Modernize core banking with Red Hat, Thought Machine, and GFT

Unlocking agility beyond a public cloud environment

Chief strategists of leading banks aspire to offer hyper-personalized customer experiences, but are challenged to deliver on this evolving requirement given the limitations of their existing infrastructure and monolithic, core banking platforms. The increasing growth of low-value transactions puts an additional strain on existing systems and processes, which leads to cost pressure and less room for innovation. Lastly, internal technology operations are stretched thin.

Modern applications are limited by an institution's existing tools and processes. At the same time, conventional transformation, which might be nothing more than a "lift and shift," rarely fully realizes the efficiencies and benefits projected. At the root of these challenges is the fact that not only are financial institutions running outdated technologies, but many of the software development practices also need to be updated. This leaves them unable to benefit fully from containers or cloud-native platforms, which ultimately affects IT staff—as the supply of talent who understands and can support conventional technologies like COBOL, PL/1, and Customer Information Control System (CICS) dwindles and the need for developers who work with more innovative technologies increases.

Regulatory requirements in various regions compound the challenges faced by banks. For instance, banks in Europe, the Middle East, Africa (EMEA), and Asia Pacific (APAC) regions need to consider the physical hosting locations for data centers offered by out-of-area cloud providers. Several jurisdictions (e.g., Switzerland, Poland, and Singapore) have mandated national data-residency requirements that reinforce the value of private or hybrid cloud infrastructure.

New regulations for the financial services industry like the European Union's Digital Operational Resilience Act (DORA) and the U.K. Bank of England's Prudential Regulation Authority Statement of Policy on Operational resilience[1] (UK PRA OR) emphasizes the importance of third-party risk management (e.g., for IT outsourcing providers, like public clouds) and requires the preparation and regular testing of plans on how to exit providers of important IT services.

These banks understand that modernizing their infrastructure and core banking platform will reduce IT costs, improve agility and regulatory compliance, and accelerate time-to-market to deliver on customer demands. However, for many, adopting modern cloud-native infrastructure raises more questions than answers, and the path forward remains vague.

Modernize with Red Hat, Thought Machine, and GFT

Together, Red Hat, GFT, and Thought Machine are streamlining a path to cloud-native banking that allows banks to benefit from increased agility and innovate at scale, according to their own roadmap.

Thought Machine's cloud-native core banking platform, Vault Core, decouples product configuration from platform code. This allows the bank to configure, launch and reconfigure banking products directly. The Universal Product Engine offers every client complete flexibility and control to design

1 *Operational resilience. Bank of England, 29 March 2021.*

and build differentiated products, such as a combined credit and debit features on the same card. Faced with changing regulatory requirements and market conditions, Vault Core's flexibility allows clients to roll out product changes in a compliant manner and at pace.

GFT is recognized as a leading systems integrator for next-generation core banking. With extensive experience around Vault Core, Red Hat® OpenShift® and cloud technology, GFT is the trusted partner of many banks on their core banking transformation. To accelerate modernizations, GFT bundled the experience of more than 10 projects and created modular accelerators for Vault Core. Pluggable components such as standardized business processes reduce time to market, lower project risk, and optimize return on investment due to a lower CapEx.

Red Hat OpenShift empowers institutions to transform their infrastructure to a private cloud or hybrid cloud architecture with less complexity and more timely outcomes. Red Hat OpenShift is a Kubernetes-based, enterprise-application platform that allows banks to launch and manage private or hybrid cloud infrastructure and capture the benefits of cloud computing while safely navigating regulatory and operational considerations, such as corporate security protocols, standard operating environments, and auditability. Red Hat OpenShift is available on standard x86, virtualized and bare-metal, on ARM architecture and IBM Power servers, on IBM Z mainframes, and in public clouds.

