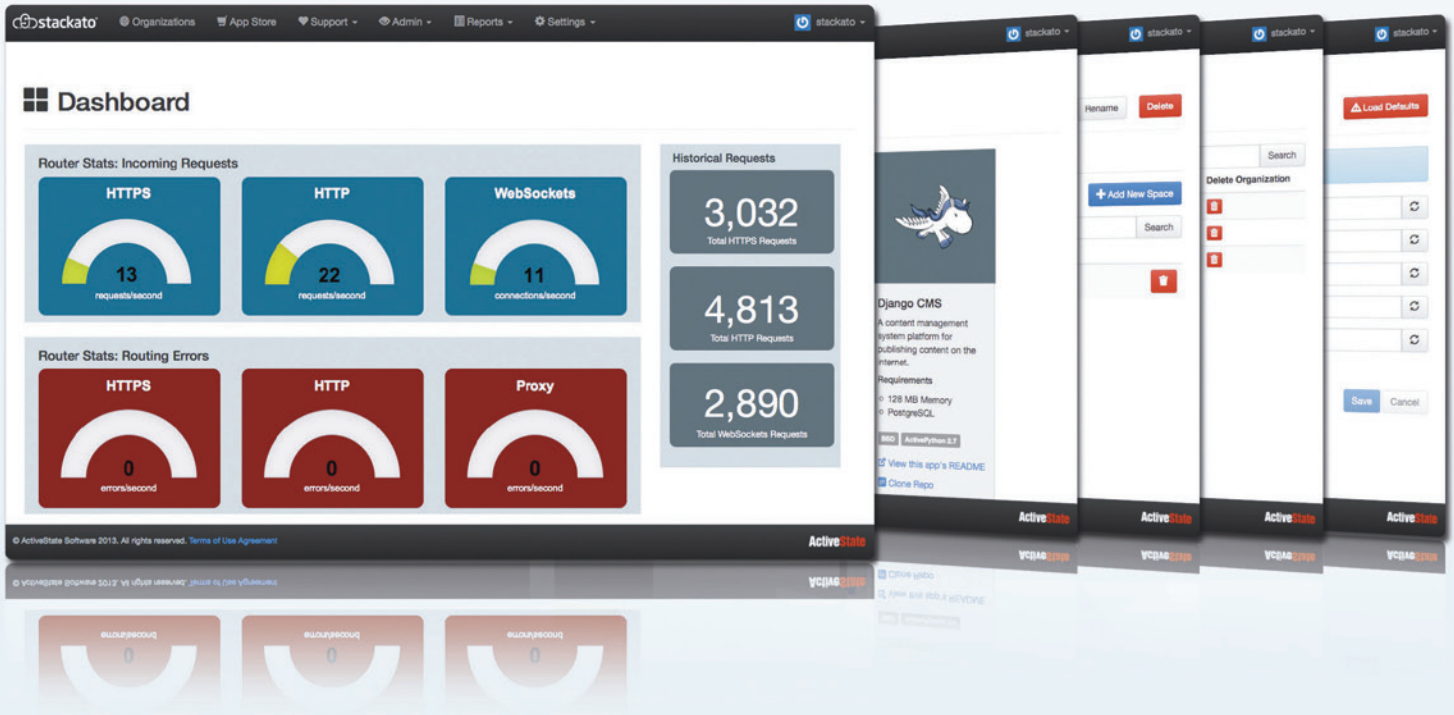

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ActiveState: Public vs. Private PaaS. Confused?

WRITTEN BY
Phil Whelan
Technology Evangelist,
ActiveState

There is a lot of confusion about "PaaS" and what it means. The definitions are vast, vague and varying. The market and the media are understandably confused.

The most obvious reason for confusion is that public PaaS and private PaaS are different solutions for different customers. You only have to Google "What is PaaS" to see that the results range from Salesforce to Heroku, Cloud Foundry and thin wrappers around Docker. Each type of solution has its own definition based on its particular feature set.

Public PaaS came first and set an expectation for what "PaaS" is. In a way, that expectation tends to also encompass the IaaS layer. This is understandable because vendors are selling both in one package. A customer of public PaaS doesn't need to know or care what the underlying infrastructure is since the infrastructure is hosted by the public PaaS vendor.

With private PaaS, customers do care, and they should. For developers, there may be little difference between public and private, depending on the depth of integration and complexity of their application. For IT and Operations, it is a different story. They own the PaaS, make it what it is, and keep it ticking like clockwork.

> For developers, there may be little difference between public and private...for IT and Operations, it is a different story.

The feature-sets offered by public and private PaaS differ based on the latter's focus on large enterprise. Most public PaaSes were originally focused on specific languages, such as PHP. These were not necessarily in line with the large and complex legacy applications that many large enterprises manage.

Read more at:

activestate.com/blog/2014/02/paas-confused

ActiveState Stackato *PaaS*

stackato by ActiveState

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STRENGTHS

- Built on proven open source technologies including Cloud Foundry and Docker
- Supports any IaaS for private, public or hybrid cloud
- Console for administering and monitoring users, applications, services, cluster nodes and more
- Configure redundant nodes to ensure high availability
- Migrate existing applications easily

NATIVELY SUPPORTED LANGUAGES

Java, Ruby, Python, Perl, PHP, JavaScript, Go, Groovy, Clojure, Scala, HTML/XML, Erlang, Haskell

FREE TRIAL

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SERVICES

- ☐ Virtual Machines
- ☐ Block Storage
- ☐ Object Storage
- ☑ Routing, Queuing, & Scheduling System
- ☑ Application Containers
- ☑ App Server-as-a-Service
- ☐ Integration PaaS (ESB-as-a-Service)
- ☑ Database-as-a-Service
- ☐ Mobile Backend-as-a-Service (MBaaS)
- ☐ Model-Driven PaaS

FULL PROFILE LINK dzone.com/r/NdGJ

DESCRIPTION

Stackato is a commercially supported PaaS that harnesses proven components such as Cloud Foundry and Docker. It runs on top of your cloud infrastructure as the application middleware. Stackato automatically configures the required language runtimes, web frameworks, data and messaging services. Administrators can monitor and configure user roles, application components, scaling, and memory usage through the Stackato web interface or command line.

NOTABLE CUSTOMERS

- HP
- ExactTarget
- Mozilla
- Cisco
- MTN Communications
- Nelnet

CUSTOMER SUCCESS STORY

ExactTarget, a global leader in Software-as-a-Service (SaaS) marketing solutions, chose to implement a PaaS middleware foundation in order to enable multi-language, rapid application development. They first considered the open-source Cloud Foundry platform, but recognized that customizing and maintaining the platform would involve significant risk and in-house resources. Alternatively, Stackato offered a self-service, commercially-supported private PaaS solution that was compatible with Cloud Foundry APIs. With Stackato, ExactTarget has now reduced their deployment timeframes from two weeks to a matter of minutes.

DZONE: BY THE NUMBERS

BELOW YOU WILL FIND A BREAKDOWN OF DZONE BY THE NUMBERS: EVERYTHING WE'VE BEEN UP TO, HOW WE'VE GROWN, AND WHERE WE'RE GOING AS A COMPANY. DZONE RESEARCH IS OUR LATEST ENDEAVOR, AND WE COULDN'T BE PROUDER. THE ACHIEVEMENTS WE HAVE HERE WOULDN'T BE POSSIBLE WITHOUT OUR AMAZING GROUP OF USERS AND VISITORS, AND WE COULDN'T BE MORE THANKFUL FOR EACH AND EVERY ONE OF YOU. WITH YOUR HELP, WE'LL WATCH ALL OF OF THESE NUMBERS GROW IN THE YEARS TO COME. ALL DATA ACCURATE AS OF MARCH, 2014.

