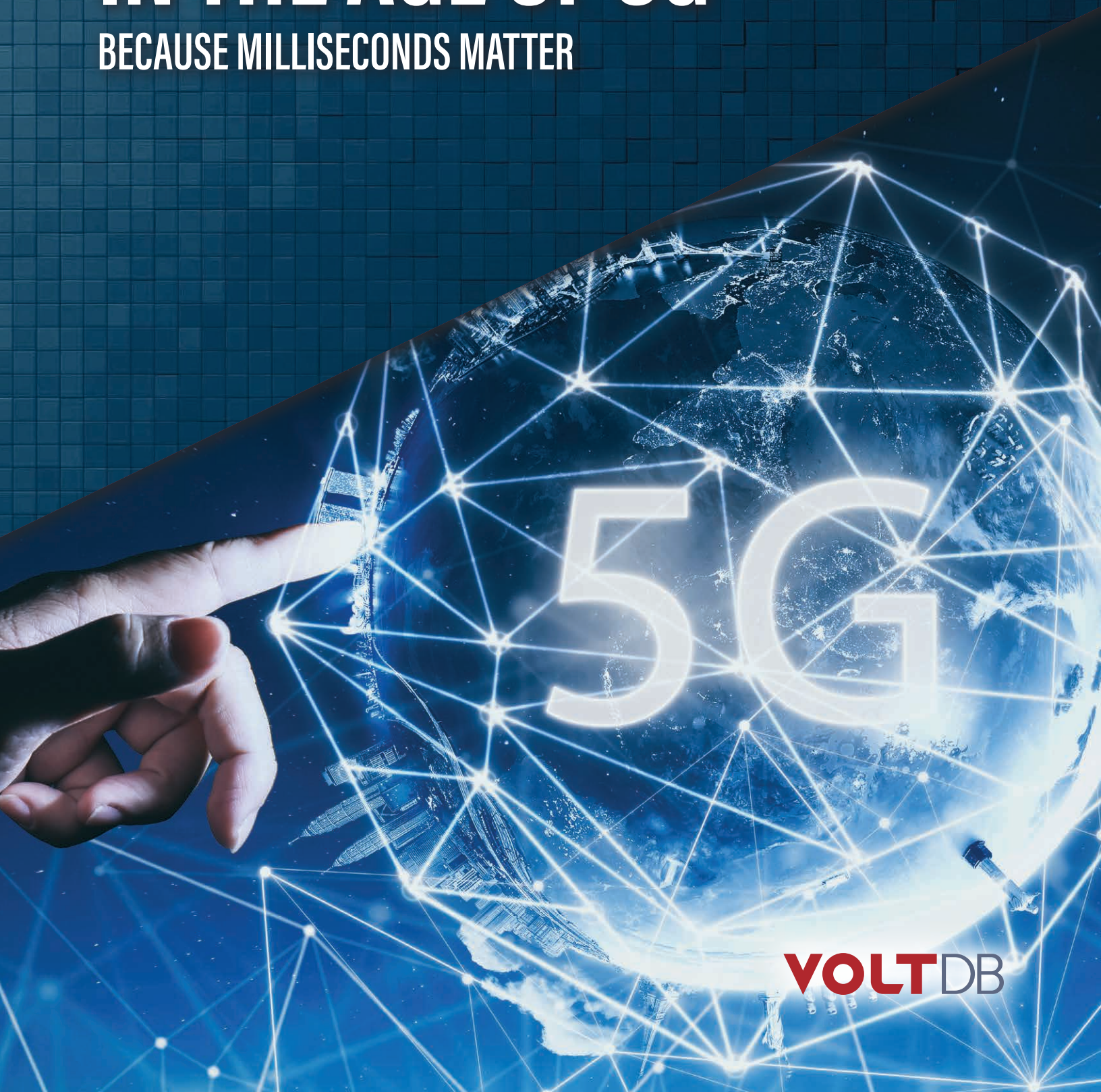
POWERING TELCO IN THE AGE OF 5G

BECAUSE MILLISECONDS MATTER



VOLTDB

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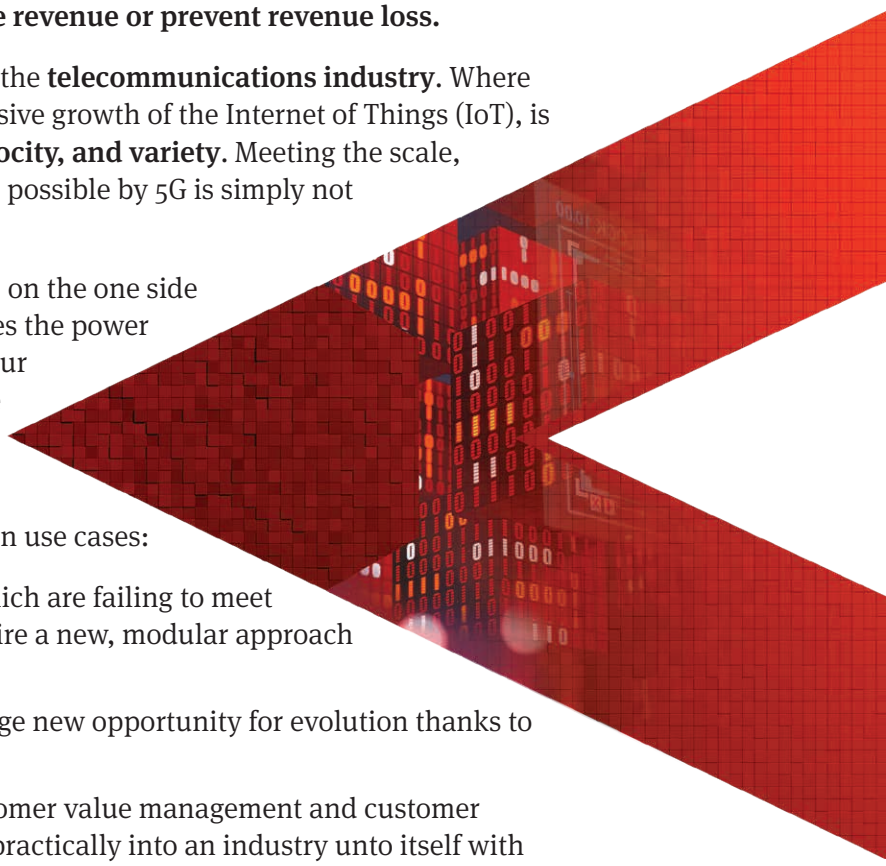
Because Milliseconds Matter

VoltDB is a high-velocity decisioning engine, proven to power real-time applications that must react in single-digit milliseconds to drive revenue or prevent revenue loss.

This core competency is absolutely necessary in the **telecommunications industry**. Where the introduction of 5G, combined with the explosive growth of the Internet of Things (IoT), is driving a **massive increase in data volume, velocity, and variety**. Meeting the scale, latency and transaction consistency levels made possible by 5G is simply not possible with legacy solutions alone.



In this gap between 5G-driven SLA requirements on the one side and legacy system shortcomings on the other, lies the power of VoltDB to digitally transform your business. Our platform's unique capabilities allow it to **handle telco's complex, high-velocity data requirements better than anyone else.**

VoltDB is especially effective for these application use cases:

- **Digital Business Support Systems** (BSS), which are failing to meet the new latency requirements of 5G and require a new, modular approach to deployment.
- **Billing Mediation Systems,** which have a huge new opportunity for evolution thanks to all the IoT-based data flowing in.
- **Customer Management** (also known as customer value management and customer experience management), which has grown practically into an industry unto itself with highly personalized offers becoming the standard.
- **Revenue Assurance,** which is only getting harder in the face of growing cyber threats and more sophisticated fraudsters.

