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Drive Digital Transformation with Infosys Finacle and IBM LinuxONE

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Redpaper

Enabling digital transformation in banking: Deploying Infosys Finacle on IBM LinuxONE

Improve performance and increase throughput with Enhanced Security, Scalability, and Cost Optimization.

Highlights

- **Enhanced Performance:** Accelerates throughput and boosts transaction efficiency with advanced computing capabilities.
- **Seamless Scalability & High Availability:** Smoothly handles high transaction volumes, minimizes latency, and eliminates single points of failure with built-in redundancy and automatic failover.
- **Robust Security & Compliance:** Provides hardware encryption and secure multi-tenancy, ensuring data protection and regulatory compliance.
- **Transaction Integrity:** Ensures integrity through synchronous replication and automatic failover.
- **Lower Total Cost of Ownership:** Reduces hardware, licensing, and energy expenses via workload consolidation.

Infosys Finacle, a well-known, digital banking solution suite, empowers financial institutions to innovate and transform their banking services to meet evolving customer expectations and competitive pressures. By harnessing the advanced capabilities of IBM LinuxONE, Infosys Finacle effectively addresses critical challenges such as performance bottlenecks, high total cost of ownership (TCO), scalability constraints, security vulnerabilities, and transaction integrity issues.

This Redpaper explores how the powerful synergy between Infosys Finacle and IBM LinuxONE enhances operational efficiency, accelerates throughput, reduces costs, and fortifies security, enabling banks to achieve sustainable modernization of their core banking systems.

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The need to compete: Overcoming core banking system challenges

The changing landscape of banking

The banking industry is undergoing a profound transformation that is driven by evolving customer expectations, disruptive technologies, and shifting economic conditions. Financial institutions face significant challenges, including intense competition from financial technology institutes (fintechs), operational inefficiencies from legacy systems, and escalating cybersecurity risks. Furthermore, macroeconomic pressures such as inflation, fluctuating interest rates, and geopolitical instability complicate global operations. Regulatory compliance requirements continue to evolve, demanding enhanced security and data governance. Simultaneously, banks are under increasing pressure to embrace sustainability and social responsibility initiatives. To address these challenges, financial institutions must accelerate their digital transformation, modernize core banking systems, and transition toward agile, scalable platforms that are capable of orchestrating comprehensive fintech-powered ecosystems.

Challenges banks are facing

Banks today are under immense pressure to modernize their core systems. They need to stay competitive while keeping costs under control, strengthening security, and meeting growing customer expectations:

- Real-time service demands: Customers now want banking that works instantly and is available 24x7. Older systems struggle to deliver real-time transactions, which can cause delays and uneven experiences.
- High infrastructure and licensing costs: As transactions grow, banks face rising bills for infrastructure and middleware licenses. This makes it harder to scale and eats into funds that could be used for new ideas.
- Push for faster innovation and AI: Competing with fintechs means rolling out new services quickly and making use of AI to personalize offerings and run operations more efficiently. That requires modern platforms that can take on these newer workloads.
- Stronger cybersecurity and compliance needs: Threats are becoming more complex, and regulators are tightening the rules. Banks need infrastructure that can protect against these risks. Unfortunately, many legacy systems aren't built for this new reality.

Solution

Deploying Finacle Core Banking on IBM LinuxONE helps banks modernize their core systems. It brings speed, security, efficiency, and future readiness. It provides customers with reliable real-time banking and includes the following key solutions:

