

SmartPaaS

Helping enterprises in their
PaaS adoption journey



Table of contents

| | |
|--|----|
| 1. Executive summary | 03 |
| 2. Introduction | 03 |
| 3. Industry view on PaaS adoption | 04 |
| 4. Challenges that enterprises face during PaaS adoption | 05 |
| 5. SmartPaaS - Accelerate platform adoption | 06 |
| 6. The SmartPaaS framework | 07 |
| 7. SmartPaaS services | 07 |
| 8. Key features and benefits | 09 |
| 9. Case studies | 10 |
| 10. Why HCLTech | 10 |
| 11. About the author | 11 |
| 12. References | 11 |

Executive summary

HCLTech's SmartPaaS assists enterprises in their modernization journeys. It helps enterprise leaders make judicious decisions when selecting and designing the right next-generation platforms and automating the migration of workloads when using HCLTech's accelerators and frameworks.

With the right approach and a trusted service partner, you can use native platforms to reap greater business value and take full advantage of a plethora of cloud features.

Introduction

Among different technology challenges that enterprises face today, Platform as a Service (PaaS) adoption is a critical one. Business-critical technological resources must be regularly modernized for an organization to remain agile and competitive. For the past few years, PaaS adoption has been on the rise as it provides flexibility, speed-to-market, cost and time savings, and more such promising business benefits. However, PaaS adoption also brings a set of unique challenges. These roadblocks necessitate having a new approach to the entire process if enterprises want to achieve the desired benefits.



Industry view on PaaS adoption

As per industry analysts, PaaS adoption is on the rise as most customers believe it would be the primary form of platform delivery in the future, considering the strategic value of the cloud. Also, the new wave of application thinking—which has evolved towards API/event-driven resources such as composite applications or microservices, low-code/no-code applications—has driven enterprises to reimagine IT environments and operations.

As per Gartner's predictions in 'The future of Cloud 2027':

“

By 2027, more than 70 percent of customer requirements for cloud-native capabilities will be delivered by hyperscale (CSP-native) vs container-focused ecosystems.

These cloud-native services will optimally leverage and implement cloud characteristics when used in the cloud-native architecture, which will be designed using architectural principles such as LIFESPAR.

Adoption of PaaS helps in achieving agility, continuous optimization, faster delivery with minimal/no disruption and availability of applications, automation of business policies, and easy migration to a hybrid model. While Software as a Service (SaaS) may greatly reduce the time and money spent on tedious tasks, it lacks integration support, interoperability, and control. Infrastructure as a Service (IaaS), as it is, has not been able to meet the cost optimization expectations and has many other issues such as data security, vendor lock-in and customization challenges. PaaS adoption has also not been easy for enterprises since its integration, development and interoperability have to be carefully managed to achieve maximum benefit of the cloud at minimum risk, cost and complexity.



Challenges that enterprises face during PaaS adoption

A splurge in the number of PaaS services offered by leading cloud providers and enterprise-wide adoption of PaaS technologies comes with a few challenges, such as:

Complexity of PaaS adoption

- Automation silos among different teams
 - Pool of PaaS services with complex configurations
 - Multiple services from multiple vendors make the selection of the relevant platform difficult
-

Lack of standardization

- Need for enterprise-grade configurations of PaaS services
 - No baseline scripts/configurations for PaaS platform provisioning
 - Maintenance and development of new service blueprints
-

Higher cost

- Lack of proper budgeting/forecasting
 - Increase in expenditure as an application grows and requires more digital support
 - Higher cloud cost for higher IaaS adoption
-

Complexity in application migration

- Lack of well-defined cloud adoption strategy/approach
 - No guidance on the selection of target PaaS service based on the need
 - Lack of flexibility and higher complexity of integration between application components
-

Lack of skilled resources

- No designated central, specialized team for cloud migration
 - Unavailability of skilled engineers
 - Overburdened engineering teams spending time managing PaaS environments
-

Operational challenges

- No single window for cloud environment management for visibility into the state of operations and actual consumption of cloud resources
- Rapid adoption of cloud PaaS services with little emphasis on fine-tuning and optimization

SmartPaaS – Accelerate platform adoption

HCLTech's SmartPaaS framework has been conceptualized keeping in mind the specific needs of enterprises looking for digital transformation based on agile principles and the challenges they have faced with the quick adoption of PaaS.

This framework has a comprehensive service catalog that covers all aspects of people, processes and technology for automated platform adoption and transformation using the following key principles:



Path-to-PaaS

Provides the best-fit approach for defining Path-to-PaaS for enterprises struggling to move the existing VMs in DCs to modern platforms and even IaaS to PaaS platforms.



