



FlixBus was founded in Munich, Germany by three entrepreneurs who had the vision of making sustainable bus travel both comfortable and affordable. Launched in 2013, it quickly became the leading long-distance travel provider in Germany. Digitizing traditional bus travel with an e-ticketing system, FlixBus-App, free onboard Wi-Fi and other technological advancements, FlixBus has grown to become the mobility provider with the largest intercity bus network in Europe helping over 100 million people reach their destinations.

In 2018, FlixBus USA kicked off, providing America with a new alternative in long-distance travel. In the same year, FlixTrain was launched, expanding the network also into the rail industry.

Challenge

FlixBus offers their passengers free onboard Wi-Fi with an allowance of 150 MB where Netflix and YouTube are blocked but social media video is allowed. With video sharing in social media becoming more popular and organic data consumption growing at 25% annually, FlixBus recognized the need to keep up with this demand and equipped their fleet with high-performance Icomera X³ multi-radio mobile access & applications routers.

Newer and more advanced routers like the Icomera X³ are able to deliver faster Wi-Fi speeds, handle more data and run multiple applications simultaneously. In effect though, these capabilities can also increase data consumption.

Icomera X³ routers come with a built-in filtering solution blocking the use of most commonly known streaming services (i.e. YouTube, Netflix). While this contributes to bandwidth reduction, there can still be data traffic consumption happening in the background that can be prevented and video content that can be optimized for lower bandwidth. The Icomera X³'s powerful capabilities enable faster speeds but sometimes passengers' data allowance runs out faster as a result.

The challenge is to provide good quality Wi-Fi where passengers can maximize the data allowance and access the content that they want while at the same time reducing FlixBus' total data costs.

Solution

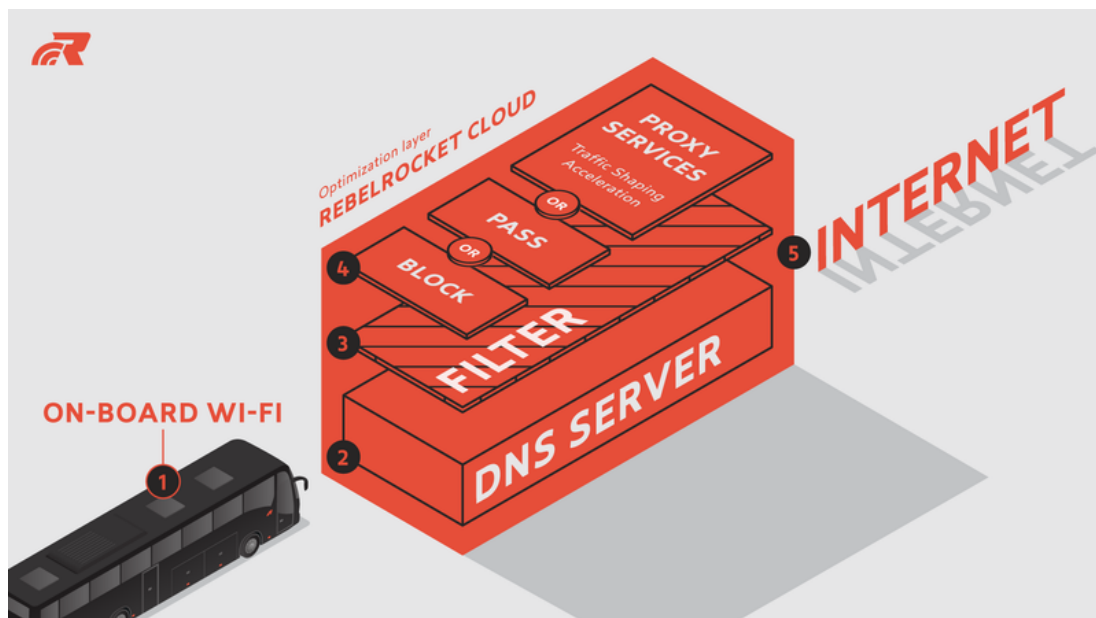
Since RebelRocket Wi-Fi optimization was previously already deployed on buses with Icomera M-Series routers, FlixBus is familiar with RebelRocket's capability to improve Wi-Fi quality and reduce data consumption.

