

HOW RIAK® KV HELPS TELCOS PROVIDE INNOVATIVE SERVICES

INTRODUCTION

Today's consumers expect instant access to communications services whether they're in the office, at home, or on the road. With data speeds increasing and international roaming costs decreasing, data usage is rapidly growing. Telecommunications Service Providers (TSPs) are under pressure to deliver more services to more people and approach 100% uptime, all while lowering prices to consumers.

TSPs are particularly affected by market, competitive, and regulatory pressures. To avoid commoditization and the accompanying race-to-be-the-cheapest, TSPs must differentiate themselves from the competition by adding value and delighting their subscribers.

The traditional path of paying multi-million dollar license fees and employing armies of people to manage database infrastructures is simply not viable in the modern economics of the telecommunications industry. TSPs are turning to their IT teams for new solutions, which inevitably require upgrading their infrastructure to ensure the system responds quickly and reliably, regardless of how many service requests are being fulfilled, or where the customers are located.

CHALLENGES

Operating a successful telecommunications company is increasingly challenging. The days when you could offer a limited set of services and still count on signing up a stream of new customers to grow your business are long gone. In addition to adding new customers, reducing subscriber churn is essential. Today's customers demand a steady diet of new, innovative services and will readily switch carriers to get them.

RIAK KV BENEFITS

SCALABILITY – Scale your platform to handle the Internet of Things, growth of mobile, and service-area expansion.

HIGH AVAILABILITY – Keep your services online, boosting customer satisfaction and reducing customer churn.

FAULT TOLERANCE – Didn't plan for that outage? We did. Riak KV automatically responds to changes in your network.

SIMPLIFIED DEVELOPMENT – Launch new services quickly and scale quickly to meet growing demand.

SIMPLIFIED OPERATIONS – Spending less on operations can boost your bottom line as you deal with increased market, competitive, and regulatory pressures.

Traditional relational databases can't meet the requirements for massive scalability, availability, and fault tolerance that the rapid growth in data usage and rise of big data demands. Riak® KV excels at these. Riak KV is a distributed NoSQL database optimized for big data. Riak KV meets many of the challenges you may be facing with your own service operations systems.

Modern Telcos are responding to these pressures by offering new types of services, provisioning them quickly, and increasing uptime — all while maintaining accurate usage records for millions of customers.

Meeting these objectives with a traditional, relational database architecture is complex and difficult. Many Telcos are turning to NoSQL distributed database technologies like Riak KV to remain competitive.

RIAK KV HELPS YOU COMPETE WITH OVER-THE-TOP COMPETITORS

Over-the-Top (OTT) communications applications give customers alternative ways to send instant messages, watch video, post photos, and microblog. These alternatives can lure customers away from traditional TSP services. To compete with OTT offerings, TSPs are acquiring or developing their own applications that allow customers to interact with each other. Since many of these applications share a common requirement for a fast, reliable, highly-available datastore that scales to carrier levels, developers are looking to modern NoSQL solutions.

Riak KV is designed for building large-scale, highly available applications quickly, making it an excellent choice for TSPs eager to take on the OTT challengers.

RIAK KV FOR YOUR SOCIAL NETWORK PLATFORM



Telcos wanting to add messaging functionality like Yammer to their service mix would benefit from using Riak KV. Yammer is an OTT application, built on Riak KV, serving millions of users who are making several status updates every day. Riak KV's high availability and eventual consistency enable the application to push status updates and other event data to users in a timely manner, regardless of the deployment scale.

RIAK KV ADDRESSES THE RAPID GROWTH IN DATA USAGE

For most TSPs, data is the fastest growing business segment, driven by the popularity of smart phones:

2015



Over 70% of smartphone users expected to use video services

2016



Over 2 billion active smartphones worldwide

2019



Half of all mobile users will own smartphones

In order to keep up with the demand, TSPs are re-examining their current IT systems to determine what changes are required to build a dynamic infrastructure. Traditional relational databases are not designed to support the massive amounts of unstructured data generated and consumed by the exploding data marketplace. Now is the time to revisit past choices and choose a solution that is architected to meet modern application requirements.

An essential component of an effective, dynamic infrastructure is a datastore that makes writing applications easy, scales

massively, and remains available even when the network is serving large numbers of users simultaneously. The ideal datastore must remain available despite transient network outages, and from geographically distributed locations.