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749,924 REGISTERED USERS

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39 CLOUD SOLUTIONS COVERED IN THIS REPORT

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27513 CARY, NC, USA THE CITY WE CALL HOME

OUR STAFF MEMBERS AND OFFICE CULTURE

OUR CULTURE

TWO AVG. NUMBER OF GONG RINGS DAILY

26 STAFF MEMBERS, MARCH 2014

48 BEER KEGS PURCHASED SINCE SPRING 2012

864 APPROXIMATE NUMBER OF NERF PELLETS SHOT AT EMPLOYEES

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TEA IS PRETTY POPULAR, TOO

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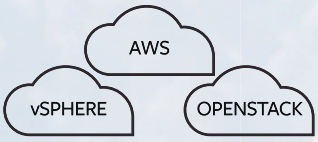

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CloudFoundry.org exists to provide a platform for the community of customers, partners and even former competitors to collaborate, teach, share and learn together, accelerating the pace of innovation and contribution.

Leading Cloud Foundry Foundation members include: CenturyLink Technology Solutions, EMC, HP, IBM, Pivotal, Rackspace, SAP and VMware.

goPivotal.com

Pivotal CF: Why PaaS? Why Now?

WRITTEN BY
James Watters
Head of Product, Marketing, and Ecosystem for Cloud Foundry, **Pivotal**

To answer "Why PaaS?" it's helpful to take a brief look at Infrastructure-as-a-Service. IaaS represented the next step beyond virtualization. Not only could I segment a single physical machine into multiple virtual machines, but I could also create/delete VMs as well as use DNS, load balancing, and storage via an API.

While IaaS allowed organizations to spin up infrastructures with minimal upfront expense, a good PaaS abstracts these details away so developers can spend their time writing great applications. The PaaS enables:

- Provisioning and configuring a runtime container
- Binding services via environment variables
- Providing app scaling, routing, health management, and logging primitives via an API

To answer "Why now?" we must focus on the emergence of second generation PaaS, which advances the state of the art in two areas:

1. Enabling developers to deploy applications across multiple IaaS providers, both public (e.g. AWS, GCE) and private (e.g. OpenStack, vSphere), while retaining a consistent model of interaction with the platform.
2. Enabling developers to access large-scale data services like Hadoop and Cassandra on demand, via the same service-binding model a first-gen PaaS might provide for an RDBMS. Provisioning new services is nearly instant (i.e. less than five minutes).

Second generation PaaS enables developers to continuously evolve applications as a set of micro-services on top of a rich data substrate that sits apart from any one application.

> Second generation PaaS lets developers deploy and connect apps to large-scale data services like Hadoop across multiple IaaS providers.

Pivotal CF *PaaS*

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STRENGTHS

- Integrated platform for provisioning and binding Apache Hadoop to applications running on Cloud Foundry
- Elastic runtime service providing a complete, scalable execution environment extensible to any framework or language running on Linux
- Automatic provisioning and binding of Pivotal One services - Pivotal HD, Pivotal RabbitMQ and Pivotal MySQL
- IaaS-integrated PaaS operations manager providing turnkey deployment and updates with zero downtime on vSphere private clouds

NATIVELY SUPPORTED LANGUAGES

Java, Ruby, JavaScript, Groovy

FREE TRIAL

Pivotal CF: 90 Days with an executed EULA
Pivotal Web Services (run.pivotal.io): 60 days free trial

SERVICES

- ☐ Virtual Machines
- ☐ Block Storage
- ☐ Object Storage
- ☑ Routing, Queuing, & Scheduling System
- ☑ Application Containers
- ☑ App Server-as-a-Service
- ☐ Integration PaaS (ESB-as-a-Service)
- ☑ Database-as-a-Service
- ☐ Mobile Backend-as-a-Service (MBaaS)
- ☐ Model-Driven PaaS

FULL PROFILE LINK dzone.com/r/h4rw

DESCRIPTION

Pivotal CF is an enterprise-focused PaaS powered by Cloud Foundry. It provides a turnkey PaaS experience for agile development teams to deploy and scale applications on a private cloud that can be expanded and upgraded with no downtime. It is the first integrated platform encompassing the big data framework Apache Hadoop and the open-source PaaS, Cloud Foundry.

NOTABLE CUSTOMERS

- Warner Music
- GE
- Verizon

CUSTOMER SUCCESS STORY

Comic Relief, a well known charity based in the UK, raised a record £75million (about US $115 million) in funds in seven hours without a single outage or lost transaction at peak traffic times by using Cloud Foundry to provide an enterprise grade donations platform. Their Cloud Foundry-based platform was able to handle 600,000 transactions in this seven hour period and peaks of 500 donations per second from web, mobile and call centers. Developing the applications on Cloud Foundry also brought vendor neutrality to Comic Relief's donations platform. The service was distributed across multiple AWS EC2 regions and zones, and also London-based VMware vCloud/vSphere IaaS provider, Carrenza.

THE NEW PAAS: BRING ONLY WHAT YOU NEED

BY MATT BUTCHER

Many of the earliest PaaS products came in the form of bulky, prescriptive platforms. Current PaaS solutions are now providing less opinionated frameworks, and new technologies are paving the way for elegant mini-PaaS solutions.

Around this time last year, I was the technical lead for the aPaaS (Application Platform as a Service) project at HP Cloud Services. At that time, I shortsightedly viewed PaaS as the opposite of IaaS. I viewed IaaS as a set of building blocks, and I viewed PaaS as an entirely finished product. To me, a PaaS was a single product loaded with a full suite of development utilities. All a developer had to do was upload an app, sliding it into place like the last piece of a puzzle. They imposed a prescriptive architecture that was intended to make development simpler.

This "go big or go home" model seemed like the best way to build applications, but I had forgotten my UNIX roots. UNIX command line tools are notable for their elegance and single-mindedness. That early training should have prompted me to focus on doing one thing exceptionally well instead of trying to do everything. A new open source project called "Docker" reminded me of that UNIX elegance.

THE NEW PAAS ZEITGEIST

Docker blew me away with its promise of not trying to do everything. Docker is only focused on making the application container model at the core of PaaS easy to work with. At first I thought, "how can I integrate this into the all-in-one model that PaaS has always used?" Upon further reflection, I realized that the evolution of PaaS is not moving in the direction of prescriptive solutions, but back toward the building-block model that I had initially reserved only for IaaS. Instead of packing everything into one product, a more advantageous way to build a PaaS might be to assemble separate, but solid components.

Having recently joined a small startup, one of my colleagues and I were charged with building our deployment system. Pressed for time, we needed something that could be set up in a few days without requiring a full-time DevOps team. My colleague suggested two possibilities:

- Use Amazon's Elastic Beanstalk PaaS
- String together our own tool using Packer (an open source virtual machine image manager), Ansible (an open source configuration manager), and some Amazon command line tools.

