

BUSINESS OVERVIEW

POWERING REAL-TIME BUSINESS SUPPORT SYSTEMS (BSS) FOR TELCOS

BUILD BETTER TELCO APPLICATIONS AND TAKE FULL ADVANTAGE OF YOUR 5G DATA WITH THE VOLTDB DATA PLATFORM

```
elif _operation == "MIRROR_Z":  
    mirror_mod.use_x = False  
    mirror_mod.use_y = False  
    mirror_mod.use_z = True  
  
#selection at the end -add back th  
mirror_ob.select= 1  
modifier_ob.select=1  
bpy.context.scene.objects.active = mod  
print("Selected" + str(modifier_ob)) #
```

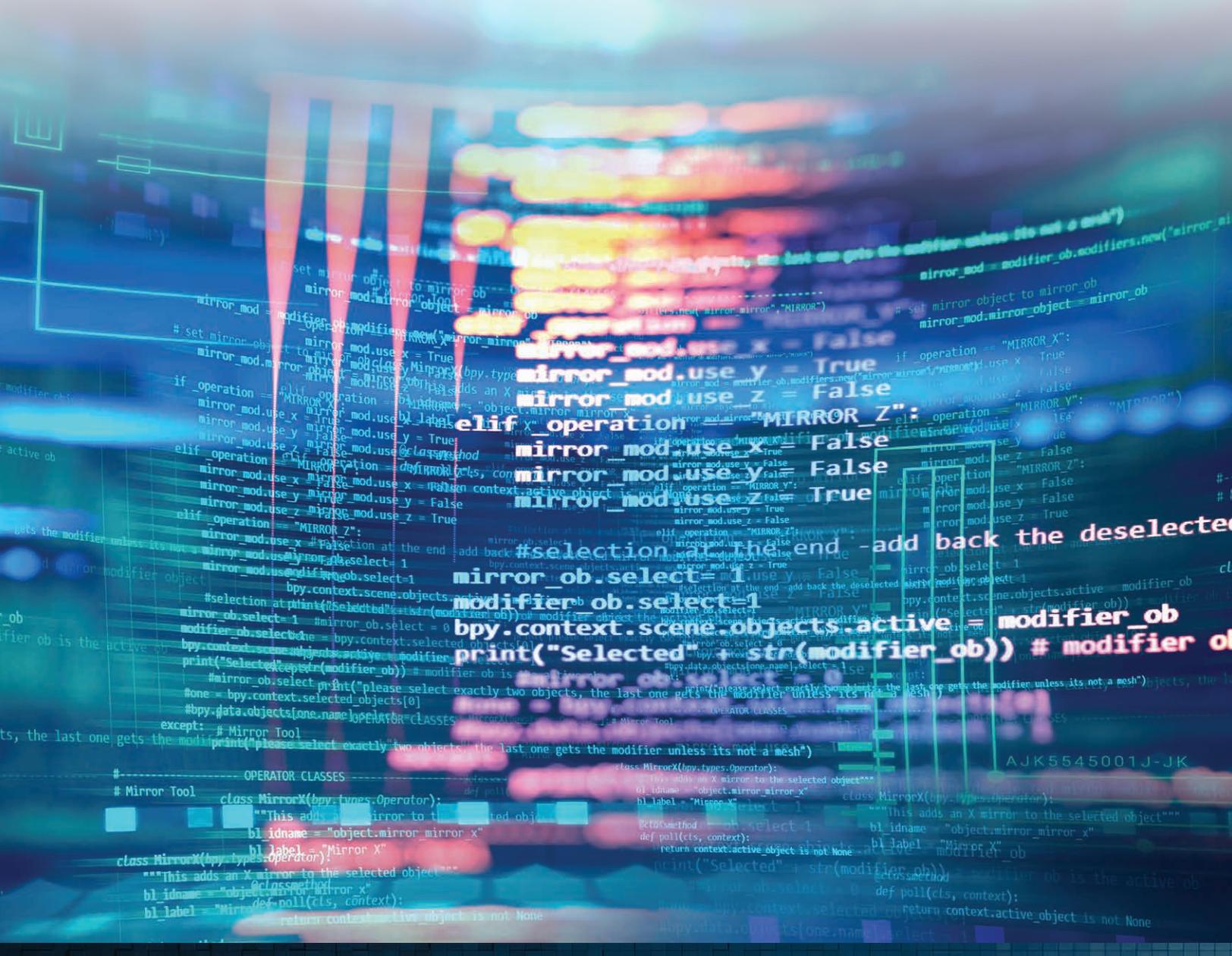
VOLTDB

5G AND THE NEW AGE OF BSS

The telco industry is going through significant transformation. Gone are the days when telcos could act on after-event data in their business support system (BSS) platforms. This is the 5G era – and it’s a whole new ballgame that requires lightning-fast responsiveness.

