

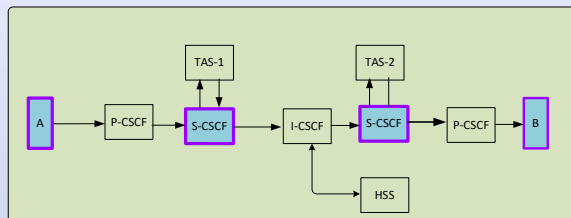
Unresolved mysteries of STIR/SHAKEN

Nagaraja (Nag) Rao; Boca Raton, FL

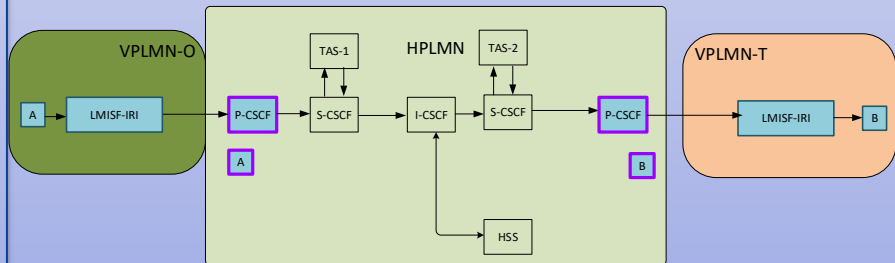
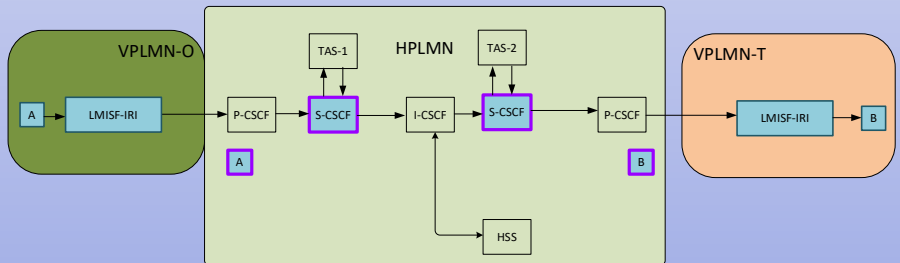
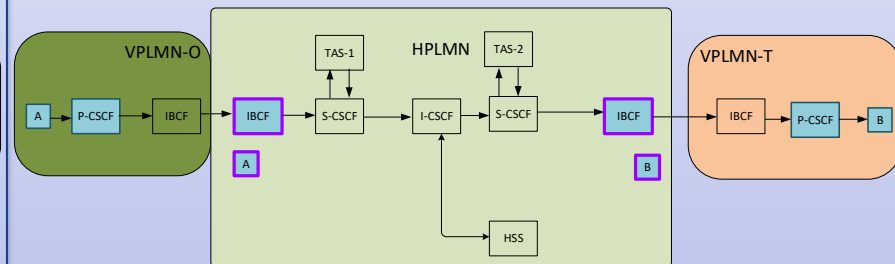
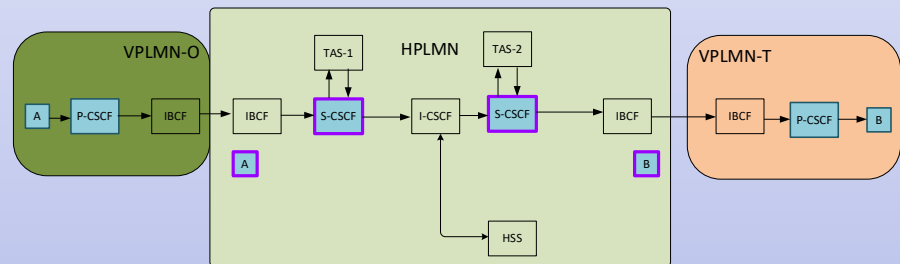
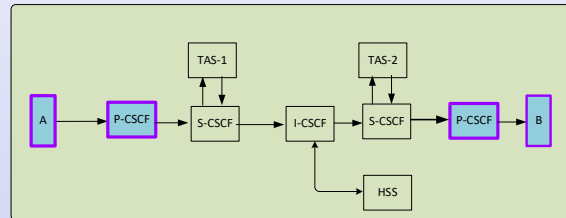
Background

IMS LI two deployment options (TS 33.127)

