

Technology for expanding coverage areas of professional mobile radio (PMR) networks

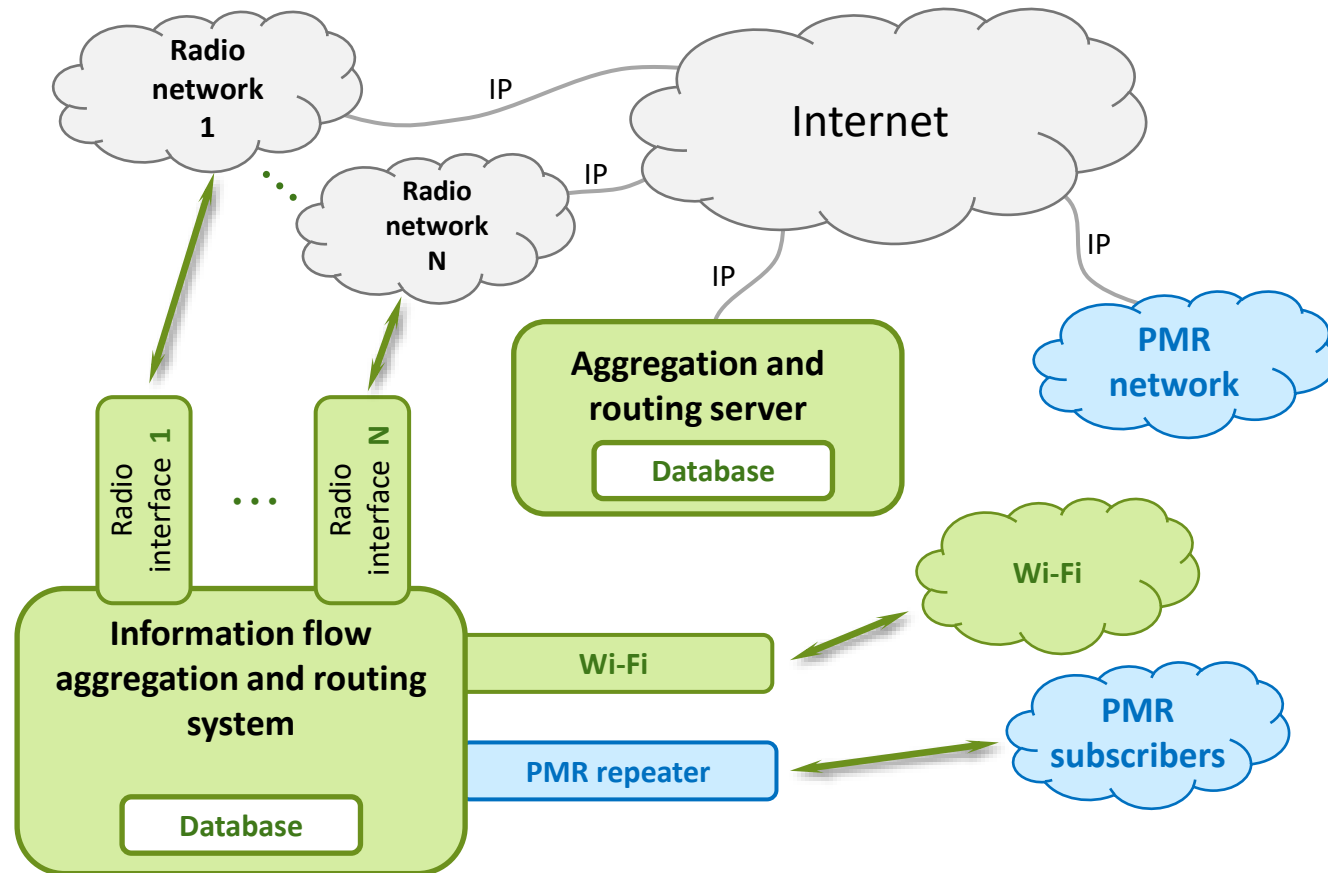
KODOFON Group

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Challenges facing the expansion and rapid deployment of PMR networks

1. Considerable capital costs for the construction of wide-area network infrastructure.
2. Considerable operating costs when operating a wide-area network network.
3. Complexity of fast deployment of a subnetwork in a remote area.
4. Complexity of organizing communication when mobile objects move from one network coverage area to another.

