

PLATFORM-AS-A-SERVICE, DEVOPS, AND APPLICATION INTEGRATION

An introduction to delivering applications faster







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INTRODUCTION TO PaaS

I.T., MEET PaaS. PaaS, MEET I.T.

There are many definitions of Platform-as-a-Service (PaaS). According to Gartner, PaaS is “a broad collection of application infrastructure (middleware) services (including application platform, integration, business process management and database services)”¹

For this e-book, we use a practical definition: PaaS is the layer of abstraction that lets developers focus on writing, running, and managing applications, without having to concern themselves with the underlying infrastructure and while still providing IT operations control over their systems.

PaaS comes in many varieties—including public PaaS, private PaaS, and hybrid PaaS—to give IT the tools they need, in the way they want to consume them to deliver apps faster.

“...give IT the tools they need, in the way they want to consume them to deliver apps faster.”

WHERE DOES PaaS FIT?

PaaS falls between Infrastructure-as-a-Service (IaaS) and Software-as-a-Service (SaaS) within the software stack. IaaS provides on-demand access to raw compute resources, and SaaS provides on-demand access to a complete application, while PaaS enables on-demand access to a cloud-based application platform.

INFRASTRUCTURE STACK

SaaS (SOFTWARE-AS-A-SERVICE)

PaaS (PLATFORM-AS-A-SERVICE)

IaaS (INFRASTRUCTURE-AS-A-SERVICE)

HOW CAN PaaS HELP ME?

App demands are increasing, but the availability of resources is not. You need more apps faster, but you have to work with the resources and skills you have. According to a recent IDG research study for CIO, 92% of enterprise IT decision makers (ITDM) want to speed up application demand and delivery to meet increasing demand.²

Pressure from internal and external customers to create more apps faster is generating a need for new processes and methods.

¹ <http://www.gartner.com/it-glossary/platform-as-a-service-paas>

² PaaS: The Foundation for Next-Generation Cloud Application Development, CIO.

THE BENEFITS OF PaaS

PaaS offers many benefits across IT organizations. Developers gain the freedom to do their jobs and focus on coding. IT operations maintains control over the platform, without having to manage tickets or spin up environments for developers. Architects and executives have accelerated application services delivery by reducing vendor lock-in.

Whether you are interested in reducing costs or application delivery time, or increasing reliability or developer productivity, PaaS can help.

SEE HOW COMPANIES USE PaaS ▶

HOW DOES PaaS DO I.T.?



USE EXISTING SKILLS AND INVESTMENTS

Whether a job requires Python, Java™, Ruby, or Node.js, developers can get what they need and use the languages they know to code quickly.



REDUCE COSTS

Give staff automated access to what they need, so they can focus on innovating. Meet business demands without having to invest in additional headcount or environments.



SHORTEN APPLICATION DEVELOPMENT CYCLES

A UBM Tech study found that “56% of those surveyed expect [PaaS] to shorten application development cycles by 20% or more”.³



ENABLE EFFECTIVE DEVOPS

Improve the relationship between developers and IT operations, so you can rapidly develop and deploy apps with the continuous delivery needed for an effective DevOps strategy.



MAINTAIN SECURITY MEASURES

OpenShift Enterprise by Red Hat® runs on Red Hat Enterprise Linux®, bringing the security of SELinux co-developed with the National Security Agency (NSA)—to your private PaaS.



INCREASE PRODUCTIVITY

Self-service capabilities let developers quickly adjust settings for their needs. Development environments automatically provision, so developers can begin coding faster. IT operations can focus on maintaining infrastructure and innovating instead of managing tickets.

³ <http://www.redhat.com/en/resources/state-private-platform-service-paas-payoff-greater-agility-less-cost>

PRIVATE, PUBLIC, AND HYBRID PaaS

WHAT'S THE DIFFERENCE?