While the second solution seemed implausible and lofty, it took only a dozen lines of shell scripting to build a workable mini-PaaS using those tools. It was a eureka moment for me. We'd built a fully custom solution providing exactly the features we needed in a single afternoon! Crafting this type of solution has become much easier because of the numerous open source building blocks that have emerged recently, including Docker, Packer and Ansible. Two years ago, building a perfectly tailored solution like the one I built that afternoon would have been much more difficult.

As these tools began to emerge, I believe PaaS providers started moving in one of two directions:

- PaaS Frameworks: Build strong, single-purpose components, or
- PaaS Components/mini-PaaS: Offer a ready-made, flexible assembly of those components.

We will start with the first category because it is similar in some ways to the prescriptive model that was most common in the early days of PaaS.

PAAS FRAMEWORKS

A PaaS framework is a system that brings together best-of-breed PaaS components into a single assembly, but it is less prescriptive than earlier PaaS models. ActiveState's Stackato is employing this strategy with its recent integrations for Docker and other top-shelf components. Pivotal's open source Cloud Foundry platform has also been integrating best-of-breed components; the platform can now be extended and deployed across a variety of IaaS architectures, making it very flexible. Then there's Red Hat's OpenShift, which started a trend with its framework-like approach using multi-purpose component containers called gears and cartridges.

On the opposite end of the spectrum, upstarts like the

KEY TERMS

Ansible: An open source configuration manager.

Packer: An open source virtual machine image manager.

Docker: An open source application container packaging and deployment tool.

Vagrant: An open source tool for creating and configuring virtual development environments.

open source Deis platform are actively promoting PaaS not as an all-in-one platform, but as a base platform that you can tailor to your needs.

Many developers will still want to use prescriptive PaaS products for prototyping or for quick side projects, so I expect the older model to stick around for some time. But organizations that have the technical expertise and the desire to retain more control over their applications will move toward the framework model, which emphasizes deeper administrative capabilities, flexibility, openness and ease of deployment. They may also consider the component model, like my team did.

PAAS COMPONENTS

Frameworks are the natural evolution of the old prescriptive model, but the real innovations of the past year are the specialized PaaS tools and components, which have the most promising outlook for years to come.

In this category, Docker, Packer, Ansible, Vagrant and other similar tools have emerged as mature PaaS components. Each specializes in a specific task but is also crafted to work in broad conjunction with other parts.

Something curious emerges from this component-based approach: preconceptions about what a PaaS does begin to evaporate. There are no borders and no constraints that define the boundary of a PaaS. Instead, there are well-built tools that give you templates, but don't require that you buy into someone else's vision for an application platform. Even containers (a lighter alternative to virtual machines), which seemed to be at the heart of every PaaS solution, are now simply one more option. PaaS solutions may just as easily deploy directly to virtual machines such as EC2 or OpenStack Compute instances.

As my colleague and I demonstrated, a small team of developers can build a fully tailored mini-PaaS solution without making a trade-off between ease of use and full control. Deploying applications is just as easy as it was with the older prescriptive PaaS systems, but with a depth of control that yields scalable, highly performant releases that can be effectively monitored and maintained. Generally, if you don't need a lot of the features provided by existing PaaS products, the mini-PaaS is an option worth considering.

NARROWLY OPINIONATED

A prescriptive PaaS structure is broadly opinionated; it dictates how we conceive an application, a database, an instance, an operating system and a deployment. PaaS frameworks and PaaS component models are still opinionated, but only about their domain of expertise. I would call them narrowly opinionated. Docker has a firm notion about a container and its relation to an underlying Linux operating system, but it has no opinion on what language I write applications in, what my deployment target looks like, or what database I use. Ansible may be opinionated about how I structure my deployment process, but it is agnostic to my deployment target and what services I am using.

The upshot is that developers are free to dictate overall architecture while also being freed from the minutia of deployment and management. They can focus on strategy and leave tactical details to the tools.

> We'd built a fully custom solution providing exactly the features we needed in a single afternoon!

EXPANDING DEFINITIONS

Organizations involved with cloud computing need to be aware that the definition of a PaaS is expanding. The tech industry is fairly familiar with broadly opinionated PaaS products and narrowly opinionated PaaS frameworks. Now organizations are discovering that they have a third option for PaaS: a mini-PaaS. If this model can reach its potential, building deployments will no longer be a choice between the frustrating system administration of IaaS and the minimalism of a single PaaS provider. PaaS will eventually be perceived as a tool chain and not as a single product.

ANSIBLE: http://www.ansible.com/home
DEIS: http://deis.io/
DOCKER: http://www.docker.io/
PACKER: http://www.packer.io/
VAGRANT: http://www.vagrantup.com/

AUTHOR BIO

MATT BUTCHER

Is the Lead Cloud Engineer at Revolv, a Boulder, CO builder of custom smart home automation solutions that unify next-generation homes with customers' lifestyle devices such as smart phones and tablets. Matt also teaches Computer Science and Philosophy at Loyola University Chicago.

QUESTIONS TO ASK
YOUR POTENTIAL CLOUD PROVIDER

SECURITY

- [ ] How will my data be treated (long-term and short-term)?
  - [ ] Location?
  - [ ] Protection?
  - [ ] Encryption?
- [ ] How will my application be protected from internal and external threats?
  - [ ] Isolation?
  - [ ] Multi-tenancy?
  - [ ] Firewalls?
- [ ] What additional security capabilities are available from the IaaS provider or as 3rd-party add-ons?
- [ ] How transparent is the provider about their security policies and practices? How do these policies and practices align with my business requirements for security, auditing and compliance?

SCALABILITY & PERFORMANCE

- [ ] How does the provider scale up? How do they scale down?
- [ ] Can computing workloads be distributed across multiple geographic domains?
- [ ] What kind of multi-tenancy is available?
  - [ ] Application-level isolation?
  - [ ] Infrastructure-level isolation?
- [ ] How is load-balancing handled?
  - [ ] Integrated?
  - [ ] Provided via third-party services?

DISASTER RECOVERY/BACKUP

- [ ] What level of redundancy is provided when machines go down?
- [ ] Are backups automatic or user-initiated? If automatic, how often are they run?
- [ ] Can data reduction techniques (deduplication, compression) be used to reduce storage costs?
- [ ] What RPO/RTO (Recovery Point Objective/ Recovery Time Objective) times can be expected?
- [ ] Are backups done at the application level or VM (Virtual Machine) level?
- [ ] How is recovery handled?

RELIABILITY

- [ ] Are the SLAs for availability only, or do they also include performance?
- [ ] How are outages or service failures communicated?
- [ ] How can I reach support if problems arise?

APIS

- [ ] Is there an SDK for every programming language I use right now?
- [ ] Are there SDKs for languages I may use in the future?
- [ ] Are software configuration tools (like Puppet or Chef) supported?

LOCK-IN, INTEROPERABILITY, MIGRATION

- [ ] Will applications in this cloud environment be built on top of open source or proprietary technologies?
- [ ] Does the cloud provider adhere to open APIs that enable 3rd-party tools and transparency?
- [ ] How will I be able to migrate information and applications from my data center to the cloud, or potentially to another cloud in the future?
- [ ] What are my hybrid cloud options?

PRICING

- [ ] What usage factors determine cost?
- [ ] What combinations of CPU, memory, storage and networking capacity are available?
- [ ] Is there a monthly or annual subscription model?
- [ ] Is there cost savings for payment before usage? (i.e. reserved instances
- [ ] Can I cancel at any time without hidden fees?
- [ ] Is there an option for externally hosted private infrastructure? How does that option affect the cost?