Default

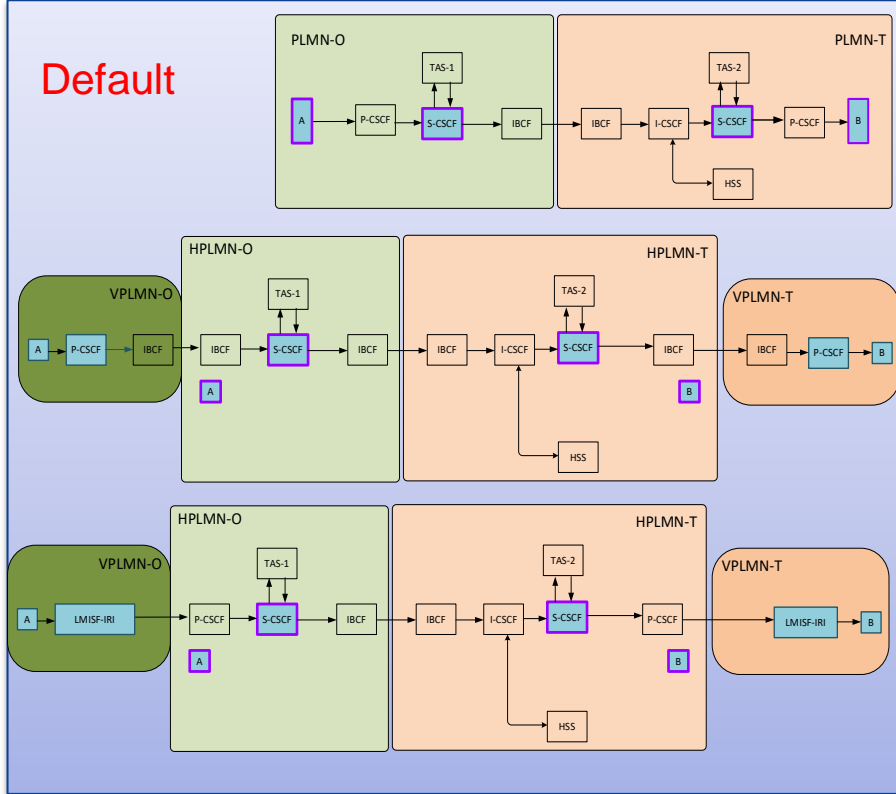


Alternate

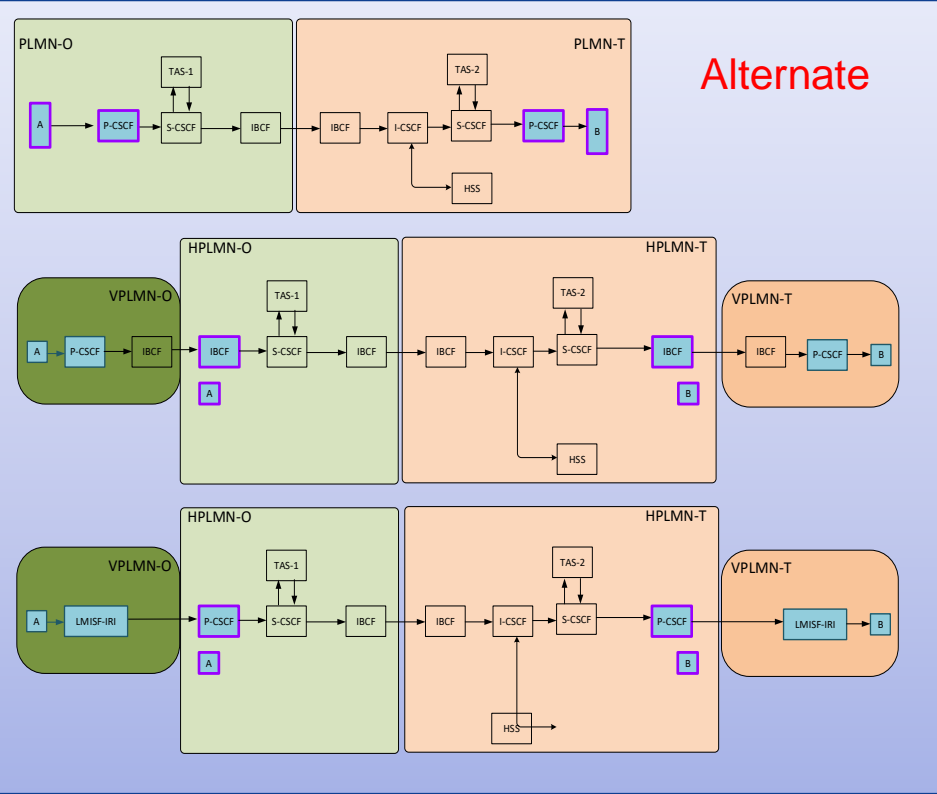


IMS LI two deployment options (TS 33.127)