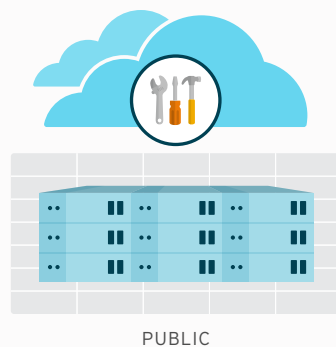
The lexicon of technology is constantly evolving, but the emergence of cloud and related technologies has led to dramatic, rapid change. The terms private, public, and hybrid are constantly attached to anything and everything cloud, but what do they mean? How do they affect you? How do they relate to PaaS? When referring to PaaS, the differences between private, public, and hybrid are generally easy to recognize.



PRIVATE

A private PaaS is deployed entirely inside of your datacenter. Private refers to the location of the PaaS, not necessarily its accessibility. Even though the PaaS might be deployed behind your firewalls, the applications hosted on the PaaS may be production applications that your customers access.

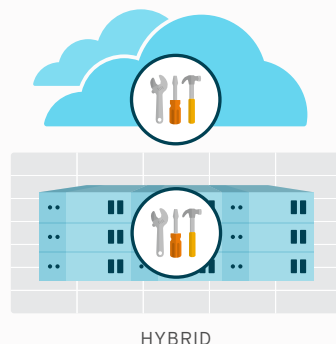
For example, a retail/e-commerce company might use a private PaaS to host the e-commerce application used by customers to make purchases. This private PaaS might also host the internal customer relationship management (CRM) and enterprise resource planning (ERP) systems.



PUBLIC

A public PaaS is deployed entirely outside of your datacenter. Example locations for deployment include a public cloud, like Amazon Elastic Compute Cloud (EC2), or an internet service provider (ISP)/telecom cloud, like Savvis. Public refers to the location of the PaaS but not necessarily its accessibility. Even though the PaaS might be deployed in the public cloud, it does not mean the applications hosted on the PaaS need to be accessible by people outside of your organization.

For example, a public PaaS might be used only for rapid development and scalability. Its applications may only be accessible to internal development, test, and product teams. But it may also host public applications.



HYBRID

A hybrid PaaS is a combination of private and public PaaS. Some PaaS resources might be inside of your datacenter, while others might be outside of your datacenter. Depending on the configuration of the PaaS and your requirements, certain workloads might be automatically deployed to the public portions while other workloads might be deployed to the private portions.

CHOOSING PRIVATE, PUBLIC, OR HYBRID PaaS

Determining the right deployment scenario depends on the needs of your operating environment.



DATA SECURITY

The most important consideration in determining a deployment scenario. Does the regulatory environment in which you operate dictate where data can rest or where data can be in transit? Are your customers or internal users allowed to submit certain data to a web application if it lives outside of your datacenter?



AGILITY

True PaaS platforms support auto-scaling of the workloads that run on top of them. Can your internal IT resources deal with inevitable scaling of the PaaS? Do you have the capacity to deal with rapid growth? Would a hybrid approach enable you to expand capacity more easily, respond to seasonal demand, or provide other flexibility?



MATURITY

Your organization's ability to work with external resources is important. You may want to focus on deploying private PaaS initially, then consider public or hybrid PaaS adoption later.

The right PaaS is whichever best supports your business needs while accounting for your organization's regulatory environment, maturity, and other factors.

WHO USES PaaS?

PaaS is gaining traction across all industries and organizations, in both the commercial and public sectors, such as:



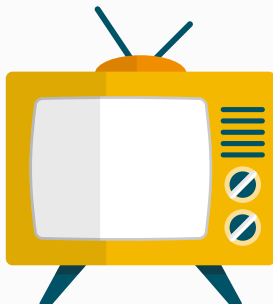
TECHNOLOGY

Software companies are using PaaS to transform how they deliver their services. Building their service offerings on a PaaS allows independent software vendors (ISVs) to offer both SaaS and on-premise models of their products. This wider availability opens new markets and creates opportunities for revenue growth.



RETAIL

Retail companies are adopting PaaS for their online catalogs and storefronts. With faster time to deployment, PaaS lets them quickly launch new programs and offerings. The scalability and efficiency of PaaS platform enables them to handle the increased workloads associated with seasonal and special event shopping.



ENTERTAINMENT

Entertainment companies are benefiting from the agile, rapid application development and delivery of PaaS implementations. To support the launch of every film, show, or album, these organizations produce new applications that must be quickly built and deployed.



