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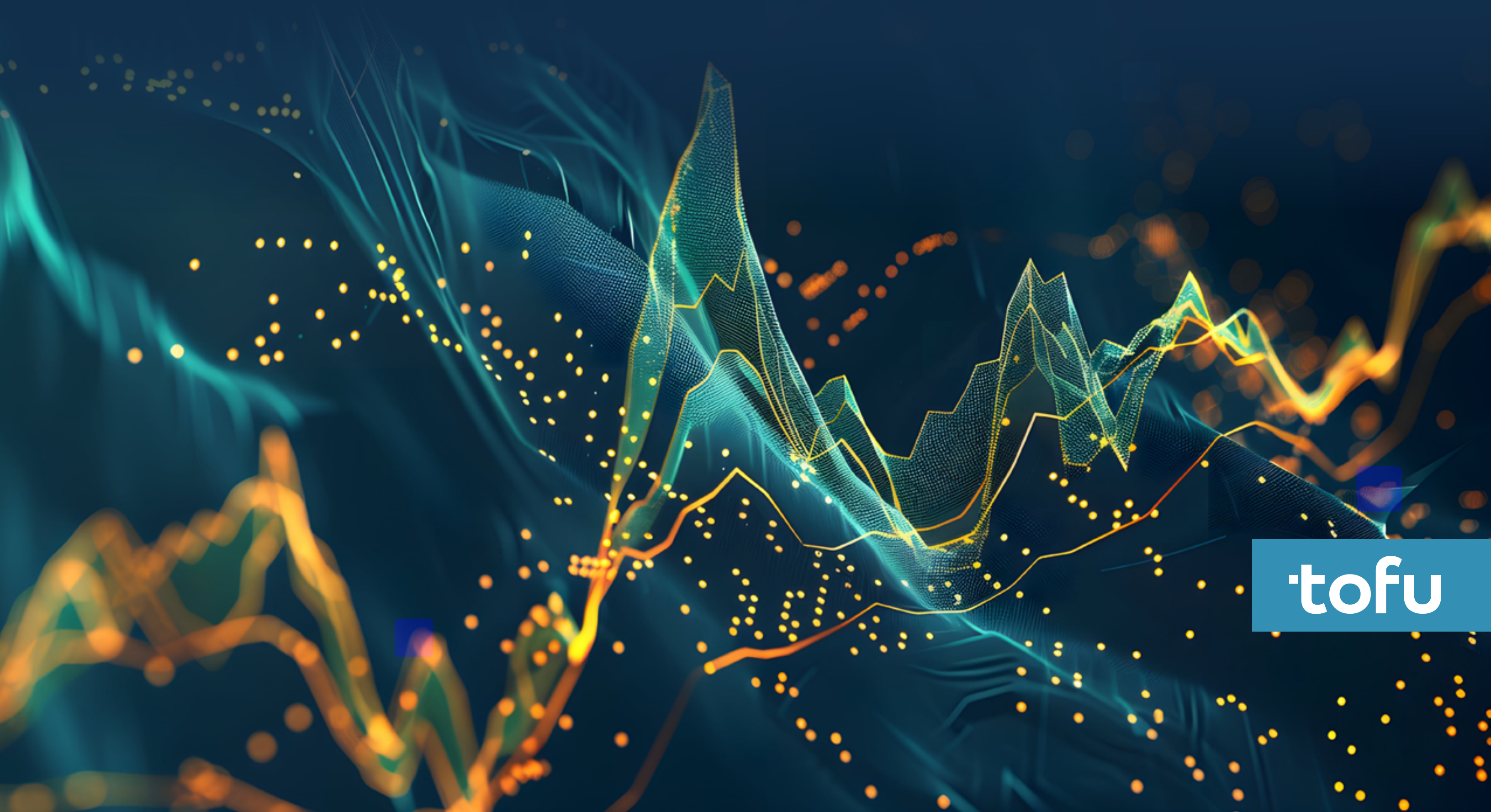
Balancing the Books at Global Scale

Scaling Accounting Tech Platforms For Peak Performance and Zero Downtime



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Technical and Operational Challenges for the Accounting Industry

Fueled by AI, cloud-native platforms, and user demands for instant access, the accounting tech sector is experiencing unprecedented growth.

