



TECHNOLOGYBROCHURE

Brave New Technology For A Supermobile World

Redefining real-time for communications service providers





Brave New Technology For A Supermobile World

IT systems have not kept pace with new devices and networks.

For communication service providers (CSPs), the world is changing. Every day, more people around the globe connect to the Internet through a smartphone or mobile device. In fact, mobile Internet connectivity has been growing three times faster than fixed broadband access grew in the 1990s and early 2000s. And mobile data traffic is estimated to be growing more than 100% per year.

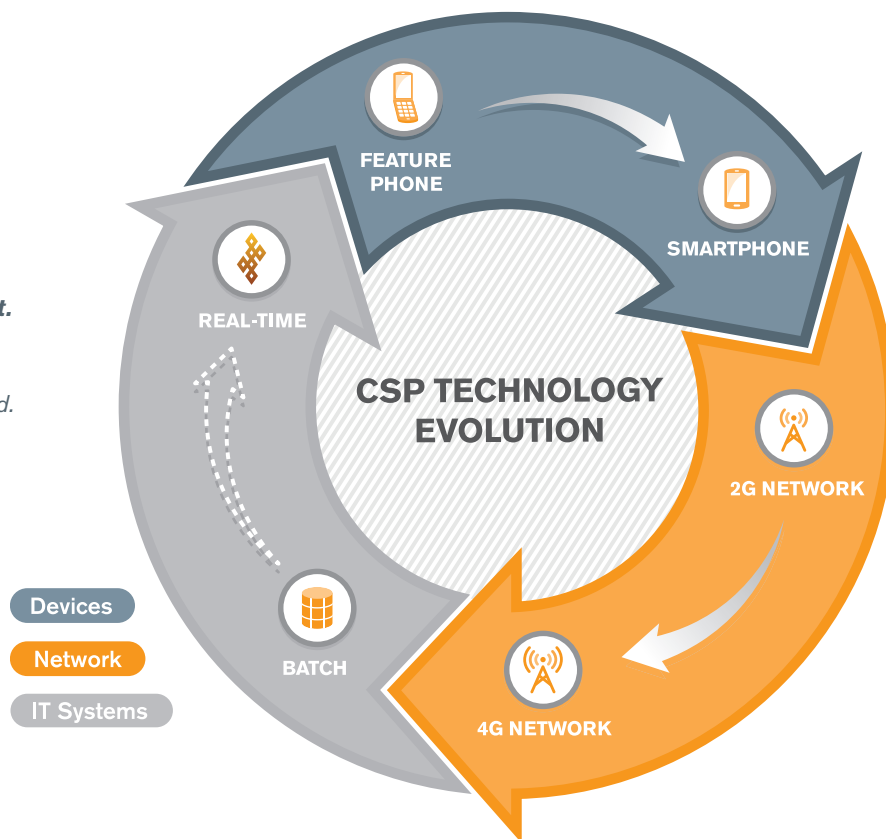
The explosion of mobile connectivity is transforming the way we interact with each other, how and when we access information, and how we conduct business in industries such as banking, airlines, and retail. For consumers, the mobile device is all about accessing information in the moment, when people want it most. We call this *the power of NOW*.

This transformation is made possible by remarkable advances in handset and network technology. Microchip and battery technology have enabled the creation of powerful smartphones and lightweight tablets capable of processing and displaying large amounts of information. Advanced network technology, including compression and LTE, has made it possible for mobile users to access the Internet at speeds comparable to fixed line. Together, handset and network technologies make it easier than ever for people to access their content, stream movies, and make video calls from wherever they are at any time. The result has been an explosion in the amount of data flowing across mobile networks.

The rapid growth in mobile data puts tremendous pressure on CSPs. Unfortunately, the IT systems that CSPs rely on to run the business were not designed for this data-intensive world. Simply put, devices and networks have evolved, and the IT systems haven't. For CSPs to keep up, they need a new kind of technology, one designed for today's Supermobile world.

Today's 4G networks are blazing fast.

Smartphones are vastly more powerful than yesterday's feature phones. But the IT systems that CSPs rely on have lagged. MATRIXX Software changes that with real-time technology designed for the Supermobile era.



Transforming IT Systems to Meet Today's Needs

As more people, devices, and services connect and utilize mobile broadband, the underlying systems that track customers, products, service usage, and network traffic must evolve in three ways:

- Become substantially more efficient so that the growth in mobile broadband traffic does not cause significant operational costs to the CSPs that run the networks
- Become real-time, all the time. Unlike voice services, people and machines are connected to the Internet at all hours of the day, so access to services, products, and customer information must be "always on"

- Become exceptionally agile – so that as the market changes, devices advance, and bandwidth becomes scarce, CSPs can quickly respond to the market, change course as needed, and adopt more appropriate strategies

At MATRIXX Software, we've built a new kind of technology, one designed for today's data-driven mobile environment – the Supermobile world. Just as companies like Apple, HTC, and Cisco redesigned handsets and network equipment to enable ubiquitous connectivity, MATRIXX Software redesigned the database and transaction-processing model. The first of its kind, Parallel-MATRIXX™ Technology, which forms the basis of all MATRIXX Software products and solutions, enables a new generation of IT systems to support today's devices and networks.

