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Interface between the Control Plane and the User Plane nodes
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Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	10
1 Scope	11
2 References	11
3 Definitions, symbols and abbreviations	12
3.1 Definitions	12
3.2 Abbreviations	12
4 Protocol Stack	13
4.1 Introduction	13
4.2 UDP Header and Port Numbers	14
4.2.1 General.....	14
4.2.2 Request Message	15
4.2.3 Response Message	15
4.3 IP Header and IP Addresses	15
4.3.1 General.....	15
4.3.2 Request Message	15
4.3.3 Response Message	15
4.4 Layer 2	15
4.5 Layer 1	15
5 General description.....	16
5.1 Introduction	16
5.2 Packet Forwarding Model	16
5.2.1 General.....	16
5.2.2 Usage Reporting Rule Handling	18
5.2.2.1 General	18
5.2.2.2 Provisioning of Usage Reporting Rule in the UP function	18
5.2.2.2.1 General	18
5.2.2.2.2 Credit pooling.....	21
5.2.2.3 Reporting of Usage Report to the CP function.....	21
5.2.2.3.1 General	21
5.2.2.3.2 Credit pooling.....	23
5.2.2.4 Reporting of Linked Usage Reports to the CP function.....	23
5.2.3 Forwarding Action Rule Handling.....	24
5.2.3.1 General	24
5.2.4 Buffering Action Rule Handling.....	25
5.2.4.1 General	25
5.2.4.2 Provisioning of Buffering Action Rule in the UP function	25
5.2.5 QoS Enforcement Rule Handling	25
5.2.5.1 General	25
5.2.5.2 Provisioning of QoS Enforcement Rule in the UP function.....	25
5.2.6 Combined SGW/PGW Architecture	26
5.3 Data Forwarding between the CP and UP Functions	26
5.3.1 General.....	26
5.3.2 Sending of End Marker Packets.....	27
5.3.3 Forwarding of Packets Subject to Buffering in the CP Function.....	27
5.3.3.1 General	27
5.3.3.2 Forwarding of Packets from the UP Function to the CP Function	27
5.3.3.3 Forwarding of Packets from the CP Function to the UP Function	28
5.3.4 Data Forwarding between the CP and UP Functions with one Sx-u Tunnel per UP Function or PDN.....	28
5.3.4.1 General	28
5.3.4.2 Forwarding of Packets from the UP Function to the CP Function	28

5.3.4.3	Forwarding of Packets from the CP Function to the UP Function	29
5.4	Policy and Charging Control	29
5.4.1	General.....	29
5.4.2	Service Detection and Bearer Binding.....	29
5.4.3	Gating Control	30
5.4.4	QoS Control	30
5.4.5	DL Flow Level Marking for Application Detection	30
5.4.6	Usage Monitoring	31
5.4.7	Traffic Redirection.....	31
5.4.8	Traffic Steering	32
5.4.9	Provisioning of Predefined PCC/ADC Rules	32
5.4.10	Charging	33
5.4.11	(Un)solicited Application Reporting.....	34
5.4.12	Service Identification for Improved Radio Utilisation for GERAN	34
5.5	F-TEID Allocation and Release	35
5.5.1	General.....	35
5.5.2	F-TEID allocation in the CP function	35
5.5.3	F-TEID allocation in the UP function.....	35
5.6	Sx Session Handling.....	35
5.6.1	General.....	35
5.6.2	Session Endpoint Identifier Handling	35
5.6.3	Modifying the Rules of an Existing Sx Session.....	36
5.7	Support of Lawful Interception	36
5.8	Sx Association.....	36
5.8.1	General.....	36
5.8.2	Behaviour with an Established Sx Association.....	37
5.8.3	Behaviour without an Established Sx Association.....	37
5.9	Usage of Vendor-specific IE	37
5.10	Error Indication Handling	38
5.11	User plane inactivity detection and reporting.....	38
5.12	Suspend and Resume Notification procedures	38
6	Procedures	38
6.1	Introduction	38
6.2	Sx Node Related Procedures	39
6.2.1	General.....	39
6.2.2	Heartbeat Procedure.....	39
6.2.2.1	General	39
6.2.2.2	Heartbeat Request	39
6.2.2.3	Heartbeat Response	39
6.2.3	Load Control Procedure.....	39
6.2.3.1	General	39
6.2.3.2	Principles.....	39
6.2.3.3	Load Control Information	40
6.2.3.3.1	General Description.....	40
6.2.3.3.2	Parameters	40
6.2.3.3.2.1	Load Control Sequence Number.....	40
6.2.3.3.2.2	Load Metric.....	41
6.2.3.3.3	Frequency of Inclusion.....	41
6.2.4	Overload Control Procedure	41
6.2.4.1	General	41
6.2.4.2	Principles.....	42
6.2.4.3	Overload Control Information.....	42
6.2.4.3.1	General Description.....	42
6.2.4.3.2	Parameters	43
6.2.4.3.2.1	Overload Control Sequence Number	43
6.2.4.3.2.2	Period of Validity.....	44
6.2.4.3.2.3	Overload Reduction Metric.....	44
6.2.4.3.3	Frequency of Inclusion	45
6.2.4.4	Message Throttling.....	45
6.2.4.4.1	General	45
6.2.4.4.2	Throttling algorithm – "Loss".....	45

