PRODUCT INFORMATION

Push-to-talk over Cellular
for lower operating costs

Push-to-talk over Cellular

Urban public transport operators are increasingly using public mobile networks for data exchange and voice communication between the control centre, the vehicles and the DPI signs at stops. Compared to a company-owned radio network, the public GSM/2G/3G/4G networks offer almost complete geographical coverage. This permits flexible expansion of existing route networks without additional investment in operational radio, or the integration of regional route networks in an urban multi-agency network.

Altogether, the flexible public mobile networks offer many advantages, although due consideration also has to be given to the operating costs incurred for voice and data traffic. When it comes to the special operational requirements of urban public transport, voice communication in particular is very expensive over GSM. Announcements to a route or whole network require parallel connections to many landlines. In addition to expensive installation in the control centre, this results in high standing charges and connection costs.

Push-to-talk over Cellular stands out with convincing advantages that also reduce the operating costs for group communication. With VoIP technology and suitable compression methods, both data and voice communication can be sent over the packet-oriented 2G/3G/4G radio service. The advantage compared to GSM consists in spontaneous connection to a group of 2G/3G/4G subscribers, which is crucial for live announcements to passengers and drivers. Nor are any landlines needed for a group call over 2G/3G/4G, in contrast to GSM. In case of system failure, Push-to-talk over Cellular can be combined with GSM or analogue radio as fallback level.

Easy retrofitting

To support Push-to-talk over Cellular, the control centre's VoIP-based voice system is fitted with a software (gateway) that compresses the voice packets and sends them to the subscribers over 2G/3G/4G. In turn, it also receives voice packages from the subscribers.

The on-board computers in the vehicles and the DPI signs at the stops are also fitted with a corresponding software (client) which converts the data packets into analogue voice signals and sends them over the audio system to the vehicle or to the stop. This software solution means that vehicles and stops can be fitted with Push-to-talk over Cellular easily and at low costs, without any additional hardware.

Prepared for the multi-agency network

Push-to-talk over Cellular can also be combined with GSM or analogue radio for existing AVLC systems by ebblo or for integration in the network of an urban multi-agency. The vehicles can then be operated in hybrid mode within the various radio networks, thus giving the transport operators additional flexibility in dispatch planning for their vehicles.

Fully integrated operation in AVLC

Push-to-talk over Cellular voice communication can be operated directly from our AVLC system. For an announcement, the dispatcher can select a route or chosen group without worrying about which service should be used to reach the vehicles, or which vehicles are on the

corresponding route at this particular moment. The control system constantly calculates vehicle group membership and which service (GSM, 2G/3G/4G or analogue radio) is needed to contact them.

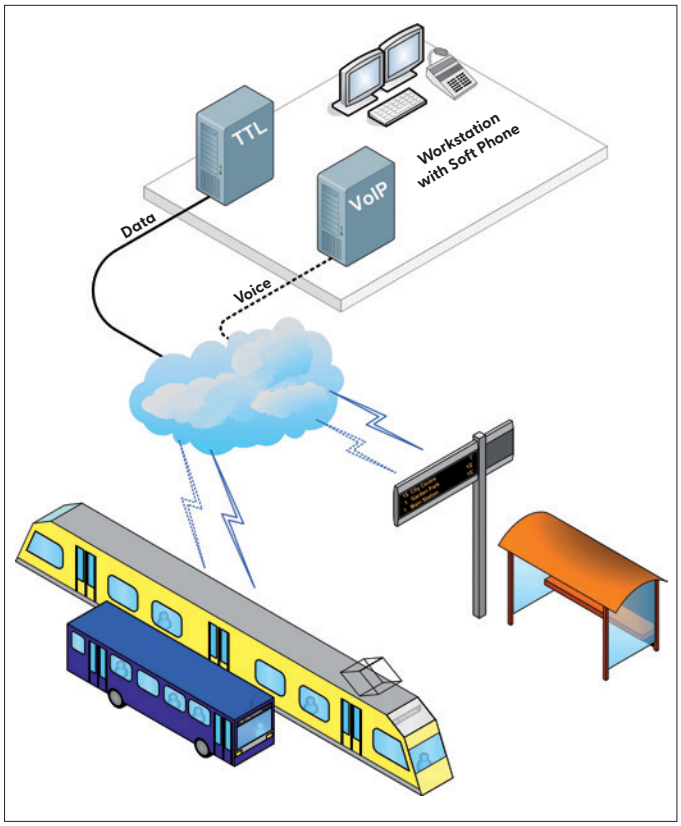
This lets the dispatcher focus totally on the traffic situation and keep passengers and drivers efficiently informed.

Consistent support of all connection types

As well as announcements to groups, Push-to-talk over Cellular also facilitates bidirectional calls between control centre and driver or between several drivers. These calls are set up by the dispatcher at the drivers' request. Communication over 2G/3G/4G then takes place in semiduplex mode with the driver's Push-to-Talk (PTT) button. Calls between vehicles using different radio technology can be handled by the dispatcher with the central VoIP system.

High availability

Voice connection availability to the vehicles is highly significant for urban public transport companies. The VoIP system is rated for redundant standby operation. When equipped accordingly, the vehicle's on-board computer automatically selects the currently available radio technology, so that voice communication availability is safeguarded at all times, even if a subsystem should fail.



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