Next-Generation White-Label Internet Banking: 7 Banks, ~400,000 Users, MVP In 6 Months

A scalable, secure, customizable internet banking platform built for a Central African consortium – hybrid cloud, microservices, CBS integration, and white-label tooling out of the box.

Book a Consultation

SERVICES

Architecture Design, Hybrid Cloud, API Integration, Microservices, Lift & Shift Migration, CI/CD, DevOps, Security, Monitoring & DR, White-Label Support

INDUSTRY

Finance & Banking

TECH STACK

Java 21, Spring Boot, Spring Data JPA, MapStruct, Lombok, PostgreSQL 16, Liquibase, Redis, JUnit, WireMock, Testcontainers, Instancio

CASE STUDY CATEGORIES

Banking, Cloud, Fintech

ONBOARDED B2C USERS:

~400,000

MVP IN PRODUCTION:

6 months

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01. Our client

Who Is The Client And Why Did The Consortium Need A New Internet Banking Platform?

The client is a key player in Central Africa's financial services sector and part of a consortium of seven banks united under one group. The mandate was three-fold: improve the customer experience, upgrade the underlying banking infrastructure, and achieve smooth integration with each bank's Core Banking System.

The strategy behind the mandate matters. Rather than rebuild a banking front-end per institution, the consortium wanted a single white-label platform that all seven banks could brand, customize, and operate independently — consumer and business banking on one foundation. The brief was a high-class, secure, flexible, scalable system. Teamvoy was hired to build it.

Executive Summary

How Did A Central African Consortium Launch A Next-Gen Internet Banking Platform Across Seven Banks?

A leading financial services consortium in Central Africa — seven banks operating under a single umbrella — set out to deliver a next-generation internet banking experience for both consumer and business customers. The objective was concrete: a highly secure, flexible, and scalable platform that could serve as a white-label solution across all seven member banks, integrate cleanly with each bank's Core Banking System (CBS), and be in production fast — an MVP in six months, with eventual reach to over 400,000 end users.

This case study walks through how Teamvoy designed and delivered that platform — a hybrid cloud architecture pairing BareMetal on-premises infrastructure for sensitive workloads with public cloud services for non-sensitive ones, a microservices backend on Java 21 and Spring Boot, an API and middleware layer for CBS integration, and a white-label toolkit that lets partner banks rebrand the experience without heavy engineering work. The MVP shipped on time. ~400,000 B2C users were onboarded.

02. Challenge

What Does A White-Label Internet Banking Platform Have To Solve At Group Scale?

Building one platform to serve seven banks compresses a lot of competing requirements into a single architecture. Five had to be addressed at once.

Customer experience. A modern, responsive web and mobile interface, personalized dashboards with real financial insights, intuitive navigation, and a visual design that could stand next to anything in the market.

CBS integration. Middleware for real-time synchronization with each bank's Core Banking System, and secure APIs for clean data exchange — without forcing every partner bank to rebuild its CBS to match.

White-label customization. Flexible theming and branding, plus tooling that lets the platform be adapted to a new bank's identity and operational requirements quickly, not as a custom development project each time.

Hybrid cloud deployment. On-premises infrastructure for sensitive data, cloud services for scalability and the workloads that don't need to live behind a bank's perimeter — and a containerization and orchestration story that kept the bill in check.

Security and compliance. Data encryption end-to-end, multi-factor authentication, and adherence to industry regulations as a baseline rather than a feature to bolt on later.

And the schedule: an MVP in production in six months, with a roll-out path across all seven banks and onto ~400,000 end users.

03. Approach

Why A Hybrid Cloud, Microservices, White-Label Platform?

A next-generation internet banking platform is a customer-facing banking front-end built on modern web and mobile interfaces, integrated to a bank's CBS through APIs and middleware, and deployed in a way that meets the bank's security and regulatory profile. The category spans single-bank custom builds, off-the-shelf SaaS, and — the option that fit here — white-label platforms designed to serve multiple institutions from one codebase.

