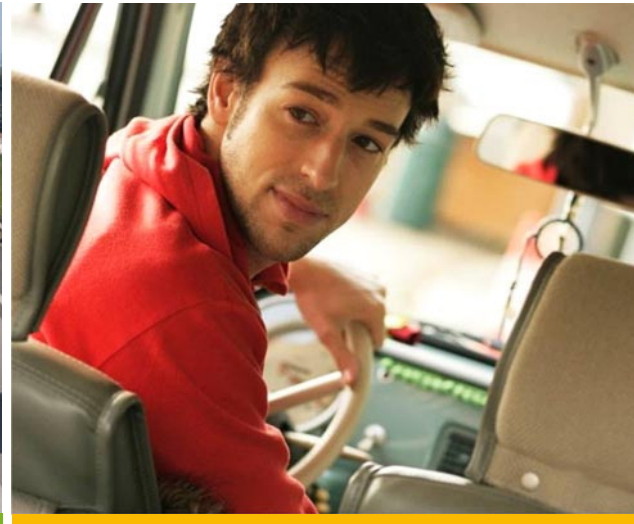


Traffic Management



Active Safety



Cooperative Cars



Ulrich Dietz
Vodafone Group R&D

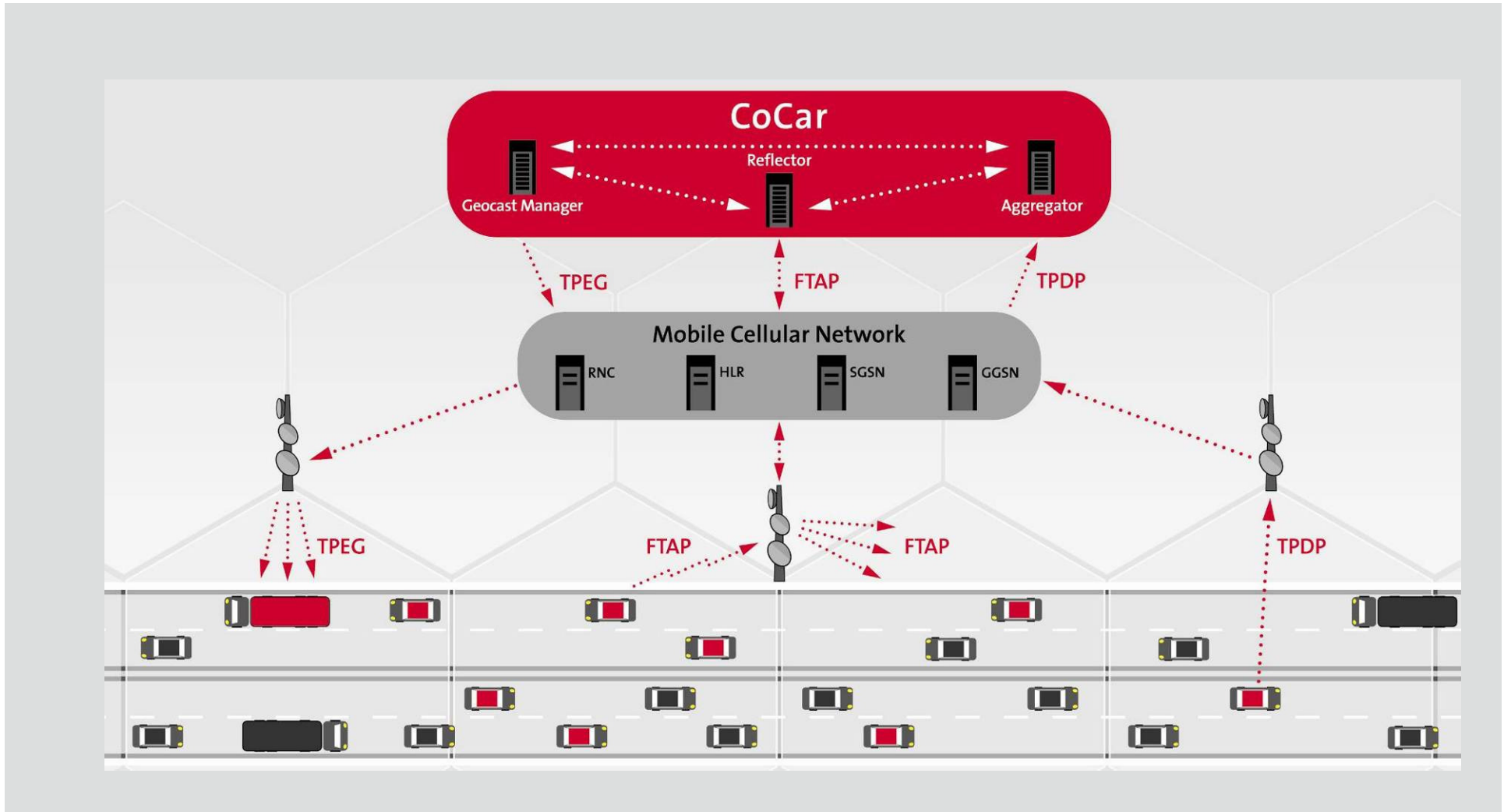
Protocol and System Design



- Challenge was to realize the aforementioned applications on UMTS
- Main focus was to evaluate a Pan-European approach
 - 250m vehicles on European mobile networks
 - with bandwidth and latency in UMTS as the main focus
 - and coverage, QoS and security in mind
- CoCar introduced three generic system components and three protocol options
 - Reflector, Geocast Manager, Aggregator
 - Fast Traffic Alert Protocol (FTAP), Traffic Probe Data Protocol (TPDP) and TPEG
- Cellular Hazard Warnings (CHW) represent the main application