Riak KV is such a datastore. As a distributed NoSQL database, Riak KV is designed to serve data to applications that must scale with ease. Its high-availability characteristics, dynamic data types, and ease of operations make it the perfect database solution for TSPs to deploy when building their next-generation IT systems.

RIAK KV FOR YOUR GLOBAL REPLICATION SERVICE

To gain a competitive edge, many Telcos are using or building commercial virtualization platforms to reduce the burden of managing complex hardware environments. Riak KV allows you to build a consolidated platform that replaces much of the hardware traditionally used in these environments. This delivers a low-cost, high-performance solution that is easier to manage than conventional platforms.

For Telcos creating their own content delivery networks (CDN), Riak KV's built-in replication saves time and money. Content will reach users fast without TSPs having to build their own global replication services. Objects are stored in Riak KV (as the persistence backend for your CDN solution) and data is automatically replicated both locally in a single datacenter and globally between datacenters.

RIAK KV SUPPORTS SELF SERVICE

Customers prefer self service over calling a customer support representative when choosing a coverage plan, adding services, paying bills, recharging prepaid accounts, and looking up contact history. Providing customers with the tools they need to handle these tasks on their own boosts customer satisfaction, but only if the services are easy to use, effective, and available.

In addition to increasing customer satisfaction and retention, self-service capabilities can help mitigate economic pressures. Having more of the customer's needs met through self service reduces the TSP's need to add customer support staff, thereby reducing costs.

Self-service portals require high availability and near real-time responsiveness. Riak KV's high-availability and low-latency characteristics make it the ideal tool for the job. Its distributed design enables applications built with Riak KV to span multiple datacenters. Applications can grow to meet virtually any demand and provide rock-solid customer experience, even during periods of high usage. Riak KV ensures predictable performance at scale.

Riak KV's architected-in high availability and fault tolerance takes the burden off of developers so they can focus on building a service that delights the customer.

RIAK KV FOR YOUR REAL-TIME CUSTOMER DATA RECORDS STORE (CDR)

Providing accurate and up-to-date information to end users is extremely important in a world where people pre-pay to consume data and services, especially with the huge data volumes moving across today's networks. CDR data typically comes from multiple sources, and querying these databases can take significant time and effort.

Riak KV's low latency and high performance improves customer experience by ensuring fast, accurate access to CDR data. With Riak KV Enterprise, these benefits can expand to scale predictably across multiple data centers, ensuring data locality and redundancy.

This capability can be used to let the customer review their usage and add/change/delete services on their own while Riak KV makes sure that nothing gets lost — even when thousands of customers are accessing the system at the same time.

RIAK KV BOOSTS CUSTOMER SATISFACTION

Providing great customer service at every interaction is critical to ensuring retention, reducing churn, and increasing ARPU. Customers expect your service to be available 24x7. This requires services that are built upon a resilient infrastructure that is able to cope with hardware failures. Riak KV is designed to meet this challenge. When data is written to Riak KV, it is automatically replicated throughout the cluster. Even if a server fails, data remains available for read/write access. This keeps the system running, avoids service delays, and prevents the failure from affecting the customer's experience.



Your infrastructure must cope with hardware failures

By using Riak KV to build services, TSP developers can tick the boxes that lead to a great customer experience. Ease of development means new services get built quickly. Built-in high availability means services are there when customers need them, and Riak KV's inherent scalability ensures services can cope with rapidly growing demand.

RIAK KV FOR YOUR GLOBAL USER SESSION STORE

Dynamic Policy Control & Rule Enforcement

Each time a subscriber uses a service, the network retrieves information about tariffs, usage, and restrictions. Doing this quickly and accurately requires an architecture that delivers near real-time response. Riak KV's distributed design, and ability to replicate to multiple clusters or datacenters, enables services to grow to massive scale. Combined with Riak KV's high availability and low-latency characteristics, customers are ensured an excellent experience, even during periods of high demand.

Global Data Locality

Regardless of location, customers expect a rapid response when they access TSP services. Interruptions or delays can lead to poor user experiences and increase the risk of customer churn. Riak KV Enterprise's multi-datacenter replication capabilities ensure that data is available close to the user for rapid response times.

riakKV IS RESILIENT



RIAK KV RELIEVES ECONOMIC, REGULATORY, AND COMPETITIVE PRESSURES

Increased economic, regulatory, and competitive pressures are driving the need for increased efficiency and a reduction in manual processes. Reductions in voice calling are already affecting the revenue of some TSPs, and some are also seeing reductions in SMS usage due to IP-based OTT alternatives from competitors. In addition to addressing these market changes, it has become increasingly vital for TSPs to reduce operating costs wherever possible.