FINANCE

Financial services firms are using PaaS to rapidly build and deploy their latest application services for their customers. Using DevOps with PaaS, they gain the agility to quickly react to new customer demands and market conditions.



TRAVEL

Companies in the travel industry are taking advantage of the elasticity and scalability of PaaS to process millions of transactions each day.

GAIN THE SAME BENEFITS

Most organizations are heavily dependent on application services to achieve their business goals. PaaS enables rapid delivery of new application services to help grow revenue and market share, increase competitiveness, or improve service to customers or clients.

By transitioning your new application development to PaaS, your organization can also achieve:



**FASTER APPLICATION
DEVELOPMENT AND DELIVERY**



**MORE EFFICIENT
INFRASTRUCTURE**



**MORE EFFICIENT
APPLICATION OPERATIONS**

Moving both existing and new development projects into a PaaS environment will help your organization achieve greater scalability and agility from a PaaS solution.

DEVOPS AND PaaS

WHAT IS DEVOPS?

DevOps is the practice of streamlining the development process through better collaboration, standardization, and automation. An application, its infrastructure, and the teams behind it are considered closely aligned, rather than separate, entities. Organizations gain a competitive advantage by balancing their developers' need to release rapidly with the ability of operations to deliver stability and security.

DevOps is a method, rather than a technology. DevOps is more influential to an organization's culture. However, technology can help simplify a DevOps environment.

Agile and DevOps methodologies are not something you can buy, they are something you must do. [LEARN MORE ►](#)



FIND OUT HOW PaaS HELPS DEVELOPERS AND OPERATIONS AND CAN SUPPORT INNOVATION IN YOUR BUSINESS

HOW PaaS SIMPLIFIES DEVOPS

Emerging PaaS technology can simplify DevOps through:

STANDARDIZATION

PaaS standardizes technology across development, test, and production environments to reduce friction between developers and operations.

AUTOMATION

PaaS automates infrastructure services, OS, middleware, application life cycle management, and more to reduce errors across development, test, and production environments and maximize the benefits of DevOps.

FEEDBACK

A well-charted feedback loop, the key to successful DevOps implementation, can be easily enabled by integrating monitoring services.

EXTENSIBILITY

PaaS offers easy integration with continuous integration/continuous delivery (CI/CD) services for increased efficiency through seamless DevOps.

HOW PaaS CAN HELP JAVA EE ORGANIZATIONS

TRADITIONAL JAVA EE ORGANIZATIONS MAY STRUGGLE TO STAY COMPETITIVE

Many Java EE organizations who have built their business on traditional Java EE applications are struggling to keep up and rapidly deliver new products and services to market. This is often due to factors such as:

- Applications, services, and data dispersed through different departments, groups, and geographical locations.
- Legacy applications that cannot be updated quickly, usually in traditional on-premise or virtual environments.
- Inflexible proprietary software infrastructure that prevents IT organizations from meeting changing requirements or efficiently maintaining existing systems.
- Constrained or reduced resources.
- Fragmented assets in hybrid cloud environments.



SIMPLY ADDING NEW APPLICATIONS IS NOT ENOUGH

Organizations may believe that simply building new applications to keep up with changing business needs is enough to offer new value to the market.

However, between building new applications and maintaining legacy Java EE applications, organizations often end up supporting both traditional and new infrastructures with unchanged or even reduced IT budgets. As the pressure to increase their technical and business agility increases, IT organizations are being forced to re-examine their processes and infrastructure. The result? Architecturally rigid, monolithic middleware is being replaced with solutions that offer agility, flexibility, and rapid development and deployment, such as PaaS.

ARE YOU POSITIONED FOR AGILITY?

CAN YOUR ORGANIZATION:



Deliver high business value and innovation?



Build and get to market faster than the competition?



Manage resources efficiently, with minimal trade-offs?

LEARN HOW THE RIGHT APPLICATION PLATFORM CAN HELP ►

WHAT CAN PaaS DO FOR JAVA EE ORGANIZATIONS?

To increase agility while maintaining high levels of quality, reliability, and security, many Java EE organizations are shifting to processes and solutions like DevOps or bimodal IT. Businesses also seek lightweight, web-scale performance software and tools—such as application PaaS solutions—to quickly build enterprise-grade applications.