Default

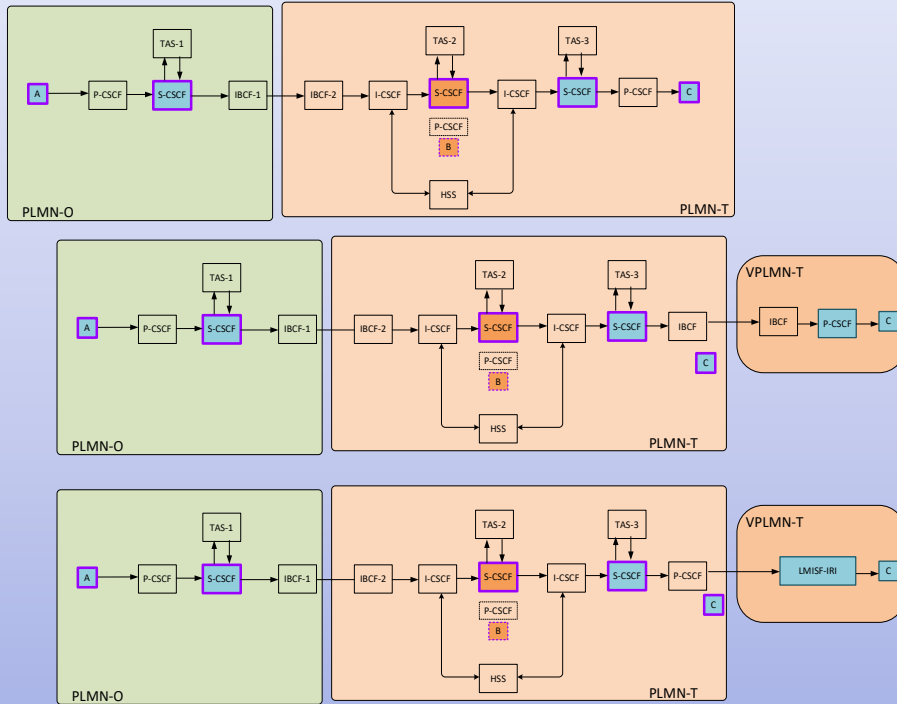


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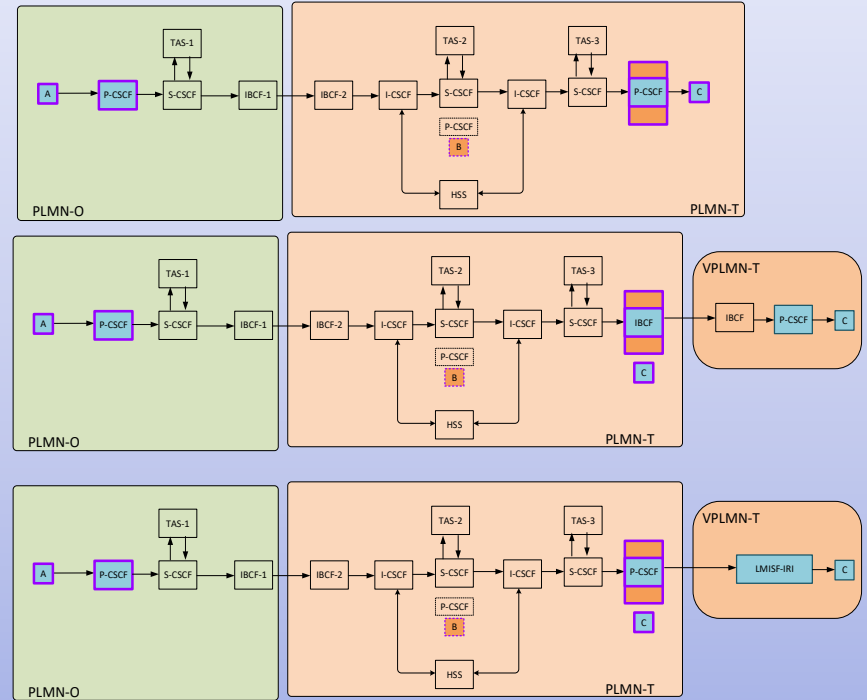


IMS LI two deployment options (TS 33.127)

Default

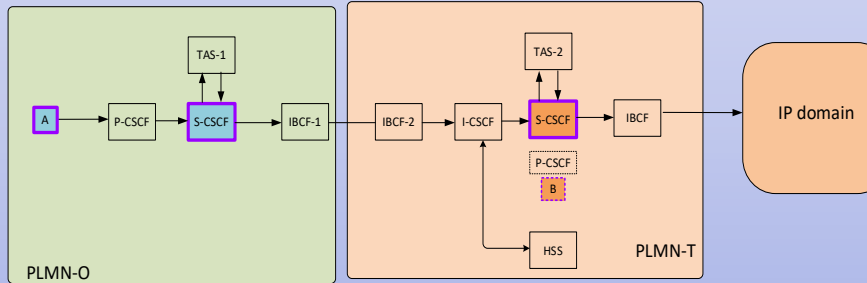
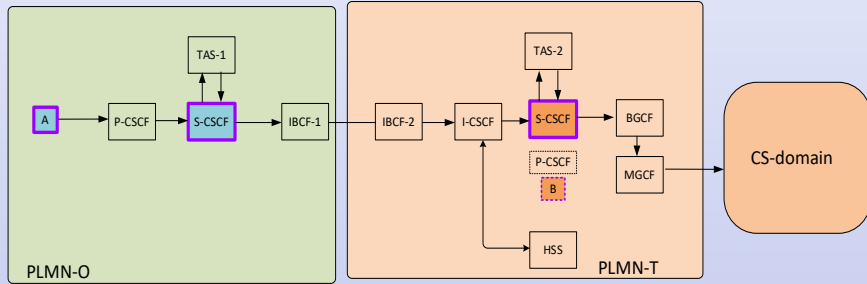


Alternate

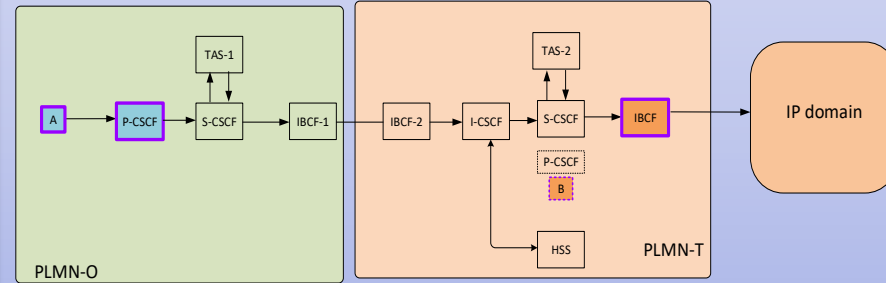
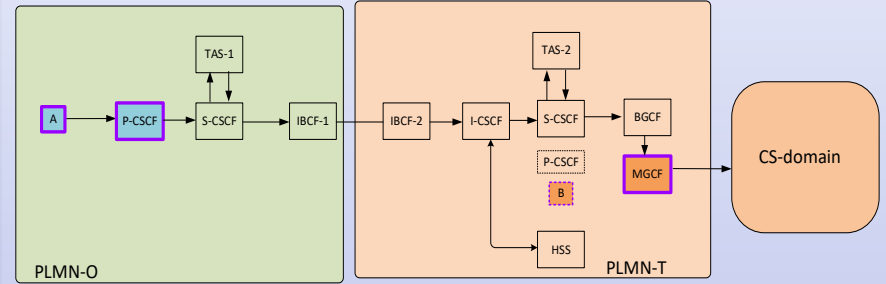


IMS LI two deployment options (TS 33.127)