- Real-time and always available: IBM LinuxONE handles very high transaction volumes with low latency. Its advanced I/O processing enables Infosys Finacle to process millions of daily transactions efficiently, which means customers still get smooth, 24x7 service during traffic peaks.
- Seamless scalability with cost efficiency: Finacle Core Banking on IBM LinuxONE scales vertically and horizontally to support banks of all sizes while reducing hardware sprawl, licensing, and energy costs, resulting in a lower total cost of ownership.
- Faster innovation: With Red Hat OpenShift, banks can use containers and cloud native setups. This makes it easier to roll out new services, makes it easier to link with fintechs, and reduces time to market.
- Security and compliance: IBM LinuxONE provides quantum-safe encryption, confidential computing, Hyper Protect Confidential Containers, and EAL 5+ certified secure partitioning. This means that sensitive data is protected whether stored, in motion, or in use. This also helps with global compliance requirements.
- Resiliency and transaction integrity: With IBM LinuxONE, built-in redundancy, synchronous replication, and automatic failover ensure high availability and data integrity, eliminating single points of failure. The solution is designed to deliver up to 99.999999% availability[1].

[1] https://www.ibm.com/z/resiliency

- Sustainability: The system design reduces energy and cooling needs. When running IBM LinuxONE, banks can meet sustainability goals while maintaining enterprise-grade performance.
- Centralized monitoring and tracking: Metrics, traces, and logs can all be tracked together through an observability stack. This makes it simpler to monitor apps and systems in one place.

Although deploying Infosys Finacle on IBM LinuxONE addresses critical challenges around real-time performance, scalability, cost, AI readiness, and security, achieving these benefits requires a structured modernization roadmap.

Financial institutions must consider how best to integrate these capabilities within their existing environments while ensuring business continuity and operational stability. IBM LinuxONE offers a range of flexible, technically sound modernization approaches that align with diverse business needs, enabling banks to modernize core banking systems efficiently, reduce complexity, and accelerate digital transformation without unnecessary disruption.

The following section outlines these practical approaches, illustrating how banks can use IBM LinuxONE to deploy Infosys Finacle solution while balancing risk, investment, and transformation speed to drive sustainable digital transformation.

DISCLAIMER: IBM internal data based on measurements and projections was used in calculating the expected value. Necessary components include IBM LinuxONE Emperor 5; IBM z/VM® V7.3 systems or later collected in a Single System Image, each running RHOCP 4.14 or later; IBM Operations Manager; IBM GDPS 4.6 or later for management of data recovery and virtual machine recovery across metro distance systems and storage, including Metro Multi-site workload and GDPS Global; and IBM DS8000® series storage with IBM HyperSwap®. A MongoDB v4.4 workload was used. Necessary resiliency technology must be enabled, including z/VM Single System Image clustering, GDPS® xDR Proxy for z/VM, and Red Hat OpenShift Data Foundation (ODF) 4.14 or later for management of local storage devices. Application-induced outages are not included in the preceding measurements. Other configurations (hardware or software) might provide different availability characteristics.

Approaches for digital transformation

Banks today cannot ignore core banking modernization. It has become the foundation for improving digital capabilities, running operations more efficiently, and meeting rising customer expectations. Infosys Finacle and IBM LinuxONE helps on this journey with four clear approaches. Each fits a different strategy, so banks can choose one of the following paths that makes sense for them:

1. Transform existing core: Instead of replacing everything, banks can upgrade what they already have. With IBM's application modernization framework, existing core banking applications gain new life. APIs, DevOps practices, data integration, and cloud native techniques add innovation while reducing disruption to daily business.
2. Extend core through integration: Another option is to enhance existing systems by integrating specialized, value-added solutions. This approach significantly enhances existing functionalities so that banks can rapidly achieve modernization goals without a full system replacement.
3. Progressive transformation with packaged solutions: For banks that are ready for a bigger step, legacy cores can be phased out and replaced with modern packaged solutions. This is a long project and requires detailed planning, often over several years. However, the transformation provides significant long-term advantages in flexibility, customer service, and efficiency.
4. Consolidate distributed workloads: Optimize infrastructure efficiency by consolidating database workloads from distributed servers onto IBM LinuxONE. This delivers immediate cost benefits, reduced complexity, enhanced performance, and significant license savings, without extensive changes to existing applications.