CLOUD SOLUTIONS DIRECTORY

The following directory is designed to provide you with a snapshot of data needed to conduct a high-level comparison of available cloud platform solutions. Use the provided shortcode URL to access a detailed profile where you can view and compare over 50 data points about each vendor and conduct side-by-side comparisons of solutions based on the criteria that is important to you.

ActiveState Stackato

RESEARCH PARTNER

PaaS

TWITTER: @activestate

LOCATION: Vancouver, Canada

PRODUCT LAUNCH: Feb 2012

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Built on proven open source technologies including Cloud Foundry and Docker
- Supports any IaaS for private, public or hybrid cloud
- Best-in-class management console
- High availability components
- Migrate existing applications easily

FULL PROFILE LINK

dzone.com/r/NdGJ

DESCRIPTION

Stackato is a secure, stable and commercially supported PaaS that is built with open source components such as Cloud Foundry and Docker. It runs on top of your cloud infrastructure as the middleware from which your applications are launched. Stackato automatically configures the required language runtimes, web frameworks, data and messaging services. Administrators can monitor and configure settings through the Stackato web interface or command line.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, PHP, JavaScript, Scala, Erlang

FREE TRIAL
Limited to 4GB application RAM

Amazon EC2

IaaS

TWITTER: @awscloud

LOCATION: Seattle, WA, USA

PRODUCT LAUNCH: Mar 2006

SERVICES PROVIDED

- [x] Virtual Machines
- [x] Block Storage
- [x] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Elastic web-scale computing
- Complete control of your instances
- Large variety of instance types
- Designed for use with other AWS solutions

FULL PROFILE LINK

dzone.com/r/R3zz

DESCRIPTION

Amazon Elastic Compute Cloud (Amazon EC2) is Amazon's core IaaS offering within the Amazon Web Services (AWS) line of products. It is designed to make web-scale computing easier for developers by allowing users to control and scale their instances in a secure environment. It also integrates with Amazon's other cloud solutions, such as Elastic Beanstalk and S3.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (East, West), EU (Ireland), AP (Japan, Singapore, Australia), SA (Brazil)

FREE TRIAL
750 hours micro instance

Amazon Elastic Beanstalk

PaaS

TWITTER: @aws_eb

LOCATION: Seattle, WA, USA

PRODUCT LAUNCH: Jan 2011

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Uses default auto scaling features to automatically scale applications.
- Allows you to manage all the AWS resources you use
- Freedom to select the optimal instance for your needs
- Supports high availability, runs on Amazon EC2

FULL PROFILE LINK

dzone.com/r/dRNh

DESCRIPTION

With AWS Elastic Beanstalk, you can deploy and manage applications in the AWS cloud without worrying about the infrastructure that runs those applications. AWS Elastic Beanstalk reduces management complexity without restricting choice or control.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, PHP

FREE TRIAL
30 GB of EBS storage, 2 million I/Os, 1 GB of snapshot storage

AnyPresence

MBaaS

TWITTER: @anypresence

LOCATION: Reston, VA, USA

PRODUCT LAUNCH: Jun 2012

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Complete access to the non-proprietary server and client side code
- Programmatically generates native UI design elements
- iOS Storyboard and Android XML layouts
- Deploy behind the firewall
- Embed app development solutions in developer portals

FULL PROFILE LINK

dzone.com/r/huCK

DESCRIPTION

AnyPresence is a PaaS designed to reduce development time for mobile-enabling enterprise processes, products and services. AnyPresence is packaged with capabilities such as pre-assembled mobile app templates and a design-time API. They offer organizations the ability to assemble and deploy backend servers along with iOS, Android and HTML5 mobile web apps without platform lock-in.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (Virginia)

FREE TRIAL
Pilot program where you define the scope of an enterprise application and build it

Apache CloudStack

IaaS

TWITTER: @cloudstack

LOCATION: Santa Clara, CA, USA

PRODUCT LAUNCH: Apr 2011

SERVICES PROVIDED

- [x] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Works with hosts running XenServer/XCP, KVM, and VMware ESXi with vSphere.
- Web-based UI for managing the cloud
- Provides a native API and an optional Amazon S3/EC2 compatible API
- Manages storage on hypervisors, templates, snapshots and ISO images

FULL PROFILE LINK

dzone.com/r/QtQh

DESCRIPTION

Apache CloudStack is open source software designed to deploy and manage large networks of virtual machines, as a highly available, highly scalable Infrastructure as a Service (IaaS) cloud computing platform. CloudStack is used by a number of service providers to offer public cloud services and by many companies to provide an on-premises (private) cloud offering, or as part of a hybrid cloud solution.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
Located at user's data center

FREE TRIAL
Open Source

Apache Stratos

PaaS

TWITTER: @apachestratos

LOCATION: Colombo, Sri Lanka

PRODUCT LAUNCH: Jul 2013

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Cloud-native architecture
- Extensible cartridge model
- Deploys on Amazon EC2, OpenStack or vCloud

FULL PROFILE LINK

dzone.com/r/s6QR

DESCRIPTION

Apache Stratos is a polyglot, open source PaaS framework with ready-made cartridges that bring scalability, resource-sharing and self-service to Tomcat servers, MySQL and PHP containers. Stratos offers IT providers high utilization rates, automated resource management and platform-wide insight including monitoring and billing. Apache Stratos can integrate with your choice of IaaS services and tooling.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, PHP

FREE TRIAL
Open Source

Apprenda

PaaS

TWITTER: @apprenda

LOCATION: Clifton Park, NY, USA

PRODUCT LAUNCH: Dec 2008

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Deep support for both .NET and Java
- Application-level multi-tenancy enablement
- Policy-driven to allow self-service access while maintaining compliance

FULL PROFILE LINK

dzone.com/r/w77N

DESCRIPTION

Apprenda is a PaaS built to power enterprise software development in public, private and hybrid clouds. As a foundational software layer and application runtime environment, Apprenda allows enterprises to securely modernize existing apps, build new apps and manage your apps across any infrastructure.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Visual Basic, C#, C/C++, JavaScript, Scala

FREE TRIAL
Up to 12GB of memory under management

Clever Cloud

PaaS

TWITTER: @clever_cloud

LOCATION: Nantes, France

PRODUCT LAUNCH: Oct 2011

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Polyglot PaaS
- Git or SFTP deployment
- Pay-as-you-go pricing model
- Zero-downtime deployment
- Public API

FULL PROFILE LINK

dzone.com/r/Ub3u

DESCRIPTION

Clever Cloud provides a cloud application platform that allows developers to focus on their core-value product, not on infrastructure. The service integrates auto-scalability with both vertical and horizontal scaling for more than six languages.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, PHP, JavaScript, Go

FREE TRIAL
20 Euros of free credits for each new account

CloudBees Platform

RESEARCH PARTNER

PaaS

TWITTER: @cloudbees

LOCATION: Woburn, MA, USA

PRODUCT LAUNCH: Jan 2011

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Full lifecycle PaaS
- Jenkins for Continuous Integration and Continuous Delivery
- Full production quality JVM-based runtimes
- Mobile continuous integration and backend services support

