

CASE STUDY

Modernising the Banking Core: Commonwealth Bank of Australia's Banking Platform Re-architecture



Commonwealth Bank of Australia (CBA), the country's largest bank, modernised its core banking platforms serving around 70 million customers and processing roughly 70 million daily transactions at a peak rate of 4,500 transactions per second — supporting close to 40% of Australia's payment flows.

The transformation reduced failover times from approximately 30 minutes to under two minutes, improved processing performance by 30%, and established a foundation for real-time, data-driven capabilities across the organisation. The 6-month programme was led by CBA, working in collaboration with AWS, SAP, Accenture and Red Hat as part of its broader technology ecosystem.

BENEFITS

- Reduced core banking failover time from 30 minutes to under 2 minutes
- Accelerated batch processing by 30%, enabling millions more customer calculations daily
- Established a modernised cloud architecture on AWS for real-time data-driven capabilities across the organisation

TECHNOLOGY

x86-based Red Hat Enterprise Linux environment running on AWS cloud platform



We re-engineered the clustering solution to achieve sub-two-minute failover, pushing the limits of what had previously been done with this architecture due to the scale we were operating at.

SIMON DAVIES

General Manager, Retail Platforms & Engineering, CBA

The Project Context: Why Modernisation Became Unavoidable

For the Commonwealth Bank of Australia, the decision to modernise its core banking platform was not driven by ambition alone.

The platform underpinning approximately 90% of all CBA customer accounts was approaching a vendor end-of-service event. For a platform of this scale and criticality, operating with known vulnerability exposure was simply not tenable. The risk posture had to change.

But CBA's leadership chose to do more than address the immediate compliance pressure. They recognised that the platform's architecture, while resilient and battle-tested, had become a strategic constraint. Moving rich data across the organisation created friction. Interoperability with modern systems was limited. The mainframe's specialised skill requirements were also creating a long-term talent risk as knowledge attrition quietly accelerated.



Crucially, the objective extended beyond remediation. The platform needed to be modernised in a way that preserved its proven resilience while removing constraints on real-time data access, enterprise integration, and future innovation. It also had to align with the broader cloud-based environment CBA was already building across the enterprise.

This was far from a like-for-like replacement. It was a fundamental architectural shift, executed on a live platform serving tens of millions of customers, with zero tolerance for service disruption.

CBA defined the strategic direction for the programme and brought together its technology ecosystem to deliver the change at scale. Red Hat was brought in as one of the core technology partners, alongside AWS, SAP and Accenture, reflecting the initiative's demands for enterprise-grade reliability, deep engineering expertise, and collaborative problem-solving under extreme scale constraints. The migration drew on capabilities across this ecosystem, with specialists drawn from multiple regions and close collaboration with AWS at the infrastructure level, enabling engineering work that extended beyond previously established patterns on this architecture.



As resilient as the platform was, we recognised that it was increasingly shaping, and in some cases limiting, how quickly we could evolve the bank.

SIMON DAVIES

General Manager, Retail Platforms & Engineering, CBA

Trust, Risk, and Core Banking at Systemic Scale

Core banking modernisation has traditionally been seen as a technology challenge. At CBA, it was treated from the outset as something more fundamental: a matter of customer trust, regulatory obligation, and long-term strategic positioning, delivered on a platform that could never be taken offline.

The scale of the system shaped every aspect of how the programme was structured and governed. With peak volumes of around 70 million transactions per day and approximately 40% of Australia's liquidity flows passing through the platform, the margin for error was effectively zero. Availability and resilience were not objectives alongside delivery; they were baseline requirements throughout. Trust in system reliability was embedded directly into operational decision-making.



CBA's objective was to remove a critical architectural bottleneck and establish a platform capable of supporting its next phase of growth. This included enabling real-time behavioural banking, more responsive customer experiences, and enterprise-wide data movement without friction — all dependent on a modernised core infrastructure.

To achieve this, CBA adopted an AWS-based modernised cloud architecture, prioritising interoperability, long-term adaptability, and reduced dependency on proprietary constraints. The programme drew on a broad ecosystem of specialist capabilities across infrastructure and engineering disciplines to address the scale and complexity of the migration.

At peak, the programme involved around 300 people spanning engineering, architecture, validation, regulatory reporting, treasury, and business testing. In total, approximately 500 people were engaged at different stages. By go-live, the transition had been extensively rehearsed, with a tightly coordinated cutover executed over a single operational window, reflecting the critical importance of maintaining customer trust during a live migration of national infrastructure.



Core banking is really the system that underpins a lot of what we do. It's the transaction engine behind about 90% of our customer accounts; and at that scale, it becomes part of national financial infrastructure.

SIMON DAVIES

General Manager, Retail Platforms & Engineering, CBA

Engineering Challenge: Operating Core Banking Under Extreme Scale Constraints

The engineering effort intensified as the complexity of the requirements became clearer. What began as a technology engagement evolved into a tightly integrated delivery effort, with Red Hat engineers working directly with CBA teams to address issues in real time, often without established patterns to rely on.

