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To compete effectively in the era of digital transformation, retail banks will need to modernize their existing storage infrastructures using newer technologies like solid-state storage, software-defined infrastructure, artificial intelligence, and cloud.

Enterprise Storage as Enabler of Digital Transformation in Global Retail Banking

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Industry Definition and Core Attributes

Digital transformation in retail banking worldwide is happening across the entire enterprise — from the front lines of customer experience to the lines of business driving revenue through products and services. The benefits of digital transformation include improvements to the back-office infrastructure – the beating heart of the bank – and the operational processes that safeguard the institution from threats and keep it fiscally compliant.

These initiatives are being driven by the need to improve intimacy with and responsiveness to the customer, implement stronger intelligence to improve and manage operations within the institution, increase the institution's agility to respond to changing market conditions, provide high performance, offer a highly available infrastructure, and drive higher investment returns.

AT A GLANCE

KEY STATS

Global banking spend on big data and analytics will approach $26 billion in 2019 and is growing at a pace of 13% year over year.

KEY TAKEAWAYS

Banks are prioritizing data and analytics above every other technology initiative today. Given the need to converge data within the institution and to begin using data from external sources, data storage is becoming an increasingly strategic resource to achieve digital transformation.

Historically, these initiatives would be driven by distinct – and siloed – organizations within the institution. But today's reality is forcing collaboration between the lines of business and the IT groups to transform the bank's technology infrastructure in a strategic, enterprisewide way. The challenges include a need to manage multiple data types, keep the data clean, secure the data, and ensure high availability and reliability across the institution. Thus storage infrastructure has become an important consideration that the CIOs, CTOs, and line-of-business leaders must focus on to ensure continuity of service levels while transforming their ability to quickly respond to market changes.

At the same time, banks are increasingly moving to open architectures that support flexible deployment of data and workloads in a hybrid cloud infrastructure that includes external "as a service" providers. In IDC's 2018 *CloudView Survey* of global enterprises, banks indicated that their spending on public cloud services, including software as a service, platform as a service, and infrastructure as a service, will increase 26% from 2018 to 2020 – higher growth than any other

area of cloud (private, hybrid, etc.). At the same time, banks indicated that their spend on traditional, in-house IT will decrease by 18%. The IT infrastructure modernization driven by digital transformation must ensure that retail banks can take full advantage of hybrid cloud infrastructures that support the agility needed in today's more dynamic business environment.

Key Business Priorities

Consumer banking, also known as retail banking, provides products and services to mass-market consumers and small business owners. The product set available from a typical retail bank can include an array of deposit and credit accounts and related services. Some institutions also run wealth management products and services from the retail bank. Today's priorities for these lines of business include:

- Reinventing the customer experience using the latest digital platforms
- Increasing customer intimacy through AI-enabled, predictive analytics
- Improving critical business operations like credit origination processing to improve speed to decision
- Maximizing the efficiency of IT operations
- Improving control over risk, compliance, and security through enhanced data and analytics
- Monetizing data already within the enterprise
- Connecting to external sources of value to break beyond traditional banking business models and extending the institutions' reach into the consumer and small business owner's daily life

Successful, Growing Banks Are Investing in Digital Transformation

IDC Financial Insights defines digital transformation as the continuous process by which enterprises adapt to or drive disruptive changes in their customers and markets by leveraging digital competencies to:

- Innovate new, more data-centric business models, products, and services
- Blend digital, physical, business, and customer experiences
- Improve operational efficiencies and performance

Digital transformation is driving increasingly higher requirements for performance, availability, scalability, and agility in the IT infrastructures of retail banking organizations. Legacy storage architectures can't meet these requirements, and this is why those organizations that have successfully achieved digital transformation are highly likely to also have invested in IT infrastructure modernization. As part of these efforts, they are taking advantage of newer technologies like solid-state storage, software-defined infrastructure, artificial intelligence and machine learning (AI/ML), and cloud. IDC research has shown that those organizations that have successfully achieved digital transformation (digital achievers) achieve higher revenue growth and profitability than those organizations that have not (digital laggards).