To survive in this ultra-fast and ultra-connected era, telcos need to have a robust framework in place to support real-time decisioning. By doing so, they can maximize revenue opportunities while protecting their networks against fraudsters.

Suffice it to say that the shift to **real-time BSS data processing** is having a massive impact on the industry. Keep reading to learn more about the important role speed will play in the 5G era, and the underlying tech infrastructure telcos need to build game-changing BSS applications designed to handle the massive volume and variety of 5G.



HOW WE DEFINE BSS

Telcos use BSS platforms to power their main business functions. BSS software typically comprises billing and revenue management, service fulfillment, and customer and product management.

Under the umbrella of BSS, we include the following categories:



1. BILLING

Billing is the process of consolidating consumption data, determining how to charge for usage accordingly, and then producing and mailing or emailing bills to end users. After that, telcos need to collect and process payments and follow up on late payments as well.



2. CHARGING

Charging involves determining exactly how specific customers and enterprise partners should be charged for telco services. In today's mobile-powered world, charging needs to be exceptionally fast, user-specific, and highly dynamic, reflecting up-to-date market conditions as they change in real time. By doing so, telcos are able to serve up highly personalized experiences, meeting customer expectations because of it.



3. POLICY

Telcos deploy machine-readable policies to execute specific business rules. To determine and enforce these rules, telcos rely on policy and charging rules function (PCRF) software. Increasingly, telcos are modernizing their PCRF systems as they prepare to capitalize on the 5G era and the opportunities that will materialize thanks to network slicing.

HOW BSS IS CHANGING FOR TELCOS

BSS applications have of course been around for a long time, but 5G and IoT are changing the way they need to be built and deployed. BSS continues to evolve today, as telcos modernize their BSS systems to edge out competitors. Truth be told, some really exciting changes are taking place.

For example, BSS applications are becoming faster and more effective as telcos continue to replace monolithic applications with cutting-edge microservice architectures. At the same time, telcos are increasingly relying on policy control and charging functions to create network brokerage services and take advantage of network slicing capabilities.

In the coming years, BSS will play a critical role in 5G monetization because powerful BSS applications can provide a sound framework for network slicing and real-time billing.

On a more granular level, policy and charging is also in a state of transformation. More and more telcos are implementing dynamic policy control so they can adjust rules and terms as needs change—essentially future-proofing their offerings.

One major change that's taking place in the BSS space right now has to do with the underlying databases that telcos are using to power their BSS platforms. It's nearly impossible to achieve real-time data analysis with legacy, open source, or even NoSQL technology — and many telcos are starting to learn that the hard way.

Simply put, NoSQL is not capable of supporting real-time BSS transactions at scale. While NoSQL worked for early BSS use cases, the technology is no longer applicable in the 5G era.

As a result, many telcos are shifting to NewSQL databases. At a very basic level, NewSQL solutions enable telcos to ingest massive volumes of data from multiple sources and deliver rapid in-event analysis.

WHY SUB-10 MILLISECOND DECISIONS ARE SO IMPORTANT FOR BSS

Up until this point, the gold standard for a round trip data transmission in a BSS platform was 250 milliseconds—a window of time that's barely noticeable to the naked eye but an eternity in the backend. When it boils down to it, 250 milliseconds is short enough to miss out on key revenue opportunities and long enough for cybercriminals to wreak havoc on a network.

It's also no longer the standard benchmark for success with BSS. The emergence of 5G and IoT requires faster decision-making to truly capitalize on the BSS application opportunities the wider bandwidth presents.

