

Viewpoint paper

Transition to a more efficient enterprise environment

Applications Transformation to the Cloud



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Companies are facing serious external challenges while managing aging IT infrastructures and applications portfolios. To decrease costs and risks while increasing flexibility and innovation, many are turning to cloud and mobile technologies.

Changing market realities

Companies across the industrial spectrum face significant new challenges. Many are grappling with more stringent regulations and growing competition, and virtually all are struggling to survive and succeed amid a continuing challenging global economic situation. At the same time, many are also burdened with aging and obsolete IT infrastructures, including applications portfolios that add cost and risk while stifling growth, flexibility, and innovation.

Innovation and technology have accelerated the pace of business change. Customers, partners, citizens, and employees expect seamless anywhere, anytime communications across an array of devices. Increasingly ubiquitous mobility demands that you provide faster access to many more kinds of information.

To address these dynamics, forward-looking organizations must have greater agility from their IT units. IT must create newer and better services and deliver these solutions with greater flexibility at a lower cost.

Successful IT organizations are no longer simple service providers. Instead, they must become true business partners by aligning technology to support these broader business objectives. Of course, creating alignment can be difficult, given the realities of most enterprise IT environments.

As IT infrastructure ages, operating expenses can rise, driven by maintenance and upgrade costs, power, and other environmental costs, and higher software licensing fees. Vendors may reduce or discontinue support for obsolete systems, while shrinking talent pools make it difficult or impossible to maintain legacy infrastructures.

Applications in the age of change

Given the dynamic nature of business technology, it is no surprise that applications portfolios are particularly vulnerable to overextension and misalignment. As applications age, they tend to consume more and more resources as staffs struggle to perform basic operational support and maintenance procedures.

As organizations' needs change, applications often require extensive customization, which is expensive to achieve and even costlier to support. Adding even minor new functionality becomes a complex and cost-prohibitive challenge. Application capacity, performance, and reliability tend to decline, and as applications degrade, security becomes a real concern. Perhaps more to the point, outmoded applications simply no longer meet the business need for which they were acquired or built.

The good news is that organizations can now leverage cloud computing and mobility to drive real transformation in their applications portfolio. "As-a-service" options are becoming the norm as business leaders identify and deploy cloud-ready solutions. Users expect to access solutions via any drive at any time and from any on-the-go location. Customers accept and prefer self-service, business-ready solutions.

By leveraging cloud and mobile capabilities, organizations can better connect their ecosystems while extending and redefining their boundaries and interactions.

A transformed applications portfolio also enables enterprises to create and bring innovative new services to market faster, more intelligently, and at a lower cost. Transformation additionally solves the many challenges of an aging applications portfolio. It ensures that an application justifies its investment through higher performance and measurable outcomes.

This transformation forges a closer alignment between technology and the enterprise, repositioning IT as a strategic, solution-oriented business partner.

Transforming to the cloud

Organizations can leverage modernized applications to grow their market share, instill customer intimacy, and drive sales and profits. Transformed applications deliver secure, seamless, context-aware experiences. At the same time, a more diverse and dynamic communications environment can be more complex, and greater openness may create serious concerns about security and privacy.