IBM LinuxONE clients are already using these approaches with IBM and ecosystem partners. Each path is supported by enterprise-grade tools, standardized development methods, automated Continuous Integration and

Continuous Deployment (CI/CD), and strong security practices. The approaches can stand alone or be combined, letting banks modernize at their own pace depending on business goals, risk tolerance, and investment priorities.

Figure 1 illustrates the four strategic approaches to modernizing and integrating core systems.

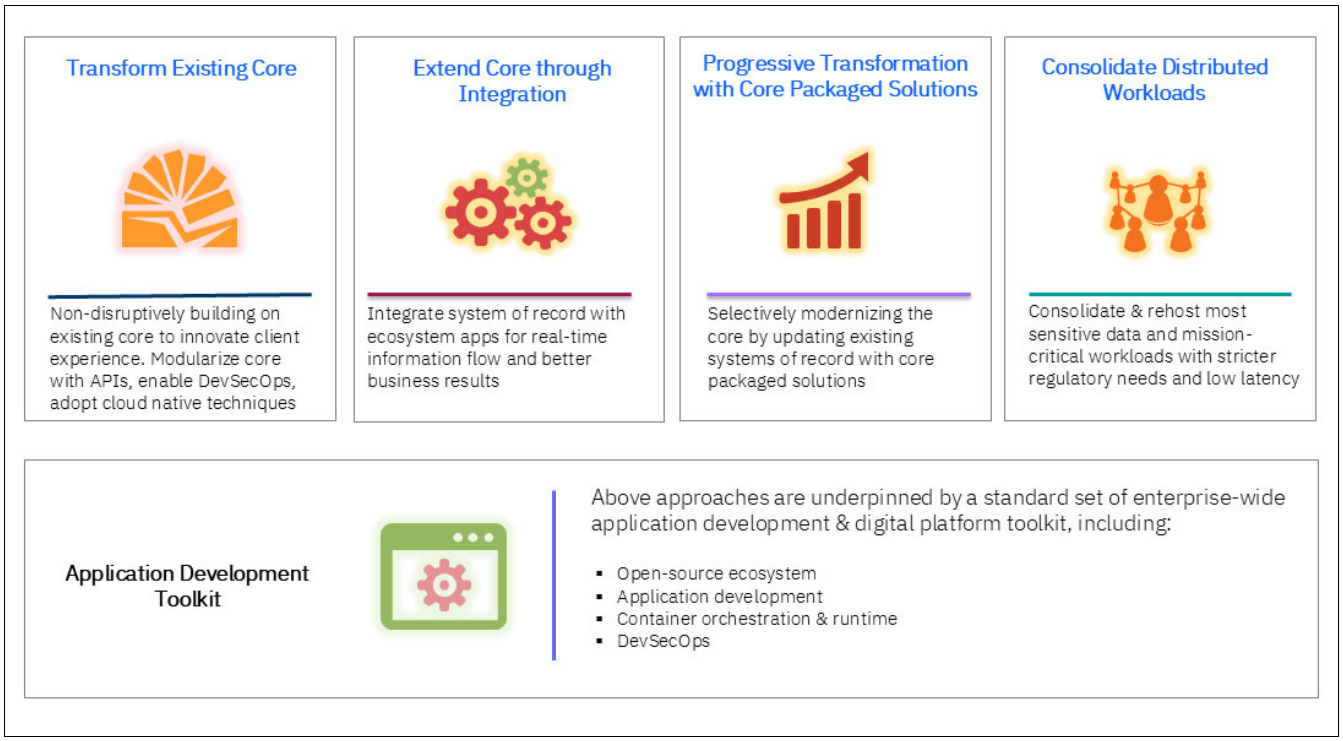

Figure 1 Digital transformation approaches with IBM LinuxONE

IBM and Infosys Finacle partnership

IBM and Infosys Finacle share a long-standing global partnership focused on delivering digital banking solutions for retail and corporate clients. For over twenty years, IBM has combined its strength in technology and consulting with the proven digital banking platform of Infosys Finacle to help you support leading financial institutions worldwide.