Considering Pure Storage

Pure Storage is a $1.3 billion vendor of enterprise-class storage platforms based entirely on solid-state storage technology. The company targets both enterprises and cloud service providers and has an installed base that includes tens of thousands of production systems. As a public company, Pure Storage continues to grow faster than the overall all-flash array (AFA) market, is profitable, and brought in a new CEO (Charles Giancarlo) two years ago who has the large company experience to grow the vendor to $5 billion. With a portfolio that addresses block-, file-, and object-based storage requirements, Pure Storage has over the past decade driven a number of key changes in the external enterprise storage market that are now considered table stakes among established AFA vendors:

- Pure Storage led the way with its FlashArray product in this space starting back in 2011, leveraging the performance advantages of flash to lower the cost per gigabyte and significantly increase storage capacity per rack U for these workloads. More than any other single feature, it was the broad use of data reduction technology (e.g., compression, deduplication) that made solid-state storage affordable for general-purpose use in the enterprise.
- Pure Storage again led the way in bundling all array software with the base price of the array, making array purchases simpler and significantly lowering the cost of enterprise storage relative to the older "à la carte" model for purchasing storage management features (e.g., snapshots, encryption, replication, stretch clusters).
- The move away from older "remote monitoring" to newer AI/ML-driven cloud-based predictive analytics platforms increases the performance, availability, and efficiency of systems; improves performance and capacity planning; enables rapid dissemination of best practices within the installed base; pre-validates planned upgrades; and lowers the cost of maintaining an enterprise-class array. Pure Storage has included this feature at no additional charge to its maintenance customers since 2015. As IT is asked to do more with less, this type of intelligent automation has become a critical contributor to administrative productivity.
- A focus on improving the customer experience (CX) for enterprise storage ownership has consistently driven one of the highest Net Promoter Scores (NPSs) in the enterprise storage industry. The NPS is a standardized metric, tabulated by independent third parties and used across more than 220 different industries, that measures how willing a customer is to recommend a vendor's products to colleagues. Through its Evergreen Storage program, Pure Storage introduced for the first time a number of guarantees, many of which have been widely copied by its competitors, that include data reduction ratios, flash endurance, fixed maintenance pricing, comprehensive software bundling, and nondisruptive, multigenerational technology refresh, as well as a money-back guarantee. These guarantees address many of the annoyances that have been traditionally associated with enterprise storage life-cycle management and, when combined with the ease of use of its product, have significantly improved the overall ownership experience, driving the high NPS score (which is based purely on customer, not vendor, feedback).
- The first established storage provider to ship NVMe-based AFAs starting back in May 2017, Pure Storage introduced these systems *at no price premium* to its SCSI-based AFAs. Within a year of Pure Storage's introduction, many of its large competitors had also introduced NVMe-based systems but Pure Storage already had a year of production experience with this technology in real-world environments. Today, customers can buy SCSI-based or NVMe-based AFAs from Pure Storage and choose from SCSI or NVMe over Fabric host connections as well. NVMe technology ensures that storage can meet the demanding performance requirements of digital transformation.

Pure Storage has only ever supported AFAs — it has no technology baggage from a former era that was based around HDDs. Its storage operating system was built for solid-state storage from day one, and it ships more NVMe-based AFAs than any other vendor in the industry.

The Role of Pure Storage in Digital Transformation

During digital transformation, retail banks moving to more modernized IT infrastructure do so to achieve higher performance and availability, easier scalability, increased agility, and lower cost. Newer technologies like solid-state storage (including NVMe and storage-class memory), software-defined designs, scale-out architectures, AI/ML-driven operations, big data management, analytics, and cloud all figure prominently in updated infrastructure, and these technologies are all in broad use throughout Pure Storage's product portfolio. NVMe drives higher performance and improved efficiencies, software-defined designs enable significant performance and feature improvements over time without requiring additional hardware, scale-out architectures provide easy scalability, and AI/ML, coupled with big data analytics in Pure1 (Pure Storage's cloud-based predictive analytics platform), drives higher performance, better availability, improved efficiencies, and lower costs.

Pure Storage has created a comprehensive hybrid cloud vision for its customers and executed on this vision for its entire portfolio for simple data and workload migration. Customers can choose on-premise, private cloud, or public cloud infrastructure deployment models, and Pure Storage is unique in the industry at this point in offering a unified "pay as you go" licensing model that covers all three options (even as data and workloads are moved between deployment locations). For on-premise and private cloud infrastructure, customers can also still use traditional capital expenditure purchase options. Purity, its mature, proven storage operating system, can run directly on Pure Storage hardware or in the public cloud, delivering its full enterprise-class functionality in any location. Nondisruptive system expansion, reconfiguration, and even multigenerational technology refresh provides a cloud-like experience in keeping solutions updated with the latest technology advancements (hence the choice of the term "Evergreen" for its CX "booster" program).