6.2.4.4.2.1	Description.....	45
6.2.4.5	Message Prioritization.....	46
6.2.4.5.1	Description	46
6.2.4.5.2	Based on the Message Priority Signalled in the PFCP Message	46
6.2.5	Sx PFD Management Procedure.....	47
6.2.5.1	General	47
6.2.5.2	CP Function Behaviour	47
6.2.5.3	UP Function Behaviour.....	47
6.2.6	Sx Association Setup Procedure	47
6.2.6.1	General	47
6.2.6.2	Sx Association Setup Initiated by the CP Function.....	48
6.2.6.2.1	CP Function Behaviour	48
6.2.6.2.2	UP Function behaviour.....	48
6.2.6.3	Sx Association Setup Initiated by the UP Function	48
6.2.6.3.1	UP Function Behaviour	48
6.2.6.3.2	CP Function Behaviour	48
6.2.7	Sx Association Update Procedure.....	49
6.2.7.1	General	49
6.2.7.2	Sx Association Update Procedure Initiated by the CP Function	49
6.2.7.2.1	CP Function Behaviour	49
6.2.7.2.2	UP Function Behaviour	49
6.2.7.3	Sx Association Update Procedure Initiated by UP Function.....	49
6.2.7.3.1	UP Function Behaviour	49
6.2.7.3.2	CP Function Behaviour	49
6.2.8	Sx Association Release Procedure.....	50
6.2.8.1	General	50
6.2.8.2	CP Function Behaviour	50
6.2.8.3	UP Function behaviour	50
6.2.9	Sx Node Report Procedure	50
6.2.9.1	General	50
6.2.9.2	UP Function Behaviour.....	50
6.2.9.3	CP Function behaviour.....	50
6.3	Sx Session Related Procedures.....	51
6.3.1	General.....	51
6.3.2	Sx Session Establishment Procedure	51
6.3.2.1	General	51
6.3.2.2	CP Function Behaviour	51
6.3.2.3	UP Function Behaviour.....	51
6.3.3	Sx Session Modification Procedure	51
6.3.3.1	General	51
6.3.3.2	CP Function behaviour.....	51
6.3.3.3	UP Function Behaviour.....	52
6.3.4	Sx Session Deletion Procedure	52
6.3.4.1	General	52
6.3.4.2	CP Function Behaviour	52
6.3.4.3	UP Function Behaviour.....	52
6.3.5	Sx Session Report Procedure	52
6.3.5.1	General	52
6.3.5.2	UP Function Behaviour.....	53
6.3.5.3	CP Function Behaviour	53
6.4	Reliable Delivery of PFCP Messages.....	53
7	Messages and Message Formats.....	53
7.1	Transmission Order and Bit Definitions.....	53
7.2	Message Format	54
7.2.1	General.....	54
7.2.2	Message Header	54
7.2.2.1	General Format	54
7.2.2.2	PFCP Header for Node Related Messages	54
7.2.2.3	PFCP Header for Session Related Messages	55
7.2.2.4	Usage of the PFCP Header.....	55
7.2.2.4.1	General	55