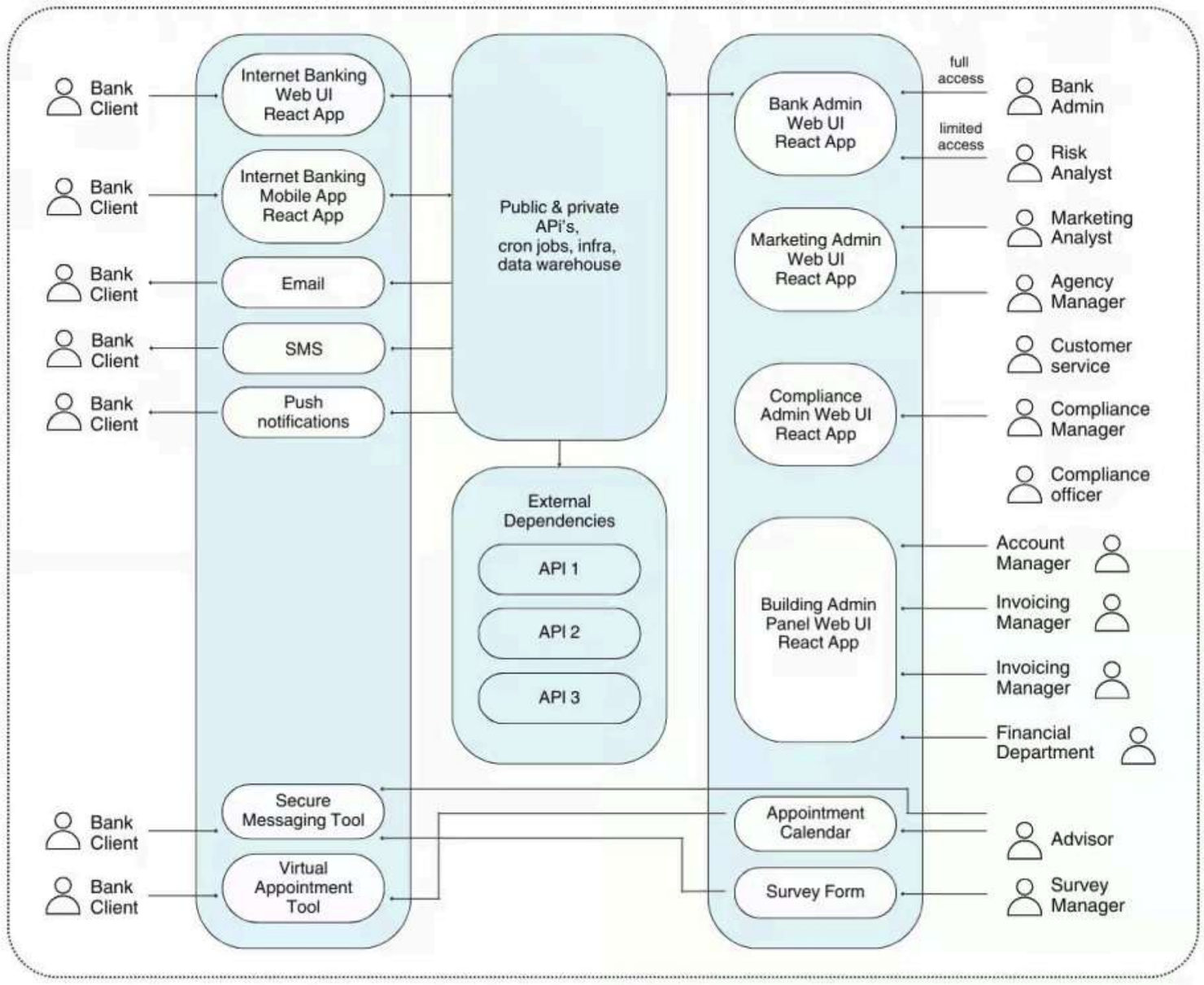
For this consortium, three architectural choices made the project viable on the schedule it had. Microservices kept individual capabilities independently deployable and scalable, so the seven banks could share a codebase without sharing release risk. Hybrid cloud kept sensitive workloads on BareMetal infrastructure where the regulators and the consortium both wanted them, while moving non-sensitive workloads (chat, video, support tooling) onto public cloud where elasticity was cheap. A white-label toolkit and admin portal made every new bank an onboarding exercise instead of a fork of the codebase.