Innovative companies are replacing legacy spreadsheets and desktop software with intelligent, “always-on” platforms that provide services to a global client base.

This expansion has led to a surge in mission-critical data activity. Modern accounting platforms are no longer just-end-of-year tax tools; they are 24/7/365 operational hubs. They ingest and process thousands of invoices, manage global payroll, and provide real-time financial insights to clients around the world.

This growth presents huge business opportunities, but also introduces critical technical and operational challenges that legacy data infrastructures cannot handle.

Application architectures have evolved, embracing AI and microservices to boost productivity and efficiency. However, the underlying RDBMS infrastructure for many platforms has not kept pace with this innovation.

Legacy databases (like traditional, single-node PostgreSQL or other monolithic RDBMS) are still single-server platforms, not designed for the core requirements of modern, global financial platforms, which require:

- **Zero Downtime:** Many legacy databases require maintenance “windows” for upgrades or patching, which is unacceptable for a global service.
- **Global Distribution:** Monolithic systems are typically centralized in one region, resulting in slow performance for international users and making compliance with data residency laws like GDPR a challenge.
- **Elastic Scale:** Legacy systems cannot easily scale to handle the massive, spiky workloads of AI-driven data processing (like invoice scanning) and a growing user base.

These legacy databases present significant technical and business challenges for this growing market.

How Can YugabyteDB Help?

FinTech and accounting tech platforms require a fundamentally new approach to their database layer, with a focus on creating business value rather than managing scaling and resiliency challenges.

YugabyteDB is a cloud-native, distributed, PostgreSQL-compatible database that combines strong consistency with ultra-resilience, seamless scalability, and geo-distribution to deliver business-critical, transactional applications.

Leading accounting innovators, like Tofu, build their business-critical data platforms on YugabyteDB.

The Tofu Story: Why They Chose YugabyteDB

Tofu provides a comprehensive, AI-powered accounting solution to global clients. Their service is mission-critical for end users, so their data infrastructure must be too.

Tofu is an AI-powered, global platform used by 7 out of the top-10 accounting firms, including Baker Tilly. They set non-negotiable requirements for data infrastructure, including:

- **Zero-downtime operations:** Tofu's global customers need 24/7 access to their financial data. "Down for maintenance" was not an option. They needed a database that could be patched and upgraded with zero downtime.
- **Global compliance (GDPR);** To serve clients in the EU and other regions, Tofu needed to guarantee data residency. A centralized database couldn't do this. They needed distributed, multi-region support.
- **AI-driven scalability:** Tofu's AI processes line-item data across 1 million+ invoices each month for 2,000+ bookkeepers, creating bursty workloads that require elastic scaling without over-provisioning.
- **PostgreSQL compatibility:** The Tofu team needed to build quickly, using the world's most popular and powerful open source database, RDBMS.

Tofu's platform, powered by YugabyteDB, meets all of these goals, delivering a secure, resilient, always-on service.

Within three months of launch, Tofu was named a finalist in the Xero Emerging App Awards for accounting software, reinforcing both market traction and technical excellence.

YugabyteDB provides us with always-on reliability, global data residency, and effortless AI-driven scalability. It's been essential to delivering a fast, compliant accounting platform for our customers around the world.

Ken Kanai, Tofu VP of Engineering

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How YugabyteDB Solves The Challenges of Legacy Architecture

To overcome the challenges detailed below and unlock the full potential of the accounting tech market, platforms must adopt modern, cloud-native database solutions.

YugabyteDB provides a distributed SQL architecture specifically designed to meet these needs.

The Challenge: The "Always-On" Imperative and the Cost of Downtime

For a financial platform, data is the product. Any downtime, whether due to planned maintenance, hardware failure, or database upgrade, is catastrophic.

Downtime breaks customer trust, halts internal operations, and costs the business time and money. Legacy monolithic databases have a single point of failure and require offline maintenance windows, forcing global businesses to make an impossible choice: When is a "good time" for all of your clients to be offline?

(The answer is never).

