# Table of Contents

Introduction ........................................................................................................................................... 3

**CASE STUDY 1: BECOME A SOFTWARE-DEFINED BANK** ................................................................. 4
VMware helps global financial services company become a more nimble, “software-defined” bank ................................................................. 5

**CASE STUDY 2: LEVERAGE THE POWER OF THE CLOUD** ............................................................ 9
VMware helps banking giant leverage the power of the cloud to increase agility, enhance security, and lower costs .................................................. 10

**CASE STUDY 3: BECOME LEANER AND MORE DEVELOPER-FRIENDLY** ............................... 13
Major U.S. regional bank teams with VMware to become leaner and more developer-friendly ................................................................. 14

**CASE STUDY 4: TRANSFORM APPLICATION DELIVERY AND MANAGEMENT** .................. 18
VMware helps global bank securely deliver data and applications to any device at any location ................................................................. 19
Introduction

Worldwide, the banking industry is going through a significant transformation, shaped by disruptive and competitive forces. Banks are under intense pressure to modernize banking platforms, improve security and, most importantly, differentiate themselves with innovative digital services and seamless cross-channel experiences. Many—including the world’s largest financial institutions—are turning to VMware® as a trusted partner in achieving the IT transformations they require.

Today, VMware is helping banks:

• **Modernize their banking platforms** for greater operational efficiencies and reduced costs by extending virtualization to all areas of the data center, including networking, security, and storage.

• **Enable innovation and digital transformation** by exploiting the flexibility of the Software-Defined Data Center (SDDC) to create an environment that develops, tests, and launches new apps and services in record time.

• **Secure data, stay compliant, and reduce risk** through virtualized networking technologies such as micro-segmentation and policy-driven security and compliance protocols.

• **Unify user, desktop, and mobile management**, empowering staff to securely and seamlessly access data and applications from any device, anywhere.

This eBook features four case studies that illustrate the outcomes delivered by VMware partnerships with a cross-section of banking customers around the globe.
CASE STUDY 1:
BECOME A SOFTWARE-DEFINED BANK
VMware helps global financial services company become a more nimble, “software-defined” bank

This major multinational was being threatened by smaller, more agile competitors. To remain the bank of choice for its millions of customers, the bank needed to respond more quickly to changing customer preferences and deliver new services with a high degree of reliability.

**Business priority: Create differentiated customer experiences within a tradition-bound and compliance-focused industry**

To attract new customers in a time of rapid industry change, the bank had to:

- Make better use of customer analytics.
- Increase their pace of innovation.
- Look beyond traditional banking with new services and new business models.

These priorities needed to be accomplished within a classic banking culture that was slow to embrace change and bound by the strong compliance requirements of international finance.
IT challenge: Replace the limited, obsolete infrastructure

One major impediment to meeting these goals was the bank’s unstable IT environment, which had received a great deal of negative publicity, tarnishing the bank’s reputation.

IT resources were almost exclusively focused on maintenance. And the bank’s current infrastructure and related operations were both expensive to maintain and hard to scale. IT simply couldn’t support application development at the pace the company needed. So the plan was to:

• Simplify and streamline the bank’s entire IT infrastructure.
• Provide core standardized IT services to enable their developers to rapidly build applications and services.
• Break down operational IT silos.
• Provide financial services transparency while meeting industry and government compliance requirements in multiple countries.

Capabilities needed: A private cloud within a new operating model

An operational review quickly established that achieving these goals required a re-engineered, private cloud solution that could extend to a hybrid cloud over time.

It also demanded an entirely new, complementary operating model. The focus would be on delivering IT in the context of services to end customers within the larger organization. The model also had to support a DevOps approach to fast application development through standardized, streamlined, cost-transparent, end-to-end services that would meet the bank’s ongoing IT needs as they shifted and grew.

VMWARE SOLUTION

• Private cloud with up to 40K VMs—with associated hardware, SDDC software, storage, and deployment services
• Design, build, and deploy an IaaS, PaaS, and Continuous Delivery IT model through a next-gen technology architecture
• Implementation represented an entire operational change
• VMware Professional Services

BUSINESS BENEFITS

• Projected $525M savings over 5 years
• IT costs reduced 29 percent, freeing budget for innovation
• Cloud Service Management implemented
• New operating model
• New organizational model
• Time to order from service catalog reduced from weeks to minutes
• Automated compliance management
**Solution:** VMware private cloud with full end-to-end service life cycle

VMware’s fully engineered solution could satisfy all the bank’s requirements. A 360-degree service definition process defined end-to-end services from the beginning, and included the flexibility to quickly add new services as needed. What’s more, VMware’s industry-leading, cloud-management platform could support the cloud operations teams in proactive service delivery and operational management.