FULL PROFILE LINK

dzone.com/r/NHtN

DESCRIPTION

The CloudBees Platform-as-a-Service accelerates application delivery by automating development and deployment processes across the application lifecycle and running applications in production. Utilizing Jenkins, the CloudBees Platform enables development and DevOps teams to perform Continuous Integration and Continuous Delivery of applications and feature releases.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, PHP, JavaScript, Groovy, Clojure, Scala

FREE TRIAL
5 applications, 300 build mins per month

cloudControl

PaaS

TWITTER: @cloudcontrolled

LOCATION: Berlin, Germany

PRODUCT LAUNCH: Jul 2010

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Multi-language support via Buildpacks
- Zero-downtime deploys
- Granular horizontal and vertical scaling with a robust low-latency routing tier
- 24/7 platform monitoring and enterprise-grade SLAs
- In-house expert support for officially supported languages

FULL PROFILE LINK

dzone.com/r/UWU9

DESCRIPTION

cloudControl is a PaaS based in Germany that primarily serves the European tech community, though it is designed to be an international offering. Through the standard buildpack system it offers multi-language support and no vendor lock-in. cloudControl also features a growing add-on marketplace with over 30 to choose from. Their solution partner network offers consulting and professional services.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Node.js, Java, Ruby, Python, PHP, Groovy, Clojure, Scala

FREE TRIAL
750 hours, 128mb RAM per deployment per month; Unlimited deployments

DigitalOcean

IaaS

TWITTER: @digitalocean

LOCATION: New York, NY, USA

PRODUCT LAUNCH: Mar 2012

SERVICES PROVIDED

- [x] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- All cloud servers are SSD based
- Control panel interface
- Simple API
- Straightforward hourly pricing starting at 1 cent per hour
- Hundreds of education tutorials and articles.

FULL PROFILE LINK

dzone.com/r/v6VA

DESCRIPTION

DigitalOcean is a cloud hosting solution built for independent and enterprise developers who need to quickly launch applications. Apps are hosted on personal SSD cloud servers with several data center locations to choose from in order to increase performance.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (New York, California), EU (Netherlands)

FREE TRIAL
None

Engine Yard

PaaS

TWITTER: @engineyard

LOCATION: San Francisco, CA, USA

PRODUCT LAUNCH: Jan 2006

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Self-contained environments with dedicated resources
- Rapidly scale applications
- Applications run directly on infrastructure, independent of platform

FULL PROFILE LINK

dzone.com/r/MNzX

DESCRIPTION

Engine Yard is a cloud application management platform for provisioning, managing, monitoring and controlling applications in the public and private cloud. Customers receive a high degree of control and choice coupled with expert support, enabling them to focus on creating great applications instead of managing their infrastructure.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, PHP

FREE TRIAL
500 hours free, High CPU medium instance

FatFractal

MBaaS

TWITTER: @fatfractal

LOCATION: Laguna Beach, CA, USA

PRODUCT LAUNCH: Jul 2013

SERVICES PROVIDED

- [x] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Container (LXC) based isolation
- Dashboard for managing VMs, containers, and other cloud artifacts
- Self service provisioning
- Self service configuration
- MDM integration

FULL PROFILE LINK

dzone.com/r/4PzP

DESCRIPTION

FatFractal provides a subscription based public cloud MBaaS/PaaS offering that ranges from a free tier to unlimited usage. In addition, FatFractal provides an Enterprise Cloud-In-A-Box solution that can be installed behind the firewall.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (Virginia, California, Oregon)

FREE TRIAL
30 days

Google App Engine

PaaS

TWITTER: @googlecloud

LOCATION: San Francisco, CA, USA

PRODUCT LAUNCH: Apr 2008

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Persistent storage with queries, sorting, and transactions
- Automatic scaling and load balancing
- Asynchronous task queues for performing work outside the scope of a request
- Scheduled tasks for triggering events at specified times
- Integration with other Google cloud services and APIs

FULL PROFILE LINK

dzone.com/r/xPzP

DESCRIPTION

App Engine is Google's PaaS for deploying apps on Google's infrastructure. Google offers automatic scaling, load balancing, persistent storage and integration with other Google cloud services. App Engine also offers a free SDK for multiple languages, with no credit card required.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Python, PHP, Go

FREE TRIAL
Free quotas for free applications

Heroku

PaaS

TWITTER: @heroku

LOCATION: San Francisco, CA, USA

PRODUCT LAUNCH: Jun 2007

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [x] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Features a large library of add-ons with over 100 services
- Access to open-source Build Packs—collections of scripts for compiling apps
- Manage environment-specific configurations separately from source
- Spin up a one-off instance of your app environment to run ad-hoc commands

FULL PROFILE LINK

dzone.com/r/PmLa

DESCRIPTION

Heroku provides the tools needed to iterate quickly and adopt the right technologies for users' projects. Build modern, maintainable apps and instantly extend them with functionality from hundreds of cloud service providers without worrying about infrastructure.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, JavaScript, Clojure, Scala

FREE TRIAL
Each app receives 512 mb of RAM, 1 Postgres database and access to free add-ons.

HP Public Cloud

IaaS

TWITTER: @hpcloud

LOCATION: Palo Alto, CA, USA

PRODUCT LAUNCH: Apr 2012

SERVICES PROVIDED

- [x] Virtual Machines
- [x] Block Storage
- [x] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Hybrid delivery model
- Enterprise-grade cloud
- Based on OpenStack

FULL PROFILE LINK

dzone.com/r/aLXM

DESCRIPTION

HP Public Cloud is a hosted PaaS based on OpenStack technology. It provides end-to-end cloud capabilities that allow users to manage their deployments across all cloud types. They offer on-demand pricing for cloud computing, storage infrastructure and integration platform services. HP also offers an ecosystem of partner solutions for storage, platform, management, orchestration and more.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (Virginia, Nevada)

FREE TRIAL
30 and 90 days

Jelastic

PaaS

TWITTER: @jelastic

LOCATION: San Mateo, CA, USA

PRODUCT LAUNCH: Jun 2011

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [x] Model-Driven PaaS

STRENGTHS

- Turnkey integrated cloud that installs on bare metal
- Comprehensive cloud management
- Developer dashboard for drag-and-drop environment setup and management
- Universal application support (no APIs to code to)
- Automatic vertical and horizontal scaling, high availability

FULL PROFILE LINK

dzone.com/r/xpRP

DESCRIPTION

Jelastic is a global company that offers "Platform-as-Infrastructure," which combines PaaS and IaaS into one solution by providing their customers with the software to create a private infrastructure. The service provides networks, servers, and storage solutions to software development clients, enterprise businesses, OEMs and web hosting providers.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, PHP, JavaScript, Go

FREE TRIAL
2 week free trial with hosters, 6 week free proof of concept for enterprises

Joyent Compute Service

IaaS

TWITTER: @joyent

LOCATION: San Francisco, CA, USA

PRODUCT LAUNCH: Jan 2007

SERVICES PROVIDED

- [x] Virtual Machines
- [ ] Block Storage
- [x] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Joyent sponsors and leads the Node.js project
- Advanced Node.js observability and support
- Container-based VMs and big data storage through Joyent Manta
- Licensable software for the public, private and hybrid clouds

