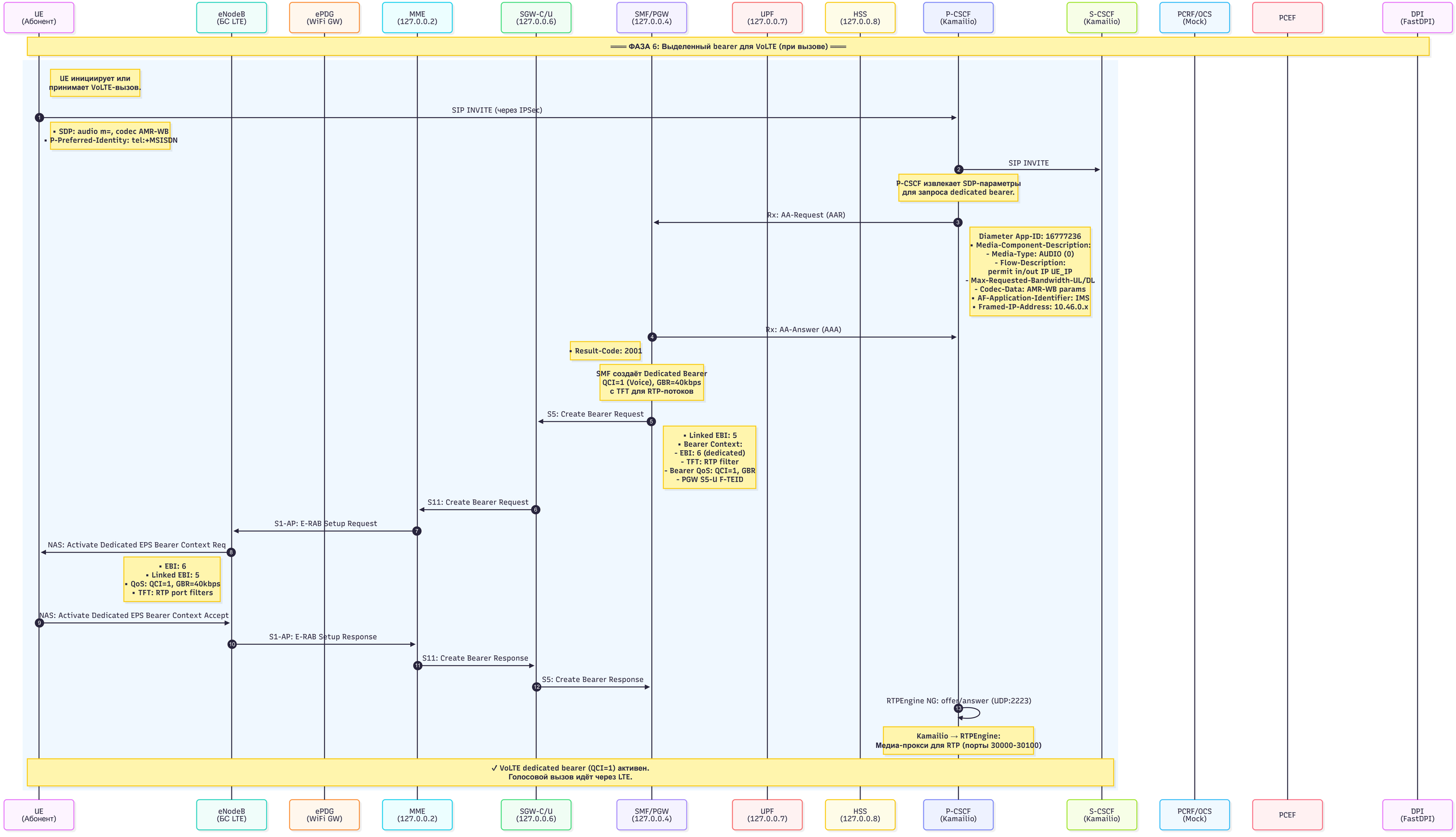
UE (Абонент)
eNodeB (БС LTE)
ePDG (WiFi GW)
MME (127.0.0.2)
SGW-C/U (127.0.0.6)
SMF/PGW (127.0.0.4)
UPF (127.0.0.7)
HSS (127.0.0.8)
P-CSCF (Kamailio)
S-CSCF (Kamailio)
PCRF/OCS (Mock)
PCEF
DPI (FastDPI)
═══ ФАЗА 6: Выделенный bearer для VoLTE (при вызове) ═══
UE инициирует или принимает VoLTE-вызов.
1
SIP INVITE (через IPSec)
▪ SDP: audio m=, codec AMR-WB
▪ P-Preferred-Identity: tel:+MSISDN
2
SIP INVITE
P-CSCF извлекает SDP-параметры для запроса dedicated bearer.
3
Rx: AA-Request (AAR)
Diameter App-ID: 16777236
▪ Media-Component-Description:
- Media-Type: AUDIO (0)
- Flow-Description:
permit in/out IP UE_IP
- Max-Requested-Bandwidth-UL/DL
- Codec-Data: AMR-WB params
▪ AF-Application-Identifier: IMS
▪ Framed-IP-Address: 10.46.0.x
4
Rx: AA-Answer (AAA)
▪ Result-Code: 2001
SMF создаёт Dedicated Bearer
QCI=1 (Voice), GBR=40kbps
с TFT для RTP-потоков
5
S5: Create Bearer Request
▪ Linked EBI: 5
▪ Bearer Context:
- EBI: 6 (dedicated)
- TFT: RTP filter
- Bearer QoS: QCI=1, GBR
- PGW S5-U F-TEID
6
S11: Create Bearer Request
7
S1-AP: E-RAB Setup Request
8
NAS: Activate Dedicated EPS Bearer Context Req
▪ EBI: 6
▪ Linked EBI: 5
▪ QoS: QCI=1, GBR=40kbps
▪ TFT: RTP port filters
9
NAS: Activate Dedicated EPS Bearer Context Accept
10
S1-AP: E-RAB Setup Response
11
S11: Create Bearer Response
12
S5: Create Bearer Response
13
RTPEngine NG: offer/answer (UDP:2223)
Kamailio → RTPEngine:
Медиа-прокси для RTP (порты 30000-30100)
✓ VoLTE dedicated bearer (QCI=1) активен.
Голосовой вызов идёт через LTE.