Everything was set into motion through an integrated set of work streams that established the “software-defined,” data center-based private cloud, while developing the initial services the bank could offer to its DevOps community.

Crucially, the bank and VMware used a phased “minimal viable product” approach to start, so they could implement only those aspects of the infrastructure, model, and service offerings required to sustain basic operations at launch—launching in one country only.

The solution VMware designed was promoted both within the immediate DevOps community and to regions that would make the switch later. It was made clear that the comprehensive, new program would transition to a fully functioning IT operation after the MVP launch. That key decision eliminated the need to create a new IT organization just to perform the design and build. It also offered agility, while ensuring that the IT team (created as part of the new operating model) could sustain the effort going forward.

Within a year, the initial program was up and running and, step by step, IT began building out the balance of the planned organization, processes, and services.

**Results:** On target to save $500M+ over 5 years—IT services time to order reduced from weeks to minutes

The bank is now positioned to extend existing service offerings into new services—such as containers as a service (CaaS) and data analytics as a service (DaaS)—to meet customer demand and grow new revenue streams.

From an IT financial perspective, the organization now has an accurate view of how much a cloud service costs, including infrastructure, licensing, and operational expense. This will help them plan and allocate resources, moving forward.
Next steps: VMware’s phased approach ready to take on new and changing requirements

Traditionally, IT doesn’t launch until every aspect of a new system is in place, rendering it all but impossible to innovate once the new system is built. The phased approach frees IT to accommodate new requirements without impacting the operating model or core technology.

The phased approach also accommodates deeper engagement with IT’s DevOps communities and engineering teams, ensuring they can be offered services in terms of priority, and with all the capabilities required to increase innovation.

In addition, the phased approach helps the bank meet the stringent compliance and security controls required by government financial regulators and expected of a mature, well-trusted banking institution. Involving the compliance teams with the project streams enabled VMware to understand and engineer solutions that could meet the strictest security and configuration requirements—such as solution auditing, role-based access control, security event monitoring, vulnerability management, and patch management.

The future: Building a multinational, software-defined bank

The next phase will introduce an agile approach to designing, developing, and releasing new services, while continuing to enhance and implement additional automated processes—such as automated incident remediation—within the operating model.

Perhaps most important, the initial steps taken to define the costing for cloud services will allow the bank to utilize an educated pricing policy that drives a chargeback and billing model. That way, they can recoup IT-related costs from the business units and move towards becoming a true, cloud-service broker.
CASE STUDY 2: LEVERAGE THE POWER OF THE CLOUD
VMware helps banking giant leverage the power of the cloud to increase agility, enhance security, and lower costs

The banking crisis of 2008 and 2009 was a wake-up call for this huge, multinational bank. It forced the company to look for cost reductions and focus exclusively on lines of business that were of clear strategic value. They partnered with VMware to help them radically rethink how they could deliver innovative IT services most efficiently.

**Business priority: Improve services at reduced operating expense**
Customer differentiation in global banking was increasingly being driven by IT innovation. So, from the start, it was obvious that the bank would succeed only if its technology unit could outperform—and outpace—its intense competition.

But of course, as a major cost center, the IT operation itself would also have to run more efficiently.

**IT challenge: Enable innovation while also lowering costs**
The bank was known as a leader in consumer-facing innovation, helping pioneer both ATMs and online financial services. But behind the scenes, its internal IT operation was slow and monolithic. They needed VMware’s help to:

- Take maximum advantage of current, powerful technologies.
- Use those technologies to bring services to market faster.
- Restore their brand reputation for innovation and leadership.

And to do it all as economically as possible, while bolstering security.
Solution: Mapping a journey into the cloud

Led by their visionary CTO, the bank pursued a multi-step approach to IT transformation.

It began with a plan to fully implement software-defined computing. The goal was to establish a cloud-based, IT infrastructure that would give developers the speed and flexibility they needed to deliver new and innovative services faster, more reliably, and at a far lower cost.

Fortunately, the bank was already running the VMware vSphere® compute virtualization platform. Next step: complement that capability with software-defined storage and networking. They achieved their objective through a combination of EMC storage (EMC is a Dell Technologies company) and the VMware NSX® networking solution.

Next, they added a customized, self-service automation layer on top of VMware vRealize® Automation™. This gave them a complete infrastructure-as-a-service (IaaS) foundation for their private cloud environment—saving them both time and money in IT provisioning, while offering the necessary, enhanced security.

At the same time, the bank’s consumer-facing IT began reinventing how they developed applications, aiming to build a next-generation, cloud-ready application platform. They deployed the Pivotal Cloud Foundry methodology (Pivotal is a Dell Technologies company) for building and delivering applications via micro-services. Hosted on vSphere, their new service gave developers the increased flexibility and speed they needed.