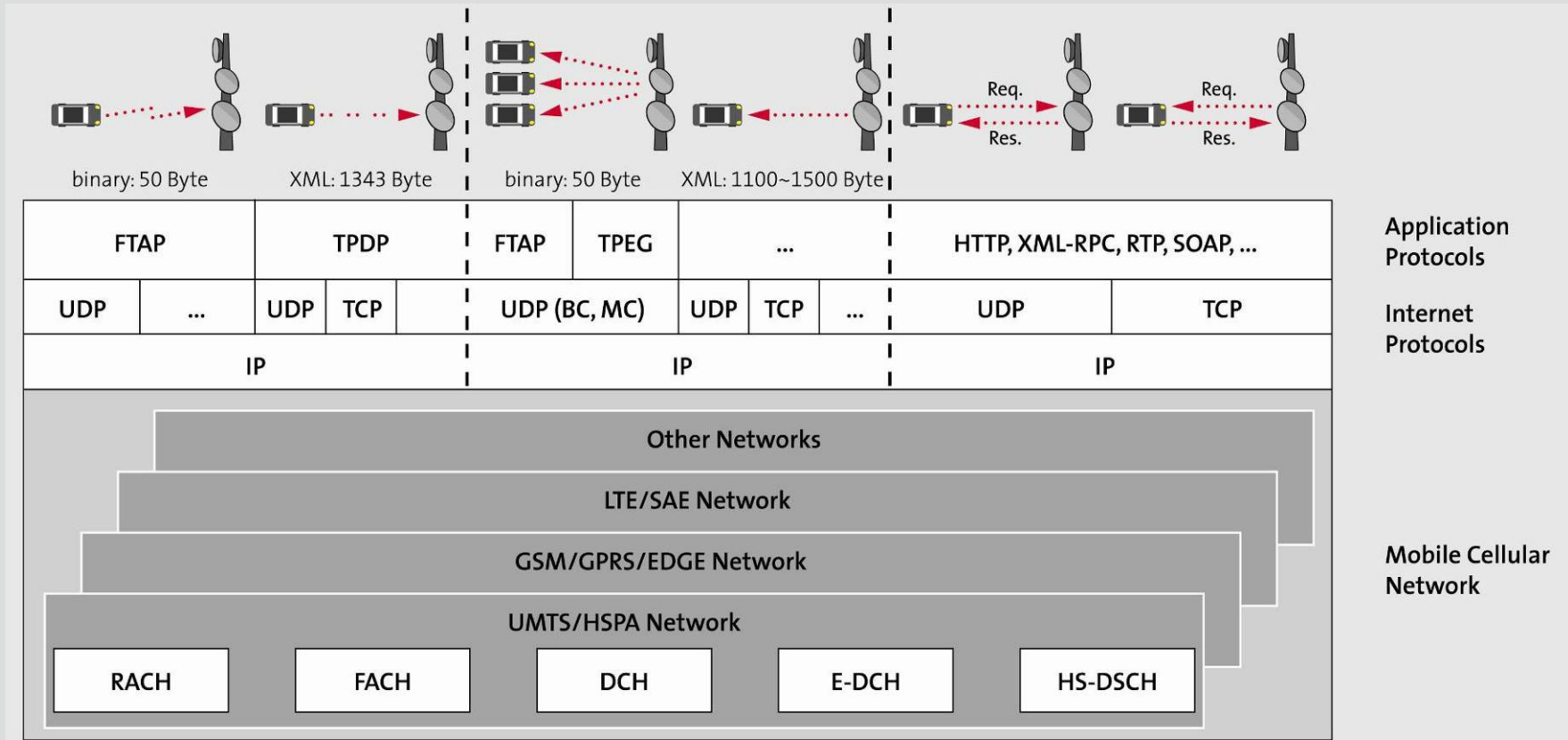


CoCar General Overview





CoCar Protocol Architecture





Conclusion



- CoCar has developed a technically detailed architecture and protocol suite
 - Lightweight concept
 - Small and efficient messages
- The CoCar system and protocols cover all aspects
 - FTAP messages allow instant Vehicle-to-Vehicle communication
 - TPDP messages for all non time critical applications
 - TPEG applications allows CoCar data to be used on any channel
- CHW using FTAP is the innovative solution developed