



5G & Caching Technology in-Vehicle Will Enable Seamless Streaming Media On-board



It is widely recognised that 5G technology will one day be a crucial element in making passengers on a train or bus feel digitally ‘at home’.

However, there are still practical barriers to harnessing 5G to deliver tangible benefits to passengers across the network in a realistic timeframe in the short term. Content caching at the vehicle edge is a promising solution to this dilemma.

In recent years, the demand for the use of streaming services (such as Netflix, Disney+ etc.) has increased dramatically, and this trend will continue, generating massive and growing data consumption. In addition, consumers now expect to be able to use these services

wherever and whenever they want, especially when they have free time, which fits perfectly with the rail and public transport environment.

With regard to the network requirements, delivering to the edge remains a tremendous challenge. The increasing data consumption from a number of passengers carried on different train lines requires significant infrastructure yet to be put into place (such as the number of masts or base stations) covering all rail lines. This will take years and involves major investments. So in our view, 5G technology alone will struggle to deliver the fully connected journey that passengers expect.

Is there an interim way, affordable to all stakeholders, to accelerate the capability we seek in terms of full 5G adoption?

On-board content caching to offload data traffic from the vehicle's network: this reduces data consumption costs while improving the digital experience of passengers.

In this case, the combination of the **content delivery network** technology and in-vehicle hosting capability with today's standard LTE/5G and wifi will reduce operating costs and significantly improve the service level for passengers.

The delivery of VOD streaming platforms or applications to the home already relies on content delivery network solutions to ensure quality delivery of content to end-user devices.

For moving environments such as rail, a content delivery network software can be easily integrated into a vehicle's server, caching



multimedia content (from streaming services) on board and making it accessible to passengers' connected devices via the wifi network. This frees up the vehicle's cellular bandwidth and preserves it for other uses while reducing data transmission costs. In addition, it is easily retrofittable to existing wifi systems.

From the passenger's perspective, it improves the connected experience significantly, to finally feel digitally 'at home'. As the content of streaming services, in particular those titles that are in high demand, is cached and hosted on board, closer to the users and delivered over the local network, it is then accessible in high quality and without delay, regardless of external connectivity.

We can now offer the digital experience that passengers could have in a decade right away, as soon as CDN is activated. Indeed, the technology is already here.

We are happy to discuss, contact us info@paxlife.aero / +49 331 243424-0



As an outlook, the role of CDN in media delivery both on network as well as in-vehicle is demonstrated in the EU Horizon 2020 5G-VICTORI project www.5g-victori-project.eu

PaxLife Innovations is proud and excited to have joined the 5G VICTORI consortium at the beginning of 2021. PaxLife Innovations's combined experience with media and transport operators brings expertise in software, content hosting as well as deployment and distribution to support the consortium in the development of an architecture and prototype suitable to (multi-) CDN based media distribution in the transport industry.



Maximizing the value of in-vehicle WiFi systems for media streaming onboard.

In partnership with media providers, PaxLife Innovations enables virtually unlimited WiFi bandwidth on board so that passengers can enjoy streaming media just like at home, while preserving most of the vehicles' existing cellular bandwidth for other uses.

Our SaaS portfolio: live video streaming - live DAB+ radio broadcasting, CDN solution for onboard caching and delivery of VOD streaming libraries - onboard hosting of digital services - digital advertising service for passenger information displays.

Your benefits: savings on broadband data consumption, improved passenger engagement, a better passenger viewing experience and future-proof, scalable solutions.

To know more, get in touch at info@paxlife.aero or +49 331 243424-0

And join us at the next WiFi on Trains Conference 16/17 Nov in London www.traincomms.com