

Discover IT as a Service, the next generation of IT service delivery and consumption

How leading IT organizations capitalize on cognitive technologies and automation to optimize the business value of hybrid cloud



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Introduction

In the age of digital transformation and hybrid cloud, business expectations for seamless, personalized, always-on service run high. Technological advances such as cognitive capabilities and automation are blurring business distinctions and empowering competitors to emerge from any industry and geography. Staying ahead requires a willingness to change course and embrace constant reinvention.

As the technology engine powering the business, IT must innovate with new technologies and find new mechanisms and business models for creating value and driving growth. The truth is, IT organizations have an enormous opportunity to transform the enterprise by moving to a new operating model. That model is IT as a Service (ITaaS).

Hybrid cloud, defined here as the mix of public and private clouds with traditional IT, has given organizations the flexibility to support a new generation of workloads and deliver on rising expectations for simplicity, agility and choice. But the uncontrolled growth of cloud services has proved challenging for IT. Often, these multisourced hybrid environments become difficult to integrate, manage and secure. IT organizations end up devoting far more time and resources to maintaining the infrastructure and less time innovating.

ITaaS changes that equation by simplifying IT service consumption and management and making it possible to deliver on the full promise of hybrid cloud. This new operating model allows IT to become a trusted broker and integrator, capable of unifying the heterogeneous, multivendor infrastructure elements that comprise hybrid cloud. Platform integration and orchestration help enable applications to run at their optimal location and cost while increasing visibility and control.

ITaaS represents a major shift for IT. It helps enable IT to think and operate like a business, with the ability to optimize infrastructure and services for customers while reducing cost and risk for the enterprise. IT is better able to leverage hybrid cloud to meet increasing digital demands and create value for the business.

This white paper examines how ITaaS helps enable IT to optimize the business value of hybrid cloud and become a catalyst for innovation through digital transformation. It presents the IBM viewpoint on the operating shift, the opportunity for IT, and the way forward through common ITaaS use cases.

Next-generation IT = hybrid cloud

Hybrid cloud is the new norm. In a recent worldwide survey of 500 IT decision makers, IBM found that 70 percent of them see a hybrid future, confident they'll always have a blend of cloud and traditional IT resources to support their increasingly dynamic and digital business priorities.¹ Though they are gravitating to cloud for greater agility, they recognize that many of their core systems were never designed for the cloud and need to continue operating in a traditional IT environment for some time. The resulting hybrid cloud environment offers game-changing potential for the enterprise. It can:

- Enable every workload to run in its optimal place, at the optimal cost, to increase the value of cloud and legacy IT investments
- Grant business users access to the broadest choice of platforms to build and deploy applications at the speed demanded by a rapidly changing market
- Give applications more seamless access to data and platforms, wherever they reside
- Allow sensitive, business-critical applications and data to remain on premises to help mitigate potential risks
- Provide higher quality of service by using advanced analytics, automation and a thorough service management model

Organizations able to manage their hybrid environment in an integrated, cohesive fashion, with better visibility and control, saw the greatest benefit.

Consider the value hybrid cloud brings to personal banking and the simple act of depositing a check. The mobile app that customers use to take a picture of the check runs in a cloud, as does image storage and archive. But the customer's core banking record containing the account information is updated on a traditional IT system. This integration between cloud and traditional systems illustrates how hybrid cloud delivers value to the enterprise.

The IBM survey confirms that value. Organizations able to manage their hybrid environment in an integrated, cohesive fashion, with better visibility and control, saw the greatest benefit. Those organizations were using sophisticated automation to orchestrate provisioning and configuration of their hybrid systems and workloads. Consequently, they were able to allocate the best resources for each job and better meet demands for speed, flexibility, resiliency, security and regulatory requirements. They were more likely than their peers to use hybrid cloud to launch new digital services and expand into new markets. They were using hybrid cloud to innovate more rapidly and provide a seamless user experience across devices and platforms.²

However promising those results might be, the reality is that most enterprises do not have the capabilities that integrated hybrid cloud management demands. Hybrid adopters that have achieved complete cloud-to-legacy and cloud-to-cloud application integration aren't doing it alone. They are turning to outside vendors to overcome integration hurdles.³

The importance of ITaaS for hybrid cloud

Hybrid cloud requires IT organizations to extend their management oversight to cloud services sourced from multiple providers. This is complicated by the sheer number of cloud services acquired across the enterprise. Aside from fragmenting the IT environment, these autonomous business purchases—often referred to as shadow IT—have led systems and processes to fall out of IT’s view and control. Saugatuck estimates that typically, IT organizations are aware of only 10 - 20 percent of these cloud solutions.⁴ The lack of visibility and governance created by this cloud sprawl has made it more difficult for IT to meet expectations for seamless service delivery. Further, disparate infrastructures cost more to manage and place the enterprise at greater risk.

