

## Industry

Mobile communications

## Solutions Addressed

- Massive data ingest and scalability
- Lowest-latency processing
- Ability to process simultaneous queries
- Real-time data analysis
- Data persistence

## Results

- 100,000 CDRs processed per second (one CDR processed in less than two microseconds)
- Two times increase in throughput over previous solution
- Scalable to handle the entire mobile telecommunications network
- Elimination of the need for complex applications and architectures for current or historical analysis of the CDR data

## Using XPRESSmp™ for Call Detail Records (CDR) Processing and Mobile Communications Billing

### Business Requirements

- Ability to scale up for a large volume of inbound call detail records (CDRs) for the entire mobile communications network
- SQL-based system for compatibility and familiarity
- Stream-based processing with simultaneous queries
- Historical analysis of CDR data
- SELECT queries for real-time analysis

### The Story

A mobile telecommunications company needs a better way to quickly ingest, process, and analyze CDR data, as well as the ability to scale up as needed to accommodate the volume of CDR records across its entire network. When a customer makes a mobile call, a CDR containing important call data (location of the call, identification of local or long distance call type, duration of the call) is generated and streamed to the company. This data is then analyzed against the customer's contract in preparation for billing. The analysis system looks at the details of the customer's plan (unlimited long distance or pay-per-minute and pay-as-you-go or a monthly plan with a set number of minutes, for example) and then calculates the billing for the call accordingly.

The company uses a Java-based complex event processor (CEP) called ESPER, which is not built on a standard SQL framework, so the architecture is not familiar to the company and not easily compatible with its other applications. In addition, ESPER is not optimized for low-latency performance and is unable to scale to accommodate the large volume of data coming in from the network. Finally, incoming data is not persistent, so it is not possible to do further analysis or historical analysis on the data directly in ESPER.

In contrast, XPRESSmp issues SELECT analytical queries against the CDR data as it streams in, and the results are stored in external files for future processing and historical analysis and reporting. XPRESSmp—an in-memory processor—efficiently handles stream-based processing with simultaneous queries at low latency and with linear scalability. On a typical eight-core server, XPRESSmp achieves twice the throughput rate of ESPER, significantly boosting productivity and efficiency. XPRESSmp processes 100,000 CDRs per second, processing each CDR in less than two microseconds.

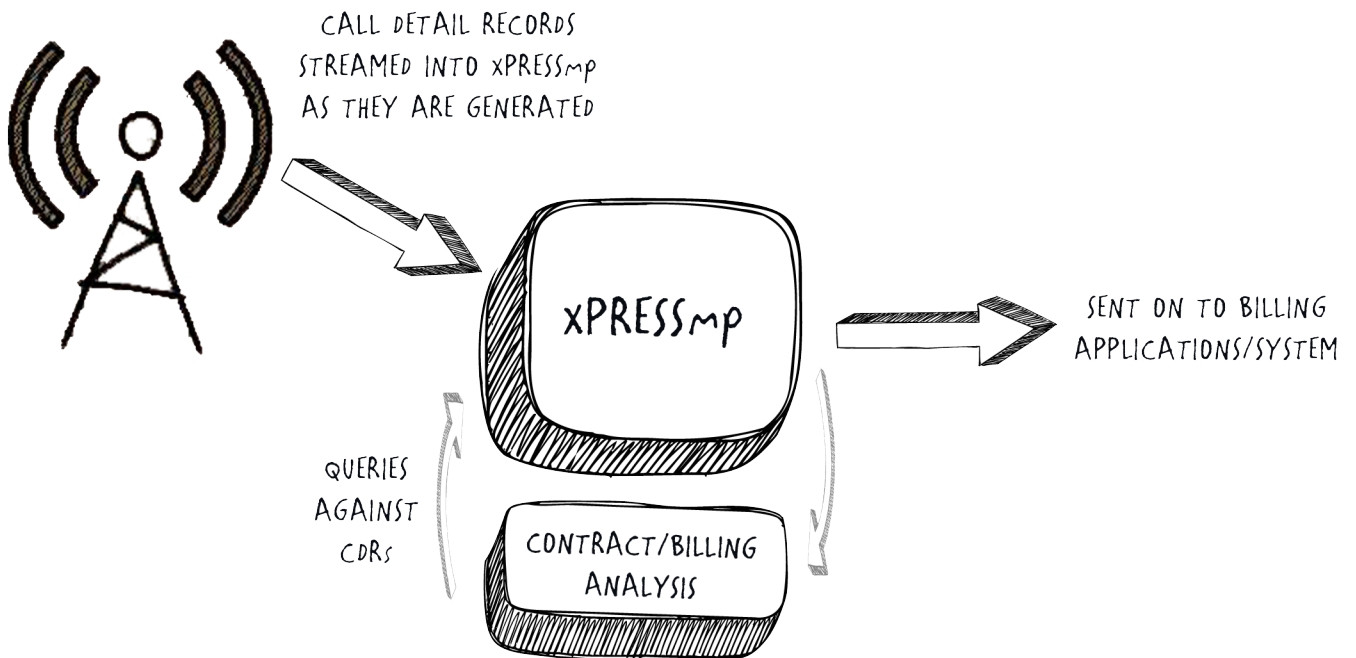
### XPRESSmp Use

- Optimization to handle large volumes of CDR data network-wide
- Simultaneous event-stream processing and contract/policy queries
- Temporary storage of streaming CDR data for querying and historical analysis

## Xpressmp™ Capabilities

- + Accelerate.
- + Time-Critical.
- + Dynamic Data.

- Low-latency ingest of large volumes of data
- Optimized for scalability
- Simultaneous SELECT queries with processing
- Persistence—ability to store CDR data externally for future processing and historical analysis



## Results

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- 100,000 CDRs processed per second (one CDR processed in less than two microseconds)
- Scalable to handle the entire mobile telecommunications network
- Elimination of the need for complex applications and architectures for current or historical analysis of CDR data

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**Xpressmp™: In-Memory Processing for Time-Critical Big Data. Only from uCIRRUS.**