When RebelRocket was trialed on the Icomera X³ routers, FlixBus

immediately wanted to see the effect it would have on the more powerful hardware. With RebelRocket's cloud-based implementation, it was easy to set up and run the trial.

The tests were done over a nine-week period on four bus lines. RebelRocket solution was deployed to work on top of Icomera's filtering. Thanks to the virtualization capabilities of the powerful Icomera X-Series platform, RebelRocket DNSRelay is installed directly on the onboard routers, drastically improving the DNS and network policy caching performance as well as reducing mobile broadband bandwidth requirements.

Especially created and built for onboard Wi-Fi, RebelRocket network policy settings are granular, filtering out more categories like automatic app updates, telemetry, photo and file syncing, with no negative effect on user experience. Additionally, RebelRocket optimizes bandwidth heavy content such as videos on social media by locking down the resolution to standard definition and controlling the read ahead.



Results

To perform the testing, four FlixBus bus partners with previously similar data consumption patterns and routes were chosen. In total, over 141 000 passengers used the onboard Wi-Fi and consumed a total of 11.5 TB of mobile data over a period of 9 weeks.

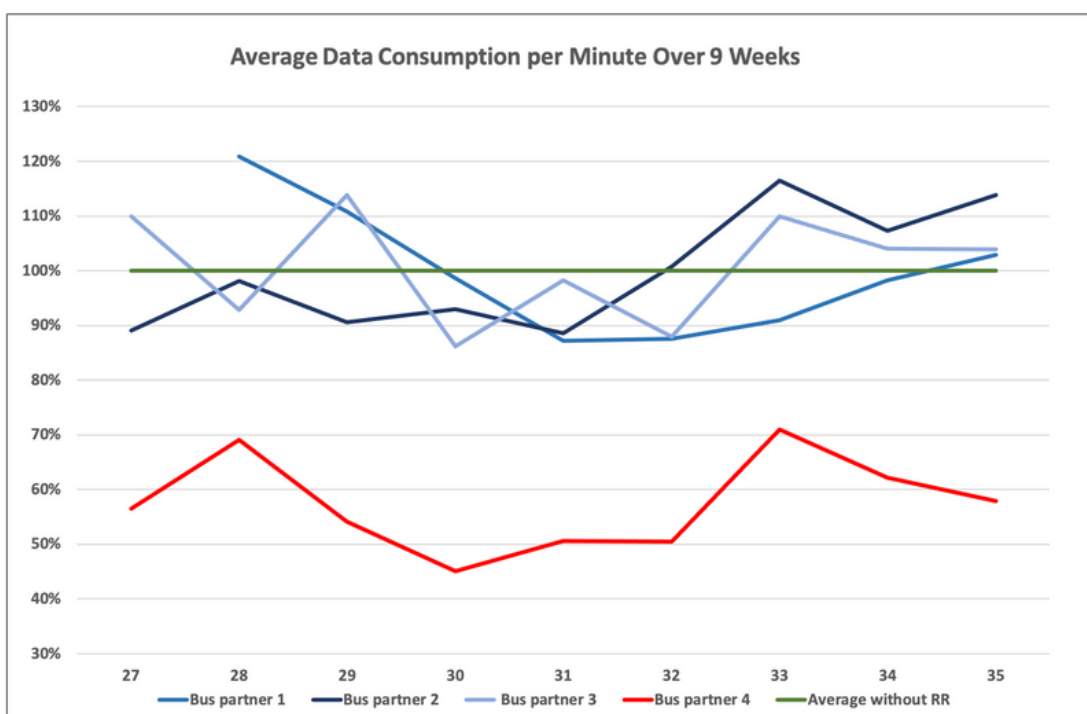
The key metrics used to measure the results were average data consumption per minute per passenger and average data consumption per passenger as these tend to be more stable compared to total data consumption because there can be large differences in number of passengers onboard the bus at any given time. Also measured were the amount of time passengers spent online and how it affects their satisfaction with the Wi-Fi service.