The enterprise has arrived at this place through the consumerization of IT and digitization of business. Business users have become more global, mobile and social. They’ve grown accustomed to self-service provisioning and choice, and they demand more from their internal IT organizations. Today they expect IT to provide value through speed and innovation, not just cost optimization and efficiency. They expect infrastructure and applications to be delivered as a service—on demand and personalized. IT organizations that can’t meet these expectations increasingly run the risk of being bypassed in favor of external providers that can.

IT leaders have come to realize that they are competing with the agility, speed and convenience of public cloud. Replicating these public cloud attributes for all IT services is essential, but winning back business users requires more than that. IT must get closer to the business and create a more collaborative partnership that goes beyond technology and drives business strategy and innovative value. By integrating services for business objectives—rather than integrating systems for IT objectives—IT leaders can deliver better customer experiences and more business value from their hybrid infrastructure.

A new operating model for IT

ITaaS facilitates the shift to a more business-centric IT organization. It is an operating model that supersedes the service alternatives users now have outside the enterprise. It allows IT to provide the best mix of traditional IT and third-party cloud services internally, and it allows users to consume and pay for IT services only when they are needed. IT develops a more customer-focused approach, simplifying access to services through a self-serve catalog and leveraging intelligent automation to help satisfy service requests and fulfillment in the cloud or on premises.

This new mindset allows IT to transition from service provider to service integrator. In this role, IT proactively understands what the business needs to drive revenue, then aggregates internal and external IT services to compete for users’ business. IT improves efficiencies with cloud suppliers and helps enable users to make quicker, more informed choices. But more important than brokering services, IT becomes a value-added part of the supply chain for those services. IT provides the integration of cloud and traditional systems that is essential to reinventing enterprise business models, as with mobile checking transactions. In this way, IT is actively driving service consumption instead of merely supporting it.

ITaaS accomplishes these things by instituting multidimensional change across IT and the enterprise. It forces fundamental change organizationally, financially and technologically as well as changing the way services are delivered, consumed and managed (Figure 1).

ITaaS helps enable IT to optimize the planning, selection, delivery and management of a multisourced hybrid infrastructure. It provides the framework, processes and software tools to help enable agile, self-service provisioning and consumption monitoring of the hybrid environment so each workload can run at its optimal location and cost.

Software-defined technologies help orchestrate the complex ecosystem of cloud and traditional IT infrastructures on both sides of the corporate firewall. Open design facilitates integration among infrastructures, applications and management systems while helping avoid vendor lock-in. ITaaS integrates IT service management, providing a unified view of services and facilitating broad control across multisourced and hybrid platforms. This is key for seamless and cost-effective control of diverse IT environments. Intelligent automation and cognitive analytics sense and synthesize vast amounts of information to

keep the hybrid environment healthy and compliant. This drives service quality and speed, resulting in higher productivity and continuous optimization.

For users, this means a better experience. For IT, it means less time spent designing, procuring, implementing and running the infrastructure and more time spent innovating. Embracing this more integrated, unified, real-time approach to service delivery and management is crucial for IT to remain relevant to business stakeholders.