Heterogeneous communication channel bonding technology



Bonding system design options:

- Stationary
- Mobile

Communication technologies combined (aggregated) in arbitrary way:

Stationary system	Mobile system
cellular	cellular
WiFi	WiFi
satellite	satellite
tropospheric	
Point-to-point	
FOCL	

Examples of bonding equipment



Bonding router Outdoor KDF AM-2/4X:

- mobile design version;
- 2/4 active SIM cards
- 2/ 4 LTE Cat.4/Cat.6 modems ;
- 1 Ethernet port 1G Base-T (PoE);
- GPS/GLONASS ;
- Wi-Fi hotspot (optional) ;
- magnetic (up to 140 km/h) or mechanical fastening.



Bonding router Indoor m-Line:

- designed for indoor use or to be used inside a vehicle;
- 4 active SIM cards;
- 4 LTE Cat.4 modems;
- built-in access point Wi-Fi (2.4 GHz);
- 4 Ethernet 10/100 Base-T
- installation on a flat surface.



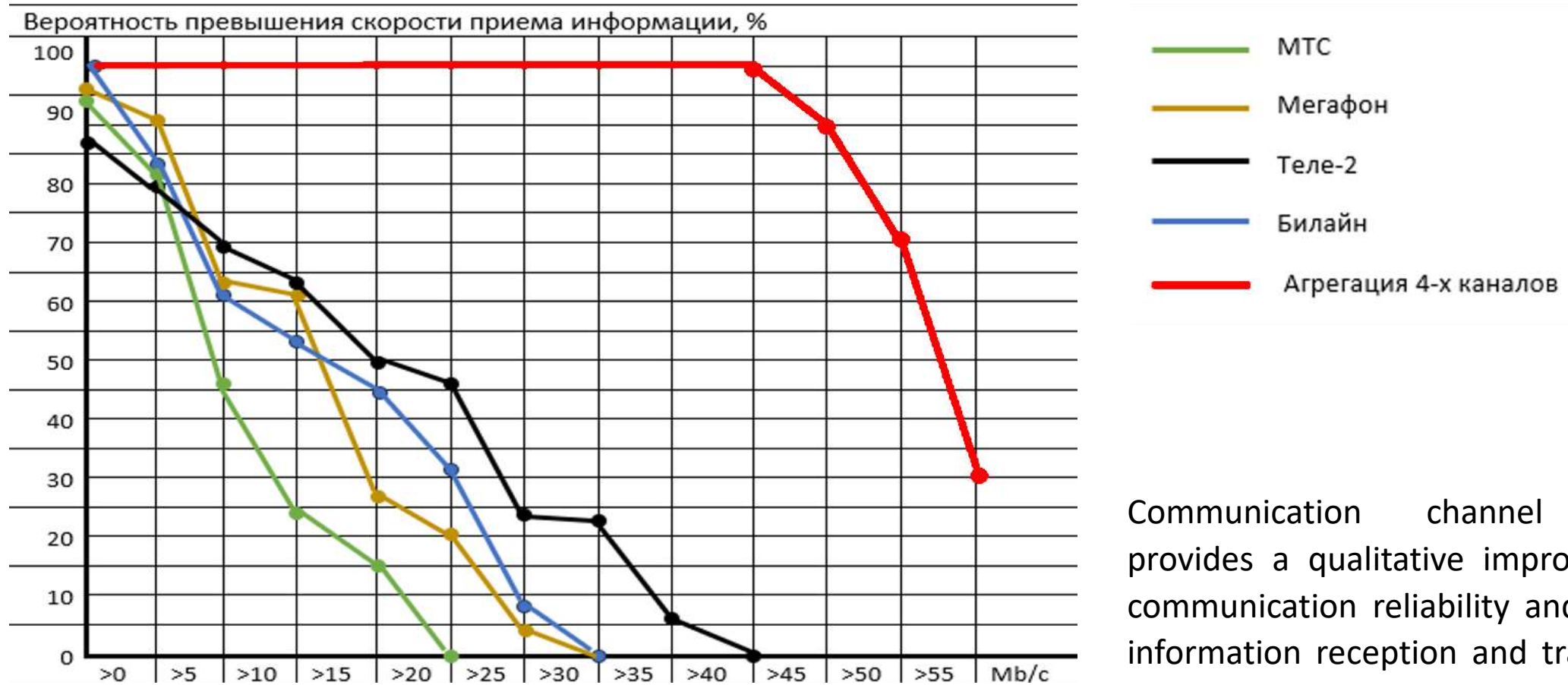
Bonding router Outdoor AM-102-002:

- stationary version;
- two external directional antennas;
- 2 active SIM cards;
- 2 LTE Cat.4 /6 modem;
- 1 Ethernet port 1G Base-T (PoE);
- to be attached to a mast or bracket.