Results showed an average of 43% data reduction per minute per passenger (Graph 1) with average passenger consuming 40% less data (Graph 2).

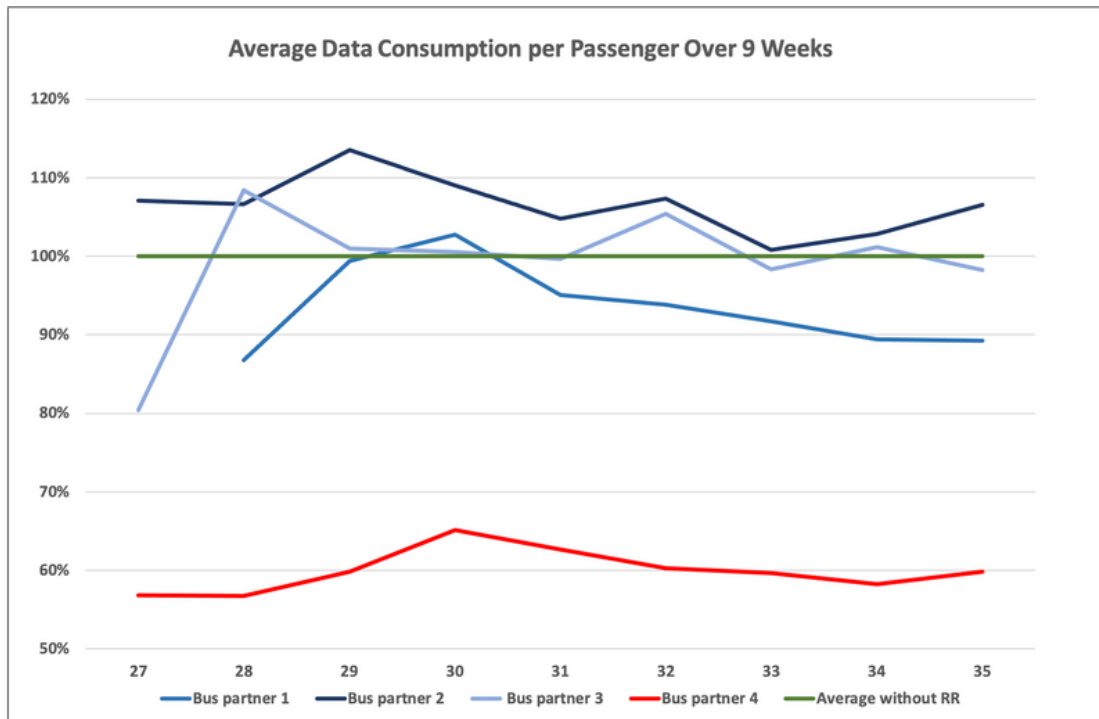
The passengers on the RebelRocket-enabled buses consumed less data and at the same time spent more time online, as the average session time went up by over 30%, enabling passengers to do more with their free data allowance of 150 MB. Passenger satisfaction stayed at the same level with all of the bus partners.

As network traffic increases with the use of high-performance routers, RebelRocket is able to filter more unnecessary background data and optimize more network traffic, significantly reducing data consumption and cost while improving passengers' onboard Wi-Fi experiences.

To deliver a consistent customer Wi-Fi experience across the entire FlixBus fleet, planning is underway to roll out RebelRocket across both FlixBus and FlixBus fleets globally.



Graph 1. RebelRocket optimization service is enabled on Bus partner 4.



Graph 2 RebelRocket optimization service is enabled on Bus partner 4.

“Wi-Fi is rated as one of the most important features by our travelers and it is becoming increasingly important to deliver a great onboard Wi-Fi experience. RebelRoam is helping support our vision to deliver the best possible passenger experience and to provide a sustainable and convenient alternative to private transport,” said Daniel Krauss, CIO and Co-founder of FlixBus.

"Being connected is important now more than ever and as data traffic and consumption continues to grow, network optimization is not an option. It's a must.", Henri Ploom, CEO of RebelRoam.

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