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GROUP REPORT

IPv6-based Vehicular Networking (V2X)

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Foreword

This Group Report (GR) has been produced by ETSI Industry Specification Group (ISG) IPv6 Integration (IP6).

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1 Scope

The present document outlines the motivation for the deployment of IPv6-based 5G Mobile Internet, the objectives, the technology guidelines, the step-by-step process, the benefits, the risks, the challenges and the milestones.

2 References

2.1 Normative references

Normative references are not applicable in the present document.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document, but they assist the user with regard to a particular subject area.

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3   Definition of terms, symbols and abbreviations

3.1   Terms

Void.

3.2   Symbols

Void.

3.3   Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	Third Generation Partnership Project
5G	5th Generation
5G NR	5G New Radio
5G-DRIVE	5G HarmoniseD Research and TrIals for serVice Evolution
AD	Autonomous Driving
ADAS	Advanced Driver Assistance System

AEAD   Authentication Encryption with Additional Data
AF   Application Function
AH   Authentication Header
AI   Artifical Intelligence
AIOTI   Alliance for Internet of Things Innovation
AMF   Access and Mobility Function
AODV   Ad hoc On-Demand Distance Vector routing
AP   Access Point
APN   Access Point Names
APNIC   Asia Pacific Network Information Centre
AR   Address Resolution
AR/VR   Augmented Reality/Virtual Reality
ASL   Adaptation Sub-Layer
ATM   Asynchronous Transfer Mode
BA   Binding Acknowledge
BID   Binding Identification Number
BLE   Bluetooth Low Energy
BS   Base Station
BSM   Basic Safety Message
BSS   Basic Service Set
BTP   Basic Transport Protocol
BU   Binding Update
C-ADAS   Cooperative Advanced Driving Assistance Systems
CAM   Cooperative Awareness Message
CCAM   Cooperative, Connected and Automated Mobility
CCSA   China Communication Standards Association
CDN   Content Delivery Network
CGN   Carrier Grade NAT
CG-NAT   Carrier-Grade NAT
CLAT   Customer-side transLATor
CN   Correspondent Node
CoA   Care of Address
CORE   Core Network
CPM   Collective Perception Message
CSAE   China Society of Automotive Engineers
CSFB   Circuit Switched FallBack
DAD   Duplicate Address Detection
DHCP   Dynamic Host Configuration Protocol
DHCPv6   Dynamic Host Configuration Protocol version 6
DMM   Distributed Mobility Management
DNS   Domain Name System
DS   Dual-Stack
DSRC   Dedicated Short Range Communication
EARO   Extended Address Registration Option
EDCA   Enhanced Distributed Channel Access
EDM   Edge Dynamic Map
EIID   Extended Interface Identifier
EPS   Evolved Packet System
ESP   Encapsulation Security Payload
ES-PT   Spain-Portugal
ESS   Extended Service Set
EUI   End-system Unique Identifier
FN   Foreign Network
FOT   Field Operational Tests
GLOSA   Green Light Optimal Speed Advisory
GN   Geo Networking
GPRS   General Packet Radio Service
GR   Group Report
GR-TR   Greece-Turkey
GUA   Global Unique Address
GVL   Geographical Virtual Link
HA   Home Agent

HD	High Definition
HIP	Host Identity Protocol
HMI	Human Machine Interface
HN	Home Network
HoA	Home of Address
HR	Home Router
HSS	Home Subscriber server
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
IAB	Internet Architecture Board
ICT	Information and Communications Technology
IDC	Internet Data Centre
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IID	Interface Identifier
IKEv2	Internet Key Exchange version 2
IMS	IP Multimedia Subsystem
IMT	International Mobile Telecommunications
IoT	Internet of Things
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IPWAVE	IP Wireless Access in Vehicular Environments
ISP	Internet Service Provider
ITS	Intelligent Transport System
ITS-G	5,9 GHz Cooperative ITS system
ITU-R	International Telecommunication Union - Radiocommunication Sector
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
LAN	Local Area Network
LISP	Locator/ID Separation Protocol
LLA	Link Local Address
MAC	MAC Medium Access Control layer
MANET	Mobile Ad-hoc NETworks
MCoA	Mobile Care of Address
MIIT	Ministry of Industry and Information Technology (China)
MIPv6	Mobile IPv6
MLSN	Multi-Link Subnet
MME	Mobile Management Entity
MN	Mobile Node
MNN	Mobile Network Node
MNO	Mobile Networks Operator
MNP	Mobile Network Prefix
MR	Mobile Router
NA/RA	Neighbor Advertisement/ Router Advertisement
NAT	Network Address Translation
NBMA	Non-Broadcast Multi-Access
NCC	Network Control Center
ND	Neighbour Discovery
NDP	Neighbour Discovery Protocol
NEMO BS	NEtwork MObility Basic Support
NEMO	Network Mobility
NGMN	Next Generation Mobile Network
NR	5G New Radio interface
NS	Neighbor Solicitation
NS/NA	Neighbour Solicitation/Neighbour Advertisement
OCB	Outside the Context of a BSS
OFDM	Orthogonal Frequency Division Multiple Access
OLSR	Optimised Link State Routing
OS	Operating System
OSI	Open Systems Interconnection
PDN	Packet Data Network
PDP	Packet Data Protocol

PGW	Packet data network GateWay
PHY	Physical Layer (protocol layer)
PIO	Prefix Information Option
PLMN	Public Landline Mobile Network
PLT	Page Load Time
PS	Pilot Site
RA	Router Advertisement
RAT	Radio Access Technologies
RAW	Reliable and Available Wireless
RFC	Request For Comments
RIPE	Reseaux IP Europeens
RPL	Routing Protocol for Low-Power and Lossy Networks
RS	Router Solicitation
RSU	Road Side Unit
RTT	Round Trip Time
RUM	Real User Monitoring
SA	Security Association
SAD	Security Association Database
SC-FDMA	Single Carrier-Frequency Division Multiple Access
SCMS	Security Credential Management Systems
SLLAO	Source Link-Layer Address Option
SMF	Session Management Function
SNMA	Solicited-Node Multicast Address
SPD	Security Policy Database
SSH	Secure Shell
SSL	Secure Socket Layer
STA	Station
STD	STandarD
TC	(ETSI) Technical Committee
TCP	Transmission Control Protocol
TD	Temporary Document
TLS	Transport Layer Security
UDM	Unified Data Management
UDP	User Datagram Protocol
UE	User Equipment
ULA	Unique Local Address
UMTS	Universal Mobil Telecommunications System
UP	User Plane
V2X	Vehicle to everything
VoIP	Voice over IP
VoLTE	Voice over Long Term Evolution
VRU	Vulnerable Road User
WI	Work Item
WiMAX™	Worldwide interoperability for Microwave Access
WLAN	Wireless Local Area Network
WPAN	Wireless Personal Area Network