it's about time

Kx for Telco Use Case

End User Analytics on Mobile Networks

It is generally acknowledged that data is the new oil and that industries need to tap the insights it contains. It is also acknowledged that it is a big challenge.

The telecommunications world is particularly replete with data – every user interaction generates swathes of data that may contain valuable information on the networks, services and devices they access. Aggregate that over millions of customers and thousands of services and it may reveal valuable insights into the condition, performance and quality of the network.

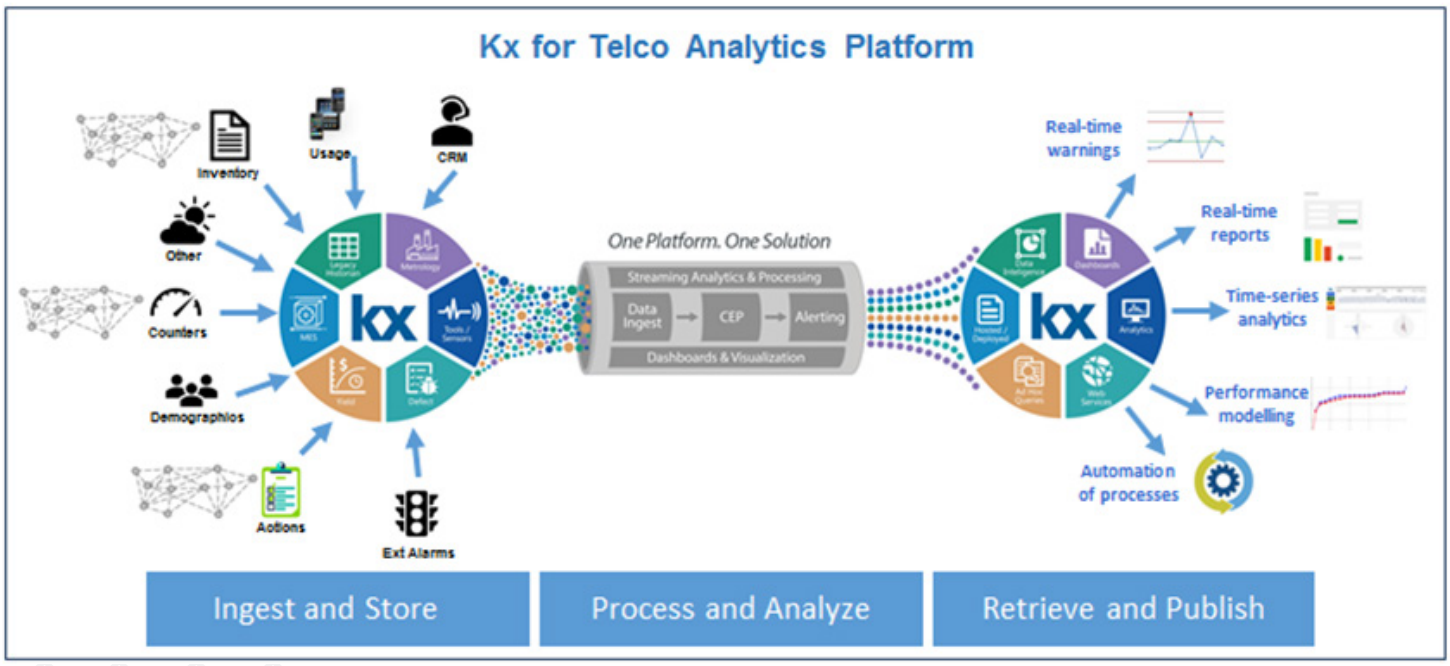
While subsets of the data may be used in isolation in areas like billing or coverage testing it is in its aggregation, and particularly its real-time nature, that the real value lies. But traditional databases struggle with the volume and velocity of big fast data. That's where Kx and its time-series database, kdb+, excels.

Kdb+ is the world's fastest time-series database and it enables network operators to combine vast amounts of streaming and historical data in single solution. From service assurance or network and SLA optimization to user data monetization, the potential for extracting value from the mountains of telco data is unlimited. The diagram below illustrates the generic framework for Kx for Telco use cases and is followed by an explanation of its usage in user data analytics.

At a Glance

Kx for Telco is an integrated platform for ingesting, processing and analysing massive amounts of real-time, streaming and historical data from networks, devices and other data sources to support, improve and automate a number of operation and business processes ranging from network planning and CRM support to fraud detection and performance analytics.