Riak KV offers simplified operations of large, complex systems — the kind of systems TSPs need to maintain to offer competitive services to their customers. Simplified operations translate into increased efficiency and those efficiencies have a positive effect on the bottom line.

RIAK KV FOR YOUR IMMUTABLE DATASTORE



Comcast Cable began using Riak KV as the primary back-end

datastore for HOSS (Highly Available Object Storage System). Today the data in HOSS is used across xfinity.comcast.net and xfinitytv.comcast.net, as well as mobile applications like XfinityTV IOS and Android apps to power features like streaming premium content and remote DVR control, among others. With Riak KV, Comcast Cable was able to lay the groundwork for future projects similar in nature across the enterprise, enabling fast time-to-market of reliable, maintainable services.

According to Jonathan Moore, Technical Fellow at Comcast Interactive Media, “On a day-to-day basis, other than figuring out how much capacity we want to add, we don’t have a dedicated Riak KV administrator — because we don’t need one. Riak KV provides a lot of operational simplicity for us. It just works.”

RIAK KV ENSURES YOUR BIG DATA IS ALWAYS AVAILABLE

Telecommunications Service Providers generate a wealth of big data. A virtual gold mine. Riak KV can help you tap into it to create new business opportunities.

Riak KV is a distributed NoSQL database ideal for archiving vast amounts of customer data, including invoices, SMS, call data, and email. It scales with ease to accommodate any amount of data, while keeping the entire dataset searchable. Its ability to scale predictably and inexpensively make the requirement to archive data for at least five years or more a simple task.

For example, consider the customer support team that must respond to customer inquiries about SMS data. The ability to quickly query and retrieve user SMS history during a phone call is critical. To ensure this query is accurate and fast, when there are more than a billion SMS messages sent monthly, requires a highly available, low-latency [platform like Riak](#).



CONCLUSION

Riak KV is particularly well suited to help TSPs take on their biggest challenges — building powerful services that are responsive, highly reliable, and massively scalable. Riak KV was designed to handle the complex, contextual data that today's TSP customers are producing with their smart phones, tablets, and computers. It enables TSPs to add value to the customer experience and stem the tide of network commoditization.

The highly competitive telecommunication services market is driven by the need to provide innovative services to a user base that is counted in the millions. Customers expect these services to be available instantly and seamlessly. They also expect to be billed accurately for the services they use, and are more than willing to switch providers if they're not satisfied with their current service.

Meeting these customer expectations requires a system that can respond to this rapid growth in data; now often referred to as "Big Data." Born from Big Data, Riak KV is the ideal answer to the challenges TSPs face in making the most of the vast amounts of data they collect every day about their customers' transactions, preferences, and behaviors, while also securing their privacy.

Mounting market demands, new competitors, and regulatory requirements combine to put real pressure on Telco operating costs. Riak KV's distributed architecture, operational simplicity, and efficiency can help. By reducing the time required to build robust, distributed applications, as well as reducing operations costs by using commodity hardware and build-as-you-grow design, choosing Riak KV for your data needs can make a significant difference to your bottom line.

Different offerings need different solutions. Choosing the right database for the job at hand is critical to your success. The scale, agility, and fault tolerance demanded by new service architectures require a distributed NoSQL database that is quick to respond, highly available, and can scale to meet the demand created by large numbers of users. The needs of a modern Telco have outgrown the capabilities of a single, traditional relational database. Don't risk losing business because of a database that's out of touch. Connect your customers with Riak KV.



ABOUT BASHO TECHNOLOGIES

Basho, the creator of the world's most resilient databases, is dedicated to developing disruptive technology that simplifies enterprises' most critical distributed systems data management challenges. Basho has attracted one of the most talented groups of engineers and technical experts ever assembled devoted exclusively to solving some of the most complex distributed systems challenges presented by Big Data and IoT.

Basho's database, Riak® KV, the industry leading distributed NoSQL database, is used by fast growing Web businesses and by one-third of the Fortune 50 to power their critical Web, mobile and social applications. Built on the same foundation, Basho introduced Riak TS, which is the first enterprise-ready NoSQL database specifically optimized to store, query and analyze time series data. Basho also provides Riak integrations for a variety of Big Data technologies like Apache Spark, Redis, Mesos, and Apache Solr.

For more information visit Basho.com which is full of interesting use cases, customer case studies and product detail, or docs.basho.com for technical documentation.