Platform-as-a-Product

Provides platforms to be consumed as products by taking full accountability with the right skillsets, tools, and processes in place.



DevSecOps-based framework

Based on agile, DevSecOps principles used for platform engineering and migration/modernization.



Automation

Automation is the core for all services under SmartPaaS and it is enabled using HCLTech IPs/accelerators.



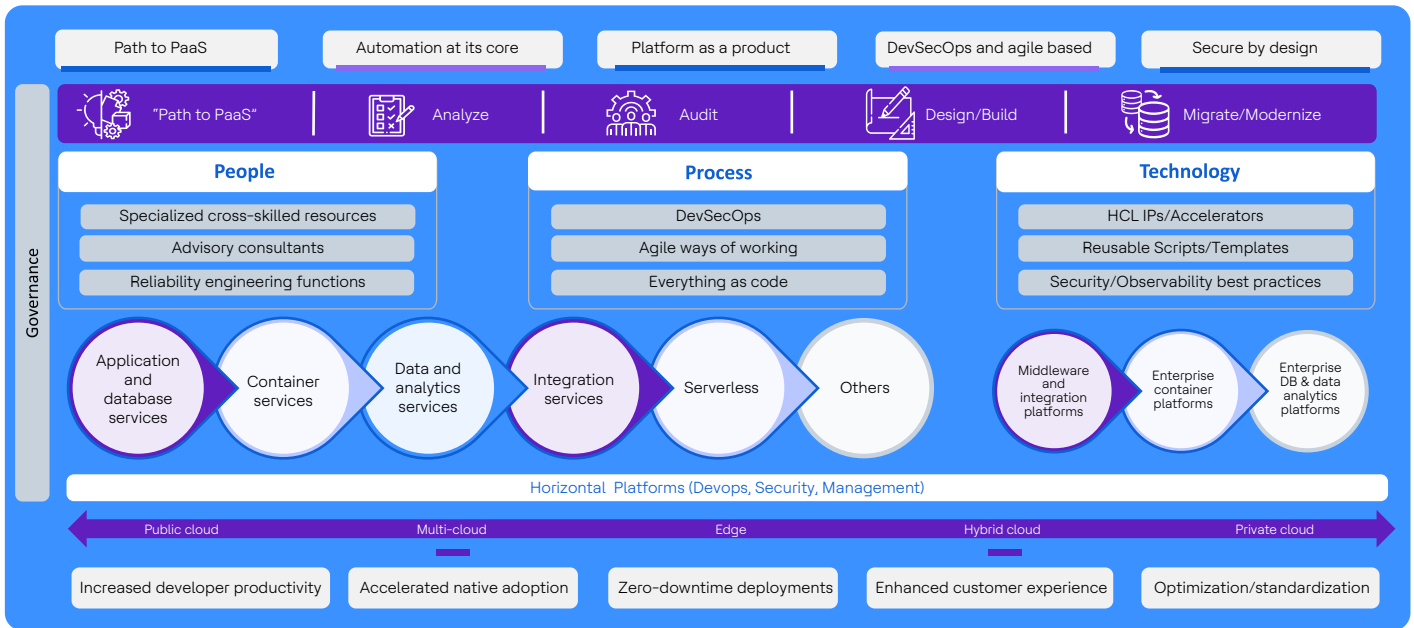
Security

Security is inherently baked into all services to ensure risk-free modernization of new-generation platforms.

SmartPaaS helps enterprises resolve their PaaS challenges and effectively use cloud-native services with fewer code-tuning cycles for developers and lower development costs. The framework encompasses:

- A central specialized team of cross-skilled resources
- Advisory consultants and reliability functions
- HCLTech IPs/accelerators and reusable, pre-validated scripts
- Architectural best practices and learnings from HCLTech CoEs' experiences
- Modern technologies, lab environments, and enablement from HCLTech's Cloud Native Labs
- Security and compliance imbibed at every layer

The SmartPaaS framework



SmartPaaS services

SmartPaaS offers a comprehensive service catalog with services falling under three broad categories, namely Advisory/Consulting, Analysis/Audits, and Migration/Modernizations (including platform design/build) for both native and enterprise platforms. These services are explained below:

| | Advisory/Consulting | Analysis/Audit | Migration/Modernization |
|--------------|--|--|---|
| PaaS/CaaS | Target Platform and Ecosystem Selection | Architecture Maturity Assessment against NFRs | Automated Platform Design/Build using CI/CD |
| Databases | DB Optimization and Modernization Strategy | Assess DB Landscape and create migration plan | DB Platform Design/Build and Data migration |
| Middleware | MW Operational and transformation Audit | Study MW landscape & suggest treatment (Upgrade, consolidate and standardize) | Implement MW Build/transformation |
| Applications | Platform adoption strategy/Roadmap | Application Assessment for 6R treatment, PaaS based Architecture Design, Wave Group Planning | Automated Application modernization using CI/CD |

A. **Advisory/Consulting:** A thoughtful selection of the CSP-specific services that best suit a company's context and needs, complemented by a clear view of the costs and trade-offs involved is the way to achieve the best benefits of cloud and its strategic flexibility.