The deeper reason this worked is that it drew a clean line between platform and tenant. The platform handled banking, security, and CBS integration. The tenant configuration handled branding, theming, and bank-specific operational rules. Seven banks could go live on the same release train without seven separate forks of the same product.

04. Solution

How Did Teamvoy Design, Build, And Roll Out The Platform Across Seven Banks?

The engagement ran end-to-end — discovery, design, MVP development, deployment, and ongoing support — with the client's stakeholders embedded throughout.



Discovery. Workshops with the client's stakeholders mapped business challenges and technical requirements, produced a top-level architecture for scalability, flexibility, and security across heterogeneous banking environments, set the MVP-first roadmap, and recommended a hybrid deployment model that balanced cost, performance, and security.

Design and MVP development. The UX team produced prototypes and wireframes in Figma, designed white-label-ready dashboards, and built responsive layouts for web and mobile. In parallel, engineering delivered the MVP in six months on agile cycles — secure login, account management, transaction history, and the foundations that later features would build on. APIs and middleware were built from day one to communicate with multiple Core Banking Systems, so partner banks with heterogeneous CBS setups could plug in without bespoke engineering each time.

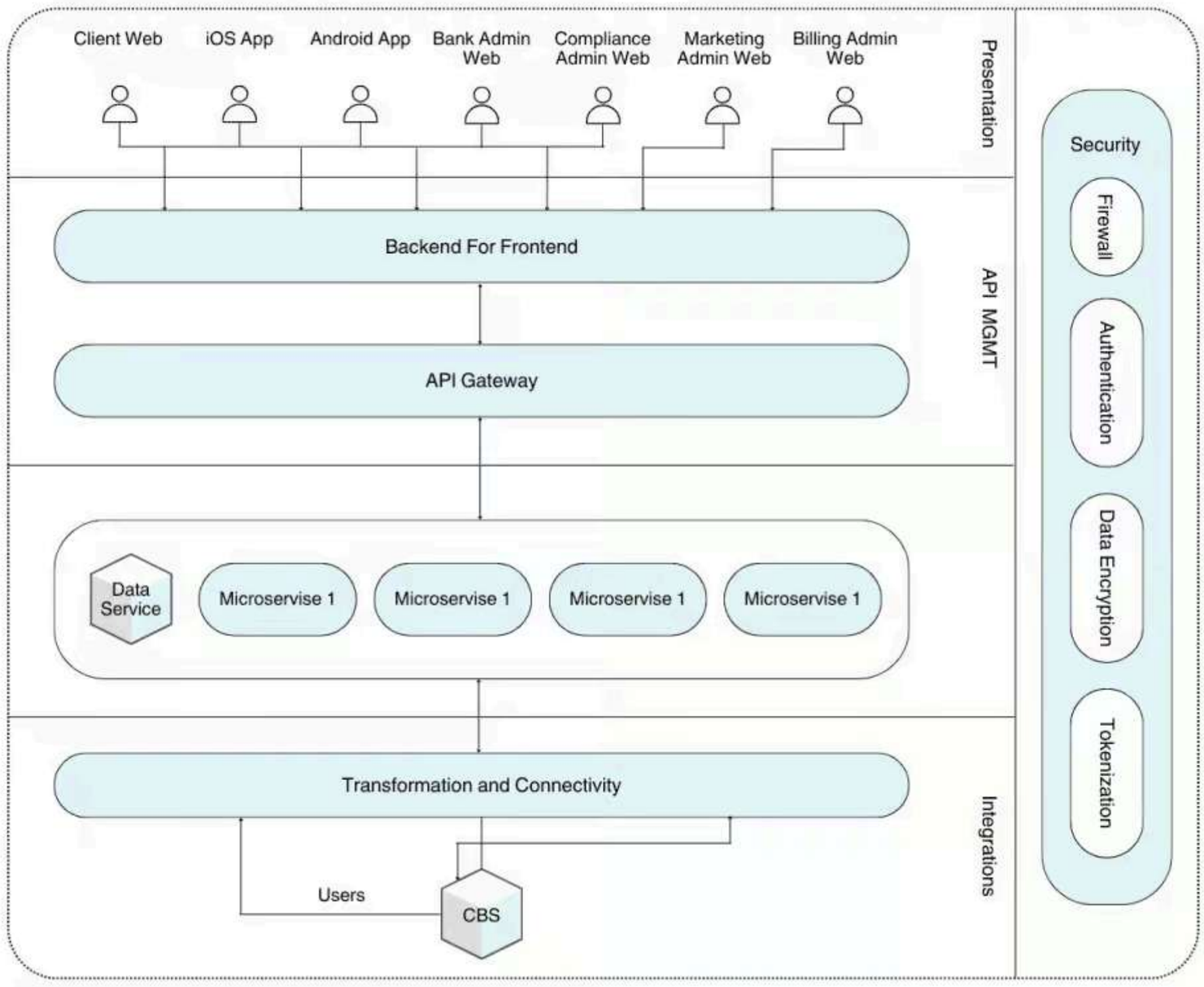
Deployment and testing. The platform was deployed under a hybrid model: critical components on BareMetal infrastructure, non-critical functionalities on public cloud. Testing covered attack resistance and performance at scale, plus integration validation against partner banks' systems. The consortium's banks were then onboarded one by one, each with bespoke support for their branding and operational needs.