Introducing Parallel-MATRIX™ Technology

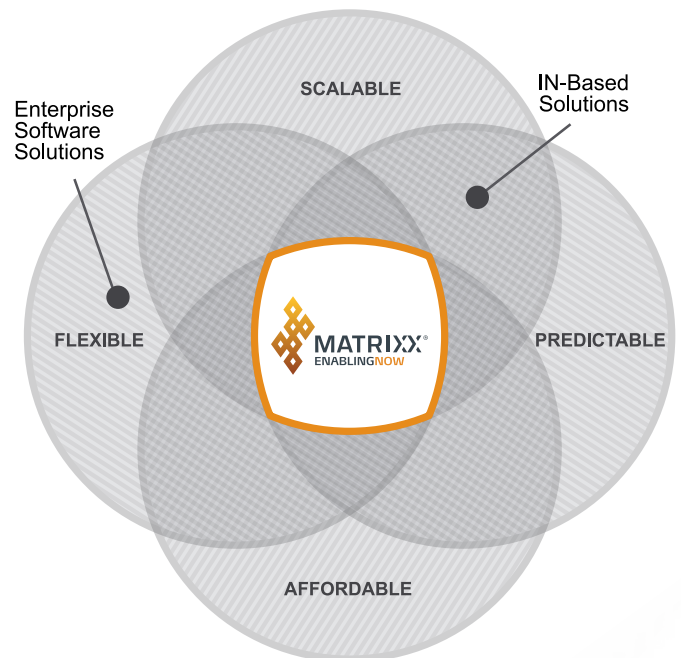
By rethinking conventional ideas of how databases and transaction processing systems should work, we have invented a new architecture for real-time processing to better support emerging business models, high volumes of network traffic, and device proliferation now and into the future. Our mission was clear: build a platform that meets these requirements:

- Flexible enough to support a multitude of applications and business functionality
- Truly real-time and highly available
- An order of magnitude faster than current systems
- Highly scalable and efficient, achieving higher performance with less hardware

The result is Parallel-MATRIX™ Technology, which was developed using four key innovations: Contention-Free In-Memory Database, Parallel-MATRIX™ Processing, Algebraic-Decision Engine, and Parallel-MATRIX™ Clustering. (See following page.) Combining these innovations into a single core platform, Parallel-MATRIX™ Technology offers a new level of performance, flexibility, and reliability for communications service providers (CSPs).

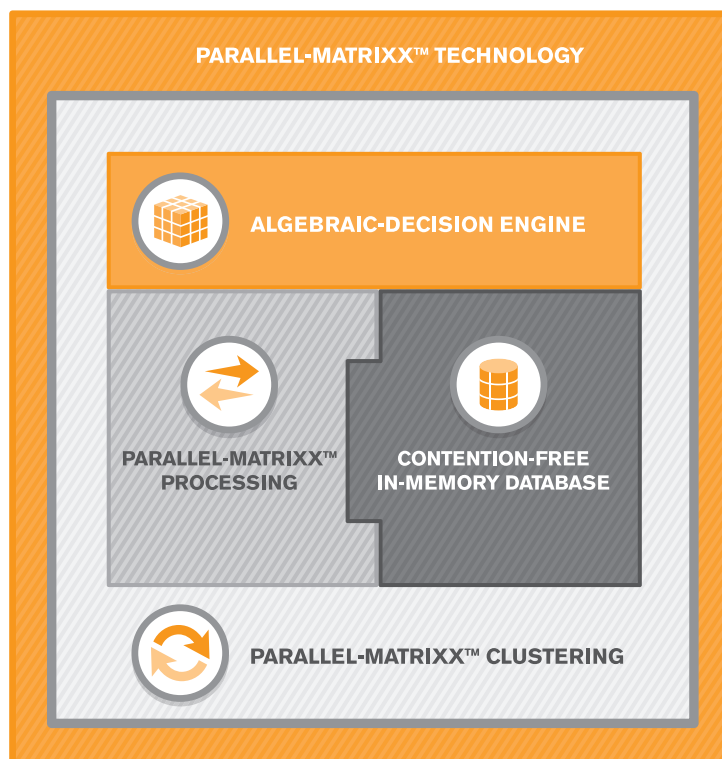
A new architecture for real-time processing.

100 times more efficient & scalable.



Patented Parallel-MATRIX™ Technology provides a new level of flexibility, predictability, scalability, and affordability unmatched by existing IN-based and enterprise software solutions.

Parallel-MATRIX™ Technology is built on four key innovations: Contention-Free In-Memory Database, Parallel-MATRIX™ Processing, Algebraic-Decision Engine, and Parallel-MATRIX™ Clustering. For more detail, see pages 6–7.