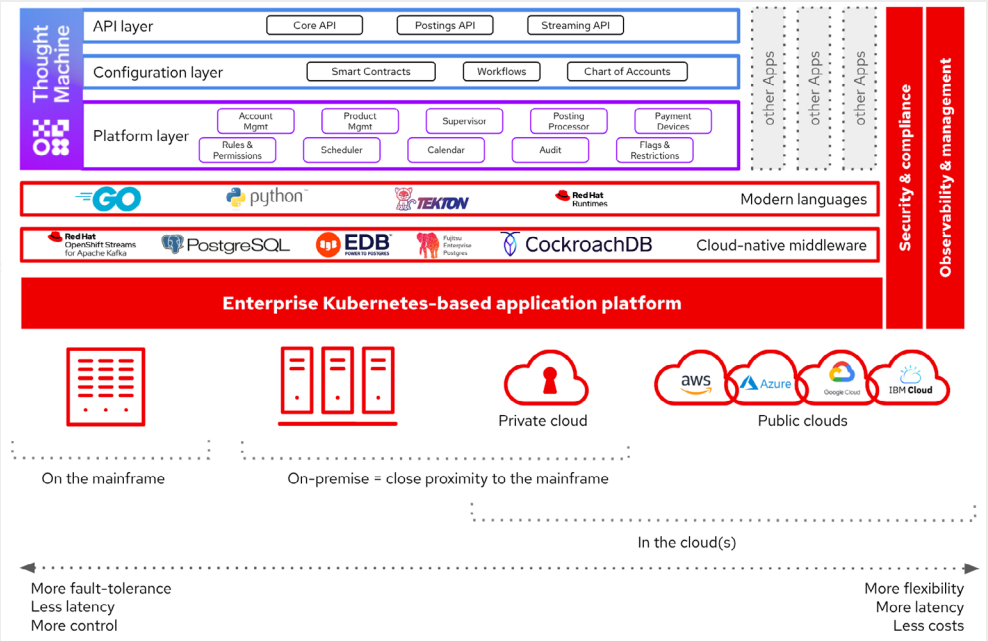

Figure 1. Red Hat OpenShift supports portability and reversibility[2] for Thought Machine Vault Core across public, private, and hybrid cloud environments.

2 *Reversibility is the extent to which applications can be moved to other cloud providers or environments, such as on-premise, in the case of unforeseen events.*

Red Hat OpenShift has been validated to run Vault Core in private and hybrid cloud scenarios. Vault Core uses technologies including Kubernetes and Linux containers, Kafka, CockroachDB, PostgreSQL and more. Vault Core is built around application programming interfaces (APIs) using a microservices-based architecture. The services provided by Vault Core deliver the functionality required to run banks and bank products. Additional services, provided by banks or other vendors, connect through APIs to create an open and modern technology stack and banking ecosystem.

This unlocks greater possibilities for Vault Core deployment flexibility as the application layer treats the OpenShift Platform-as-a-Service (PaaS) in an identical manner that it would do a public cloud OpenShift PaaS. This allows the Vault Core installation to be run and managed very similarly to that of a public cloud-based solution. Vault Core's cloud-native architecture and capabilities, plus Red Hat OpenShift allows institutions to pursue their desired infrastructure strategy by selecting the cloud provider or multiple cloud providers they wish.

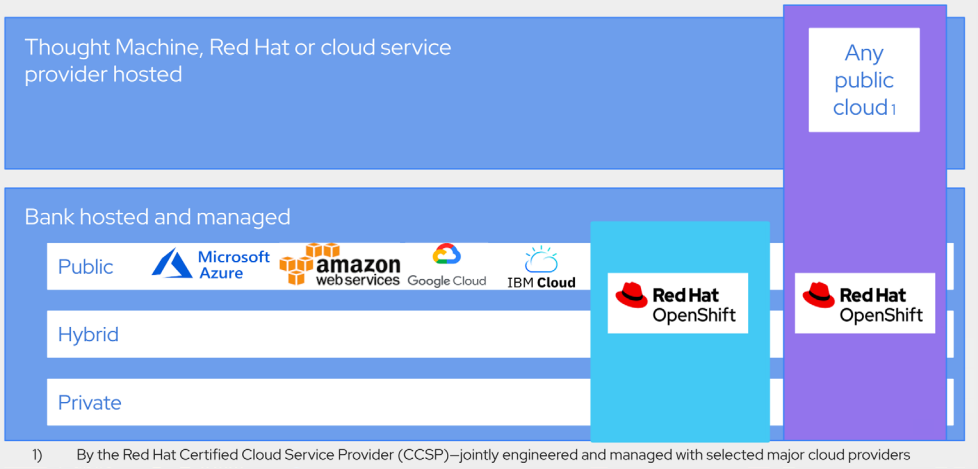

Figure 2. Private and hybrid cloud deployment options

Banks exploring a private cloud strategy can continue to use their in-house datacenter infrastructure given regulatory, operational, security or cost amortization rationale. This approach also helps banks to extend workloads across in-house datacenters and the cloud to use extra capacity as needed. Similarly, banks may abstract themselves from a cloud provider's specific services or choose to operate in hybrid or multicloud environments for any number of reasons. The strategy avoids cloud provider lock-in, implements consistent security and compliance across multiple environments, and simplifies management.