Default



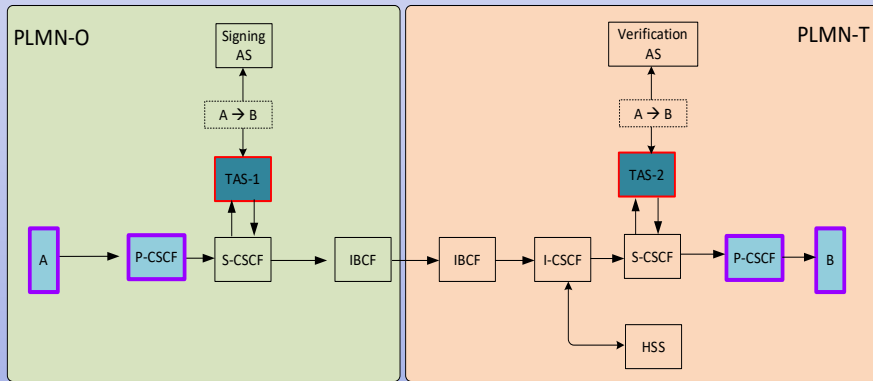
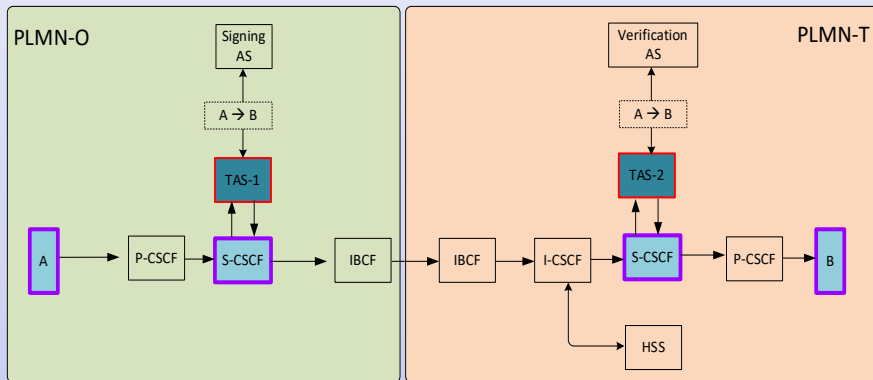
Alternate



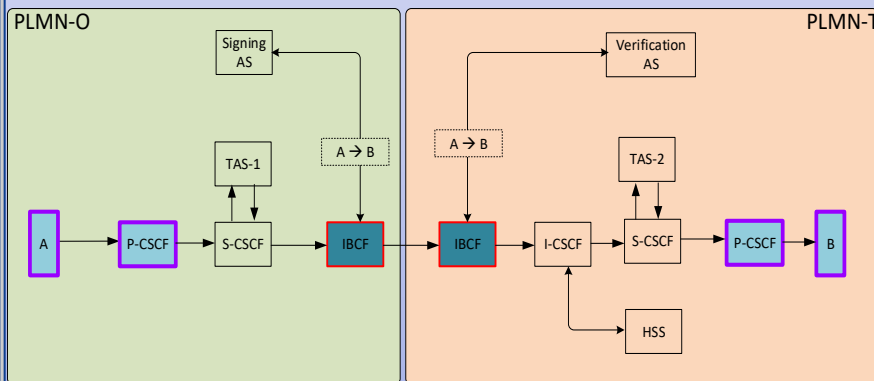
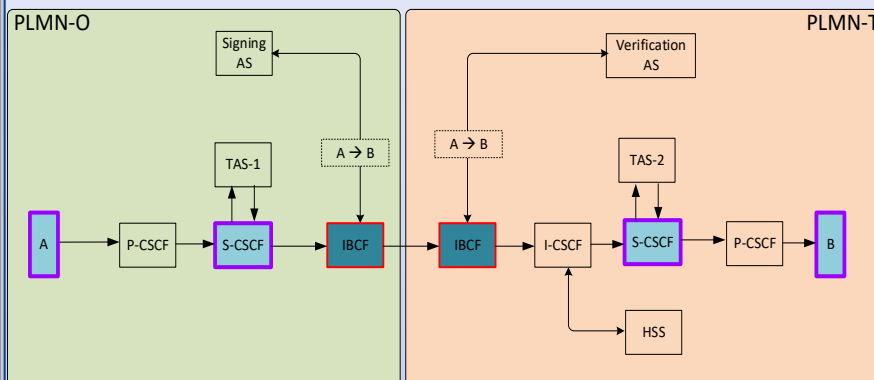
STIR/SHAKEN

STIR/SHAKEN has two deployment options - TAS based or IBCF based (TS 33.127)