YugabyteDB's Solution: Resilient, Zero Downtime Operations

A modern financial platform must be "always-on." YugabyteDB is architected for continuous availability:

- **Built-in Resilience:** YugabyteDB automatically replicates data across multiple nodes, racks, or data centers, ensuring high availability and reliability. If a node or even an entire data center fails, the database continues to read and write data with zero interruption.
- **Rolling Upgrades:** Patches and upgrades are applied node by node, with zero downtime to the application.

This is why Tofu chose YugabyteDB.

Their platform now delivers a truly 24/7/365 service. Clients in APAC, the Middle East, the UK, and Japan all have continuous access, and Tofu's engineering team can perform maintenance without interrupting service. This ensures their AI and productivity tools are always available.

The Challenge: Complex Regulatory and Data Sovereignty Requirements

Accounting tech platforms (like Tofu) handle their clients' most sensitive financial data and must comply with a complex web of global privacy regulations like **GDPR** (Europe), **CCPA** (California), and others.

A key requirement for many is **data residency**. This is the mandate that a user's data must be stored within a specific geographic boundary (e.g., EU data must stay in the EU).

For a platform on a single, centralized database, this is nearly impossible. It forces companies to build expensive, entirely separate, and siloed infrastructure for each region, increasing complexity, cost, and risk.

YugabyteDB's Solution: Simplified Multi-Region Compliance

With regulations constantly evolving, financial platforms need a database that makes compliance effortless. YugabyteDB:

- **Supports Row-Level Geo-Partitioning:** YugabyteDB allows you to control exactly where data is stored at a granular level.
- **Eliminates Data Silos:** You can run a single logical database cluster that spans the globe, while still pinning specific data (like all users from country='France') to nodes physically located in Europe.

Tofu leverages this multi-region support to provide its accounting solutions globally while ensuring full compliance. They can onboard a client in Germany and guarantee their critical financial data is stored securely in their EU cluster, while an American client's data remains in the US.

The Challenge: System Strain from AI and Real-Time Scalability

Modern accounting platforms are extremely data-intensive. Tofu's platform uses AI to provide next-level productivity by scanning and extracting detailed line-item data from thousands of received invoices. This creates massive, unpredictable spikes in write and read operations.

A legacy database has a fixed, vertical scaling limit. When it hits that limit, the only option is a painful and expensive migration to a bigger (and temporary) server. This forces platforms to "over-provision" for peak loads, wasting money during off-peak hours, or worse, risk a system crash during peak demand.

YugabyteDB's Solution: Seamless, Linear Scalability

To support AI-driven, real-time workloads, YugabyteDB optimizes performance by scaling horizontally, providing:

- **Elastic, Linear Scaling:** Need to handle more data or more AI workloads? Simply add more nodes. YugabyteDB automatically redistributes the data and load, providing linear-scale performance on demand.
- **PostgreSQL Compatibility:** Engineering teams can build their AI and data-processing tools using the familiar, powerful features of PostgreSQL. YugabyteDB is Postgres wire-compatible, meaning applications, drivers, and ORMs work without modification.

This allows the Tofu platform to elastically handle its most demanding AI workloads, ensuring all client invoices are processed quickly and accurately, even during peak business hours.

Discover The Future of Scalable Accounting Platforms

As the accounting technology industry continues to expand and attract more users, the demand for high-performance, resilient, and globally compliant platforms will continue to increase.

YugabyteDB's robust scalability, resilience, and geo-distribution capabilities make it an ideal database choice for modern FinTech and accounting platforms.

From handling AI-driven peak loads to ensuring zero downtime and simplifying GDPR compliance, YugabyteDB meets the most stringent requirements for financial service providers.

By adopting YugabyteDB's distributed SQL architecture, platforms like Tofu can:

- **Handle peak AI and user traffic** effortlessly, without downtime.
- **Guarantee zero downtime** for upgrades and maintenance.
- **Eliminate single points of failure** with multi-region availability.
- **Deliver fast, low-latency performance** to users worldwide.
- **Simplify regulatory compliance (GDPR)** with geo-partitioning.
- **Accelerate development** with PostgreSQL compatibility.

Next Steps

To find out how cloud-native, distributed, PostgreSQL-compatible YugabyteDB can help your business succeed, request a demo or chat with one of our experts.