CONSOLIDATE, CONNECT AND ACCELERATE YOUR DATA

PUT YOUR DATA TO WORK ANYTIME, ANYWHERE

CONTENTS

PURESTORAGE®

UNPRECEDENTED CHALLENGES

DATA-CENTRIC TRANSFORMATION

Financial firms are going through a deep digital transformation where data has become the most valuable asset. These firms are becoming data-centric across the board, from customer facing services to internal back office operations, and they are innovating at an unprecedented rate for the industry. The aim is to attract a new generation of consumers, to differentiate against Fintech start-ups, or to contain the cost of stricter regulation.

The finance industry is being re-shaped by new technologies such as Artificial Intelligence (AI) and Machine Learning (ML), and IT departments have to now support this kind of game-changing innovation, while still running legacy systems and having to deal with mostly flat budgets. It is important to note that financial enterprises who build platforms strategically, with agility and scalability in mind, are able to free up operational budget to pay for innovation.

BARRIERS

Lack of agility in business processes and the supporting IT is one of the main barriers to digital transformation. In this digital economy, the capacity to innovate depends on the ability to translate value and competitive advantage into code. Applications are evolving from monolithic to micro-services, in order to become more agile, while code can be written once, and re-used by multiple applications. Unfortunately, many core banking applications are still monolithic, demonstrating there are some fundamental hurdles to overcome when plotting the path to agility.

Another part of the equation is data. Financial firms do not lack data; on the contrary, they may have a lot of old data that is trapped in hard to access silos. Established retail banks have long-standing, customized legacy systems to support core banking operations, which are generally hosted on private clouds and/or traditional data centers. This is often due to concerns with security or regulatory risk.

Recognizing this lack of agility, the banking sector turned to the cloud for many of the customer-facing services like online banking, online trading, or mobile services. Although it has many advantages, cloud can become another silo if organizations do not have a hybrid cloud plan.

RESOLUTION

Consolidating, connecting, and accelerating data can overcome many of these challenges. Eliminating silos will facilitate the flow of data into analytics for near real-time, or real-time insights. Connecting multiple, diverse data sources, and being able to correlate and analyze the data at scale, leads to deeper insights. Having a data-centric approach, with scalable processing power and capacity, opens the door to building new, AI-based services, which lead to improved customer-facing support, faster risk assessment, robust cybersecurity, accelerated fraud detection, and more reliable fraud prevention.

COMPELLING BUSINESS ISSUES

Throughout retail banking, insurance, investment, and wealth management there are common processes that can significantly benefit new client acquisition or improve customer retention, and thereby reduce churn. The requirement is for exceptional data availability and analytics. Simultaneously, there is the constant need to reduce operating costs, particularly when investment returns or interest rates are declining.

RETAIL BANKING

According to a paper from PwC® on embracing disruption in financial services, 'Customer intelligence' will become the most important predictor of revenue growth and profitability for all segments. For retail banks this means re-inventing the customer experience through a combination of exceptional service and the latest digital technologies, such as voice banking, chat bots, personalized offers, peer-to-peer payments, e-commerce fraud detection and even fraud prevention.

Reinventing Customer Experience

An online or mobile banking client is expecting fast response, personalization, and convenience because of ready comparisons in the wider digital world. An opportunity exists to transform the customer experience using ML and AI for voice interfaces, chat bots or virtual assistants, such as provided by the Bank of America™ Erica™ system.

*"**Digital banking will continue to grow** as customers flock to financial institutions that can offer **faster, secure, omni-channel digital services**."*

– The State of Digital Lending, American Bankers Association

This reinvented customer experience for digital services must be enabled by data and analytics that can provide insight on customer behavior, and even predict what they will need next.

Pervasive Mobile Services

Mobile banking will overtake online within the near future. A core challenge for the traditional banking service provider is that new entrants, who may work with firms such as Amazon®, Facebook®, or Google®, have the potential to enjoy a strong relationship with an incumbent's existing business and consumer clients. This is due to an established reputation for exceptional service underpinned by the latest digital platform and no legacy system. Therefore, their market entry is not inhibited by having to generate the necessary momentum - it already exists.