A significant evolution from the decades-old transaction processing model, Parallel-MATRIX™ Technology provides a platform for online transaction processing that is 100 times more performant and efficient while providing the flexibility and high availability CSPs need to ensure a consistent customer experience. Parallel-MATRIX™ Technology empowers CSPs to evolve their underlying systems to real-time, decommission aging batch systems and processes, and simplify and streamline their operational footprint and cost structure.

For more detail on how each component of Parallel-MATRIX™ Technology addresses the challenges facing CSPs today, see pages 6–7.

Leap Forward with MATRIX Software

At MATRIX Software, we are focused on the future needs of communications and network providers. Our goal is to give you instant visibility, insight, and control of services across your network. With Parallel-MATRIX™

inside, our solutions deliver the efficiency and scalability needed to support new networks, emerging devices, and changing subscriber behavior.

Parallel-MATRIX™ Technology re-writes the economics of real-time systems, making it extremely cost-effective to deploy real-time across your business. And it gives you the ability to finally deliver a true online experience to your customers, giving them access to the data services they want and real-time information available to them in the moment, every moment.

For more information on how MATRIX Software can help you deliver the NOW factor to the Supermobile generation:

Email inquiry@matrixsw.com
Visit www.matrixsw.com
Call +1 408 215 9344

Contention-Free In-Memory Database



Technical Challenge

MATRIXX Software provides a solution to the data contention and performance issues suffered by other commercial in-memory databases. Traditional in-memory databases were designed to work efficiently for read-intensive applications. They utilize heavy-weight locking and do not allow parallel write transactions to the same piece of data. This has a negative impact on efficiency and throughput for online transaction processing, a write intensive application.

MATRIXX Solution

- Utilizes our patented Parallel-MATRIXX™ transaction technology to create a fully ACID-compliant, in-memory database
- Developed specifically to handle high levels of write transactions in parallel while allowing simultaneous read access
- Easily scales to 5,000 events per second on a single blade
- Provides the only system that can handle growing volumes of transactions that require real-time processing – without sacrificing efficiency

Parallel-MATRIXX™ Processing



Technical Challenge

Business systems today depend on a decades-old transaction processing model which locks data during calculation and serializes all updates. As the load increases, this transaction model results in performance degradation and causes major scalability issues. Consequently, service providers are forced to invest in massive hardware infrastructure to compensate for the lack of predictability.

MATRIXX Solution

- Guarantees the accuracy of all data updates while allowing transactions to flow through the system in parallel
- Enables more transactions to flow through the system at once and drives higher efficiency, linear scalability, and predictability
- Eliminates latency increases that occur when balances are shared
- Enables unlimited flexibility in rolling out large corporate sharing pools, multi-SIM, and shared data plans – all with guaranteed data integrity and accuracy
- Allows service providers to launch new services and scale usage volumes with a dramatically lower and fully predictable cost per transaction (CPT)

Algebraic-Decision Engine



Technical Challenge

Existing applications suffer from performance and latency degradations as business models evolve and become more sophisticated. As usage volumes increase and customers demand more personalized services and pricing, existing systems either cannot scale or lack the flexibility to meet consumer demands. Service providers become shackled and find it increasingly difficult to roll out new products or retain customers with competitive offerings. They are stuck rolling out all-you-can-eat and flat-rate pricing models – and then watch their margins steadily decline.

MATRIX Solution

- Maintains its performance as pricing, policy, and bundling become increasingly sophisticated
- Dramatically increases both the flexibility and the performance of the application
- Operates by using linear equations at the machine level to interpret business rules and algorithms
- Enables service providers to unleash their marketing machine, rolling out dozens of new services without increasing their costs or time to market

Parallel-MATRIX™ Clustering



Technical Challenge

Most systems today have bypassed synchronous data logging in an effort to speed up processing to levels that service providers require. Unfortunately, in the event of a server outage, these systems have no way to guarantee full data recovery. This situation results in the “switch and pray” failover models that plague today’s IT and network systems.

MATRIX Solution

- Provides simultaneous and shared ownership of data across all database transaction servers
- Couples shared data ownership with full synchronous disk logging of all transactions
- Creates high availability and durability
- Eliminates the possibility of a single point of failure
- Automatically re-distributes workloads evenly across remaining servers if a server goes down
- Allows for more efficient use of processing capability and minimizes idle capacity
- Ensures your data is safe and secure at all times

About MATRIXX Software

MATRIXX Software enables NOW. We give Communications Service Providers instant visibility, intelligence and control of services across your network. Our patented, smart charging technology enables a seamless, intuitive service experience that empowers your subscribers – in the moment, every moment. Delivering up to a 100 times increase in efficiency and scalability, we equip you with the most advanced solution designed specifically for the data generation. Charging. Policy. Insight. Value. NOW. For more information, visit www.matrixxsw.com.

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