FULL PROFILE LINK

dzone.com/r/KpxR

DESCRIPTION

Joyent provides public, private and hybrid cloud infrastructure for compute, storage, and related services. Joyent uses true cloud-native technologies like OS virtualization to maximize the performance of its computing resources. The underlying operating system, SmartOS, runs on bare-metal, meaning there are no extra layers to navigate before gaining access to hardware resources.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (California, Virginia, Nevada), EU (Netherlands)

FREE TRIAL
Micro VMs for free, 10GB free on Manta

Kii Cloud

MBaaS

TWITTER: @kiicorp

LOCATION: San Francisco, CA, USA

PRODUCT LAUNCH: Feb 2013

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- App analytics
- Local cloud instances in China with partners in Asia
- No AWS dependency
- Private and dedicated cloud support
- A game developer focused cloud service

FULL PROFILE LINK

dzone.com/r/KbQy

DESCRIPTION

Kii Cloud is a scalable MBaaS that developers can add to their apps without writing additional server code. Kii features SDKs for Android, iOS, JavaScript and Unity as well as a REST API. Kii is also built for mobile game development, allowing developers to globally distribute apps through Kii's strategic partnership program.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US, AP (Japan, China)

FREE TRIAL
Unlimited time; free to start until certain set data and transaction limits

Kinvey

MBaaS

TWITTER: @kinvey

LOCATION: Boston, MA, USA

PRODUCT LAUNCH: Jun 2011

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Add any number of users with authentication systems of your choice
- Define multiple work environments
- Push Notifications
- Integrate with any third party data source
- Securely mobilize sensitive data on-premise or in the cloud

FULL PROFILE LINK

dzone.com/r/sX4Y

DESCRIPTION

Kinvey provides a Backend-as-a-Service platform for mobile app developers to set up and maintain a cloud backend. Kinvey provides a data store and features such as location services, social plugins and push notifications to integrate with mobile apps. These backend features are consumed by native, hybrid and web libraries, reducing the need to write backend code.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US

FREE TRIAL
100 active users, 2GB storage, 5M emails & push notifications per month

Linode

IaaS

TWITTER: @linode

LOCATION: Galloway, NJ, USA

PRODUCT LAUNCH: Jun 2003

SERVICES PROVIDED

- [x] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Full SSH and root access
- 6 datacenters in US, Europe and Asia-Pacific
- Guaranteed resources
- Longview analytics and Node Balancers

FULL PROFILE LINK

dzone.com/r/YfHA

DESCRIPTION

Linode is a long-lived cloud hosting provider, offering linux-based virtual machines and founded in 2003. Linode offers tools to monitor traffic, automatically scale based on traffic, supports high availability, and offers a flexible payment plan and schedule to accommodate business needs needs.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (California, Texas, Georgia, New Jersey), EU (UK), AP (Japan)

FREE TRIAL
None

Lunacloud

IaaS, PaaS

TWITTER: @lunacloud

LOCATION: London, England, UK

PRODUCT LAUNCH: Jun 2012

SERVICES PROVIDED

- [x] Virtual Machines
- [ ] Block Storage
- [x] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [ ] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [x] Model-Driven PaaS

STRENGTHS

- No long term contracts
- Provides cloud services to 63 different countries
- Provide local support by phone in 5 different languages
- Free to open an account and test

FULL PROFILE LINK

dzone.com/r/djVP

DESCRIPTION

Lunacloud provides three cloud services: Cloud Server, Cloud Storage and Cloud Jelastic. Cloud Server is a virtual elastic server running Linux or Windows with several choices for RAM, CPU and disk resources. Cloud Storage is a virtual disk for object storage that is accessed through a web browser or the S3-compatible API. Cloud Jelastic is a Java/PHP/Ruby platform for deploying and scaling code.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
EU (Portugal, France)

FREE TRIAL
14 days

Mendix App Platform

PaaS

TWITTER: @mendixsocial

LOCATION: Boston, MA, USA

PRODUCT LAUNCH: Jan 2005

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [x] Model-Driven PaaS

STRENGTHS

- Visual, model-driven development for rapid application development
- Designed for the security and integration needs of the enterprise
- Allows for integration with existing systems and processes

FULL PROFILE LINK

dzone.com/r/TbPt

DESCRIPTION

The Mendix App Platform is able to build, integrate and deploy enterprise applications. Mendix uses a model-driven, no-code development approach that allows developers to build complex application logic, business process functionality, data models, integrations and UIs in a visual development environment. Mendix also features native collaboration to communicate with all members of the team.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, JavaScript, Mendix DSLs

FREE TRIAL
No limits

Microsoft Windows Azure

IaaS, PaaS

TWITTER: @windowsazure

LOCATION: Seattle, WA, USA

PRODUCT LAUNCH: Feb 2010

SERVICES PROVIDED

- [x] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Extensive data center network
- Integrated with Visual Studio tooling
- Per-minute billing and built-in auto scaling
- A large variety of instance sizes and configurations

FULL PROFILE LINK

dzone.com/r/hTrb

DESCRIPTION

Windows Azure delivers a 99.95% monthly SLA and enables developers to build and run highly available applications without focusing on the infrastructure. It provides automatic OS and service patching, built in network load balancing and resiliency to hardware failure. Azure also provides zero-downtime when deploying new application features.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (East, West), EU (Ireland, Netherlands), AP (China, Singapore)

FREE TRIAL
90 days, free instance model available

Nodejitsu

PaaS

TWITTER: @nodejitsu

LOCATION: New York, NY, USA

PRODUCT LAUNCH: Apr 2010

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Hosted private npm
- On-premise private npm
- Public npm replica
- Zero-downtime deploys
- WebSocket support

FULL PROFILE LINK

dzone.com/r/RtyY

DESCRIPTION

Nodejitsu is a Platform-as-a-Service fitting a niche for hosting and deploying Node.js applications. They also offer a private Node Packaged Module (NPM) solution for individuals and enterprises. Nodejitsu is built on Joyent's infrastructure and has native Travis CI support.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Node.js

FREE TRIAL
No limits, 30 day free for PaaS

OpenShift Origin

PaaS

TWITTER: @openshift

LOCATION: Raleigh, NC, USA

PRODUCT LAUNCH: Apr 2012

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Completely open source
- Fine-grained multi-tenant security
- Deployable on customer's choice of infrastructure

FULL PROFILE LINK

dzone.com/r/zCP7

DESCRIPTION

OpenShift Origin is an open source PaaS project built on Linux. OpenShift utilizes proven open source technologies to deliver the benefits of efficiency and accelerated application delivery in a PaaS architecture. OpenShift Origin is developed by a community ecosystem including Red Hat, Accenture, PayPal, Cisco and others.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, Perl, PHP, JavaScript

FREE TRIAL
Open Source

Parse

MBaaS

TWITTER: @parseIt

LOCATION: Menlo Park, CA, USA

PRODUCT LAUNCH: Jun 2011

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [x] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Push notifications, analytics, social integration and data storage
- Integrated syncing for content access across multiple devices
- Hosting for static sites and dynamic web apps
- Create new apps or import existing ones
- Exportable data if customers choose to leave the service

FULL PROFILE LINK

dzone.com/r/brvV

DESCRIPTION

Parse, acquired by Facebook in 2013, is a Backend-as-a-Service that allows developers to launch mobile apps and web applications in the cloud. The solution offers ready-to-go sample templates along with UIViews of the most popular application features.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US