Continuous support. Post-launch, the engagement continued with regular feature delivery driven by bank and end-user feedback, ongoing improvements to the white-label tooling so partner banks could rebrand without technical lift, training and live support for partner banks, and recurring security audits to keep compliance current and the platform hardened against emerging threats.

Tech Stack

Which Technologies Power The Internet Banking Platform?

- Java 21 + Spring Boot — backend runtime for the microservices that make up the platform.
- Spring Data JPA, MapStruct, Lombok — persistence, mapping, and boilerplate-reduction across the service layer.
- PostgreSQL 16 + Liquibase — relational store with version-controlled schema migrations.
- Redis — caching and high-throughput data access where database round-trips would be the bottleneck.
- JUnit, WireMock, Testcontainers, Instancio — test pyramid covering unit, integration, and contract testing against real dependencies in containers.
- Hybrid infrastructure — BareMetal (Dell / HP) on-premises for sensitive workloads, public cloud for non-sensitive ones, with Docker on Linux for containerization.
- API gateway and middleware layer — for secure communication with multiple Core Banking Systems and third-party services.3



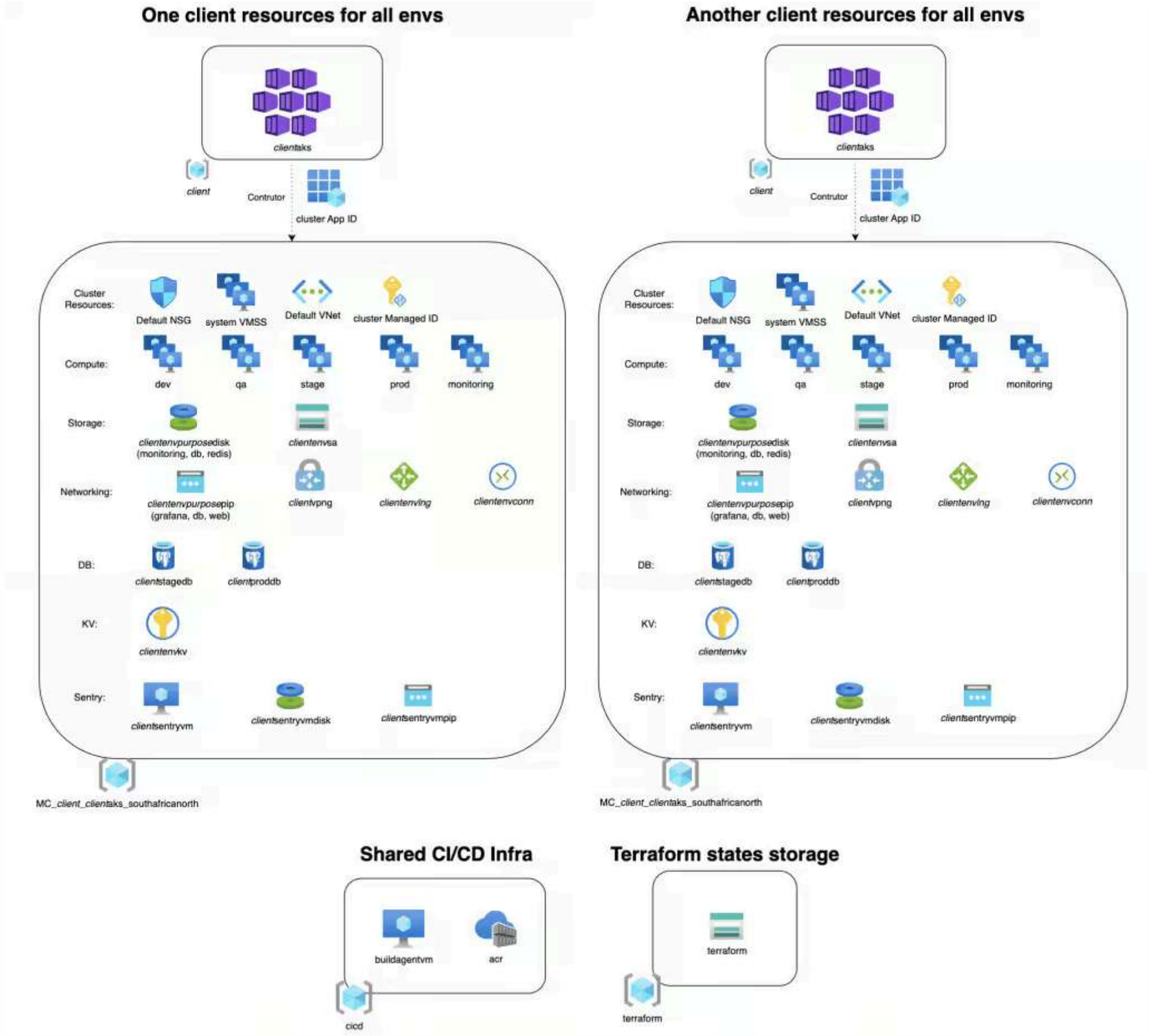
Which Features Define The Next-Gen White-Label Internet Banking Platform?

- Responsive web and mobile UI with personalized dashboards, real-time account summaries, transaction history, and financial insights.
- White-label UIKit and admin portal — partner banks can customize logos, colors, themes, and role-based access without engineering involvement.
- Middleware for real-time CBS synchronization plus API adapters that let banks with heterogeneous CBS setups connect without heavy custom development.
- Hybrid cloud deployment with BareMetal for sensitive components and public cloud for non-sensitive services like chat, video conferencing, and support tools.
- Security baseline: TLS/SSL data-in-transit and at-rest encryption, MFA, recurring security audits, and penetration testing.
- Behavioral analytics, AI-driven personalization and fraud detection, and strategic reporting dashboards for the banks' own decision-making.
- High availability and disaster recovery: geographically distributed data centers, automated load balancing, failover, and a tested DR plan.

Key Engineering Decisions

Which Engineering Decisions Made The Platform Work At Group Scale?

Five decisions shaped how the platform behaves under multi-bank load — and they are the same ones that let seven institutions share one codebase without sharing one release risk.