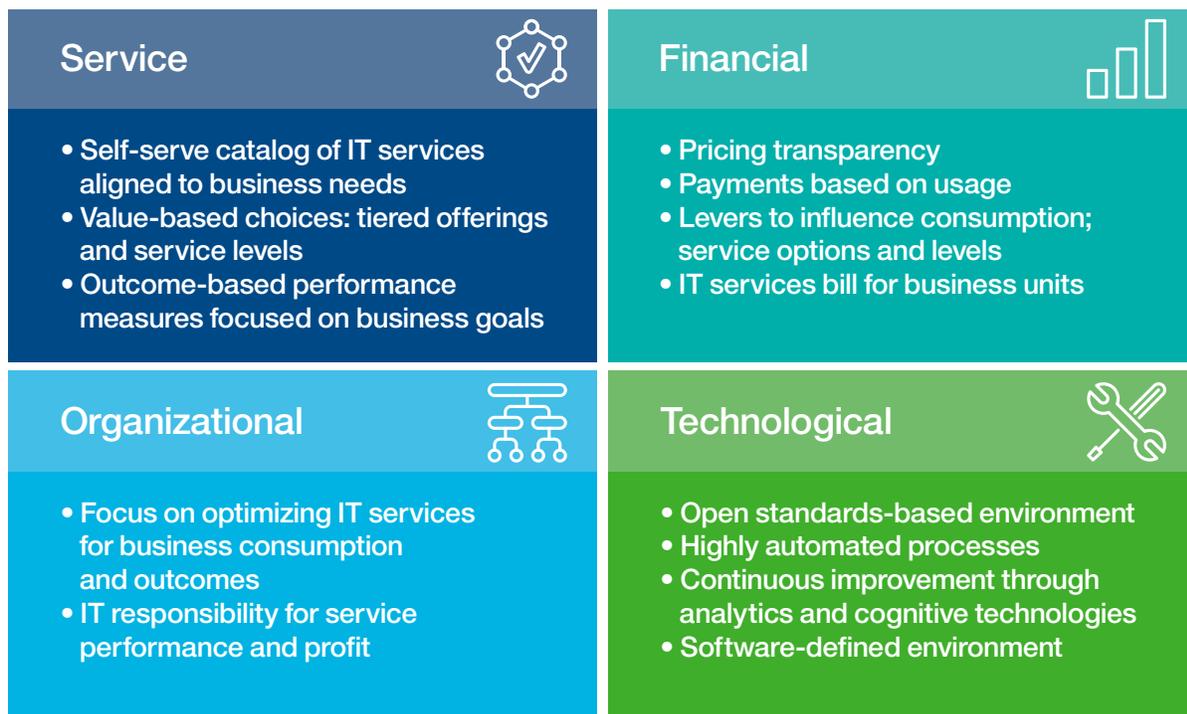


Figure 1. The four dimensions of ITaaS. ITaaS is an operating shift for IT, instituting business focus and broad change across multiple dimensions. It helps simplify IT service consumption and management and makes it possible to deliver on the full promise of hybrid cloud.

ITaaS use cases for optimizing hybrid cloud and business value

Implementing ITaaS isn't about capturing the benefits of the technology; it's about capturing what technology can do for the business. By optimizing hybrid cloud, ITaaS helps enable IT organizations to deliver better value to the business by:

- Reducing IT costs and improving cost transparency
- Streamlining how IT services are provisioned, governed and managed
- Increasing visibility and control over the IT infrastructure
- Providing speed and scalability to better meet the digital demands of the enterprise
- Increasing opportunities for strategic innovation and digital transformation

There are multiple use cases for implementing an ITaaS model and optimizing hybrid cloud and business value. This section outlines four common use cases. They are based on patterns of need IBM has seen in the market and among its clients:

- Application migration and modernization
- Application innovation
- Visibility and governance
- Integration and optimization

Application migration and modernization

To succeed in a digital economy, IT must be able to respond dynamically to changing demands and manage unpredictable growth. That's difficult when most enterprise applications still run on a traditional IT infrastructure. Cloud provides the solution, offering a level of agility and elasticity that just isn't possible with legacy IT. Before applications can be migrated to the cloud, however, most of them must be modernized so they can function effectively in a hybrid environment.

ITaaS provides a framework for migrating applications to the cloud and making the most efficient use of cloud resources. It helps enable IT to build an agile hybrid cloud environment capable of dynamically moving workloads between clouds and bursting to the cloud to meet peak demands.

IT organizations need to assess applications to determine which are a best fit for cloud operationally and financially. They must look hard at their existing infrastructure investments to determine which workloads can benefit from cloud's dynamic environment. Implementing the optimal platform mix for the workloads requires comparing cloud and traditional IT options and developing a migration plan for cloud-bound workloads.

Once these plans are implemented, ITaaS orchestrates IT service delivery, dynamically matching resources to demand and shifting workloads to the right platforms, based on cost and policy. Analytics help predict demand and make sourcing decisions.