FREE TRIAL
Free to use, Enterprise plans available

Pivotal CF

RESEARCH PARTNER

PaaS

TWITTER: @cloudfoundry

LOCATION: Palo Alto, CA, USA

PRODUCT LAUNCH: Nov 2013

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Integrated platform for Apache Hadoop
- Extensible to any framework or language running on Linux
- Automatic provisioning and binding of Pivotal One services
- IaaS-integrated PaaS operations manager

FULL PROFILE LINK

dzone.com/r/h4rw

DESCRIPTION

Pivotal CF is an enterprise-focused PaaS powered by Cloud Foundry. It provides a turnkey PaaS experience for agile development teams to deploy and scale applications on a private cloud that can be expanded and upgraded with no downtime. It is the first integrated platform encompassing the big data framework Apache Hadoop and Cloud Foundry.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, JavaScript, Groovy

FREE TRIAL
90 days with an executed EULA

ProfitBricks

IaaS

TWITTER: @profitbricksusa

LOCATION: Cambridge, MA, USA

PRODUCT LAUNCH: Sep 2012

SERVICES PROVIDED

- [x] Virtual Machines
- [x] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- High-Speed networks powered by InfiniBand technology
- Custom instance sizes
- Data Center Designer tool/ GUI
- Double redundant block storage
- Minute-based billing

FULL PROFILE LINK

dzone.com/r/t3U4

DESCRIPTION

ProfitBricks is an IaaS that enables customers to build virtual data centers with custom defined instances, live vertical scaling and double redundant cloud storage. The costs are transparent and easy to calculate. ProfitBricks also includes a graphical data center designer that can easily add and configure servers, storage, load balancers and firewalls with just one click.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (Nevada), EU (Germany)

FREE TRIAL
4 CPU Cores, 10 GB of RAM, 50 GB of Block Storage

Progress Rollbase

RESEARCH PARTNER

PaaS

TWITTER: @progresssw

LOCATION: Bedford, MA, USA

PRODUCT LAUNCH: Aug 2008

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [x] Model-Driven PaaS

STRENGTHS

- Build apps in one place from a Web browser
- Minimal coding (80% clicks, 20% code)
- Reduce development time & resource requirements
- Accelerate time-to-market
- Simplify application delivery and deployment
- Proven cloud platform on which to build all of your custom business apps

FULL PROFILE LINK

dzone.com/r/vvX9

DESCRIPTION

Progress Rollbase is a cloud platform that allows the creation of SaaS business apps using point-and-click, drag-and-drop tools in a standard Web browser. Rollbase is part of the Progress Pacific PaaS, which allows you to build business apps and connect them to cloud infrastructure. SaaS and other data can be quickly deployed to any cloud or in-house infrastructure.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Other: Rollbase DSL drag-and-drop language

FREE TRIAL
30 days

Rackspace Cloud

IaaS

TWITTER: @rackspace

LOCATION: Windcrest, TX, USA

PRODUCT LAUNCH: Jan 2004

SERVICES PROVIDED

- [x] Virtual Machines
- [x] Block Storage
- [x] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Flexible hybrid cloud platform
- Allows you to choose where to run your apps
- Powered by OpenStack and optimized for open source technologies
- Expert support services

FULL PROFILE LINK

dzone.com/r/NtYY

DESCRIPTION

Rackspace Cloud is a hybrid infrastructure solution powered by OpenStack. Rackspace features a control panel, API and SDKs that allow all Rackspace services to work together. Features include block storage, a MySQL DBaaS, load balancers, native monitoring and a big data platform.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (Texas, Illinois, Virginia), AP (Australia, Hong Kong)

FREE TRIAL
$50 of free usage per month for 6 months

Red Hat OpenShift Enterprise

PaaS

TWITTER: @openshift

LOCATION: Raleigh, NC, USA

PRODUCT LAUNCH: Nov 2012

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Fine-grained multi-tenant security
- Deployable on customer's choice of infrastructure
- Extensible and based on open source
- Full stack technical support from Red Hat, OS to runtimes

FULL PROFILE LINK

dzone.com/r/jYx9

DESCRIPTION

OpenShift Enterprise is a private PaaS platform from Red Hat. Built on Red Hat Enterprise Linux and with Red Hat JBoss Middleware, OpenShift Enterprise utilizes proven open source technologies to deliver the benefits of efficiency and accelerated application delivery in a private cloud or datacenter environment. OpenShift Enterprise is built from the OpenShift Origin open source PaaS.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, Perl, PHP, JavaScript

FREE TRIAL
No limits

Red Hat OpenShift Online

PaaS

TWITTER: @openshift

LOCATION: Raleigh, NC, USA

PRODUCT LAUNCH: Apr 2011

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Free tier with three application containers
- Fine-grained multi-tenant security
- Extensible and based on open source
- Full stack technical support from Red Hat, OS to runtimes

FULL PROFILE LINK

dzone.com/r/V9xP

DESCRIPTION

OpenShift Online is the commercial public PaaS service from Red Hat. OpenShift Online utilizes proven open source technologies to deliver a polyglot cloud application platform that provides efficiency and accelerated application delivery in a cloud environment. OpenShift Online is built from the OpenShift Origin open source PaaS.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, Ruby, Python, Perl, PHP, JavaScript

FREE TRIAL
Perpetual free tier with three application containers

RHEL OpenStack Platform

IaaS

TWITTER: @redhatnews

LOCATION: Raleigh, NC, USA

PRODUCT LAUNCH: Jun 2013

SERVICES PROVIDED

- [x] Virtual Machines
- [x] Block Storage
- [x] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Delivers enterprise software lifecycle
- Global product support and consulting
- Worlds largest certified OpenStack partner ecosystem
- OpenStack training and certification
- Integration with Red Hat IaaS stack

FULL PROFILE LINK

dzone.com/r/Y3Uv

DESCRIPTION

Red Hat Enterprise Linux (RHEL) OpenStack Platform combines RHEL with OpenStack technology to deliver a foundation for building an open private or public cloud. RHEL running as guest virtual machines provides a stable application development platform with the world's largest OpenStack ISV partner certifications to ensure compatibility and bring your applications to market faster.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
Located at user's data center

FREE TRIAL
90 days

Salesforce1

PaaS

TWITTER: @forcedotcom

LOCATION: San Francisco, CA, USA

PRODUCT LAUNCH: Jun 2004

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [x] Model-Driven PaaS

STRENGTHS

- At scale development
- Multi-tenant/single-schema architecture
- Development access available to business analysts and developers
- Identity, data sharing, reporting, and mobile access features

FULL PROFILE LINK

dzone.com/r/jAYV

DESCRIPTION

The Salesforce1 Platform is a PaaS that provides a database, server-side logic, and development capabilities for web and mobile applications with force.com and Heroku. Using open APIs, developers can create mobile-ready apps that can be easily connected to multiple machines, users or other apps. Salesforce1 is designed for enterprise application development.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
JavaScript, Apex

FREE TRIAL
Limited to 2 user licenses and finite storage

Virtustream Cloud

IaaS

TWITTER: @virtustream

LOCATION: Bethesda, MD, USA

PRODUCT LAUNCH: Jan 2009

SERVICES PROVIDED

- [x] Virtual Machines
- [x] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [ ] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [ ] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Support for geotagging and geofencing security
- Integrated governance and compliance
- Provides uptime SLAs and performance SLAs
- Software stack is available for purchase as a single management solution

FULL PROFILE LINK

dzone.com/r/C7zu

DESCRIPTION

Virtustream Cloud provides a secure, highly available IaaS built for enterprise needs. Applications can be deployed quickly with no need to rewrite anything. Virtustream also provides application and infrastructure monitoring, integrated backup and disaster recovery, integrated security governance and compliance, enterprise risk management and performance SLAs for mission critical applications.