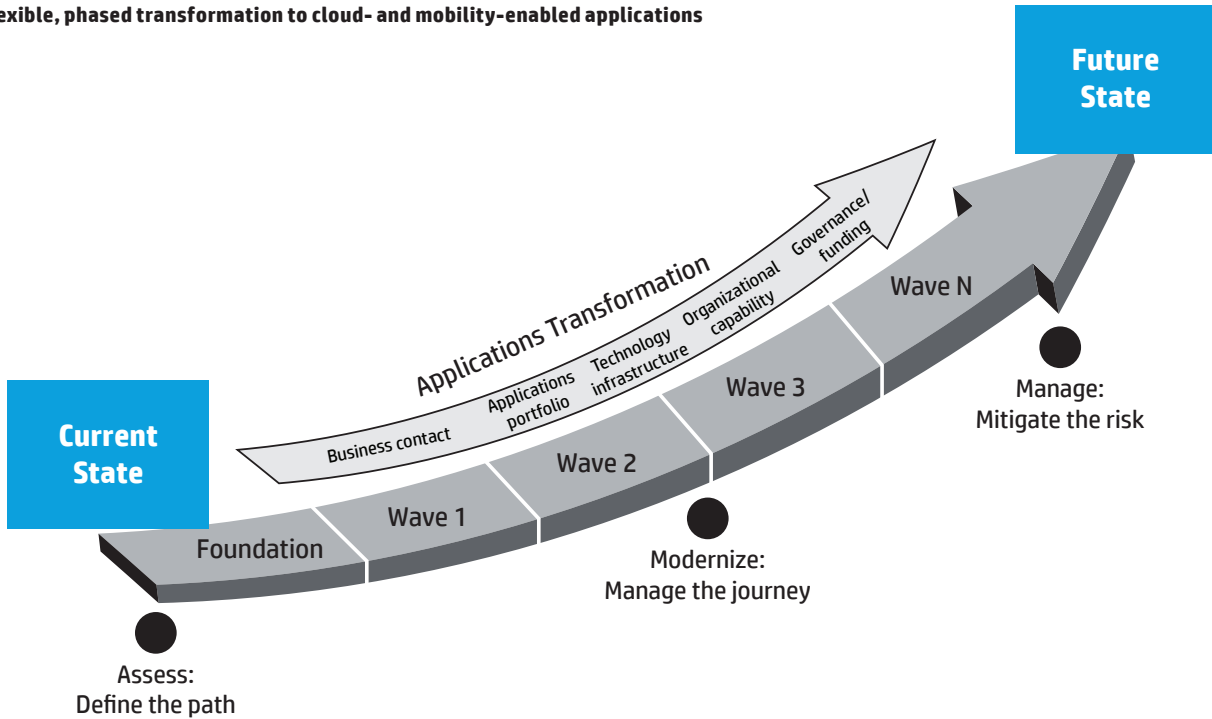
Any transformation should begin with a rigorous assessment of business and technology requirements. Based on that evaluation, a detailed roadmap should document the phases, solutions, benchmarks, and expected results of the planned applications transformation.

To gain maximum success and return from an applications transformation effort, organizations should minimize risk by ensuring cloud and mobility technologies are integrated closely with the existing business. A well-planned approach should deliver cloud- and mobility-based business value quickly, while minimizing disruption to ongoing operations.

A strategic transformation plan should address business and technical architectures, security, integration, governance, total cost of ownership, and expected return on the transformation investment. By reinvigorating and reusing existing assets where possible, a coordinated applications modernization effort can reduce the overall cost of a transformation program. A robust applications rationalization effort should be used to identify the usefulness, maintenance and operational costs, and future value of legacy applications.

Based on decades of experience in enterprise-class technology projects, HP has seen that organizations must focus on four critical aspects of the applications transformation process: agility, optimization, innovation, and security.

Figure 1. Flexible, phased transformation to cloud- and mobility-enabled applications



Agility

Consumers and workers access services across a broad and growing universe of devices, connectivity options, and networks. In this environment, cloud and mobility applications enable enterprises to provision and consume business services at any time, via any connection, and across any device.

By using a transformation roadmap, your enterprise can eliminate inconsistencies in process, change, and integration. It also enables you to maintain visibility and security during all evolutionary phases.

Optimization

By transforming to cloud- and mobile-based applications, organizations can pull additional value from their existing infrastructure, enhance business processes, and boost workforce effectiveness. It's best to use a productivity-oriented approach to optimization, which starts by assessing application use and then focuses on application simplicity and interoperability.

An aggressive optimization effort should yield improved data quality and reliability, as disparate applications and diverse users are connected in an integrated and modernized enterprise environment. A services-based, pay-by-use financial model supports more efficient asset utilization, greater flexibility, and improved decision-making.

Innovation

Cloud computing and mobility are driving innovation across product categories and industrial sectors. By adopting cloud and mobile platforms, companies enable the delivery of everything as a service. This empowers the workforce with faster, any-device access to solutions that are available, affordable, and ready to use.

Forward-looking organizations can leverage transformed applications to extend the reach of technology, create new capabilities, and better meet business needs. Innovation emerges in the form of meaningful, context-aware, and value-added interactions with customers, including the use of multisensory input devices that enable richer and more satisfying customer experiences.

In many cases, cloud and mobile applications provide access to capabilities that might otherwise be too complex or costly.

Security

As enterprises move people, resources, and information into the cloud and mobile environments, security becomes a primary concern.

A balanced approach systemically identifies, controls, and manages risk. This approach—built around an enterprise security framework—leverages advanced technology for automatic remediation and proactive protection against emerging security threats. A next-generation security framework must use appropriate hardware, software, and services to maximize benefits and reduce risk in cloud and mobile environments.

When deploying or accessing cloud-based applications, organizations should consider privacy, compliance, and transactional integrity across the entire cloud services supply chain. Cloud security can also be affected by enterprise-, industry-, or location-specific variables.