Case study: Making the leap to hybrid cloud

With reliability and responsiveness of its on-premises infrastructure unable to keep up with the demands of global expansion, a leading electronics company knew the answer lay in migrating much of its IT infrastructure to the cloud. Today that massive cloud solution hosts nearly 100 websites in 22 languages presenting thousands of constantly changing products. Built on a software-defined environment, it can provide ample flexibility, scalability and resilience. The cloud migration helped enable IT to improve service consumption and pricing for business users and deliver innovative solutions to diverse markets faster. It was an important first step in IT's transformation from traditional IT provider to business value partner.

Application innovation

When an enterprise infrastructure is mostly cloud based, the expectation is that innovation will be faster and easier to achieve. But that isn't always the case. Just having access to cloud doesn't mean developers become better and faster at building and delivering new business services.

IT has to empower developers and business users with the next-generation DevOps environment to build, test and deploy new applications with speed. ITaaS does this, replacing lengthy IT procurement processes with rapid, self-directed provisioning. Developers can more quickly and easily provision infrastructure and services from across the hybrid landscape. Using a self-service catalog, they can spin up new development environments in hours instead of weeks. Moreover, they can more easily deploy new applications into production with full management, governance and billing, because the processes

are automated. Applications and their underlying data can be integrated more securely with existing enterprise systems and moved into production with dynamic governance.

The self-service catalog, accessible through a corporate portal, provides a menu of modular services and service options for traditional IT and public and private cloud. The services are simplified, standardized and often customized for users based on their role. This allows IT to deliver a more predictable and personalized user experience. With service descriptions, tiers and pricing visible in the catalog, business users can make informed decisions about which services to consume and know what outcomes and costs to expect. Analytics aid these decisions by normalizing pricing among cloud offerings and highlighting the capabilities differences between vendors and services.

In addition to providing easier access to development platforms, ITaaS helps developers take better advantage of the application programming interface (API) economy. The catalog simplifies access to a wide range of APIs, vetted and published by IT, which can be used to help enable and accelerate new service development. This encourages internal business users and external business partners to create new sources of revenue for the enterprise.

Visibility and governance

IT organizations often make the move to ITaaS to improve their visibility and governance of the hybrid infrastructure. ITaaS increases transparency. It consolidates and integrates vendor-specific processes and tools, helping enable public, private and traditional resources to be monitored and managed uniformly through a single portal. Moreover, it uses analytics to continuously optimize service quality and capacity in real time.

The ability to view externally provisioned cloud services is especially valuable for IT purchases that have circumvented corporate controls and security. ITaaS can automatically identify these rogue cloud assets and bring them under the same management as the rest of IT. IT leaders can view and monitor everything from cloud use and cost trends to security on the same console. They can see when and where services are being deployed and how they are being used. This allows for faster issue resolution and improved service-level compliance. Business users also benefit. They can continue using existing external cloud services but with centralized purchasing, compliance and other key processes.

From service consumption and procurement to governance and billing, ITaaS provides a robust framework to help simplify management across the IT value chain. It facilitates dynamic governance by automating business, operating and security policies and controls. This includes the controls required for DevOps. Cloud-based platforms often lack the controls needed to move new applications to production. ITaaS provides these controls in the form of service management, wrapping new applications with security, backup, disaster recovery, networking and load balancing services, among others.

Transparency also extends to costs and billing. ITaaS exposes the cost inefficiencies that can drive up expenses and stall new development. With ITaaS, business units understand IT service costs before they provision, and they can directly compare costs with actual consumption. IT has the chargeback capability to consolidate billing and more accurately invoice individual business units. Unnecessary costs can be prevented by helping business units make the right service choices, closely managing how services are consumed and modifying services to better meet changing consumption patterns.

Transparency builds trust and lowers risk, making it easier to verify that service levels are being met and to maintain alignment with business goals. It's easier for business users to see the value of going through IT for services instead of using external providers.

Integration and optimization

Companies experiencing the pains of cloud sprawl want to contain and integrate the expanding ecosystem of IT services while meeting rapidly changing business requirements and digital demands. This is the optimal point for ITaaS, because it integrates and continuously optimizes the hybrid cloud environment to accommodate new workload demands.