Telephony AS based

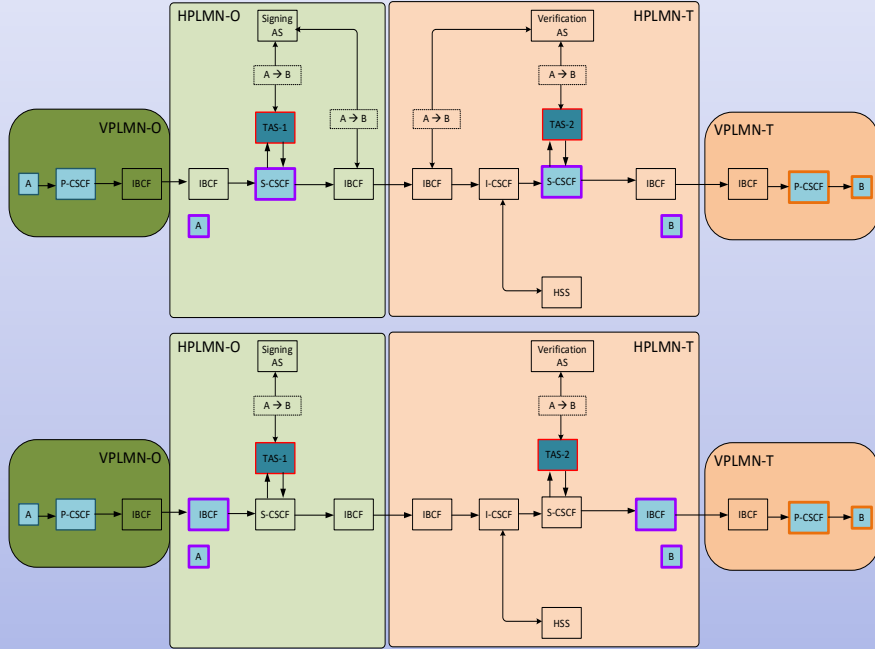


IBCF based

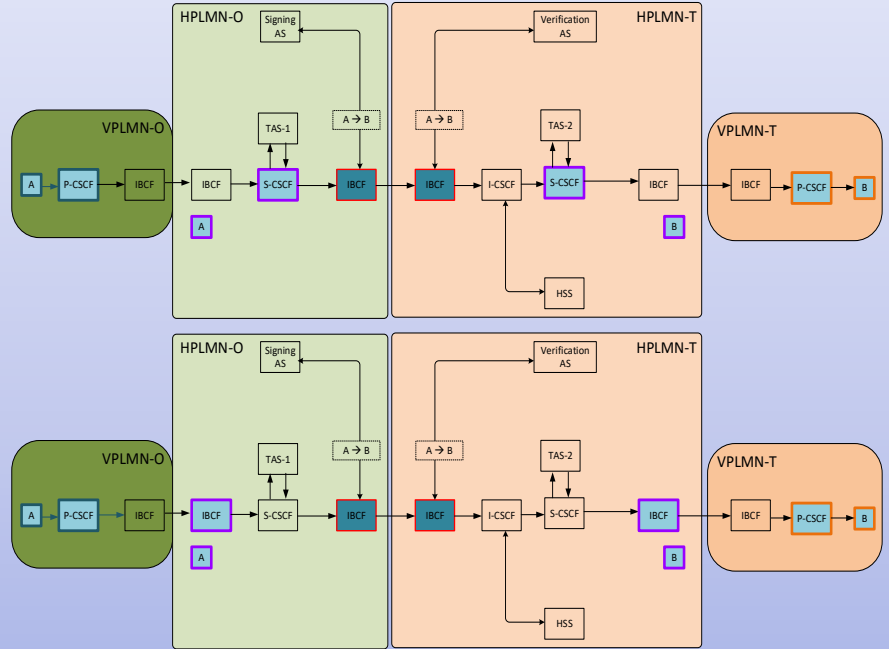


STIR/SHAKEN in roaming cases (LBO) (TS 33.127)

Telephony AS based

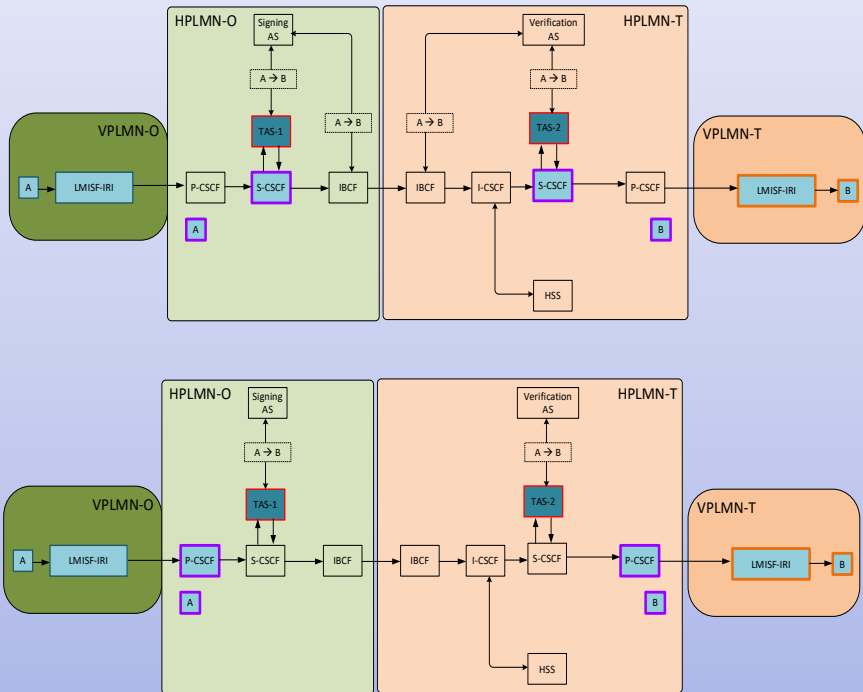


IBCF based

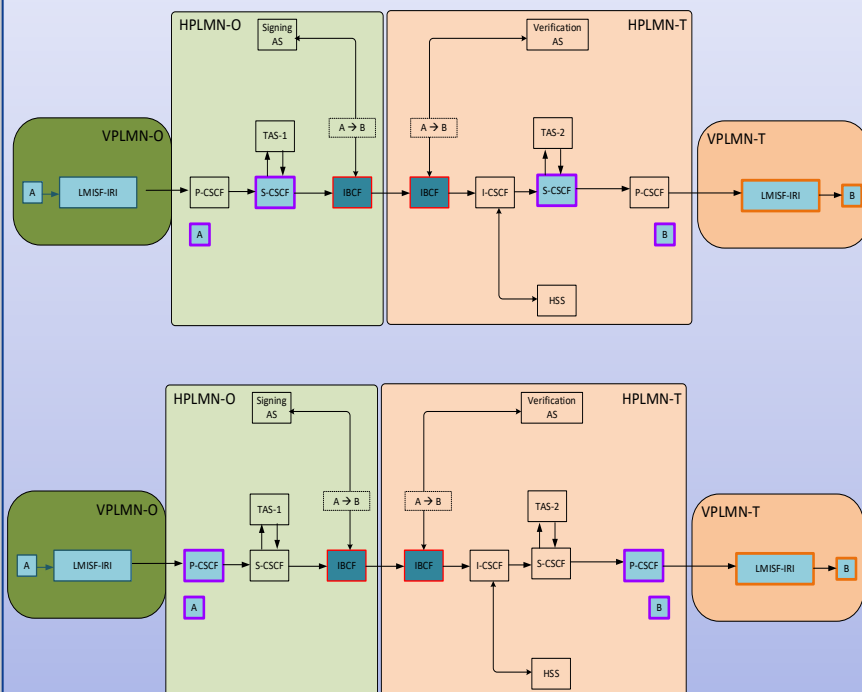


STIR/SHAKEN in roaming cases (Home-routed) (TS 33.127)