SmartPaaS uses its 4P Consulting Kit to provide consulting on the right selection of platforms, their ecosystem components (logging/monitoring, security, CI/CD tools), automation, and their architectural aspects using industry best practices. It assists enterprises to define their Path-to-PaaS for a streamlined platform adoption strategy.

B. **Analysis/Audit:** SmartPaaS covers the maturity assessment of the platforms, databases, and middleware from operational, security, and architectural perspectives using HCLTech's Analysis/Audit frameworks. This helps enterprises arrive at the proper budgeting/forecasting and effectively plan their journey.

- C. Migration/Modernization: This includes the design and modernization of the platforms underlying workloads to next-generation target platforms on the cloud such as PaaS/containers.

This also involves the integration of the platforms with ecosystem components including ITSM, CMDB, logging, monitoring, security, RBAC, CI/CD tools, and more. The integration is done using HCLTech IP OneclickPlatformLauncher and applications are transformed to be compatible with these platforms using native or third-party tools and HCLTech's IPs – KMP and Solution Master.

Many enterprises have already migrated their workloads to IaaS on the public cloud and are now aiming to migrate their high-quality, business-critical applications using containers/PaaS for optimization and modernization. HCLTech's i2PaaS accelerates this modernization by providing the ability to simplify processes, focus on the development cycle, and empower DevOps practices that give organizations the power to reach their market faster.

SmartPaaS provides all the aforementioned services for a broad spectrum of platforms capable of handling any volume, scale, velocity, and complexity. These platforms have been categorized as:



PaaS/Containers

SmartPaaS aims to assist enterprises in their platform modernization journeys with the right selection of target platforms and peripheral components. It caters to both the native PaaS (web apps, Kubernetes, API gateways, IoT, cognitive, AI/ML) and enterprise platforms like Red Hat OpenShift, VMware Tanzu, and Rancher. HCLTech has accelerators and a lot of automation built around not just the provisioning, integration, and security of these platforms but also to support the onboarding of workloads onto these.



Databases

Database modernization and optimization are a prerequisite to creating a sustainable business model while keeping up with technology advancements. It is imperative for creating an exclusive landscape that caters to specific business objectives such as managing costs and enhancing security and reliability.

SmartPaaS focuses on database modernization and optimization in terms of both operational and business aspects. HCLTech accelerators around the design/architecture, deep analysis, and pre-defined solutions bring both time and cost benefits along with clarity on how the product will look like.



Middleware platforms

SmartPaaS assists enterprises to explore the as-is landscape and provides plans to optimize the platform stack for people, processes, and tools. This helps them to adopt the latest technologies and infuse reliability and automation into the target platforms. Enterprises can leverage a well-defined set of practices, principles, and culture for service improvements and overall operational cost reduction available within this framework.



Applications

Enterprises have a heterogeneous landscape comprising COTS/Custom, Java/JEE, and .NET applications, RDBMS/NoSQL databases, and more such components. Modernization of the existing workloads may take multiple pathways ranging from as-is onboarding to these platforms to completely re-architecting them.

By adopting a non-disruptive approach, they can reap the best benefits of the public cloud in terms of performance, speed, and scalability without increasing effort, time, and cost. They can choose to containerize existing components or deploy them to PaaS with minimal changes in the applications/databases. SmartPaaS enables this modernization with its pre-defined, pre-validated migration decision matrix, architectural patterns, cookbooks, and accelerators.



Key features and benefits

As PaaS adoption picks up pace, automation and security features must be baked into the development process and all phases of the adoption life cycle. The automation support in a PaaS environment also includes productivity improvements and delivery consistency. SmartPaaS, equipped with automation and security features with other HCLTech enablers, provides the following business benefits:



Maximized business value

- Optimized and accelerated enterprise platform journey aligned to business goals.
- 40 percent reduction in licensing and operational costs.
- Enhanced productivity through automation of manual repetitive tasks.
- Up to 25 percent improvement in engineering team experience.