Streaming and historical time-series analytics over a single platform



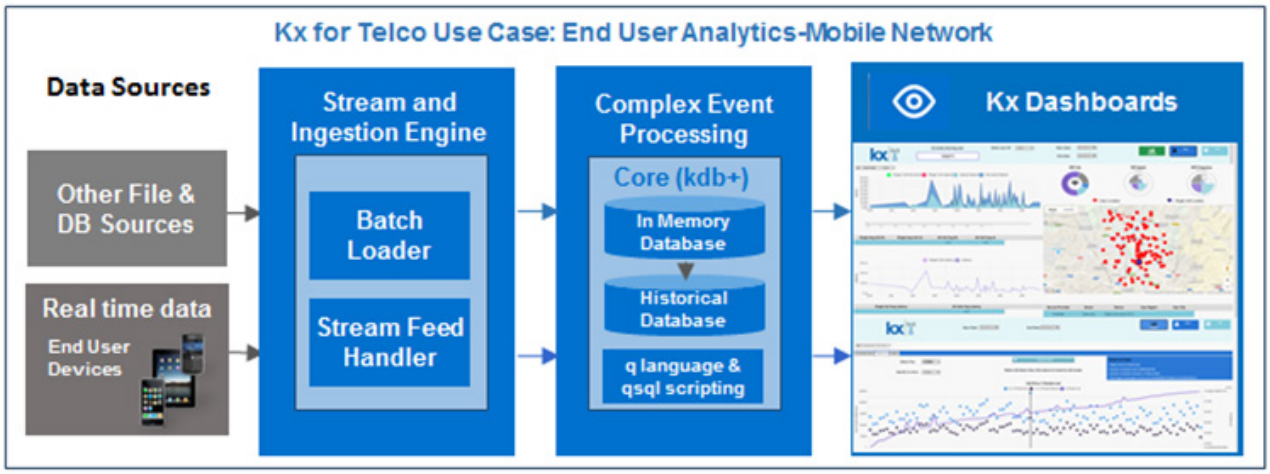
End User Analytics on Mobile Networks

In this use case, we will focus on the end user side in mobile networks. Every mobile device generates and collects data related to its interaction with the networks serving it. This data is ingested into the Kx platform via the Stream Feed Handler module where each entry is time-stamped and logged for fail-over protection. Alternatively, for more static data, ingestion can be via the Batch Loader Module.

The data is then passed to the in-memory Complex Event Processing (CEP) engine where it is processed in real time to give instantaneous updates on usage and demand profiles, what if-analyses and simulations. Integration with machine learning libraries enables further deep-learning capabilities. Sample analytics based on end user data may include:

- Real-time location and quality checking
- SLA fulfilment for corporates networks or VIP groups
- Network quality monitoring
- Automated load balancing and optimization

Analytics within Kx for Telco are defined using q, the integrated programming language embedded in kdb+. This integration of database and programme language enables much faster processing of data than traditional approaches that have to extract the data and process it elsewhere rather than working on it directly. Kx is further accelerated by the vector design of q which is optimal for processing time-series data. Older data is persisted to disk but is quickly retrievable for combining with streaming data as required for historical analysis and machine learning. Kx Dashboards, the visualization layer of the platform, enable rich and intuitive HTML5 visualisation of results across multiple devices. Dashboards also support ad hoc queries into the data.



This use case considered data from end user devices alone but the platform is virtually unlimited in the sources, volumes and analytics it can process. An obvious enhancement in this case would be the addition of network data, such as RAN counters, to provide a more holistic view and support even deeper analytics. More exciting still are the machine learning opportunities afforded by a platform with out-of-the-box interfaces to popular machine learning tools such as TensorFlow, Theano and Keras as well as tools like embedPy which enable continued use of existing libraries written in Python.

Want to see how it works? Ask for a demo

Kx and the future of mobile networks

The rollout of 5G and network virtualisation technologies, along with innovative real-time and low latency services, heralds a new world for both operators and users. Machine Learning, and Artificial Intelligence paves the way for automation of processes and eventually zero-touch network management. Edge computing will enable taking action as close to the event as possible, both in the network and on devices. Kx, with its long pedigree in processing both streaming and historical data and its almost unlimited scalability, offers the ideal platform for the next-generation real-time telco solutions.

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