Telephony AS based



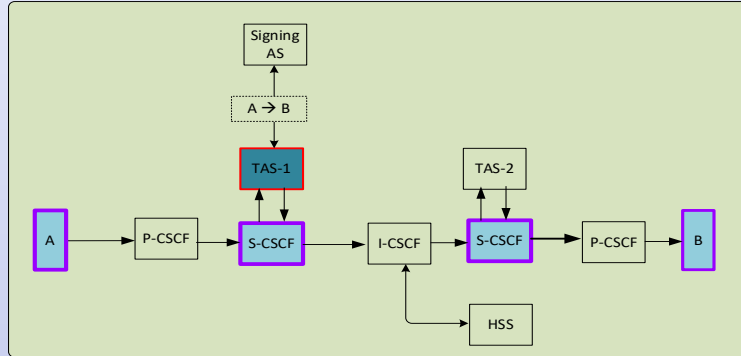
IBCF based



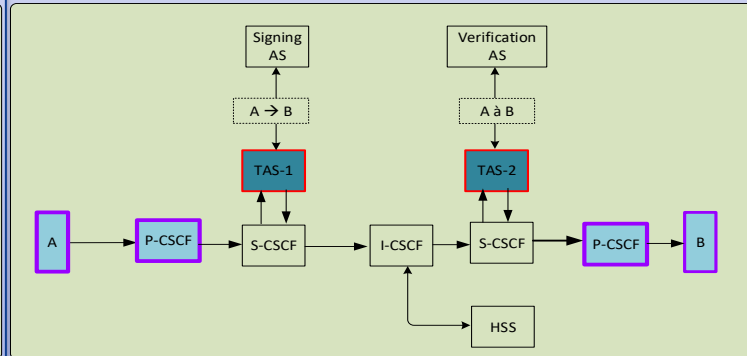
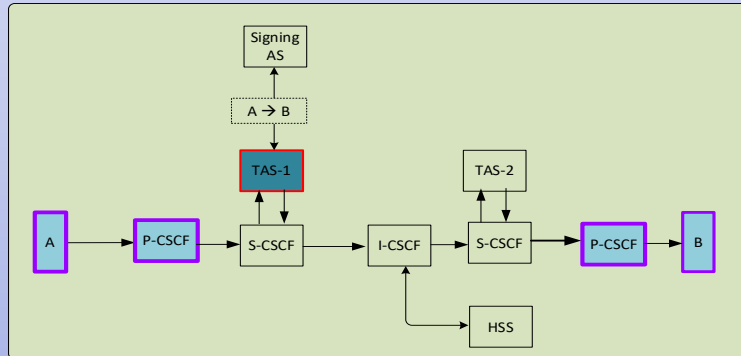
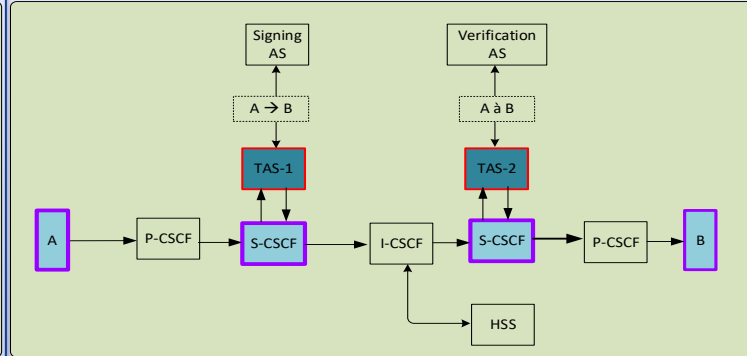
Special cases