OTHER INFO

GEOGRAPHIC LOCATIONS OF DATA
US (Virginia, California, Nevada), EU (UK, Netherlands)

FREE TRIAL
No specific terms; Available upon request

WorkXpress PaaS

PaaS

TWITTER: @workxpress

LOCATION: Harrisburg, PA, USA

PRODUCT LAUNCH: Feb 2004

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [ ] Routing, Queuing, and Scheduling System
- [ ] Application Containers
- [x] App Server-as-a-Service
- [ ] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [x] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Flexible and iterative build process
- Fast and affordable software development cycle
- Mobile ready

FULL PROFILE LINK

dzone.com/r/TRps

DESCRIPTION

WorkXpress is a rapid application development (RAD) PaaS with an end-to-end visual systems administration and software development environment. This interface allows developers to build, test and deploy applications without the need to write code. WorkXpress also offers private clouds, flexible partnership models and private-labeled branding.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
WorkXpress has its own 5th generation language

FREE TRIAL
30 days

WSO2 Cloud

PaaS

TWITTER: @wso2cloud

LOCATION: Colombo, Sri Lanka

PRODUCT LAUNCH: Oct 2013

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Deploy on-premise, in the cloud or across a hybrid cloud
- Cloud-native architecture
- Uses WSO2 App Factory DevOps and ALM processes

FULL PROFILE LINK

dzone.com/r/zUt4

DESCRIPTION

WSO2 Cloud delivers an enterprise-ready PaaS environment for apps, APIs and integration projects. WSO2 platforms support DevOps and ALM best practices and provide a completely integrated platform. WSO2 also fosters reuse through a social enterprise store.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, JavaScript

FREE TRIAL
Free beta testing

WSO2 Private PaaS

PaaS

TWITTER: @wso2paas

LOCATION: Colombo, Sri Lanka

PRODUCT LAUNCH: Oct 2013

SERVICES PROVIDED

- [ ] Virtual Machines
- [ ] Block Storage
- [ ] Object Storage
- [x] Routing, Queuing, and Scheduling System
- [x] Application Containers
- [x] App Server-as-a-Service
- [x] Integration PaaS (ESB-as-a-Service)
- [x] Database-as-a-Service
- [ ] Mobile Backend-as-a-Service (MBaaS)
- [ ] Model-Driven PaaS

STRENGTHS

- Deploy on-premise, in the cloud or across a hybrid cloud
- Portable application containers
- Business and DevOps-level dashboards to track project activities

FULL PROFILE LINK

dzone.com/r/zxfp

DESCRIPTION

WSO2 Private PaaS delivers a complete middleware environment focused on DevOps and ALM best practices. The platform features a cartridge-based architecture that combines support for heterogeneous applications and service-oriented architecture (SOA) platform runtime with native, secure multi-tenancy.

OTHER INFO

NATIVELY SUPPORTED LANGUAGES
Java, PHP, JavaScript

FREE TRIAL
No limits

GLOSSARY OF TERMS

A

APAAS - An application server-as-a-service and a programming language-specific runtime on cloud infrastructure.

APPLICATION CONTAINERS - An isolated package of application components and dependencies that is infrastructure-agnostic.

ALM PAAS - An application lifecycle management (ALM) PaaS. It provides development tools that go beyond the basic application server and language runtime.

B

BLOCK STORAGE - A form of data storage virtualization that decouples storage volumes from their hardware, allowing more advanced user management.

C

CLOUD BROKER - An entity that serves as a connection between cloud customers and cloud service providers.

CLOUD BURSTING - A technique where a hybrid cloud provides extra resources on an as-needed basis to private clouds.

CLOUD CDN - A cloud content delivery network. It consists of geographically distributed server networks that improve web content delivery performance.

CLOUD COMPUTING - A computer model where infrastructure, applications, and business processes can be delivered as an on-demand self-service over a network.

CLOUD MANAGEMENT PLATFORM (CMP) - An integrated suite of cloud management products that provide self-service interfaces, system images, metering and billing systems, and workload optimization features.

CLOUD SERVERS - Virtualized servers with additional capabilities and a web interface or API for self-service provisioning.

CLOUD STORAGE - A data storage service where customers transfer their data over the internet or another network to an offsite storage system maintained by a third party.

CLOUD USAGE METERING - A pay-as-you-go billing method where usage is monitored/metered and customers pay only for what they consume.

CLOUD WASHING - When vendors add the word "cloud" to existing products that do not have all the attributes of cloud computing.

D

DBAAS - A database-as-a-service. It delivers the entire database management system (DBMS) as a cloud service to the customer.

DEVOPS - An IT organizational methodology where all teams in the organization, especially development teams and operations teams, collaborate and implement technology to increase software production agility and achieve business goals.

F

FEDERATION - When a cloud provider or cloud broker merges data across multiple cloud networks.

H

HIGH AVAILABILITY - Refers to a system with a prearranged level of operational performance that is met during a contractual measurement period.

HYBRID CLOUD - An environment that combines public and private cloud infrastructure.

I

IAAS - An infrastructure-as-a-service. It delivers self-service computing, networking and storage resources on-demand over a network.

IPAAS - An integration platform-as-a-service. It is a broker utility component in a cloud platform that handles communication between applications.

L

LOCK-IN - When a client has difficulty moving from one cloud vendor to another due to non-standardized APIs, data structures, and service models.

M

MBAAS - A mobile backend-as-a-service. It connects mobile applications to cloud databases while providing user management, push notifications, and social integrations.

MODEL-DRIVEN PAAS - A PaaS architecture that adds support for simplified programming languages that can be used by less-technical business engineers.

MULTI-TENANCY - A system attribute where a single instance of an application serves multiple client organizations (tenants).

N

NAAS - Networking-as-a-service. It provides computing and connectivity resources that allow network connections and inter-cloud connections.

O

OBJECT STORAGE - A cloud-based storage service containing data components that are ready to be retrieved and manipulated on-demand in an application.

P

PAAS - A platform-as-a-service. It offers an application server-as-a-service (aPaaS) over a network along with additional components that may include middleware, development tools, and application controllers.

PRIVATE CLOUD - A cloud data center that can be hosted on-premises, behind the company's firewall, or by a third party in a reserved, secure space (e.g. virtual private cloud).

PUBLIC CLOUD - Cloud services that are offered over the Internet and available to the general public. Anyone who wants to pay can purchase the service.

S

SDN - Software-defined networking. It is an approach to networking that decouples switching and other network handling processes from the hardware and allows these processes to be controlled by software.

SLA - A service level agreement. It is a contract that specifies the consumer's IT requirements and the provider's commitment to them.

SAAS - Software-as-a-service. It is an application provided over a network by the vendor with no installation required.

V

VIRTUAL MACHINE - A virtual machine (VM) is a software emulation of a physical computing resource that can be modified independent of the hardware attributes.

VPC - A virtual private cloud. It is a private cloud that is hosted from a third party's data center.

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