7.2.2.4.2	Conditions for Sending SEID=0 in PFCP Header	56
7.2.3	Information Elements	56
7.2.3.1	General	56
7.2.3.2	Presence Requirements of Information Elements	56
7.2.3.3	Grouped Information Elements	58
7.2.3.4	Information Element Type	58
7.3	Message Types	58
7.4	Sx Node Related Messages	59
7.4.1	General	59
7.4.2	Heartbeat Messages	59
7.4.2.1	Heartbeat Request	59
7.4.2.2	Heartbeat Response	60
7.4.3	Sx PFD Management	60
7.4.3.1	Sx PFD Management Request	60
7.4.3.2	Sx PFD Management Response	61
7.4.4	Sx Association messages	61
7.4.4.1	Sx Association Setup Request	61
7.4.4.2	Sx Association Setup Response	62
7.4.4.3	Sx Association Update Request	63
7.4.4.4	Sx Association Update Response	63
7.4.4.5	Sx Association Release Request	63
7.4.4.6	Sx Association Release Response	64
7.4.4.7	Sx Version Not Supported Response	64
7.4.5	Sx Node Report Procedure	64
7.4.5.1	Sx Node Report Request	64
7.4.5.1.1	General	64
7.4.5.1.2	User Plane Path Failure Report IE within Sx Node Report Request	64
7.4.5.2	Sx Node Report Response	65
7.4.5.2.1	General	65
7.4.6	Sx Session Set Deletion	65
7.4.6.1	Sx Session Set Deletion Request	65
7.4.6.2	Sx Session Set Deletion Response	65
7.5	Sx Session Related Messages	66
7.5.1	General	66
7.5.2	Sx Session Establishment Request	66
7.5.2.1	General	66
7.5.2.2	Create PDR IE within Sx Session Establishment Request	67
7.5.2.3	Create FAR IE within Sx Session Establishment Request	69
7.5.2.4	Create URR IE within Sx Session Establishment Request	72
7.5.2.5	Create QER IE within Sx Session Establishment Request	75
7.5.2.6	Create BAR IE within Sx Session Establishment Request	78
7.5.3	Sx Session Establishment Response	78
7.5.3.1	General	78
7.5.3.2	Created PDR IE within Sx Session Establishment Response	79
7.5.3.3	Load Control Information IE within Sx Session Establishment Response	79
7.5.3.4	Overload Control Information IE within Sx Session Establishment Response	80
7.5.4	Sx Session Modification Request	80
7.5.4.1	General	80
7.5.4.2	Update PDR IE within Sx Session Modification Request	83
7.5.4.3	Update FAR IE within Sx Session Modification Request	84
7.5.4.4	Update URR IE within Sx Session Modification Request	86
7.5.4.5	Update QER IE within Sx Session Modification Request	89
7.5.4.6	Remove PDR IE within Sx Session Modification Request	90
7.5.4.7	Remove FAR IE within Sx Session Modification Request	91
7.5.4.8	Remove URR IE within Sx Session Modification Request	91
7.5.4.9	Remove QER IE Sx Session Modification Request	91
7.5.4.10	Query URR IE within Sx Session Modification Request	91
7.5.4.11	Update BAR IE within Sx Session Modification Request	92
7.5.4.12	Remove BAR IE within Sx Session Modification Request	92
7.5.5	Sx Session Modification Response	92
7.5.5.1	General	92
7.5.5.2	Usage Report IE within Sx Session Modification Response	93

