



#### USE CASE

## Why the world's largest Telco service providers call on Aerospike's high-performance NoSQL database to improve the customer experience

Today's communications landscape goes far beyond voice and text. Mobile devices are an increasingly important vehicle for video and music streaming, navigation, and email. To keep customers happy and profit from all these services, carriers need a next-generation application that enables them to associate usage patterns with billing plans in real time to offer relevant products, update plan offerings, and provide an exceptional customer experience.

An unparalleled customer experience is the most effective weapon in a carrier's customer-acquisition and retention arsenal. By rolling out capabilities that allow customers to opt into a steady raft of timely, personalized and relevant services, carriers can drive revenue growth and reduce customer churn.

To enable the creation and execution of forward looking services, carriers must develop sophisticated applications on top of a database that is capable of handling large and dynamic data sets in real time.

The ability to offer self-service capabilities to customers lets service providers proactively target specific customer segments and push contextual, personalized offers to subscribers. Doing this in real time allows service providers to increase service uptake and reduce churn more effectively compared to traditional methods based on historical data.

#### PROFILE OF A TELCO LEADER

HANDLES OF DATA **TERABYTES**

**10-200K TPS**

**10-100 M OBJECTS**

USE FLASH FOR **SPEED AT SCALE**  
TO HANDLE EXPECTED **GROWTH**



Alcatel Lucent has written a modern application built on Aerospike, the high performance database for speed at scale, that enables carriers to cater to the unique characteristics of their customers based on real-time information about usage patterns, subscriber preferences, needs, and lifestyles.

## BACKGROUND

Telco carriers have been using billing systems based on voice and data usage for quite some time. However, carriers are now facing serious scale issues as data usage dwarfs voice usage, thus complicating the real time awareness, enforcement and opportunity of a user's calling plan.

So far, operators have delayed disaster by massively overspending to build homegrown databases or use previous generation in-memory systems like Oracle TimesTen to solve for the real time demands of the system. Unfortunately, these databases can no longer meet the necessary requirements for the current environment where speed and scale are table stakes for success. The challenges described below are pushing operators to find the right database to support application development initiatives to transform usage and billing systems.

## CHALLENGE

Alcatel-Lucent delivers applications that help Telcos and communications service providers (CSPs) maximize revenue and reduce customer churn in this highly competitive industry. Alcatel-Lucent needed to build a new application to take advantage of structural changes in the dynamics of the industry. With the explosion of smart phones and the growth in data centric applications, legacy solutions were struggling to keep up. As a result, innovation was suffering and customer satisfaction was declining.

A recent survey conducted by an internationally known consulting company supports industry dynamics that are stymying carrier efforts to remain competitive:

- The proliferation of mobile devices
- Changing demand as a result of increased customer sophistication
- Lack of differentiation due to application commoditization
- Emerging competitors offering consumers contemporary services

Survey participants cited three primary limitations of their billing systems:

- Questionable accuracy due to a variety of dynamic inputs into the application
- Rigidity resulting in an inability to quickly change plans as user demands shift
- Lack of integration with other systems

Among the CSPs who responded:

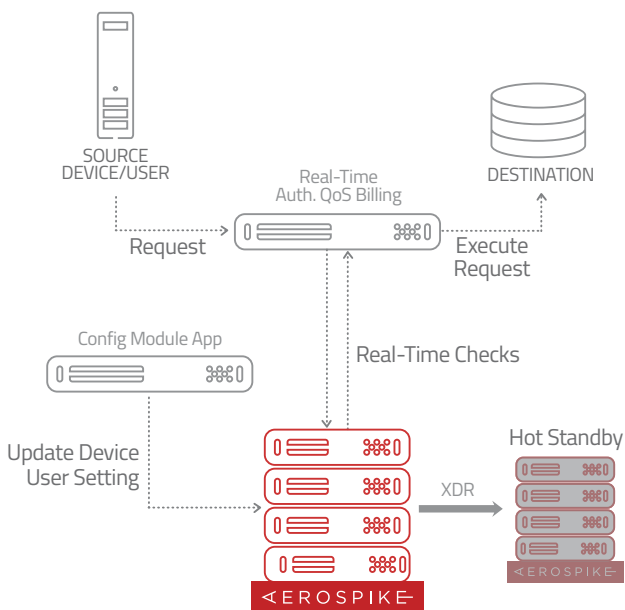
- 66% cited billing accuracy as a key challenge because current billing platforms cannot handle the expanding array of new services and devices, and the resulting explosion in the amount of data consumed
- 60% said they are concerned with their billing system's ability to process the volume of data typically generated with digital services
- 70% said their billing systems cannot effectively integrate with other key applications

To resolve these issues, company needs to

- Capture and leverage ever growing data sets in order make timely and relevant offers to customers
- Build, deploy and integrate modern applications that can manage and execute on extremely large data sets in real time
- Create an environment for user self provisioning

## THE RESULT

# Alcatel-Lucent leveraged Aerospike's NoSQL database to provide speed at scale underneath a brand new application designed to capitalize on changing dynamics in the Telco ecosystem



According to a TECHzine blog†, the following functionality is critical to a carrier's ongoing success:

- Quickly create and manage differentiated data plans based on real-time information
- Economically scale with the ebb and flow of new shared data plans and sponsored data promotions
- Provide real-time subscriber notifications about data usage

The Alcatel-Lucent solution solves these challenges by leveraging Aerospike's uniquely capable database to support its new application designed to provide tailored offerings to mobile users.

With Aerospike, carriers now benefit from:

- Predictable low latency and high throughput
- Highly available and reliable, failure-resistant system
- Cross data center (XDR) support
- Flash-based storage to enable fast data center build outs with dramatic TCO savings

A user's mobile activity can result in a variety of timely and relevant offers back to the user, as illustrated on the left.

Users evaluated Aerospike competitors including Oracle TimesTen and a homegrown database, which led them to the following conclusions:

- Oracle TimesTen
  - Had scale issues
  - Was expensive
  - Was hardware intensive further driving up cost
- Internal home grown database
  - Is expensive and resource intensive
  - Is hard to maintain
  - Is an inefficient use of internal development talent when a comparable commercial version is available

† <https://techzine.alcatel-lucent.com/solve-volte-related-policy-and-charging-issues#sthash.5KHafBJP.dpuf>

## Aerospike: Speed at scale offers carriers a clear point of differentiation

Aerospike's high-performance NoSQL database makes it possible for Telco service providers and CSPs to build next generation applications that offer a clear point of differentiation. This differentiation provides competitive advantages around relevant new product offerings and an enhanced customer experience, two critical components of increasing revenues and reducing churn.

Aerospike offers the only flash-optimized in-memory NoSQL database that delivers predictable high performance for mission-critical, high-scale applications such as real-time usage and billing systems.