Service integration helps enable existing systems and processes to be integrated into the self-service catalog. This allows users to take full advantage of the aggregated pool of cloud and traditional IT resources while providing a more cost-effective way of managing a heterogeneous environment. Resources can be shared instead of being dedicated to specific applications. Automated cloud provisioning and management can reduce operating costs. One financial services company in Australia experienced a 60 percent decrease in operating costs by taking advantage of these hybrid cloud strategies.⁵

ITaaS provides a platform for integrating and optimizing hybrid cloud environments. It allows IT to establish oversight and influence over the acquisition of cloud services. Through the catalog, IT can steer users to services that are designed to comply with security and regulatory standards. ITaaS integrates the tools and processes required to dynamically orchestrate service delivery and consumption. For example, it orchestrates all the tasks and services that go into provisioning a new development environment, including sourcing, configuring and securing compute, storage and networking services.

Orchestration is a key element of service integration, because it connects IT services automatically. Building an orchestrated environment requires standardizing and rationalizing infrastructure components and services, then reengineering the supporting processes, organization and technologies. This includes providing API wrappers around those services and developing a technology reference architecture and standardized workflows. It also includes implementing software-defined technologies for servers, storage and networking, and training IT staff on new methods. In addition, it requires building in the automation to facilitate service orchestration, management and governance.

Case study: Increasing agility while lowering total cost of ownership

Lacking the agility and speed to deliver new services and projects, a US mortgage company knew that its legacy infrastructure was to blame. It had grown increasingly complex and expensive to operate, because its heterogeneous components were not standardized or automated. To resolve the problem, the company migrated its servers and storage to a cloud-based ITaaS model. This not only simplified operations but also resulted in 20 percent savings of USD 75 million over five years. Technology standards, deployment patterns and an integrated service catalog were established to support the new model. Today the company continues to benefit from workload orchestration, consumption-based pricing and continuous optimization with predictive analytics.

The journey to a mature ITaaS model

Each use case provides a valid starting point for ITaaS, but there are many other ways to begin the journey. Most allow organizations to leverage their existing resources and infrastructure, helping enable them to achieve incremental gains more quickly. Often these gains take the form of innovative new business solutions that can be designed and deployed faster than with traditional service provisioning.

The ITaaS framework (Figure 2) outlines at a high level the key elements needed for the operating and organizational transition to this new model. Business solutions result from the agility and efficiency that ITaaS lends to new development, including DevOps. Brokerage capabilities can simplify and unify the selection, procurement and consumption of the full range of cloud and traditional IT services. The services are standardized, modularized and multisourced. They are targeted—and orchestrated—to the needs of the business. Orchestrating traditional IT services with public and private cloud services helps simplify service delivery and consumption for users and allows service requests to be fulfilled in the most optimal way.

The ITaaS framework also relies on creating and maintaining the self-service catalog. IT needs to be able to continuously evaluate new catalog offerings, recruit providers with different strengths and cost structures, benchmark selected services and provide best options to the business. By defining which cloud services will be available and building preconfigured templates for each vendor, IT helps ensure that new services better meet corporate specifications for security and resilience. That allows business users to consume more compliant cloud solutions. Further, they can self-manage spending through consumption and service-level choices.

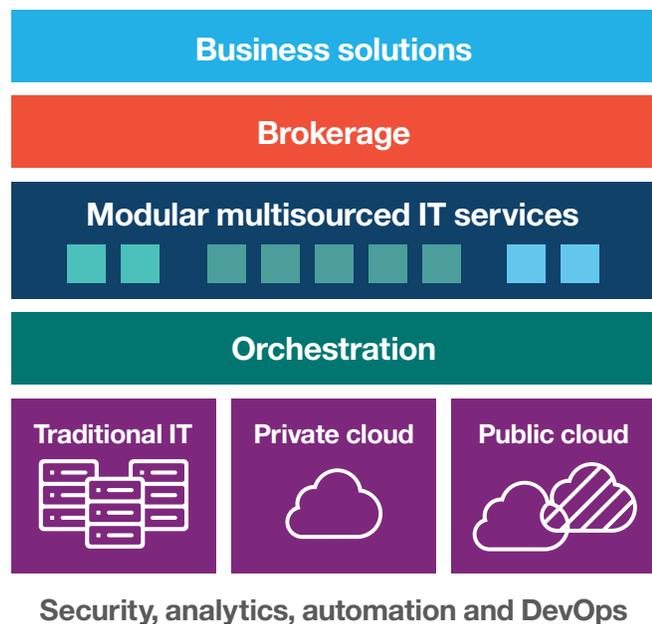


Figure 2. IT as a Service framework. The ITaaS framework provides a high-level view of the essential elements required for transforming the IT operation and the enterprise.