*"**Mobile banking usage is skyrocketing** as more consumers experience the benefits of **greater convenience, speed and financial insights** driven by new app features and upgrades."*

– Citi Group Mobile Banking Report

An important influence with business and consumer client decisions regarding their mobile banking provider may initially be the on-boarding process. The experience needs to be dynamic by using an AI-enabled process, capable of checking thousands of data points in a matter of milliseconds, including external reference information. Similarly with immediate, simple and secure mobile money transfers, including bill payment, peer-to-peer, forex and multinational mobile transactions, where the expectation is execution in a fraction of the time taken by traditional systems.
To achieve satisfactory service levels, there is a major dependency on fast data access for applications and analytics, regardless of where the data resides – on-premises or in the cloud.

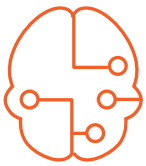
INVESTMENT & WEALTH MANAGEMENT

The time is now for digital transformation in the Investment and wealth management industries. These are calmer waters today compared to the period immediately after the financial crisis, especially on the regulatory front. However, many challenges remain including: increased geo-political risk due to trade wars, shrinking margins, and competition from FinTech start-ups.

Many investment banks have already changed their business model by focusing more upon retail banking or wealth management. The sell-side is now more focused on creating differentiated services for buy-side clients. The buy-side firms have developed technological muscle and can now deliver more tasks in-house.

For the investment industry, digital transformation may mean using AI/ML or Deep Learning (DL) to extract more insights for new trading strategies from a multitude of data sources. At the same time, risk management in the middle office can benefit from big data and advanced analytics for tasks such as pre-trade decisions (real-time), client portfolio analysis, risk simulations for stress testing (required by regulators), trade surveillance, and others.

Improving Intelligence



Investing is not just about fast execution anymore. Today, investment management is about finding the trading "edge" in a multitude of data sets, and continually developing new trading models. For example, quantitative analysts (quants) are sifting through data by using AI and ML. They use historic time-series data enriched with "alternative data" such as logistics, foot traffic, news, satellite images, geo location, demographics, and social media. Then quants need to run many iterations of the models to test and refine them in the lab, before deploying them in production.

Sell-side firms are increasingly using automated pricing engines and algorithmic trading for small trades, or even for bonds, while many firms are adding AI technology to these automated processes. This volume and diversity of data combined with AI technologies requires a modern data platform that has enough processing power and scale.

Enhancing Risk Management

Risk management in the "middle office" needs more immediate access to data and intelligence to accelerate the identification and reporting of risk exposures related to liquidity, counterparty, market, and credit risk.

Similarly, wealth managers now analyze client portfolios at a more granular level to generate actionable models, address increasingly rigorous compliance requirements, and better match recommendations to a client's risk appetite.

Processing large volumes of big data must be lightning-fast to fully leverage new technologies such as Kafka, Spark and AI. Consequently, it is vital to have both scalable storage and scalable compute power.

INSURANCE

Insurers are facing a growing set of challenges that need to be addressed such as: shifting customer behavior and expectations, low interest rates, tight margins, more frequent natural disasters, and the emergence of new competitors from outside of the industry – to name just a few. Leading insurers are already creating new products and services in response to these challenges, some of them partnering with Insuretech start-ups.

Insurers are going through a digital transformation that demands an increased focus on the customer and faster decision-making, while demonstrating agility and collaboration within an ever-expanding and competitive financial services ecosystem.

There is a noticeable shift in the insurer value model from reactive claims payer to preventative risk advisor. The gap is getting wider between insurers who are going through this digital transformation and those that are not. The winners will be able to price products based upon a deeper understanding of risk, whereas the losers will merely compete on price, compressing margins with lower revenues, and proportionately higher payouts.

Aggregating Data

The foundation of digital transformation is a strategic data platform that consolidates, connects, and accelerates all data, both historical and current. The platform needs to accommodate streaming data from IoT/telemetry or AI/ML applications to enable workflows and collaboration between separate functional groups inside and outside the firm.

Removing data silos will bring many benefits to insurers:

- Aggregating data will simplify policy enforcement and streamline compliance reporting.
- A health insurer will process open enrolment requests faster, and scale as the client base grows.
- As many insurers grow through acquisition, the data platform will scale without disrupting the business.
- A property and casualty insurer will offer dynamic pricing for drivers according to their risk profile, based upon data from the IoT device onboard the car.
- A life insurer needs to keep records for decades and will store and protect this data at scale, as well as rapidly restore it to run reports for compliance requirements.
- Underwriters will assess risk faster and more accurately, combining structured data from their internal legacy systems, with unstructured data from other internal and external sources.