Enhanced speed-to-market

- Increased speed-to-market with the use of IPs, standardized scripts/templates, and pre-defined solutions.
- 22 percent more frequent application testing and 31 percent faster application life cycle release.
- 90 percent faster Platform provisioning.
- Better collaboration between teams thus preventing siloed adoption.



Continuous innovation

- Standardization, rationalization, and modernization to reduce technology debt.
- Incremental improvement using agile methodology with continuous feedback.
- Ensured best practices, automation, and security to maximize operational efficiency.
- Performance and resource optimization through rightsizing.

Case studies

We have proven approaches, best practices and IPs/tools used in multiple prior implementations across various industries, verticals and geographies.

| | Leading Swedish power products manufacturer | Leading US pharmaceutical | Leading US electric utility company |
|--------------------|---|--|--|
| Business challenge | Choosing suitable container technology from a wide range of options for six different use cases for different solutions and target users. | Slow, manual platform provisioning and scaling, performance latency, and downtime risks due to architectural limitations. | Advisory on AKS architectural best practices, manual platform provisioning, Identification, and containerization of Java and .NET apps. |
| HCLTech solution | Provided consulting around platform adoption using the 4P Consulting framework, helping them to begin their container journey with a selection of target container platforms along with ecosystem solutions for security, DevOps, and automation for six environments identified for application deployments. | Containerized COTS products with the help of vendor, designed and built multi-region EKS cluster, set up distributed DB (AWS Aurora), and migrated their COTS products from EC2 to EKS (IaaS to PaaS) to meet massive scalability requirements during Covid times. | Provided Azure AKS advisory; self-service, multi-region AKS implementation integrated with an application gateway, Azure Key Vault, and Azure DevOps; and ARM templates with pilot containerization of Java and .NET applications with minor refactoring and added security (SSL). |
| Business benefits | <ul style="list-style-type: none"> • Cost optimization by choosing appropriate container options. • Made the best and most optimized container options and orchestration tools for each use case. | <ul style="list-style-type: none"> • Up to 55 percent latency improvements. • 30 percent cloud computing cost reduction. • Multi-region availability and on-demand scalability of applications. | <ul style="list-style-type: none"> • 20 percent reduction in application release. • 25 percent cloud computing cost savings. • 90 percent faster platform provisioning. • Scalable and highly available applications. |

Why HCLTech

Our technology capabilities are uniquely positioned to help enterprises achieve their digital transformation objectives.

- Industry-leading capability: First Indian GSI to become a Kubernetes-certified service provider and consistently rated as the leader of public cloud IT transformation services.
- Strong partnerships: Collaborative industry ecosystem backed by partnerships with leading cloud providers and other platform vendors and OEMs.
- Accelerators and frameworks: We have developed industry-proven accelerators and frameworks that can be leveraged to deliver SmartPaaS services efficiently like KMP, OneClick, and DBUplift.
- Cloud-native labs: Modern, innovative Cloud-native labs hosted in Europe, the USA, and the APAC region to guide and accelerate cloud-native journeys for our customers.

About the author



Ginny Davar is an Open Group Certified Software Solution Architect with a specialization in Hybrid Cloud Solutions and Enterprise Architecture. With 24+ years of experience in technology consulting, she has been a trusted advisor to customers defining cloud solution architectures, transformation strategies, and roadmaps in alignment with emerging industry trends and technologies.

Currently working as the Lead Global Platforms Architect-part of the HCLTech Hybrid Cloud Business Unit part of the HCLTech Hybrid Cloud Business Unit, Ginny is responsible for designing end-to-end platform solutions as part of the digital transformation journeys of large global enterprises across various industry verticals.

She has architected several IT solutions and won Sales Hero and Achievers' League awards for extraordinary contributions towards the HCLTech transformation journey.

For more information, please write to us at contact.hyc@hcl.com

References

Getting the most from cloud services and containers | McKinsey

Does Kubernetes really give you multicloud portability? | by McKinsey Digital | McKinsey Digital Insights | Oct, 2022 | Medium

Security - Azure App Service | Microsoft Learn

Building Digitally Connected Labs with AWS | AWS for Industries (amazon.com)

Agile Release Train - SAFe® 4.0 Reference Guide: Scaled Agile Framework® for Lean Software and Systems Engineering [Book] (oreilly.com)

DevOps Architecture For A Cloud Native App And Infrastructure (kruschecompany.com)

HCLTech | Supercharging Progress™

HCLTech is a global technology company, home to 225,900+ people across 60 countries, delivering industry-leading capabilities centered around digital, engineering and cloud, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending March 2023 totaled \$12.6 billion. To learn how we can supercharge progress for you, visit hcltech.com

hcltech.com