One of the most significant challenges centred on high-availability clustering. While the initial modernised design delivered failover times of approximately 15 to 16 minutes (already an improvement on the mainframe's best-case 30-minute recovery window), it remained short of CBA's requirements for a platform operating at this scale. Working closely across teams, the clustering approach was re-engineered, including changes at the Linux kernel level to support the x86 architecture on AWS infrastructure. The result was a sub-two-minute failover on one of Australia's most critical banking platforms.

The solution was designed, built, validated, and operationalised in approximately three months, an effort that would typically take closer to a year at comparable complexity.

A key enabler of this pace was the engineering collaboration model across teams, which allowed rapid iteration, deep technical collaboration, and access to global specialist expertise. Rather than being constrained by closed system boundaries, teams were able to experiment and refine solutions under live delivery pressure, drawing on engineers from Germany, the United States, and across the Asia Pacific region as specific challenges emerged.



The delivery model across CBA and its ecosystem was structured to match the initiative's scale and risk profile, with Red Hat playing a key engineering role. Senior executive sponsorship and direct escalation paths ensured rapid decision-making, while Red Hat's support and engineering teams were embedded within the delivery squads from the outset, allowing operational knowledge to be built into the platform rather than transferred after go-live.



There was no proven blueprint for what we were trying to do at this scale. We had to design, build and validate parts of the solution in real time, working across CBA, AWS and Red Hat engineering teams.

ROBERT CHEMALI

Client Partner, Red Hat

Partnership and Collaboration in High-Stakes Delivery

Projects of this scale and criticality are not delivered by technology alone.

They are delivered by people operating under sustained pressure across organisational boundaries, working toward outcomes that none of the parties could achieve independently. What distinguished the programme was the extent to which this reality was acknowledged, designed for, and reinforced throughout delivery.

The delivery approach was deliberately structured around a shared operating model, with all parties working as a single integrated team rather than in traditional vendor-client roles. This required bringing the right expertise together, maintaining sustained commitment, and prioritising outcomes over organisational boundaries. It also required open, direct technical engagement and a willingness to make decisions without extended cycles of alignment.

Early in the initiative, CBA's leadership set a clear tone. The full delivery team — around 120 people across CBA and its partners — was brought together and aligned on a simple message: this was the team responsible for delivering a critical national capability, and progress would depend on shared belief, pace, and accountability. That framing became a reference point throughout the programme, shaping how decisions were made and how momentum was maintained.

That approach was tested at the most difficult moment. On the first go-live attempt, an issue in the broader connected environment required a controlled rollback. The team executed it as planned, without disruption to the process or coordination. When the decision was made to proceed again, the response was immediate; a collective commitment to move forward as soon as it was safe to do so. The subsequent go-live was completed successfully and stabilised as expected.

What emerged from the programme was a reinforced model of delivery: executive alignment that enabled rapid decision-making, integrated teams operating with shared accountability, and sustained focus on outcomes through the full lifecycle of the transformation — from build through to live operations.



We did a 12-month piece of work in six months, which really reflects the level of commitment everyone put behind this.

SIMON DAVIES

General Manager, Retail Platforms & Engineering, CBA

We operated as one team – not vendor and client – with a shared focus on outcomes rather than organisational boundaries.

ROBERT CHEMALI

Client Partner, Red Hat



Outcomes: Performance Gains and Strategic Capability Unlocked

The value of the migration becomes more evident over time. Its significance lies less in the go-live event itself and more in the platform's ability to support ongoing operational improvement and future development.

Immediately after go-live, the platform delivered measurable performance gains, including faster failover and improved batch processing. End-of-day batch processing now runs approximately 30% faster than on the previous platform, enabling higher volumes of customer calculations within the same operational window. Failover times were reduced from a best-case 30 minutes on the previous environment to under two minutes.

Beyond these operational improvements, the modernisation has removed a key architectural constraint that previously limited CBA's ability to evolve its digital and data capabilities. This has created greater flexibility to support real-time data use, improved responsiveness across customer journeys, and more efficient integration across systems.

These capabilities provide a stronger foundation for future development, including more personalised customer experiences and advanced analytics use cases that are now being explored across the organisation.

Overall, the platform now provides a more resilient and adaptable foundation for future change, enabling CBA to continue evolving its digital and data-driven capabilities at scale.



The advantage of modernising your core is something that compounds over time. Our ambitions for real-time behavioural banking are no longer constrained by where we were. What we've done has really unlocked that potential in a very big way.

SIMON DAVIES

General Manager, Retail Platforms & Engineering, CBA

Hear the story behind
CBA's banking platform
re-architecture





CommonwealthBank

We are guided by our purpose — building a brighter future for all. Our strategy, to build tomorrow's bank today for our customers, reflects our commitment to use the strength of CBA to support our customers, invest in our communities and provide strength and stability for the broader economy. We are one of the leading banks in Australia, serving more than 17 million customers. We focus on providing retail and commercial banking services predominantly in Australia, and in New Zealand through our subsidiary, ASB. Our products and services are provided through our divisions, Retail Banking Services, Business Banking, Institutional Banking and Markets, and ASB New Zealand. For more information, visit [Commonwealth Bank](https://www.commonwealthbank.com.au).



Red Hat

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This case study is based primarily on interviews conducted by Ecosystem analysts with leaders from Commonwealth Bank of Australia (CBA) and Red Hat, complemented by publicly available information and Ecosystem's independent research and analysis.