Red Hat OpenShift provides fundamental cloud-native services such as containers, serverless and service mesh, all of which are options for Thought Machine clients deploying Vault Core on Red Hat OpenShift.

Public cloud benefits with greater flexibility and controls

Whether it is trading, foreign exchange or payments, the frequency of transactions will increase across the bank while clients expect more-personalized experiences. As throughput increases exponentially, there is no way to scale the operations without a technology platform that is available 24/7, such as a cloud environment. At the same time, artificial intelligence and machine learning (AI/ML) are becoming readily accessible for anybody who wants to provide clients with new products or a more personalized experience, demanding agility alongside elasticity.

The intensity of demand over the past 2 years simply demonstrated the ability of certain systems, such as cloud and next-generation core banking systems, to cope better than others when it comes to rapid scalability and innovation power.

In this context, GFT finds that core banking modernizations almost always come alongside an agenda to use public cloud solutions. Therefore, GFT recommends the use of Red Hat OpenShift also for cautious clients who prefer a stepwise approach and want to build a secure environment on-premise first and will reconsider including public cloud environments in their strategy at a later time. The use of compatible and interoperable services is an ideal foundation for getting cloud-ready and to adopt cloud technologies more readily, depending on the agenda pursued. This facilitates application portability between private computing environments and public clouds. Where public clouds are included in the IT strategy, this approach helps demonstrate reversibility in the context of operational resiliency and sovereignty regulations.

A frequent starting point for cloud transformation or core modernization often begins with evaluating the case for change, primarily on the expected cost savings.

However, the benefits of adopting a more modern core technology and modernizing a bank's infrastructure generate positive outcomes for both customers and stakeholders. For many, the effect of being too slow to change or innovate can prove more costly than the investment required to transform. Banks must modernize their infrastructure and core banking platform to be agile enough to respond to change.

Benefits to expect

- Red Hat OpenShift platform and Thought Machine Vault Core create the flexibility banks need to deliver innovative customer experience and differentiated product offerings with greater efficiency.
- Red Hat OpenShift provides banks with the optionality to run the infrastructure that meets their operational considerations, adheres to regional data storage regulations, and meets potential resiliency requirements.
- Efficiencies cascade throughout the organization. IT productivity increases given more prominent use of automation and self-service developer capabilities, including the ability to create virtual environments in seconds, not hours, days or weeks.
- Modern development environments, practices, and technologies contribute to cultural change within the bank—helping firms break down isolated team structures, ultimately making them more attractive to current and prospective employees.

Over time, cloud-native capabilities will replace traditional core banking platforms to take full advantage of microservices and modern infrastructure capabilities. Before Red Hat OpenShift, GFT, and Thought Machine joint offering, banks aspiring to transform their core banking platform had to accelerate their adoption of, and comfort with, a singular cloud provider.

New deployment options with Red Hat OpenShift offer greater optionality, flexibility, and controls to accelerate core banking innovation without the need to set a bank's cloud transformation strategy.

Learn more about core banking solutions from Red Hat, Thought Machine and GFT:

- Case study: Red Hat, Thought Machine and Intesa Sanpaolo
- Landing page: Modernize core banking systems with Red Hat and Thought Machine
- Thought Machine CMO, Travers Clarke-Walker's blog: How Thought Machine can unlock the cloud for banks with Red Hat OpenShift
- Whitepaper: "Modernize core banking systems" Red Hat and Thought Machine streamline cloud-native core banking adoption

About Thought Machine

Thought Machine has developed the foundations of modern banking with its cloud-native core banking and payments technology. Its cloud-native core banking platform, Vault Core, is trusted by leading banks and financial institutions worldwide. Vault Core and Vault Payments have been written from scratch as entirely cloud-native technologies, giving banks full control to run any bank, product, and payment set to flourish in a rapidly changing world.

About GFT

GFT is a digital transformation pioneer that develops sustainable solutions based on new technologies including artificial intelligence and blockchain/DLT. GFT talents create and implement scalable software applications that make access to innovative business models safe and easy.

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