Results: IT as a strategic partner in innovation

Most significantly, the bank’s IT operation successfully made the transition from infrastructure provider to service provider to key strategic partner.

Developers were now free to focus exclusively on applications. By adopting a continuous development and continuous application delivery model, they could reduce application time to market and bring innovation to bank customers faster than ever. All with increased security and reliability.

Among the new services the bank introduced were apps for online banking and consumer lending (on the customer side) and credit profiling apps (for internal use). What’s more, by moving to a fully software-defined solution, the bank could substantially reduce its cost of IT operations.
Completing the journey: A next-generation end-user computing platform

With a scalable, flexible, and secure cloud infrastructure in place, the bank is now well-positioned to transform its delivery of desktop services to staff, contractors, and third-party vendors and consultants. They had already established a semi-virtualized, shared-desktop solution delivered through its own on-premises data center. While accommodating shifting industry needs—allowing secure access to third-party developers, at-home workers, and employee-owned devices, for example—the solution not only required the physical separation of internal and external users, but also scaled poorly.

The bank is now planning to exploit the micro-segmentation and multi-tenancy properties of its software-defined data centers to create a far more cost-effective solution that will deliver a robust, high-performance, and fully virtualized desktop experience at scale.

Once again, they are turning to VMware—in this case, to deploy a solution with non-persistent desktops that are:

- More secure
- Easier to manage
- Deliverable to any device
- At a lower cost per desktop than physical machines

The bank aims to have over 80 percent of employees and contractors using the virtualized desktop solution in the next two years.

The bank also recognized the need to deliver applications to a user’s mobile device of choice, but for security reasons had specific restrictions on what can and cannot be done, both on “Choose Your Own Device” (corporate devices with no personal content) and “Bring Your Own Device” (without any corporate data leakage). The bank chose the VMware AirWatch® enterprise mobile management suite of solutions to deliver secure access to all business-critical applications on devices, for close to 20,000 users.
CASE STUDY 3: BECOME LEANER AND MORE DEVELOPER-FRIENDLY
Major U.S. regional bank teams with VMware to become leaner and more developer-friendly

The bank’s legacy IT environment just wasn’t equipped to support the rate of new, service development requirements to be competitive. Although a mid-sized bank, they still needed the ability to move at the speed of modern banking—without the IT budgets and staffing resources the larger national banks could muster. To compete at that level, they actually needed to get “smaller,” that is, leaner and more agile.

Specifically, they needed to change their focus from infrastructure-operations-maintenance to customer-oriented application development. While it was still important for the bank to retain its warm, small-town feel in the branches, it was also imperative that they innovate. Application development needed to focus on both enhancing existing products and processes, and accelerating development for new digital services, particularly in the credit-card and online-banking business units.
Phase I: Streamline IT infrastructure
Without a highly virtualized and automated infrastructure, fast and agile application development and deployment would be practically impossible. So the first step was to simplify and modernize the bank’s core banking platforms.

Virtualization was already in place, but operations were not optimal. VM sprawl meant that administrative processes were highly manual, leading to a lack of consistency in configurations. There was no real structure or ability to automate.

The new VP of Infrastructure immediately determined that IT would need to:
• Increase automation to get efficient and lean.
• Optimize or re-engineer processes.
• Shift its culture to one that embraced risk, and viewed developers as its most important customers.

VMware Professional Services delivered a comprehensive evaluation of the VMware vSphere environment, getting that environment updated, configured properly, and sized correctly.

Phase II: Create an application and developer-oriented environment
With the streamlined infrastructure in place, the bank could begin the transition to a service-oriented environment.

Through interviews and collaborative workshops, the VMware Professional Services team worked with IT operations, application development, and business-unit stakeholders to identify business needs, and map them to the required IT capabilities.
This allowed infrastructure teams, which historically had limited insight into business-unit development roadmaps, to understand what capabilities would be needed as part of a longer term plan. Roadmaps took into account the changes needed across people and process, not just technology.

The next step was to develop infrastructure-as-a-service (IaaS) capabilities, enabling IT to offer highly scalable infrastructure resources that internal customers could order and adjust on-demand. They would then expand into platform as a service (PaaS), allowing developers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with application development.

Organizational changes were essential to the success of this new method of delivering IT services. A Cloud Operations Team was created, ensuring that the bank had the right capabilities, skill sets, and support to operate as a world-class service provider.

Process re-engineering was also essential: a list of process automation candidates was compiled, then prioritized, focusing on the highest-impact processes first.

Working with VMware Professional Services, the bank delivered IaaS and PaaS capabilities to their development teams in less than a year.
Results: Immediate savings, increased agility, improved customer experience

The bank’s internal users of IT services have a dramatically different experience. IaaS and PaaS services are now available with the click of a button, without sacrificing any of the control or security that IT operations needs as a regulated financial institution. Eighty-four percent of all workloads now run on a private cloud. And the bank is on track to reduce their physical server count by 86 percent within three years.