The partnership includes large-scale implementations at banks, where IBM Consulting® provides skilled resources to help you deploy and manage the Finacle Core Banking Solution. Beyond IBM Consulting, other global system integrators also contribute regional knowledge and specialized skills to help you deploy and modernize Infosys Finacle on IBM LinuxONE effectively.

The collaboration between IBM and Infosys Finacle goes beyond individual projects and includes joint go-to-market programs and co-development initiatives.

At the center of this effort is the Infosys Finacle Center of Excellence (CoE), which IBM Consulting manages. The CoE focuses on system integration, deployment, and ongoing support to help you run Infosys Finacle with greater scalability and resilience.

This partnership continues to evolve through new innovations and shared strategies that help you accelerate digital transformation and deliver better outcomes for your customers.

Infosys Finacle on IBM LinuxONE: The ideal core banking solution

Infosys Finacle is a well-known, digital banking solution suite from Infosys. It enables banks to modernize their core banking operations, enhance customer engagement, and streamline their digital banking services. The suite is known for its flexibility, scalability, and ability to support a wide range of banking services across retail, corporate, and private banking.

With Infosys Finacle on IBM LinuxONE, you gain a secure, high-performing platform that easily handles growth. IBM LinuxONE is designed to deliver the reliability and scale that is needed to keep Infosys Finacle running smoothly, even under heavy workloads. Together, Infosys Finacle and IBM LinuxONE provides a strong foundation for your digital transformation journey.

IBM and Finacle end-to-end solutions

Banks today are adopting IBM LinuxONE together with the Finacle Core Banking Solution to accelerate their digital transformation. The goal is to become more customer-focused, smarter in operations, and more agile when responding to change. This approach also ensures solutions remain secure, compliant with regulations, and ready for the future.

The platform combines IBM LinuxONE with Red Hat OpenShift, giving banks a way to run efficiently while rolling out new digital services. Deployments are supported by IBM Consulting / System Integrators and Infosys Finacle teams, along with ecosystem partners, to make the process smooth and reliable.

Finacle Core Banking on Red Hat OpenShift works well with APIs, allowing banks to improve customer experience and link easily to open banking platforms or third-party systems. IBM's partner ecosystem adds further value by delivering solutions tailored to specific business needs.

Together, IBM and Infosys Finacle provide banks with the foundation to build flexible, scalable, and future-ready digital banking frameworks.

Figure 2 illustrates how various components of the Infosys Finacle ecosystem integrate to support modern digital banking. It emphasizes API-driven connectivity, data integration, and deployment on Red Hat OpenShift.