Designed to **augment telco-space enterprises' previous big data investments, such as NoSQL, Hadoop, and traditional data warehouses**, as well as messaging investments such as Kafka, VoltDB empowers enterprises to **trigger crucial in-event decisions on complex streaming data, at scale, in under 10 milliseconds, and without compromising on data accuracy**—to drive revenue or prevent revenue loss in real time.

Milliseconds—The VoltDB Advantage

The difference between the top sprinters in the world and Olympic hopefuls who will never make it is single-digit *milliseconds*. Likewise, the world of data has also become a game of milliseconds, where losing just a fraction of a second means losing revenue and losing out to the competition.

VoltDB understands this better than anyone else—that's why we built our platform around the rare combination of speed and accuracy: we compromise on neither. VoltDB was designed to support real-time applications that must react in-event in single-digit milliseconds to drive revenue or prevent revenue loss.

Note that we say "in-event", as opposed to "after-event" (an "event" being the moment an action is taken that triggers the transfer of data through a fiber optic cable, such as a credit card purchase, a text message, or an IoT device being told to do something through a phone app).

We define "in-event" as within 10 milliseconds of the event happening and before the data involved gets sent to a data lake.

Why is the concept of single-digit milliseconds so important?

Because by the time data arrives at the data lake, it's already lost most of its value for the enterprise by escaping the enterprise's opportunity to monetize (BSS) it, use it to keep the customer's attention (customer management), or block it to prevent a cyber criminal from subverting or tainting it (fraud).

Why has data lost its value and why are these opportunities missed in these 7 to 10 milliseconds?

Because every task, from loading a web page to making an online purchase, comes with a number of subtasks, each with its own latency that eventually—if your data platform isn't up to par—adds up to taking too much time, leading shoppers to bounce or cyber criminals to sneak in.

This is where VoltDB shines. If the entire process needs to happen in 250 milliseconds, then the "decisioning" part—when your database, via the use of machine learning and AI, decides whether or not a piece of data is anomalous and therefore worth taking action on (either by not letting it through or using it for a timely monetization opportunity)—needs to happen in **under 10 milliseconds** to allow all the subtasks around it to happen in time.

Making these sub 10-millisecond decisions on anomalous data becomes even more valuable when you consider 5G and IoT, which are making things move even faster via device-to-device communications. Since data speeds are limited by the speed of light, which is further reduced by the medium through which it travels (a fiber optic cable), the only way to do things faster and take full advantage of 5G is to accomplish as much as possible with the data as quickly as possible by going from ingestion to action right as the data event happens (ie, at the "edge").

VoltDB Features & Benefits

VoltDB offers a rare combination of features that make our data platform uniquely suited to 21st Century telecommunications companies and the various software vendors that serve them.

Today's business climate requires certain non-negotiable capabilities to address application-specific scale and latency challenges without compromising on accuracy or reliability, and VoltDB delivers on every one of them:

APPLICATION-LEVEL FEATURES & BENEFITS

1. Ultra-Reliable Low Latency to Align with 5G SLAs

5G, combined with IoT and machine-to-machine communication, is making life almost impossible for legacy tech. To meet the SLAs of 5G, especially around BSS and customer management, your applications need to be able to go from ingest to decision in under 200 milliseconds, which means the decisioning part needs to happen in under 10 milliseconds, without compromising on data accuracy.

2. Stream Integration to Make In-Event Decisions Based on Multiple Streams of Information

Today's data comes in fast and varied from highly distributed sources. Stream processing technology allows you to process, store, analyze, and most importantly, act on data streams in real time. Legacy batch data processing methods require data to be collected in batch form before it's processed, stored, or analyzed, whereas streaming data flows in continuously, allowing you to handle it in real time without waiting for it to arrive in batch form.

3. ACID-Compliant Transactions to Process Data and Make Complex Decisions In a Consistent Manner

ACID compliance is key for consistency. If 5G is making everything faster, it becomes that much more important—and that much harder—to ensure consistency without sacrificing something else, like speed or data platform performance. Most NoSQL-based data platforms will fail in one or more of the ACID requirements, and thus fail to meet the data consistency requirements of many if not most of today's enterprise applications.