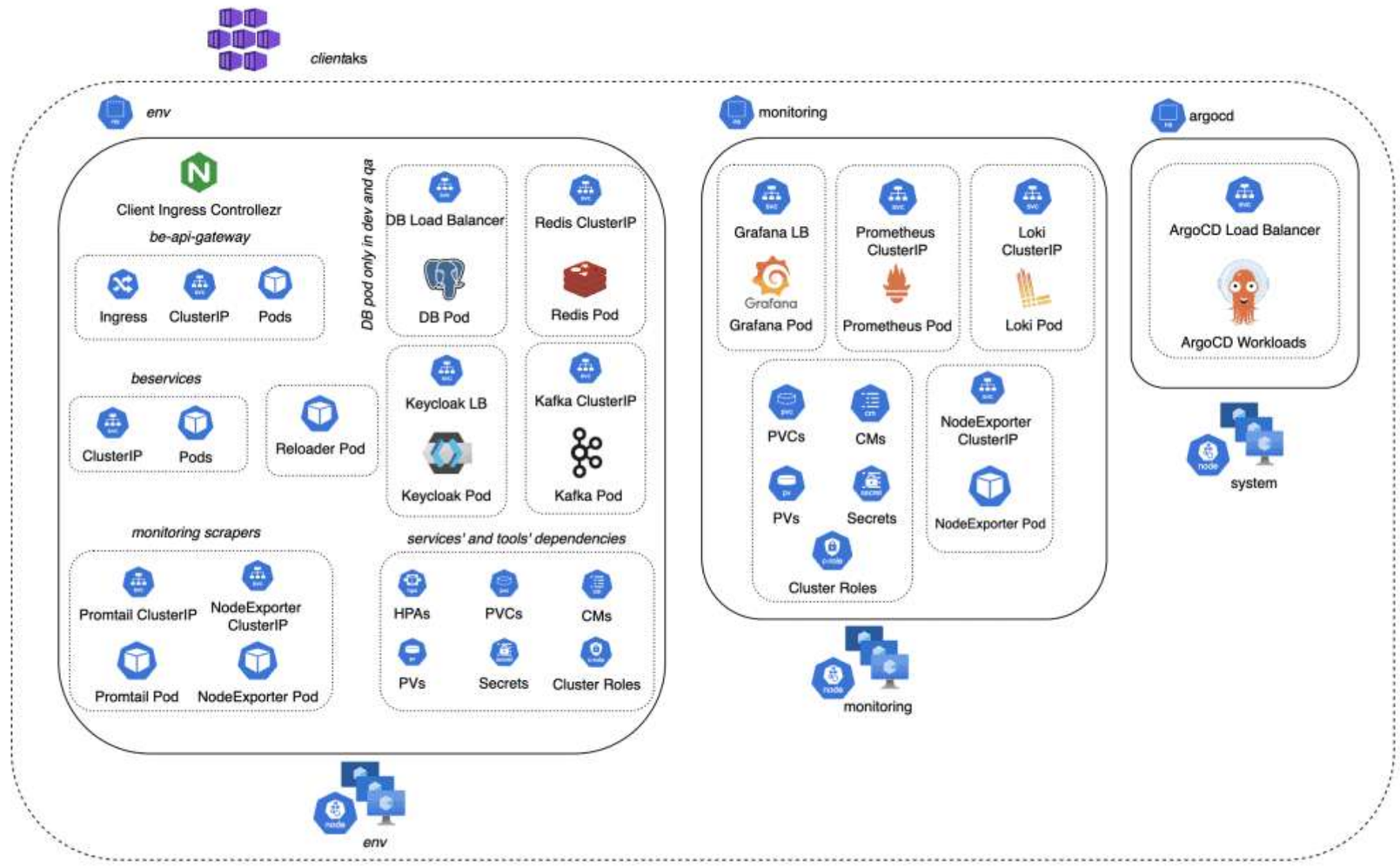
Microservices over monolith. Capabilities were split into independently deployable services so individual components could be updated or scaled without touching the rest of the system. For a platform serving seven banks with different traffic profiles and different rollout windows, that independence was non-negotiable.

Hybrid cloud, drawn around the data. The decision wasn't "cloud vs on-prem" — it was "which workloads belong where." Sensitive components landed on BareMetal infrastructure where the consortium and its regulators wanted them. Non-sensitive workloads (chat, video, support) moved to public cloud where elasticity is cheap. Virtualization and Docker on Linux kept resource utilization disciplined on both sides.

CBS integration through a middleware + adapter layer. Partner banks run different Core Banking Systems. Rather than force a single integration pattern, the platform exposes a stable middleware contract and uses per-CBS API adapters underneath. New banks integrate without rebuilding the platform — and the platform doesn't accumulate one-off branches per bank.

White-label as a product surface, not a fork. Theming, branding, and admin configuration are first-class platform features delivered through a UIKit and an admin portal. Partner banks rebrand and configure through the platform's own interfaces, which means onboarding a new bank does not start a new long-lived branch of the codebase — and every bank gets the next release on the same train.