The value proposition Pure Storage brings to retail banking is to consolidate, connect, and accelerate enterprise storage infrastructure to support the requirements of digitally transformed organizations:

- **Consolidate.** The introduction of new solid-state storage has always enabled streamlining of existing infrastructure, and the transition from SCSI to NVMe is no different. Systems based around the newer technologies pack more performance and storage capacity in a smaller footprint, taking up less rack space. When processes and/or workflows become more automated using AI/ML, they become faster, easier, and more reliable. Implementing Pure Storage solutions frees up operational budget and increases productivity to enable more innovation to occur – innovation that helps to drive success for new business opportunities.

- **Connect.** With data as a key strategic asset for digitally transformed retail banks, IT infrastructure must be able to safely capture, store, protect, and share that data (and business insights based on the use of analytics against that data) with relevant constituents. Given that hybrid cloud is the way most datacenters are being structured these days, Pure Storage's hybrid cloud vision enables easy data and workload migration as necessary to meet performance, availability, use case, and other data life-cycle considerations.

» **Accelerate.** The performance, scalability, and agility of modernized storage infrastructure from Pure Storage drives top-line revenue growth by enabling rapid innovation around more data-centric business models, real-time analytics, more streamlined DevOps, faster time to market, and more efficient service delivery. The next-generation applications that retail banks use to improve investment returns and reinvent the CX demand a performant, highly available storage infrastructure that can easily adapt to evolving business requirements.

A recent business value study, completed by IDC in September 2018, found an average of a 431% five-year ROI, 46% lower five-year cost of operations, 58% improved application performance, and 61% improved efficiencies for IT operations among a group of interviewed customers who had migrated to Pure Storage solutions.

Challenges

The retail banking industry is changing rapidly, and as new technologies become available to help meet the evolving performance, availability, scalability, functionality, and agility requirements of a much more dynamic business era IT, organizations will need to learn how to best apply them. In addition, the bank's organizational structure has historically been siloed across multiple lines of business and the underlying IT organizations and architectures followed this disaggregated model. As such, it is often difficult to identify data ownership, spur collaboration between line-of-business executives, and "fairly" allocate the funds necessary to implement enterprise-level investments in new technology. These are all challenges that affect technology providers as they undertake the task of supporting the bank's modernization. However, the industry is coming to recognize that digital transformation begs a change in mind set for the retail bank, which will need to view data as a key strategic resource that can be leveraged to meet business objectives for increasing investment returns, improving CX, honing operational efficiencies, and offering new digitized products and services.

Takeaways

» Digital transformation is broadly happening across most industries as businesses move to more data-centric business models and actively leverage digitization to improve their interaction with customers, introduce new products and services, hone operational efficiencies, and respond more rapidly to evolving business conditions.

» As retail banks undergo digital transformation to adapt to changing market conditions, it will be necessary for them to modernize their existing IT infrastructure to meet evolving requirements for performance, availability, scalability, and agility that will be required as part of the new data-centric business models.

» Infrastructure modernization will bring in new technologies like solid-state storage, software-defined infrastructure, AI/ML, and cloud, and retail banks will need to develop the requisite expertise to leverage these technologies to their advantage and/or look to vendors to help guide them on their journey to digital transformation.

» Over the past decade, Pure Storage has driven much of the change in enterprise storage that resulted in significant improvements in the enterprise storage life cycle and experience, driving not only one of the highest NPS ratings in the industry but also encouraging extremely high repeat purchases from their existing customers. As a vendor, Pure Storage has partnered with customers on thousands of digital transformation projects and brings significant new technology expertise to the table to help customers on their journey to digital transformation.

About the Analysts

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Jerry Silva is research director for IDC Financial Insights responsible for the global retail banking practice. Mr. Silva's research focuses on technology trends and customer expectations and behaviors in retail banking worldwide. Mr. Silva draws upon over 25 years experience in the financial services industry to cover a variety of topics, from the back office, to customer channels, to governance in the technology shops at financial institutions. His work for both institutions and vendors gives Mr. Silva a broad perspective in technology strategies.

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