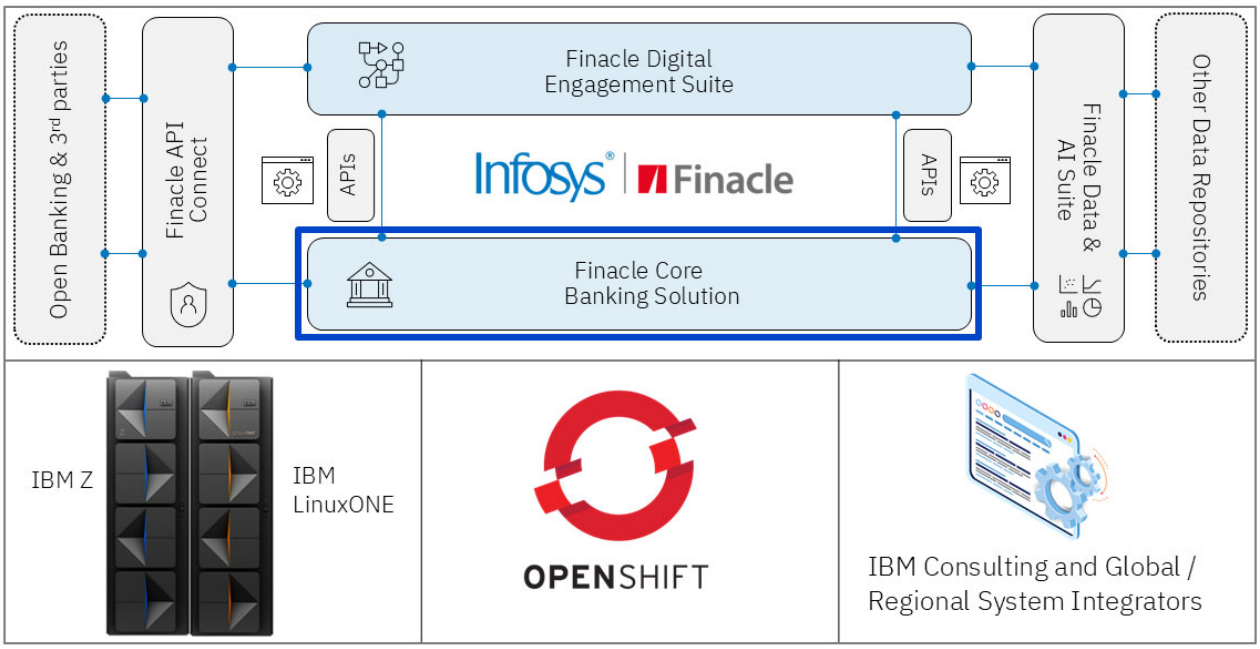

Figure 2 IBM and Finacle end-to-end solutions

Infosys Finacle on IBM LinuxONE architecture

IBM LinuxONE with Red Hat OpenShift provides banks with a secure, scalable, and efficient hybrid cloud foundation for running Finacle Core Banking workloads. Red Hat OpenShift offers a consistent, enterprise grade Kubernetes platform that makes it possible to deploy across on-premises or hybrid environments while keeping operations uniform and reliable.

With Infosys Finacle on IBM LinuxONE, banks benefit from high throughput, very low latency, and energy efficient processing. They also gain enterprise grade security features, such as quantum safe encryption and Hyper Protect Confidential Containers. Together, these capabilities help strengthen resilience, support compliance, and speed up digital service delivery.

Cloud-native microservices deployment

Infosys Finacle is built on a microservices based architecture. These services are containerized and managed with Kubernetes on Red Hat OpenShift. This design allows banks to scale or update individual services quickly, without interrupting other parts of the system.

Data management and storage

Infosys Finacle follows a polyglot persistence model, supporting multiple databases such as Oracle and EDB Postgres. For persistent storage in Red Hat OpenShift, it makes use of IBM Fusion (formerly Spectrum Scale and Red Hat OpenShift Data Foundation) and Network File System (NFS), providing scalability and resilience.

Service mesh and event streaming

An Istio Service Mesh secures and manages communication between microservices. For event driven workloads, the platform uses Kafka for efficient messaging, IBM MQ for reliable data streaming, and Redis for fast in memory caching.

Validated enterprise performance

The cloud-native setup of Infosys Finacle on IBM LinuxONE has been thoroughly tested, demonstrating that it can deliver the high performance, scalability, and security required for mission-critical banking systems.

Figure 3 shows how components such as the Global Load Balancer, Ingress Controller, Istio Service Mesh, IBM App Connect, Kafka MQ, and various databases and caches work together to support secure, scalable, and high-performance banking operations. Arrows indicate data flow and service interactions across the platform.