Supporting a mobile workforce offers other unique challenges. On-the-go personnel may work at home, in flight, or in international locations—on laptops, tablets, smartphones, or other devices. To provide enterprise-class protection, security must be effective across networks, devices, locations, and across personal and company-owned data sets.

A clear pathway

To realize the very real opportunities of migrating to cloud- and mobility-enabled applications—while reducing cost and risk—organizations should adopt and follow a logical modernization roadmap. See Figure 1.

A three-phase approach is recommended for application modernization: assess to define the transformation pathway, modernize to manage the journey, and manage to mitigate the risk. In guiding organizations from current to future state, this applications transformation model focuses on the key elements of business context, including applications portfolio, technology infrastructure, organizational requirements, governance, and financing.

Assess

The first crucial step in any successful transformation is assessment, which enables organizations to develop a business case for change and define the pathway forward. This stage begins with a rigorous assessment of the current-state environment where application subject-matter experts and cloud specialists evaluate applications. Using automated tools and established criteria, they generate profile data for each application.

Using that profile information, cloud specialists target platforms for applications and the transformation methods needed to move those applications. The target platforms might include external enterprise cloud services, utility services, web hosting, or other external providers.

At this stage of assessment, an organization should begin to address a series of essential questions:

- What applications should move to the cloud?
- To what kinds of platforms should those applications migrate?
- How should applications be prepared for the cloud?
- How can cloud-based applications be integrated with other systems?

A well-defined business and technical alignment model should be used to evaluate each application for suitability. Only applications that yield measurable value from running on cloud or mobile infrastructures should be considered for this migration—as not all applications should be moved.

Applications currently used via public platform-as-a-service (PaaS), public or private infrastructure-as-a-service (IaaS), and those already virtualized on a common platform are typically ready for transformation to a cloud platform. Other applications—depending on legacy status, current platform, business processes, or data security requirements—may not be suitable candidates.

Based on that analysis, the assessment should document and report on the suitability of each application. Output documentation should identify specific cloud and mobile opportunities and map the strategic business, technical, and financial value of each application.

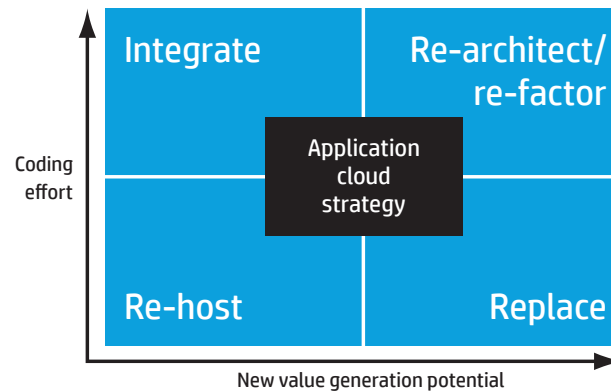
Modernize

Organizations must next manage the journey toward a modernized portfolio. This requires the creation of a multiphase program for transformation and the articulation of specific strategies and tools. These methods can include applications rationalization, modernization, or development of new solutions, migration to new platforms, and the use of IaaS, software-as-a-service (SaaS), business process-as-a-service (BPaaS), and other deployment models.

There are four strategic domains for application modernization, and each should be considered for any application that is not a candidate for retirement:

- **Re-host**
This is the most noninvasive approach, as it is essentially a “lift and shift” operation that migrates the application as-is to the new cloud or mobile infrastructure.
- **Replace**
Some applications—including those that are highly customized or obsolete—may be too difficult or expensive to move or maintain in a cloud environment. By replacing selected applications with more advanced technologies, organizations often gain feature and benefits, while reducing long-term costs.
- **Integrate**
While some analysts cite integration of off-premise cloud applications as a barrier to cloud adoption, there are strategies to facilitate cloud integration. This approach may leverage a number of integration technologies, including the use of an enterprise service bus or wrapping external legacy applications to expose them as web-based services.
- **Re-architect/Re-factor**
While this is the most intrusive alternative, it may be required for applications written in COBOL, IMS, PLI, or some other legacy language. This approach should be undertaken with the understanding that cloud-based applications are ideally designed for peak usage with minimal performance degradation. Efficient coding is critical, and in some cases, re-factoring may be used to prepare an application for a cloud platform.

Figure 2. Strategic cloud application approach



It's important to use a strategic approach to applications transformation. It leverages cloud applications development guidelines, cloud advisory tools, and well-tested modernization techniques and methodologies. See Figure 2.