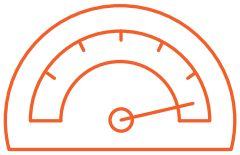
CROSS-SECTOR OPERATIONS

ACCELERATING INNOVATION

Innovation is now critical for differentiation. As financial service organizations go through digital transformation, time-to-market becomes essential with many firms creating innovation labs to test new ideas and new technologies.

The equation could be expressed as:

INNOVATION = CODE + DATA



Software developers use the agile methodology, which enables teams to work on smaller projects in parallel, and iterate quickly through the cycles of development and test. The need is for an environment where developers can spin-up instances of databases or other applications in minutes, not hours or days. In addition, code must be tested with current data, copied from the production databases, instead of using old or synthetic data.

With the emergence of micro-service applications architecture, financial service firms are starting to progressively migrate functionality away from legacy systems. This trend is the opportunity for laying the foundation of a strategic, data-centric approach that supports agile software development.

CLOUD UNIFICATION

Many financial organizations have a “cloud-first” initiative. For new applications this policy makes a lot of sense, especially with mobile digital services. For software development the agility of the public cloud is valuable, but what if the application then needs to be moved to the private cloud to access sensitive or regulated data? The reality is that many of critical back-office applications are still residing in silos, on-premises, co-located, or in hosted virtual private clouds.

The future of cloud is a multi-cloud, where an application or service can reside anywhere and can be connected to data wherever it is located. Data has gravity, meaning that to move the code is easier than shifting the data. Sometimes though, data needs to be transferred, e.g. making a copy of the data to an object store in the cloud for protection. Financial organizations must think of data “end-to-end” when they replace their legacy systems, and choose a data platform that can manage and move data seamlessly between clouds.

As a first step, many CIOs have an initiative to replace tape solutions with newer technologies, by migrating away from disk-to-disk-to-tape (D2D2T) and moving quickly toward flash-to-flash-to-cloud (F2F2C), shifting the emphasis from backing-up data to rapidly restoring data. After all, it is not the back-up that firms require, but the business continuity of rapidly restored data.

MANAGING GOVERNANCE, RISK & COMPLIANCE (GRC)

The complexity and cost of regulatory compliance, and the associated risk management, is growing worldwide. Financial service firms are constantly reviewing how to reduce the cost and burden of compliance, whilst minimizing risk. There are many different regulatory compliance requirements, such as Know Your Customer, Fundamental Review of the Trading Book, Stress Testing, Comprehensive Capital Analysis and Review, EU General Data Protection Regulation etc., but they all rely on sifting enormous volumes of GRC data, which may be decades old.

The challenge is to make all data available to the GRC applications in a cost-effective way that also minimizes risk. Many firms have been forced to sample the data, or run fewer reports, but the result is less than optimal compliance and increased cost from, for example, managing multiple auditor or regulator queries.

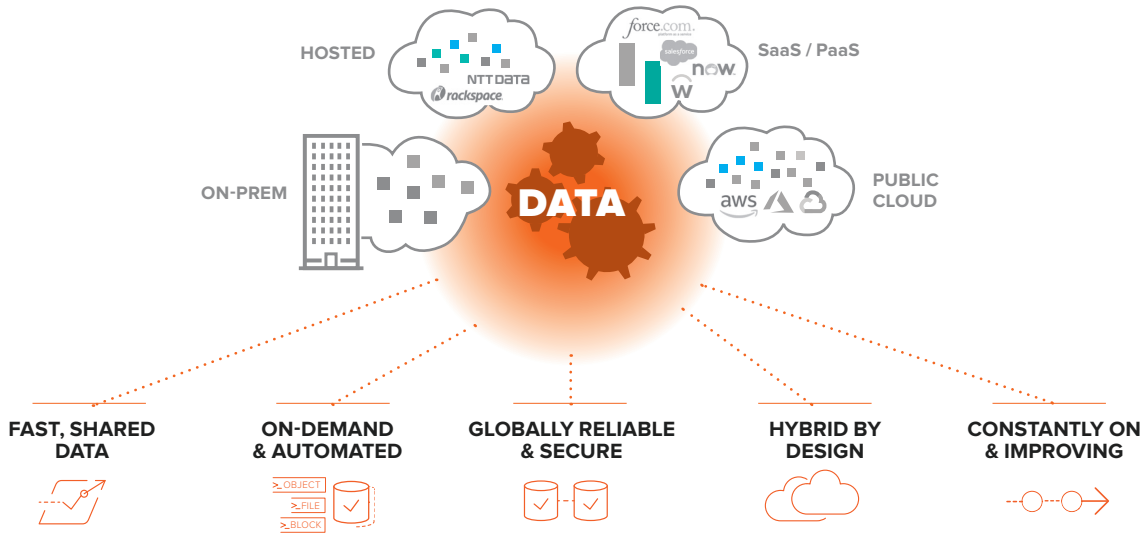
The way to scale and adapt to the ever-changing risk and regulatory landscape is to use AI/ML to automate some of the processes and complement existing systems. IDC estimates by 2021 that 45% of all banks will have invested in automated GRC applications to improve operational performance, and substantially reduce the operating expense associated with manual processes[1]. To meet this aim, financial firms need to develop a comprehensive automation strategy for GRC that will operate across different functional silos. Data from different sources, and in a variety of formats, needs to be integrated and shared so that it can be accessed quickly by analytics and AI workloads.