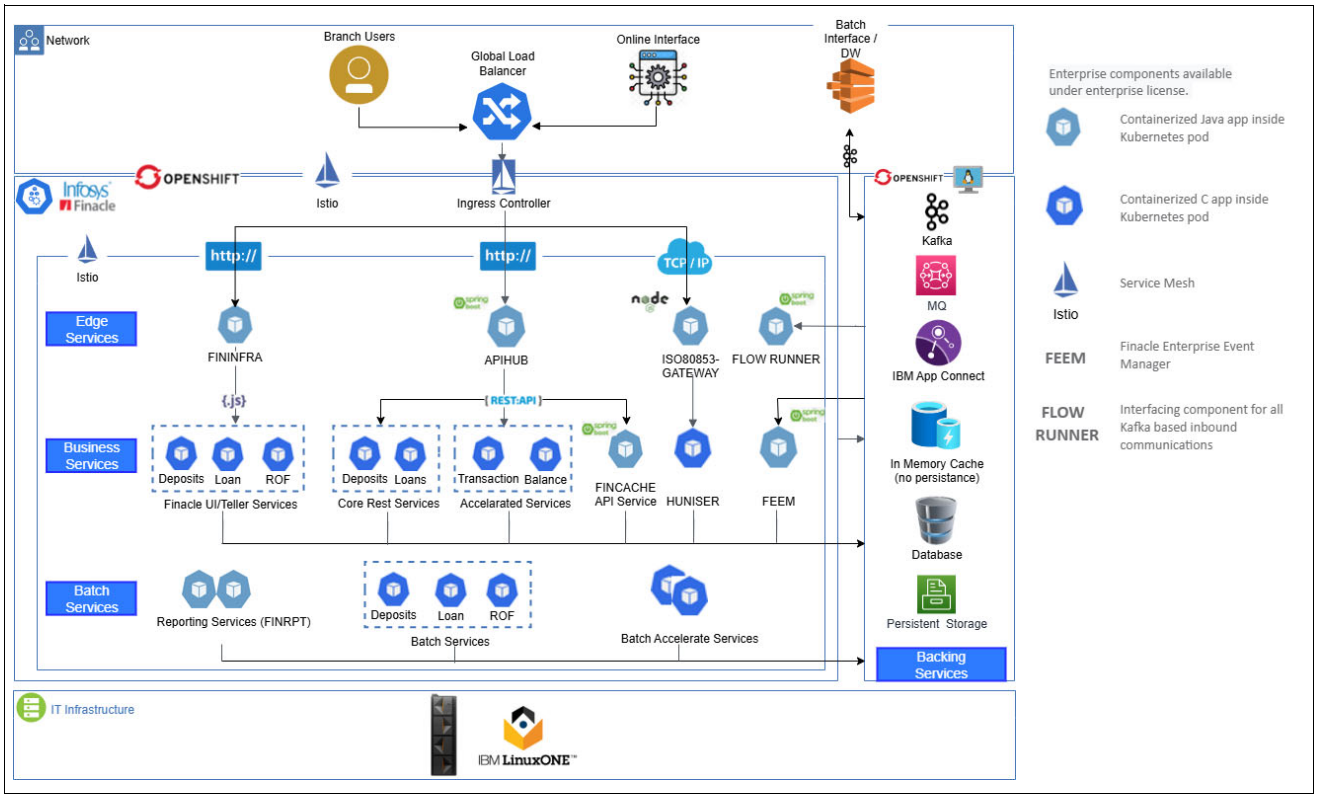

Figure 3 Finacle Core on Red Hat OpenShift Container Platform on LinuxONE reference architecture

Finacle Core Banking Solution on IBM LinuxONE

Infosys Finacle and the IBM Z ISV Ecosystem team have tested the Finacle Core Banking Solution on Red Hat OpenShift Container Platform running on IBM LinuxONE. The team also measured various detailed benchmarks to validate performance and ensure the solution meets client expectations.

Table 1 outlines the deployment stack for Infosys Finacle on IBM LinuxONE.