4. Intelligent Real-time Aggregations to Measure, Monitor, and Detect Deviations in Important KPIs

At the heart of any powerful 5G application is an ability to make complex decisions using both historical and near-recent records to attain a nuanced understanding of an event and act on it in the best way possible, according to your unique business needs and KPIs. Most data platforms—especially those using legacy or NoSQL database technology—focus on either historical data or recent data, without aggregating them for a holistic view.

5. Horizontal Scalability to Support the Increasing Volume and Variety of Data, Without Compromising on Latency

Scaling only vertically—ie, by adding CPU cores—very quickly puts your applications into trouble with latency and uptime because of the overhead involved and the extra data center trips your data packets have to make. In-memory data platforms like VoltDB are optimized for both horizontal and vertical scaling because they're not bound to disk and can use partitioning to scale horizontally and multi-core support to scale vertically.

OPERATIONAL-LEVEL FEATURES & BENEFITS

Cloud Native to Build Competitive Advantage from Agility and Automation

Cloud-native architectures take full advantage of the distributed, scalable, flexible nature of the public cloud to maximize your ability to create business value and keep customers happy. Going cloud-native means shedding many layers of infrastructure—networks, servers, operating systems etc.—to accelerate the development and deployment of new services by enabling practices such as continuous integration and deployment and the ability to rapidly scale resources up or down for real-time resource optimization in response to traffic spikes and one-time events.

High Availability to Ensure Business Continuity in the Face of Hardware Failures

Competent, customer management, BSS, and revenue assurance in the age of 5G means no service failures. Your customers stay happy and loyal, and you head off fraudsters before they have a chance to wreak havoc inside your networks. With high availability, you reduce the negative impacts of downtime and implement automatic recovery from system failures, translating into better ROI and ultimately a more robust bottom line.

Active-Active Cross Data Center Replication to Provide Geographically Distributed Resiliency to Support 5G-Grade Quality of Service

While many data platforms and database technology companies offer some form of cross data center replication, not many offer true active-active cross data center replication, which means using *two* databases, both of which can be changed in real time, and both of which propagate their changes to each other, thus avoiding issues around conflict resolution, which significantly impact application performance and ultimately your ROI.

Disk Persistence to Ensure You Never Lose Data

Disk persistence means that the data survives after the process with which it was created has ended. Disk persistence ensures data storage after the system you're using is powered off, meaning you are getting the most possible value from your data and not letting any of your data go 'dark'.

Stack Simplification to Reduce Costs and Improve Data Processing Performance Through a Simplified Infrastructure with Fewer Layers

Every layer in a stack adds latency. Adding more layers worked well to address all types of data ingestion and analysis issues until 5G and IoT came along and applications could no longer afford to take their time on mission-critical decisions. The less layers you have, the less latency you are introducing to your stack. VoltDB allows you to simplify your stack to manage ingest-to-action to action in under 200 milliseconds.

While many database technology companies offer SOME OF THE ABOVE, no other data platform or database technology company offers ALL OF THE ABOVE features and capabilities.

AND NOW IT'S YOUR TURN
TELL US ABOUT WHO YOU ARE AND WHAT YOU NEED.
LET'S CHAT TODAY.

ABOUT VoltDB

VoltDB enables enterprise-level companies to innovate faster, perform better, and create new revenue streams by unlocking the full value of their 5G data. The only data platform built for real-time, sub-10 millisecond decisioning, we empower companies to re-engineer their latency-dependent solutions to process more data than ever before at a faster pace than ever before, allowing them to not just survive but thrive in the world of 5G, IoT, and whatever comes next. By combining in-memory data storage with predictable low-latency and other key capabilities, we can power BSS/OSS, customer management, and revenue assurance applications that need to act in single-digit milliseconds to drive revenue or prevent revenue loss, without compromising on data accuracy. For more information, visit voltdb.com.