Before being able to apply data to GRC or AI/ML applications, the data requires cleaning including de-duplication, removal of malformed entries, outliers, or erroneous data, and heuristic backfill. Once cleaned, the data needs to be transformed into formats that the GRC AI/ML models require, which may comprise pivoting, labelling, filtering, sub-sampling, and normalization. A modern, data-centric architecture offers fast data access to these AI driven processes, and facilitates the creation of data pipes directly by analysts and data scientists.

DATA-CENTRICITY

WHAT IS A DATA-CENTRIC ARCHITECTURE?

Pure Storage® defines Data-Centric Architecture as an approach to designing an end-to-end environment across compute, network, storage, and cloud, optimized for ubiquitous and fast consumption of data to create value. A data-centric architecture is characterized by five key pillars:



[1] Source: IDC FutureScape: Worldwide Financial Services 2019 Predictions, December, 2018.

BUSINESS CASE STUDIES

In financial services there are typically three main improvement goals: enhance customer experience, reduce operating cost and transform business processes. These Pure Storage client case studies give an overview of similar gains achieved from all-flash arrays using a data-centric strategy to deliver real business value.

Investec Asset Management — Out of the Ordinary ®

TRANSFORMED CUSTOMER EXPERIENCE

Investec is an investment management company based in South Africa. Because the trading window for business between South Africa and London is only two hours, Investec must swiftly execute batch jobs within a narrow time band to maximize market performance.

REDUCE TO BELOW 1MS
ALL DATABASE JOB LATENCY

To reliably manage timely batch execution, Investec determined that all-flash storage was needed to accelerate the SQL database, which would directly improve performance and profitability. As a consequence of applying Pure Storage all-flash array, they were able to reduce all database job latency to **below 1ms**, and simultaneously increase by 4x the number of portfolio managers supported on the application.

4X GROWTH
IN PORTFOLIO MANAGERS

*"**Load times have improved by 10%**, and more importantly, the system can now handle up to **600 users instead of the 150 users** that the legacy SAN system could support."*

– Head of IT Infrastructure Services, Investec Asset Management

80% REDUCTION
IN HARDWARE SPACE

From an infrastructure perspective there were additional gains. The Pure Storage all-flash array investment represented an 80% reduction in hardware, which resulted in additional cost savings for maintenance, cooling and power. Physical servers were no longer required for application data, and the storage hardware space reduced from 1.5 racks to only 10U.

There was a similar impact when the investment firm deployed a second Pure Storage all-flash array at a disaster recovery site, where the space demand was reduced from 75% of a cabinet to only 8U.

Securities America®
Your business growth expert.

ACCELERATED CLIENT SALES

A Pure Storage financial services client providing workplace facilities transformed customer service using all-flash arrays. The result was near instantaneous retrieval of client documentation for over 1,500 financial advisers, which had previously been subject to delay.

1,500 INSTANT
CLIENT DOCUMENT RETRIEVAL

The document retrieval request by advisers often occurred during customer meetings where service was critical to a successful negotiation, and the closing of new business. This customer performance improvement also significantly increased the financial adviser reputation with their clients, and reduced the risk of new product launches.