Test pyramid with real dependencies in containers. Testcontainers and WireMock made it cheap to test against realistic databases and external services without standing up shared environments. For a regulated platform shipping fast on agile cycles, that test posture is what makes weekly delivery survivable — and what keeps regressions from leaking into a CBS integration.2



05. Impact

What Impact Did The Platform Have On The Consortium And Its Customers?

Within a short timeframe, the engagement delivered the consortium's full mandate. All seven banks under the group were enabled to launch modern internet banking solutions on a shared platform. Approximately 400,000 B2C users were onboarded and given a next-gen banking experience on the device of their choice. The MVP reached production within six months of project initiation, on the schedule the consortium had set.

Underneath the user-visible delivery, the hybrid deployment model gave the consortium cost-effective updates and zero-downtime upgrades, and the platform's flexible licensing and modular feature sets let each bank scope what it wanted against its own budget and business requirements. The same architectural choices that made the MVP shippable in six months are what keep the platform shippable on weekly release cycles now.

Qualitative Results At A Glance

- Seven banks under one group enabled to launch modern internet banking on a shared white-label platform.
- ~400,000 B2C users onboarded and given an upgraded banking experience across web and mobile.
  MVP delivered to production within six months of project initiation — on the schedule the consortium set.
- Hybrid deployment model (BareMetal + public cloud) supports cost-effective updates and zero-downtime upgrades.
- Flexible licensing and modular feature sets let partner banks scope the platform to varying budgets and business needs.
- White-label UIKit and admin portal let partner banks rebrand and configure the platform without further technical lift.

This platform also sits alongside the consortium's earlier refactoring engagement with Teamvoy — together, the two projects took the group from an unstable mobile banking app to a hybrid-cloud, microservices-based next-generation platform serving its full customer base across seven banks.

Lessons Learned

What Should Banking Groups Know Before Building A White-Label Internet Banking Platform?

A few takeaways generalize beyond this engagement and apply to any banking group weighing a shared, white-label internet banking platform.

One platform for many banks beats many platforms for many banks — if the white-label layer is real. The economics of a shared platform only show up if branding, theming, and configuration are first-class product surfaces. Onboarding a bank through a UIKit and admin portal is a delivery; onboarding a bank through a custom fork is a recurring engineering cost that grows with every member of the group.

Hybrid cloud should be drawn around the data, not around fashion. The right question is which workloads belong on-premises and which belong in public cloud — and the answer is regulatory and operational, not technical preference. Sensitive workloads on BareMetal, non-sensitive ones on public cloud,

containerized resource discipline on both sides.

CBS integration is the long-term bet. Banks change. Their CBS choices change. A middleware contract with per-CBS adapters underneath is what keeps the platform from being rebuilt every time a partner bank migrates its core.

MVP in six months is achievable when the team is embedded. Agile cycles work when the client's stakeholders are in the room. Six-month MVPs that hit production tend to come from engagements that share workflow, not engagements that share only a contract.

Conclusion

Where Should Banking Groups Start With A Next-Gen Internet Banking Platform?

For this consortium, the next-generation internet banking platform was less about adopting modern tooling and more about giving seven banks one place to launch, brand, and operate a modern customer experience. The hybrid cloud architecture, microservices backend, CBS middleware, and white-label toolkit turned a shared ambition into a shippable platform — MVP in six months, ~400,000 users onboarded, and a release train all seven banks ride together.

If you are evaluating a next-gen internet banking platform for a banking group, the most important question is not "which framework or cloud should we adopt?" — it is "how many institutions will live on this platform, and how do we keep them on one codebase without forking it seven ways?" The answer is usually a real white-label layer, a hybrid cloud drawn around the data, and a CBS integration strategy that survives a partner bank changing its core.

Thinking About A Next-Gen Internet Banking Platform For Your Group?

Tell us how many banks you want on one platform and what your CBS landscape looks like — Teamvoy will help you map the architecture, the hybrid cloud split, the white-label tooling, and the realistic path from kickoff to a live MVP your end users actually use.

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