The journey to ITaaS typically starts with an IT maturity assessment to determine the current state of organizations' hybrid cloud environment and the target state they'd like to reach. Current infrastructure and resources are assessed to determine how IT services should be transitioned to the ITaaS model. Business drivers are identified so that an appropriate transition strategy can be developed. In addition, a capable network must be in place to handle the continuous service delivery and cross-functional collaboration inherent in ITaaS.

Enabling ITaaS and creating an integrated hybrid cloud ecosystem also entails building the requisite service and policy definitions, orchestrated workflows and governance processes. Technology and processes must be standardized to help enable the automation required for the self-service, pay-as-you-go, more compliant ITaaS platform. A software-defined environment provides the essential foundation for this. It automates service provisioning and management, and it helps enable dynamic orchestration, whether resources are sourced from the cloud or traditional IT.

Finally, in the journey to ITaaS, the IT organizational transition is just as important as the operating transition. IT's ability to run like a business and optimize IT services for business consumption is critical to producing higher levels of agility for the enterprise as a whole. Such agility helps enable the enterprise to extract greater business value from hybrid cloud.

Build transformative capabilities to gain value

The IT opportunity and challenge associated with hybrid cloud is at an all-time high. Building transformative, new cloud capabilities ahead of competitors necessitates liberating IT professionals to challenge the status quo and uncover new ways of creating business value. Adopting ITaaS and learning to exploit its business-centric self-serve model is a big part of that.

ITaaS emphasizes the importance of transforming the IT organization, not just the infrastructure. It eliminates the organizational silos and operating deficiencies that inhibit collaboration and helps enable IT to work as a strategic partner to the business. As a result, IT can develop new applications faster to increase revenue and drive competitive differentiation.

IT leaders need to empower their employees to innovate freely and become driving forces for the enterprise. CIOs interviewed in the IBM C-suite Study recognize this and know it is a role only IT can play. It requires building a culture that supports rapid experimentation and first-to-market delivery. It also requires ramping up IT's analytical power with relevant skills and expertise. Recruiting for the future and collaborating with external organizations can fill the talent gap and help enable IT to keep up with new technology and business demands.⁶

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IBM knows the transformation to ITaaS

ITaaS represents a seismic shift for IT. After all, it requires modifying established IT processes and technologies and convincing IT technicians to think and operate differently.

IBM understands this transformation, because it's done it. The IBM ITaaS approach underscores its move from traditional systems integrator to services integrator.

IBM has a robust framework for ITaaS based on codified best practices, with an enterprise lens that includes automated integration and support across cloud and traditional infrastructure. It has the expertise, cognitive platform and framework designed to provide 40 percent savings and reduced cycle time. For example, IBM can reduce solution delivery from nine months to less than one month.⁷ Moreover, it helps clients that represent the cornerstones of their industries deliver innovation and business value with hybrid cloud. IBM manages the infrastructure supporting 60 percent of card transactions in banking, 47 percent of hypermarket retail sales, 53 percent of mobile connections worldwide and 61 percent of passenger vehicle production.

Conclusion

With hybrid cloud the destination for most organizations, IT's role is being challenged to evolve, and it should be. For IT to continue delivering value to the business and help enable growth, it must run like a business. ITaaS is essential to that mission. By matching the self-service, choice and transparency of cloud models and providing a thorough services management framework to integrate and orchestrate the hybrid environment, ITaaS helps enable IT to become the preferred provider for cloud and other IT services. It can simplify the way IT services are procured, governed and managed, allowing IT to cut through the complexity of hybrid cloud and optimize business value. Further, ITaaS frees IT to focus on the kind of innovation that is critical to competitive advantage.

For more information

To learn how IBM helps IT organizations transition to ITaaS and transform the enterprise, visit:

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IBM Global Services
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Somers, NY 10589
U.S.A.

Produced in the United States of America
February 2017

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⁷ IBM; based on analysis of client data.



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