65% REDUCTION
IN DOWNLOAD TIME

*"Documents were **always available** on-demand, shortening the **download time taken by 65%**."*

– Director IS Operations, Securities America

4.7:1 REDUCTION
IN DATA COMPRESSION RATIO

Backups to the all-flash environment were accelerated to ensure documents were always available on-demand to advisers, shortening the download time by 65%, and thereby increasing the number of backups within any given window, leveraging a now 4.7 to 1 data compression ratio.

Credit Acceptance
We change lives!

FASTER CREDIT DECISIONS

The Credit Acceptance Corporation promises potential clients a decision on granting credit within 30 seconds. To deliver on that pledge, they rely upon sophisticated software and fast access to massive stores of data. Any element of the IT infrastructure that does not perform at peak efficiency is detrimental to the business.

To achieve such performance, Credit Acceptance is standardizing on the Pure Storage all-flash delivery of reliable, ultra-high performance storage. Critical data warehouse analytics are now optimized, which has enabled the business to ask more questions and explore more opportunities.

4X LESS
TIME TAKEN

*"Once we put SAS® on Pure, it took the ETLs and regressions from **24 hours to 6 hours**."*

– Vice President of IT Support, Credit Acceptance Corporation

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Man AHL

ACCELERATING TIME-TO-MARKET

MAN AHL is a London-based, diversified quantitative investment manager, with more than $19 billion in assets under management. "Quantitative" means all investment decisions are based upon mathematical models or algorithms, using decisions made solely by computer, without human involvement.

10-20 TIMES
PROCESSING IMPROVEMENT

*"Our quants want to test a model, get the results, and then test another one, and another one – all day long. So, a **10x-20x improvement in performance can be a game-changer** when it comes to creating a time-to-market advantage for us."*

– *Co-CTO, MAN AHL*

Click here for an Interview with MAN AHL Co-CTO

The firm has adopted a Pure Storage FlashBlade™ solution to deliver the volume of stored data throughput and scalability required to meet the most demanding simulation applications. The highly scalable Pure Storage FlashBlade architecture provides an on-demand path to enable MAN AHL quantitative researchers (quants) to benefit from a 10x-20x processing improvement, and establish a foundation for future capacity growth.

BANK

IMPROVED DATA SCIENCE PRODUCTIVITY

A North American bank started an AI journey with a storage vendor, but quickly realized the performance and ease-of-use did not meet stringent requirements. After comparing the offers of multiple vendors, they decided to invest in the AI-Ready Infrastructure (AIRI) platform powered by Pure Storage.

20% BETTER
AIRI PERFORMANCE

The AIRI proposition includes NVIDIA Deep Learning Stack and AIRI Scaling Toolkit, as well as the Pure Storage FlashBlade and FlashStack™ developed with Cisco®. This turn-key solution allowed the bank data science team to run 4x to 5x the number of projects than previously using proprietary or self-build solutions. AIRI performance is at least 20% better than their previous solution, and allows data scientists to benefit from accessing the NVIDIA deep learning software.

BPL Global
World Leading CPRI

FREEING UP RESOURCES FOR BUSINESS GROWTH

Headquartered in London, BPL Global has the largest brokerage team in the credit and political risk insurance market. With a commitment to act exclusively for customers, it is vital that the company has the right resources and capacity to service the complex, time-critical business needs of clients.

The BPL Global IT team was wasting valuable time and energy investigating latency issues caused by the aging spinning disk infrastructure. Since implementing Pure Storage technology, latency problems are a thing of the past, despite doubling the amount of data. The company now has the reliable infrastructure needed to support growth of the business.

UPTO 7 YEARS
DATA STORAGE LIFESPAN

*"**Greater than 4:1 data reduction (from Pure Storage) solved latency issues**, freeing up time for redevelopment of existing business applications. In addition, the **lifespan of data storage is extended by up to 7 years**."*

– BPL Global

NEXT STEPS

Pure Storage offers expert guidance to assist financial services organizations in understanding, and then deciding if a data-centric storage strategy is appropriate for their business challenges.

DATA-CENTRIC STORAGE STRATEGY: SUBJECT MATTER EXPERT BRIEFING

An informal financial services provider stakeholder briefing that is facilitated by a Pure Storage subject matter expert. The aim is to clarify the challenges and potential solutions for applying a best practice storage strategy to protect existing business and accelerate new client on-boarding. Please contact Pure Storage to arrange the briefing.

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