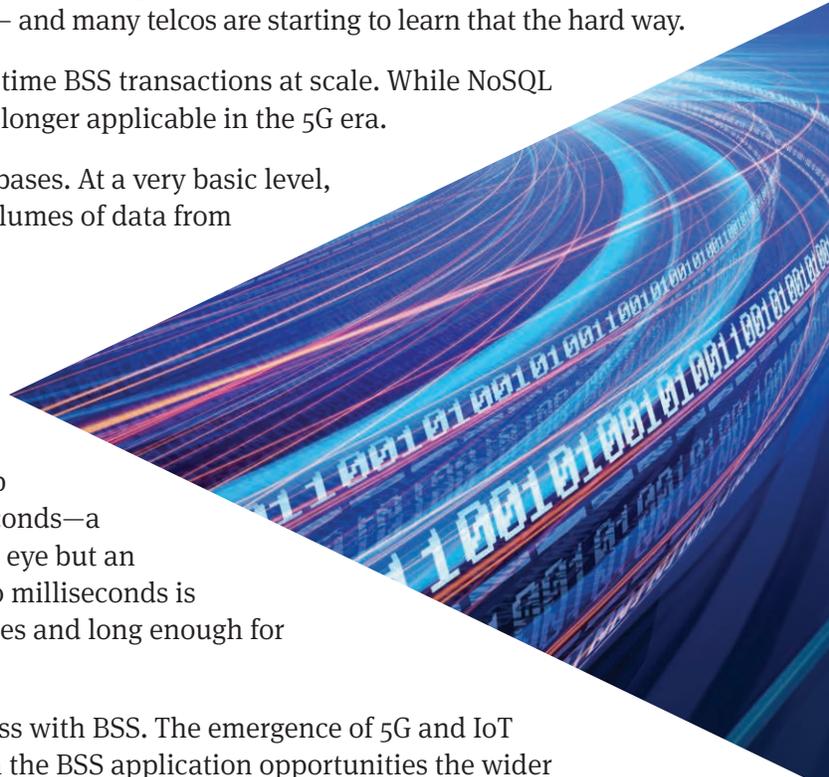
For example, a user with a 2GB monthly data bucket will enjoy HD voice until they are close to the 2GB limit, after which the voice quality drops to SD until the next billing period. Instead of a static set-up that charges per period—why not use dynamic charging and policy control system that can adapt to this particular user's habits and proclivity to accept upsells? And even better, why not make this policy specific to the user's geographic location and comparable to what other users are paying for their plans and also set it up according to network availability in that area?

Instead of waiting for the renewal day, you jump in now to get the best possible offer on the table at the best possible moment. And on top of that, you optimize your network bandwidth by never allocating more bandwidth than what's being used or what may be possible, thereby avoiding latency issues, which then lead to customer churn.

As another example, what if a user wants to watch an HD video while traveling on public transportation? The charging system and the network can determine if there is network congestion and offer the user SD video at a lower price while in transit.

As a third example, if a user exceeds his or her 2GB monthly bucket of data while watching a football game, the online charging and analytics engine will determine if he/she can get a 2GB add-on bundle, which, once accepted, is immediately allocated while the user continues to watch the game without interruption.

In all of the above cases, your application's ability to make an intelligent decision on streaming data *while the event is occurring* is key. This means performing the analysis part within 10 milliseconds, so that everything else can happen in what the user perceives as “real time” (ie, immediately). Lose this window of opportunity and you lose the offer, and potentially the customer.



WHY VOLTDB FOR BSS

The only data platform built for 5G BSS, VoltDB is uniquely positioned to support telcos in their migration away from suboptimal legacy technology by easily integrating with it or allowing you to replace it completely.

VoltDB is a unified stream processing data platform that can apply rules transactionally and respond to events within the ultra-low latency SLAs that modern 5G applications demand.

VoltDB is fully ACID-compliant, and supported by cross-data center replication for maximum reliability and redundancy. It's also [cloud-native](#), virtualization-friendly, and features the elastic scalability needed to keep pace with your business.

As we move deeper into the 5G era, more and more telcos are turning to VoltDB. For example, leading [BSS provider Openet](#) (an Amdocs company) successfully deployed VoltDB to support their Fusionworks platform. VoltDB provides the scalability and performance that the company needs to process real-time service provider traffic and fast data transmissions for complex charging, policy, and billing.

The 5G era may still be in its early stages. But time is quickly running out for telcos to get with the program and migrate to a data platform that's built to meet their unique requirements around BSS platforms, speed, and ACID compliance.

At the end of the day, modern BSS systems need the support of a no-compromise data platform that can extract value in real time, respond to changing customer patterns rapidly, and move in actual real time at sub-10ms speeds to meet the demands of things like network splicing.

VoltDB is the only data platform that checks all of those boxes.

To learn more about how VoltDB can help your telco company become a powerhouse in the 5G era, check out our [BSS resource library](#), or request a [freeVoltDB trial](#).