Table 1 Deployment stack

Product	Finacle Core Banking Solution
Hypervisor	z/VM or KVM
Container Platform	Red Hat OpenShift Container Platform
Red Hat OpenShift Operator	Service Mesh
Container Persistent Storage	► IBM Fusion (IBM Spectrum® Scale, Red Hat OpenShift Data Foundation) ► Network File System (NFS)
Database	► Oracle ► EDB PostgreSQL
Operating System for Native LPARs	Red Hat Enterprise Linux
Distributed Cache (Optional)	Redis Enterprise or Community edition
Message Broker (Optional)	IBM MQ

Event Stream (Optional)	Apache Kafka
V8 (Optional)	JavaScript Engine
Integration Bus (Optional)	IBM App Connect Enterprise

Required software stack

The following software stack is required for Infosys Finacle on IBM LinuxONE:

- Virtualization: z/VM or KVM
- Container Platform: Red Hat OpenShift Container Platform
- Service Mesh: Red Hat OpenShift Service Mesh Operator
- Persistent Storage: IBM Fusion (formerly IBM Spectrum Scale and Red Hat OpenShift Data Foundation) or NFS
- Database: Oracle Database Enterprise Edition or EDB Postgres
- OS for Native LPARs: Red Hat Enterprise Linux

When virtualizing the Finacle Core Banking solution, you can choose between z/VM and KVM based on your infrastructure strategy. You can also select Oracle or EDB Postgres as the database and choose your preferred persistent storage approach using IBM Fusion components or NFS.

Optional components

You can also add optional components such as Redis, IBM MQ, Apache Kafka, V8 JavaScript, and IBM App Connect, depending on your needs.

Redis, for example, is typically used for non-financial transactions. For heavier workloads, banks might choose Redis Enterprise on x86. For lighter use cases, Redis Community can be deployed on IBM LinuxONE.

These choices are guided by your business volumes and overall architecture. Infosys Finacle teams work with each bank to design the right setup, making sure performance, scalability, and operational efficiency stay aligned with business objectives.

Use cases: Infosys Finacle on IBM LinuxONE

This section includes a high-level overview of use cases involving Infosys Finacle on IBM LinuxONE.

Use case 1: High-volume transaction processing

With Infosys Finacle running on IBM LinuxONE, banks can handle extremely large transaction volumes. The system is designed to process millions of transactions every day while still maintaining performance and giving customers a smooth experience.

Use case 2: Personalized banking

Infosys Finacle on IBM LinuxONE helps banks deliver more personalized services. By making use of customer data, banks can create and offer tailored products that improve engagement and build stronger customer loyalty.

Use case 3: Business continuity with high availability

Infosys Finacle on IBM LinuxONE provides seamless business continuity with its high-availability architecture. Built-in failover and replication ensure that banking services are always available, even during a system failure.

Use case 4: Regulatory compliance and data security

Banks face strict regulations such as GDPR and PCI-DSS. Running Infosys Finacle on IBM LinuxONE helps meet these requirements. Hardware-based encryption and secure multi-tenancy provide strong protection for sensitive data.

Use case 5: Disaster recovery and business continuity

When Finacle Core Banking runs on IBM LinuxONE, it takes advantage of the platform's strong resilience and high availability features. During a system failure, the entire stack including core applications, databases, and supporting services can be configured with built-in redundancy and failover. This design reduces downtime and helps banks keep their operations running without interruption.

Conclusion: A future-ready platform for core banking

The combination of Finacle Core Banking solution with IBM LinuxONE represents a strategic pathway for financial institutions seeking to modernize their core systems while ensuring security, resiliency, and operational efficiency. This combined solution leverages the proven strengths of Infosys Finacle's comprehensive digital banking platform and the enterprise grade capabilities of IBM LinuxONE to deliver scalable performance, regulatory compliance, and uninterrupted service availability. By adopting this architecture, banks are positioned to accelerate their digital transformation journey, optimize costs, and enhance customer experience, all while preparing for future demands in an increasingly dynamic financial services landscape.

Related publications

The publications that are listed in this section are considered suitable for a more detailed description of the topics that are covered in this book.

Online resources

For more information, see the following websites:

- Infosys Finacle on IBM LinuxONE
- IBM LinuxONE 5
- Single page overview

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