STIR/SHAKEN intra-CSP sessions – signing or signing/verification required

Signing required, verification not



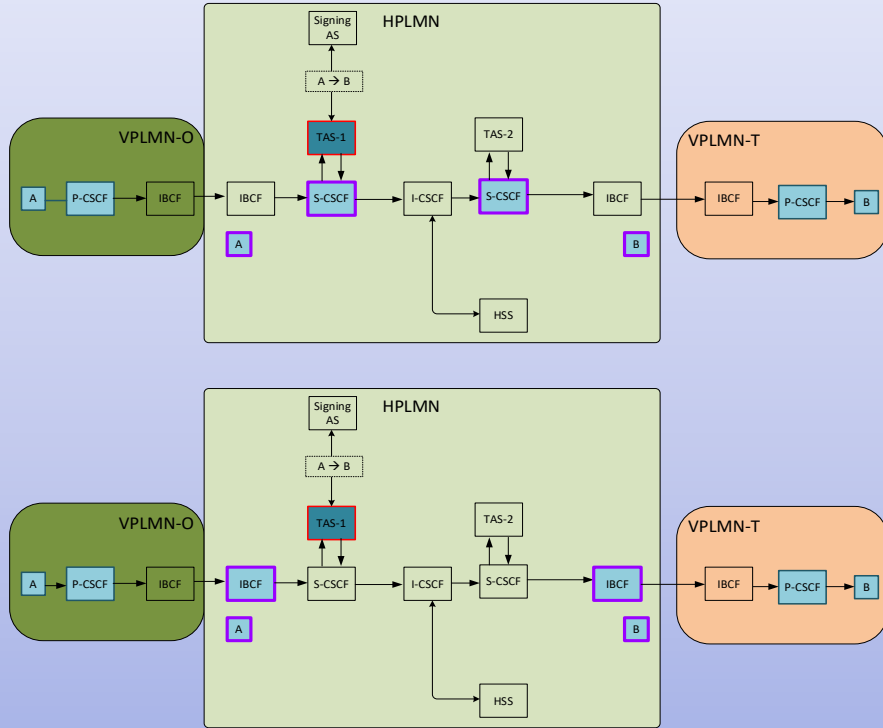
Signing required, verification required



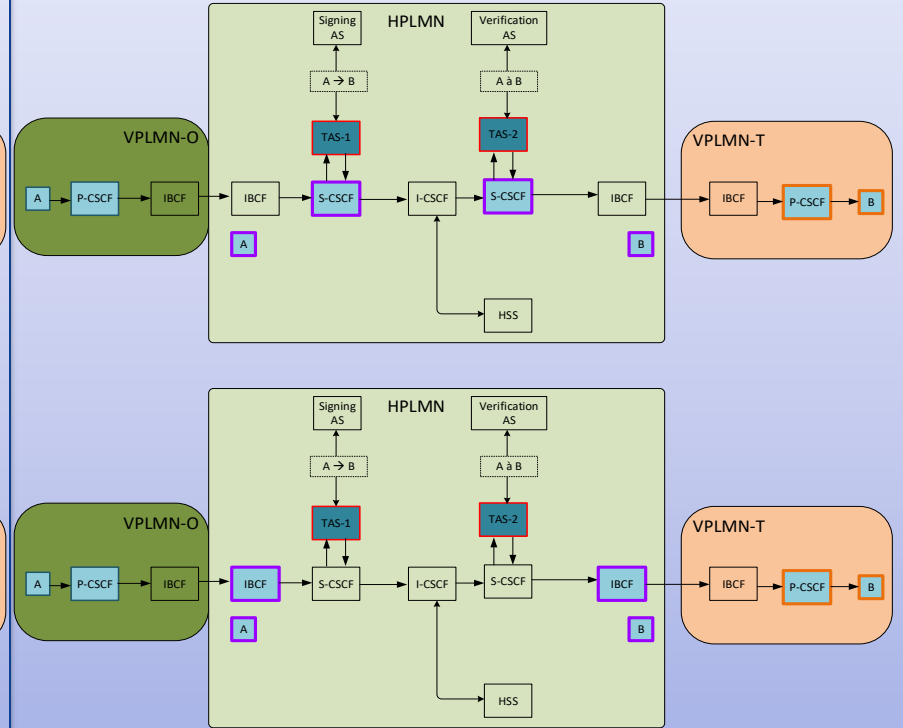
Non-LI function: IBCF based approach cannot be used even for inter-CSP sessions

STIR/SHAKEN intra-CSP sessions (roaming case) – signing or signing/verification required

Signing required, verification not



Signing required, verification required

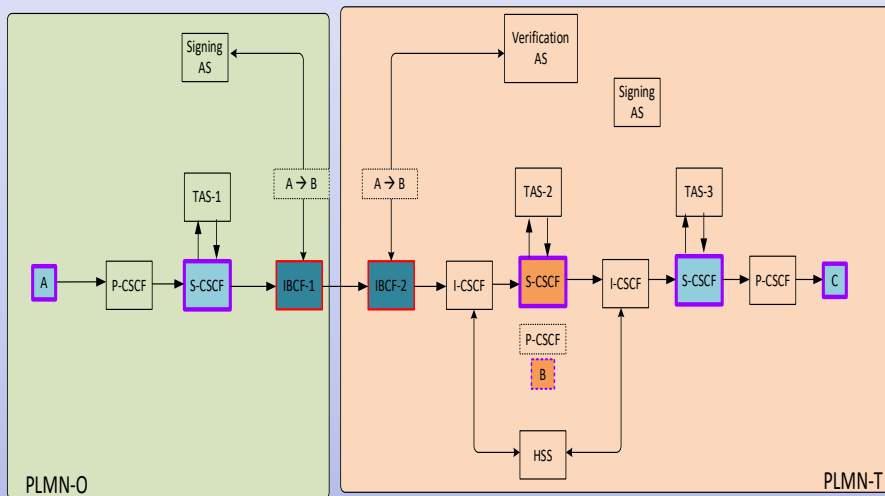


Non-LI function: IBCF based approach cannot be used even for inter-CSP sessions

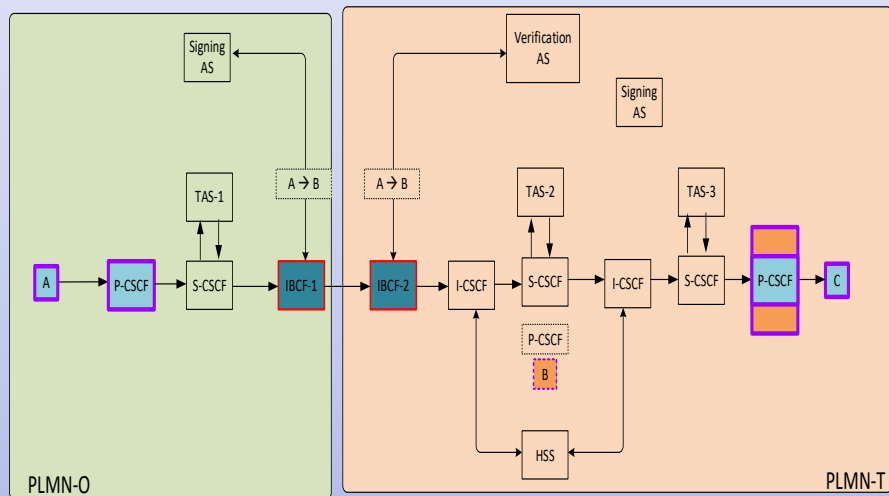
Unresolved cases

STIR/SHAKEN – redirected intra-CSP with no signing/verification required rules (IBCF)

IBCF based approach is used
(Default for non-STIR/SHAKEN LI)



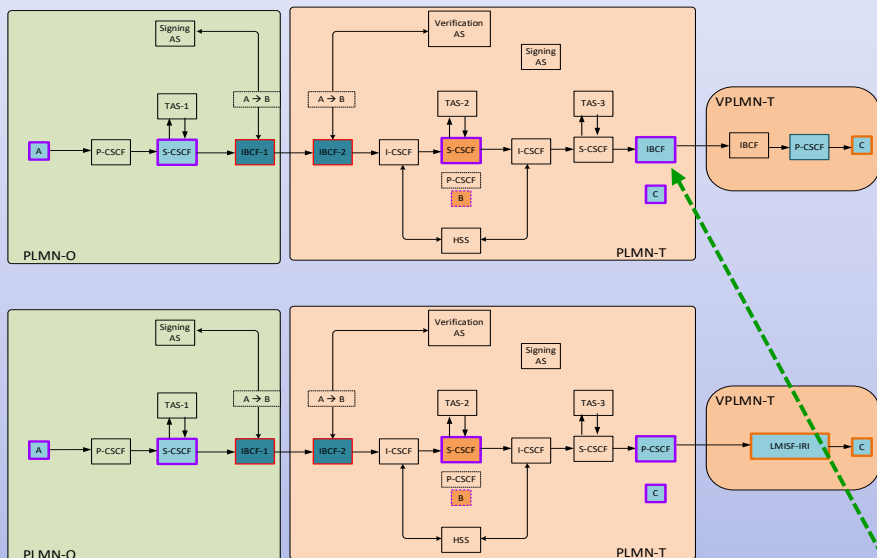
IBCF based approach is used
(Alternate for non-STIR/SHAKEN LI)