Manual processes that used to cause bottlenecks for application development are now fully automated. For example, one process took 90 days to stand up a new environment before a developer could write a single line of code. This process was ultimately cut down to 20 minutes.

Other outcomes included:
• Reduced application stack provisioning times from 5 days to less than 30 minutes
• Over 700 application-development and support environments created
• On target to save $40M in capital expenditure over the next five years—with a 34 percent increase in capacity
• Operating costs reduced by $10.7M per year

The lines of business within the bank now have the ability to quickly turn ideas into revenue-generating opportunities.

For example, slow turnaround times for credit-line increases was a problem. The bank built a new platform quickly that simultaneously could pull all relevant customer information and perform an automated risk analysis. So when the bank’s customers requested a credit-line increase, the bank could immediately assess business risk, instantly capture the customer’s business (avoiding any loss to competitors), and drive up bank revenues.

LEARN MORE
For additional information on how VMware solutions can help financial services organizations, visit http://www.vmware.com/solutions/industry/financial-services.html or contact your VMware representative.
CASE STUDY 4: TRANSFORM APPLICATION DELIVERY AND MANAGEMENT
VMware helps global bank securely deliver data and applications to any device at any location

This major European financial services company wanted to simplify the process of delivering desktop services to its global workforce. To help them modernize their traditional IT operations for the mobile cloud era, they needed an experienced, strategic partner: VMware.

**Business priority: Better staff experience for greater productivity**

Legacy systems and processes were a major impediment to staff productivity; for example, onboarding a new user was a three-month process. Due to complex security and compliance requirements—both global and country-specific—the bank was further constrained from making end-user computing improvements. In particular, there were stringent requirements associated with working in and around the Swiss banking environment.

**IT challenge: Enable secure, anytime, anywhere staff productivity while ensuring privacy and compliance**

While the objective was to simplify and transform end-user compute and management for operational efficiency gains, the sheer scale of the undertaking was the real challenge:

- Over 6,000 applications
- Operations in Europe, U.S., and Asia Pacific
- Scale to 70,000 users by the end of year three

An immediate driver was the bank’s headquarters move to a new location. The goal was to optimize this move with a 100 percent VDI environment.

With VMware as lead partner, this global banking powerhouse is turning its complex, slow-moving desktop environment into a far more responsive, scalable, and secure environment that empowers employees and provides dramatically improved operational efficacy.

**CUSTOMER PROFILE**

- **Industry:** Banking
- **Size:** 60,000 employees
- **Geography:** Europe-based, global

**KEY CHALLENGES**

- Complex, static environment with 6,000 customized legacy apps
- Slow end-user onboarding
- One gold image for all applications resulted in very slow load times
Solution: VMware App Volumes for real-time app delivery

With a new end-user computing solution architect, the bank committed to a significant, multi-year, financial investment in re-engineering the end-user computing environment. It also looked for a partner both willing and able to be more than a conventional technology supplier. That partner not only had the technology the bank required, but could transform the bank from the old way of managing physical desktops to the new way of delivering applications in a virtual desktop environment.

In VMware, the bank found a company that could do both. In addition to other VMware solutions in the environment, VMware App Volumes™ enabled the bank to deliver applications and manage users at scale.

App Volumes enabled real-time application delivery—managed at the data-center level—through automated, policy-based access. It provided employees with the precise set of apps for which they were qualified, based on their user profile and location. This meant taking all the complicated, customized applications they’d built over the years and transforming the way applications were delivered, improving operational efficiency while maintaining security.

Additionally, App Volumes helped optimize the customer’s existing Citrix platform and offer a complementary, rather than disruptive, solution. This minimized the degree to which the transition to a new platform impacted the business—critical for this customer competing in a highly dynamic and regulated market.

VMware Professional Services team members were onsite to accelerate the adoption process, troubleshoot where needed, and bring in additional VMware R&D firepower to resolve any issues.
Results: Fast, global deployment by 2017

Less than eighteen months into the migration, virtual desktops enabled by App Volumes are already deployed to over 10,000 bank employees in the U.S. and Europe, with another 15,000 expected this year. The deployment is on track to extend to all 76,000 bank staff and contractors by the close of 2017.

The time to get an end user working on a desktop has been essentially reduced to zero. With an email address and login, the user’s profile is called up simply and seamlessly—on whatever device the user chooses. The solution matches user needs and clearances exactly, increasing employee efficiency and enhancing security.

Looking ahead: Towards full mobility and profile management

Looking to the future, the bank is adding VMware Airwatch for additional enterprise mobility and management capabilities. The bank is also examining virtualized network and security improvements with the VMware NSX networking solution.