7.5.6	Sx Session Deletion Request	94
7.5.7	Sx Session Deletion Response	94
7.5.7.1	General	94
7.5.7.2	Usage Report IE within Sx Session Deletion Response	95
7.5.8	Sx Session Report Request	96
7.5.8.1	General	96
7.5.8.2	Downlink Data Report IE within Sx Session Report Request	96
7.5.8.3	Usage Report IE within Sx Session Report Request	97
7.5.8.4	Error Indication Report IE within Sx Session Report Request	98
7.5.9	Sx Session Report Response	98
7.5.9.1	General	98
7.5.9.2	Update BAR IE within Sx Session Report Response	99
7.6	Error Handling	100
7.6.1	Protocol Errors	100
7.6.2	Different PFCP Versions	100
7.6.3	PFCP Message of Invalid Length	100
7.6.4	Unknown PFCP Message	100
7.6.5	Unexpected PFCP Message	100
7.6.6	Missing Information Elements	101
7.6.7	Invalid Length Information Element	101
7.6.8	Semantically incorrect Information Element	101
7.6.9	Unknown or unexpected Information Element	102
7.6.10	Repeated Information Elements	102
8	Information Elements	102
8.1	Information Elements Format	102
8.1.1	Information Element Format	102
8.1.2	Information Element Types	103
8.2	Information Elements	109
8.2.1	Cause	109
8.2.2	Source Interface	112
8.2.3	F-TEID	112
8.2.4	Network Instance	113
8.2.5	SDF Filter	113
8.2.6	Application ID	115
8.2.7	Gate Status	115
8.2.8	MBR	116
8.2.9	GBR	116
8.2.10	QER Correlation ID	116
8.2.11	Precedence	117
8.2.12	Transport Level Marking	117
8.2.13	Volume Threshold	117
8.2.14	Time Threshold	118
8.2.15	Monitoring Time	118
8.2.16	Subsequent Volume Threshold	119
8.2.17	Subsequent Time Threshold	119
8.2.18	Inactivity Detection Time	120
8.2.19	Reporting Triggers	120
8.2.20	Redirect Information	121
8.2.21	Report Type	121
8.2.22	Offending IE	122
8.2.23	Forwarding Policy	122
8.2.24	Destination Interface	122
8.2.25	UP Function Features	123
8.2.26	Apply Action	124
8.2.27	Downlink Data Service Information	124
8.2.28	Downlink Data Notification Delay	124
8.2.29	DL Buffering Duration	125
8.2.30	DL Buffering Suggested Packet Count	125
8.2.31	SxSMReq-Flags	126
8.2.32	SxSRRsp-Flags	126
8.2.33	Sequence Number	127

8.2.34	Metric.....	127
8.2.35	Timer	127
8.2.36	Packet Detection Rule ID (PDR ID).....	128
8.2.37	F-SEID.....	128
8.2.38	Node ID	129
8.2.39	PFD Contents.....	129
8.2.40	Measurement Method	130
8.2.41	Usage Report Trigger.....	131
8.2.42	Measurement Period	132
8.2.43	Fully qualified PDN Connection Set Identifier (FQ-CSID).....	132
8.2.44	Volume Measurement.....	133
8.2.45	Duration Measurement	133
8.2.46	Time of First Packet.....	133
8.2.47	Time of Last Packet	134
8.2.48	Quota Holding Time	134
8.2.49	Dropped DL Traffic Threshold.....	134
8.2.50	Volume Quota.....	135
8.2.51	Time Quota	135
8.2.52	Start Time	136
8.2.53	End Time	136
8.2.54	URR ID.....	136
8.2.55	Linked URR ID IE.....	137
8.2.56	Outer Header Creation.....	137
8.2.57	BAR ID.....	138
8.2.58	CP Function Features.....	138
8.2.59	Usage Information	139
8.2.60	Application Instance ID	139
8.2.61	Flow Information	140
8.2.62	UE IP Address	140
8.2.63	Packet Rate	141
8.2.64	Outer Header Removal	141
8.2.65	Recovery Time Stamp	142
8.2.66	DL Flow Level Marking.....	142
8.2.67	Header Enrichment	143
8.2.68	Measurement Information.....	143
8.2.69	Node Report Type.....	144
8.2.70	Remote GTP-U Peer	144
8.2.71	UR-SEQN.....	145
8.2.72	Activate Predefined Rules.....	145
8.2.73	Deactivate Predefined Rules.....	145
8.2.74	FAR ID	146
8.2.75	QER ID	146
8.2.76	OCI Flags.....	146
8.2.77	Sx Association Release Request	147
8.2.78	Graceful Release Period.....	147
8.2.79	PDN Type	148
8.2.80	Failed Rule ID.....	148
8.2.81	Time Quota Mechanism.....	148
8.2.82	User Plane IP Resource Information.....	149
8.2.83	User Plane Inactivity Timer	150
8.2.84	Multiplier	150
8.2.85	Aggregated URR ID IE.....	150
8.2.86	Subsequent Volume Quota	151
8.2.87	Subsequent Time Quota.....	151

Annex A (Informative): PFCP Load and Overload Control Mechanism.....152

A.1	Throttling Algorithms.....	152
A.1.1	"Loss" Throttling Algorithm.....	152
A.1.1.1	Example of Possible Implementation.....	152

Annex B (Normative): CP and UP Selection Functions with Control and User Plane Separation.....153