PaaS can help you achieve faster time to market with innovative, high-performing offerings that combine the agility of a start-up with the reliable performance of the enterprise.



START-UP AGILITY

Cost-effective flexibility and straightforward migration combined with new mobile and cloud deployment capabilities



ENTERPRISE-GRADE PERFORMANCE

Web-scale reliability, security, and compliance

Moving Java EE applications to PaaS can give your developers the freedom to develop new code fast while ensuring operations gains the security, reliability, and scalability to meet your business needs.

CHOOSING A PaaS

CHOOSE A PaaS THAT PROVIDES A COMPREHENSIVE SOLUTION



MOST APPLICATION PaaS OFFERINGS DO NOT SUPPORT FULL JAVA EE APPLICATIONS

Instead, they force organizations to compromise with a scaled-back web platform that cannot provide the same enterprise-level performance and reliability.



MOST PaaS DO NOT OFFER COMPREHENSIVE MIDDLEWARE SERVICES

While many provide a platform to deploy applications, other tools and support are necessary for enterprise-grade applications, such as support for the application platform, flexible and powerful developer tools, integration services, or support for Mobile Backend-as-a-Service (MBaaS).

Red Hat JBoss® Enterprise Application Platform for xPaaS and Red Hat JBoss xPaaS services for OpenShift give organizations what they need for new IT initiatives such as DevOps and bimodal IT. Instead of relying on untested PaaS solutions with limited capabilities, organizations can use trusted solutions from a proven vendor. Red Hat offers a standardized, comprehensive, and lightweight middleware portfolio that provides the tools enterprises need to develop applications and infrastructure and gain a competitive edge.

LEARN THE **5 CRITICAL THINGS** TO CONSIDER BEFORE CHOOSING A PaaS ►

PaaS APPLICATION INTEGRATION

WHY INTEGRATE?

Integrating business information that is dispersed in multiple enterprise systems can make business processes more efficient and improve customer service. Organizations can provide differentiated, competitive services by integrating applications and data using an on-premise, cloud, or hybrid environment.



THE BENEFITS OF INTEGRATION PLATFORM-AS-A-SERVICE (iPaaS)

CLOUD-BASED iPaaS OR INTEGRATION SERVICES

Enhance integration capabilities with the power of the cloud in an as-a-Service combination of PaaS and infrastructure.

FASTER INTEGRATIONS

Quickly provision integration capabilities like transformation, connectivity, messaging without the complexity and delay of infrastructure provisioning.

IMPROVED DEVELOPER PRODUCTIVITY

Expand DevOps practices to integration projects. Collaborate with developers and administrators for rapid integration and more opportunities for experimentation.

Red Hat JBoss Fuse for xPaaS and Red Hat JBoss A-MQ for xPaaS on OpenShift provide enterprise-grade integration capabilities on a flexible, powerful cloud platform. In addition to PaaS offerings, Red Hat provides trusted, proven iPaaS solutions as part of its middleware portfolio.

WHERE TO START

No organization can completely replace its traditional infrastructure at once. Instead, the move to cloud infrastructure happens in phases, each at its own pace.

GETTING STARTED

Some initial applications to consider when deciding to move to PaaS environments include:

SYSTEMS OF ENGAGEMENT

Systems of engagement focus on reach and user experience, such as mobile, self-service, collaboration, point of sale, and consumer applications. To capture the attention of customers, these applications need to be updated frequently with fresh information and new features. Developers need to push new code fast, but new features need to be highly reliable, secure, and perform at scale.

ANALYTICS SYSTEMS

Collecting and analyzing massive sets of data to gain insight can help businesses remain competitive. As big data becomes more important, organizations are struggling to complete analysis with different data formats, time-sensitive data, data from multiple sources, and more. Analytics software can take advantage of a cloud platform's elastic infrastructure, real-time processing capabilities, high availability, reliability, API connections to other resources, and other features and benefits.

LEARN MORE ABOUT PaaS AND RED HAT'S APPROACH AT
[REDHAT.COM/EN/TECHNOLOGIES/PLATFORM-AS-A-SERVICE](https://redhat.com/en/technologies/platform-as-a-service)