Manage

A successful transition effort should focus on delivering measurable results while mitigating cost and risk. A strong management approach must define, establish, and configure application dependencies in a way that ensures a smooth transition to the delivery environment.

Attention should be given to the management of mobile devices and cloud-based security. In most cases, modernized applications are prepared for the transition to a scalable applications management and hosting service environment, which can be delivered through a global enterprise-scale delivery system.

Because cloud computing supports various combinations of deployment models, service types, and degrees of virtualization, organizations may choose to adopt one of several governance and process models. Cloud deployment models may be public, private, community, or a hybrid approach. Service types can span IaaS, PaaS, SaaS, and BPaaS.

When formulating governance policy in a cloud or mobile environment, organizations should consider requirements management, architectural planning, business processes, security, competency management, service lifecycle management, catalogue management, configuration, and operations.

Transformation considerations

In a complex enterprise environment, a number of critical variables can affect the outcome of an applications modernization initiative.

Organizations pursue applications transformation for a number of reasons. Many seek to leverage the power of cloud flexibility and open new methods to source, deliver, and govern highly scalable services. Some want to leverage the capital expenditure savings and operating efficiencies of SaaS. Others may seek cloud or mobile capabilities to enable customer self-service or to extend their brand reach.

Whatever the specific objectives, most large enterprises now seek applications portfolios that are simpler, more flexible, and scalable. Astute managers want applications that better align to their business processes, support their operational goals and budget requirements, and help drive innovation and growth.

So how can organizations realize the benefits of a modernized portfolio? By using a phased approach built on a proven assess, modernize, and manage model. Depending on specific requirements, this model uses various hardware and software resources, consulting support, and managed services expertise to plan and execute an applications modernization effort.

Enterprises apply this approach to strike an optimum balance between the cost to achieve and maintain a modernized end state and the value organizations reap from a transformed portfolio.

To ensure optimum results from a modernization effort, organizations should consider the following variables as part of a strategic transformation plan.

- **Operational considerations**

Using a comprehensive approach that designs a modernized portfolio to meet specific operational realities, enterprises address the full lifecycle of enterprise applications—planning for agility, building for quality, and managing for performance.

- **Modernization methodology**

Using structured and field-proven methods of an assess, modernize, and manage roadmap—combined with the tactics, tools, and processes—companies can create an enterprise-class transformation initiative.

- **Transformation framework**

Organizations need a step-by-step structure to guide and implement actual modernization activities—a robust transformation framework. This framework would include a formal delivery strategy, enterprise architecture, and detailed planning for service implementation at every stage of the modernization. It should also identify specific tools, methods, processes, and activities, as well as the broader scope, planning, and distribution of transformation-related tasks.

Cloud and mobile benefits

Although complex and detailed, transformational methods can and do work. In fact, these strategies provide successful organizations with a safer, more cost-effective course toward a more agile, cloud- and mobile-enabled applications environment.

Organizations use transformation to cloud and mobility methods to:

- Improve productivity and responsiveness in crucial applications
- Reduce costs and complexity of infrastructure and software licensing
- Better align business and IT models to increase agility, foster innovation, and optimize cloud- and mobility-enabled assets
- Accelerate speed to market by implementing applications that drive the highest business value to the enterprise
- Replace or transform high-cost platforms to create a portfolio that delivers higher value in a flexible service-oriented architecture
- Leverage a variable “consume what you need” use model that ensures the lowest possible total cost of ownership
- Manage risk and preserve quality with a safe, transparent, and nondisruptive approach to assessing and transforming applications

Conclusion

Cloud and mobile technologies hold great promise for many organizations. Forward-looking companies deploy cloud and mobile capabilities to reach and better serve customers, drive innovation, and reduce risk, cost, and inefficiencies.

To fully realize those opportunities, companies must first address the challenges of aging and obsolete applications portfolios. By understanding the requirements of this crucial transformation, organizations can realize the tangible benefits of the more mobile, cloud-enabled future.

About the author

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Diana Zavala is a business strategist in HP Application and Business Services and brings more than 25 years' experience delivering world-class, complete business technology enablement solutions—from strategy development through implementation and management. Zavala has helped public sector and Fortune 500 clients define, plan, and transform their information technology environments through solutions in Information Management & Analytics, Modernization, and e-Commerce. Zavala has a proven track record of enabling clients to realize return on investment, strengthen competitive position, and streamline costs by implementing solutions that enable their business objectives.

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