B.1	CP Selection Function	153
B.1.1	General.....	153
B.2	UP Selection Function.....	153
B.2.1	General.....	153
B.2.2	SGW-U Selection Function	153
B.2.3	PGW-U Selection Function	154
B.2.4	Combined SGW-U/PGW-U Selection Function.....	154
B.2.5	TDF-U selection function	155
B.2.6	UP Selection Function Based on DNS.....	155
B.2.6.1	General	155
B.2.6.2	SGW-U Selection Function Based on DNS	155
B.2.6.3	PGW-U Selection Function Based on DNS	155
B.2.6.4	Combined SGW-U/PGW-U Selection Function Based on DNS	156
Annex C (Informative):	Examples scenarios	157
C.1	General	157
C.2	Charging Support	157
C.2.1	Online Charging.....	157
C.2.1.1	Online Charging Call Flow – Normal Scenario	157
C.2.1.2	Online Charging Call Flow with Credit Pooling.....	158
C.2.1.2.1	General	158
C.2.1.2.2	Example Call Flow 1	158
C.2.1.2.3	Example Call Flow 2	160
Annex D(Informative):	Change history	163
History		164

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1 Scope

The present document specifies the Packet Forwarding Control Protocol (PFCP) used on the interface between the control plane and the user plane function in a split SGW, PGW and TDF architecture in EPC.

The architecture reference model and stage 2 information are specified in 3GPP TS 23.214 [2].

PFCP shall be used over the Sxa, Sxb, Sxc and the combined Sxa/Sxb reference points.

PFCP shall also be used over the Sxa' and Sxb' reference points specified in 3GPP TS 33.107 [20]. In the rest of this specification, no difference is made between Sxa and Sxa', or between Sxb and Sxb'. The Sxa' and Sxb' reference points reuse the protocol specified for the Sxa and Sxb reference points, but comply in addition with the security requirements specified in clause 8 of 3GPP 33.107 [20].

2 References

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- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.214: "Architecture enhancements for control and user plane separation of EPC nodes; Stage 2".
- [3] 3GPP TS 29.281: "General Packet Radio System (GPRS) Tunnelling Protocol User Plane (GTPv1-U)".
- [4] IETF RFC 768: "User Datagram Protocol".
- [5] IETF RFC 791: "Internet Protocol".
- [6] IETF RFC 2460: "Internet Protocol, Version 6 (IPv6) Specification".
- [7] 3GPP TS 23.203: "Policy and charging control architecture; Stage 2".
- [8] 3GPP TS 29.212: "Policy and Charging Control (PCC); Reference points".
- [9] 3GPP TS 29.274: "3GPP Evolved Packet System. Evolved GPRS Tunnelling Protocol for EPS (GTPv2)".
- [10] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".
- [11] 3GPP TS 29.213: "Policy and Charging Control signalling flows and Quality of Service (QoS) parameter mapping".
- [12] IETF RFC 5905: "Network Time Protocol Version 4: Protocol and Algorithms Specification".
- [13] IETF RFC 2474: "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers".
- [14] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

- [15] 3GPP TS 22.153: "Multimedia Priority Service".
- [16] IETF RFC 4006: "Diameter Credit Control Application".
- [17] 3GPP TS 32.251: "Telecommunication management; Charging management; Packet Switched (PS) domain charging".
- [18] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging application".
- [19] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
- [20] 3GPP TS 33.107: "3G security; Lawful interception architecture and functions".
- [21] 3GPP TS 29.251: "Gw and Gwn reference points for sponsored data connectivity".
- [22] IETF RFC 2474, "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers".
- [23] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".
- [24] 3GPP TS 23.007: "Restoration procedures".
- [25] 3GPP TS 29.303: "Domain Name System Procedures; Stage 3"
- [26] IETF RFC 5905: "Network Time Protocol Version 4: Protocol and Algorithms Specification".
- [27] IETF RFC 1035: "Domain Names - Implementation and Specification".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

Match Field: a field of the Packet Detection Information of a Packet Detection Rule against which a packet is attempted to be matched.

Matching: comparing the set of header fields of a packet to the match fields of the Packet Detection Information of a Packet Detection Rule.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

ADC	Application Detection and Control
BAR	Buffering Action Rule
CP	Control Plane
DDoS	Distributed Denial of Service
DSCP	Differentiated Services Code Point
eMPS	enhanced Multimedia Priority Service
FAR	Forwarding Action Rule
F-SEID	Fully Qualified SEID
F-TEID	Fully Qualified TEID
IP	Internet Protocol