Bonding equipment installation options

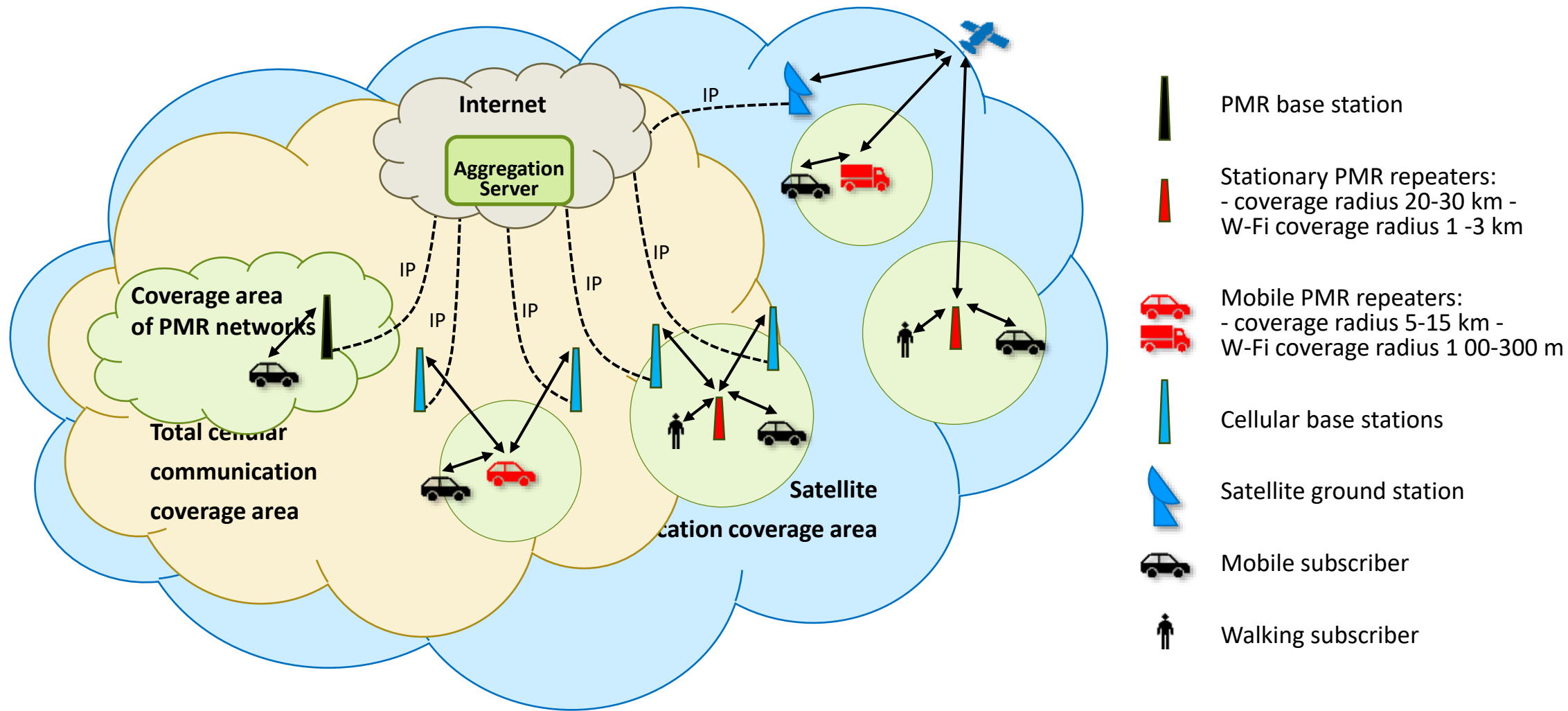


Comparative efficiency of cellular channel bonding technology for vehicles in the Ramon district of the Voronezh region



Communication channel bonding provides a qualitative improvement in communication reliability and speed of information reception and transmission in vehicular transport

Communication organization diagram



Advantages of the proposed solutions

1. **Significantly lower capital and operating costs for the construction and operation of wide-area professional radio communication networks.**
2. **Possibility to create global professional radio communication networks without capital investments in the network infrastructure construction.**
3. **Possibility to take professional radio communication networks to a whole new level by using Wi-Fi technology for secure high-speed information transmission.**
4. **These solutions give an opportunity to export communication services abroad, meeting the requirements of the second stage of the Strategy for the Development of the Communications Industry in Russia (2031–2035).**

THANK YOU!

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