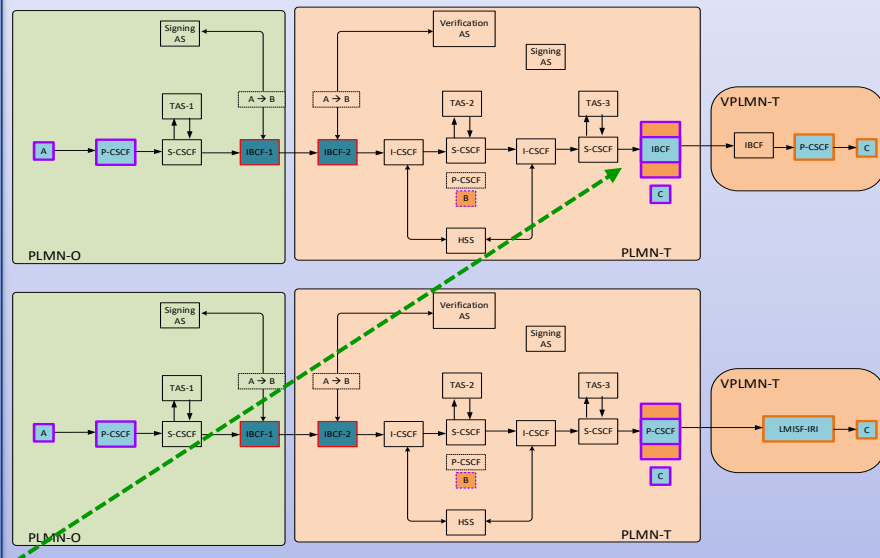
When signing/verification not required for intra-CSP sessions, IBCF approach may be used.
No STIR/SHAKEN results to C's LEMF.

STIR/SHAKEN – redirected intra-CSP with no signing/verification required rules (IBCF)

IBCF based approach is used
(Default for non-STIR/SHAKEN LI)



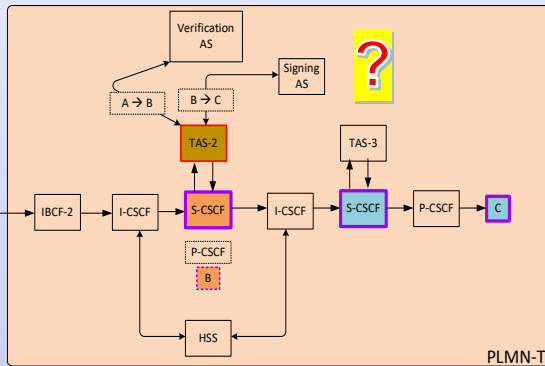
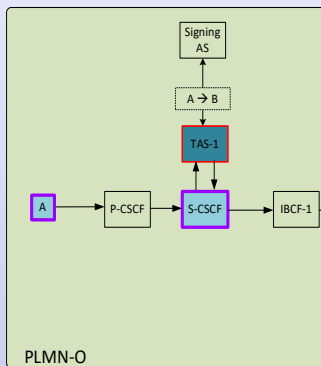
IBCF based approach is used
(Alternate for non-STIR/SHAKEN LI)



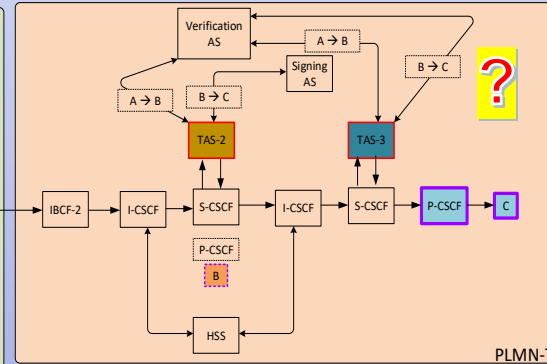
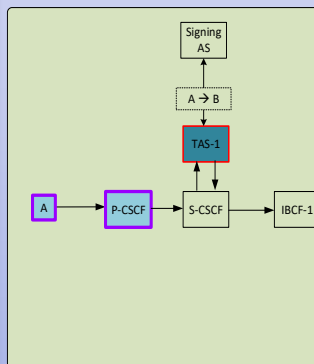
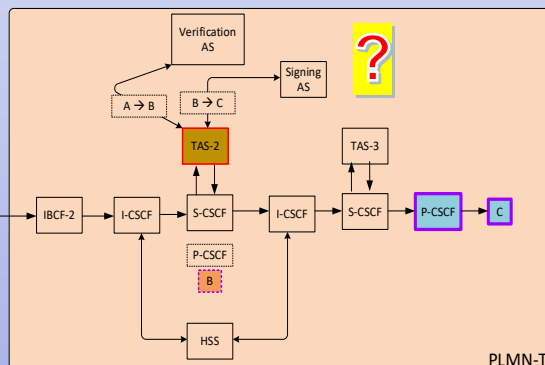
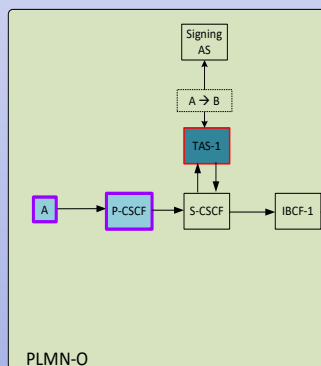
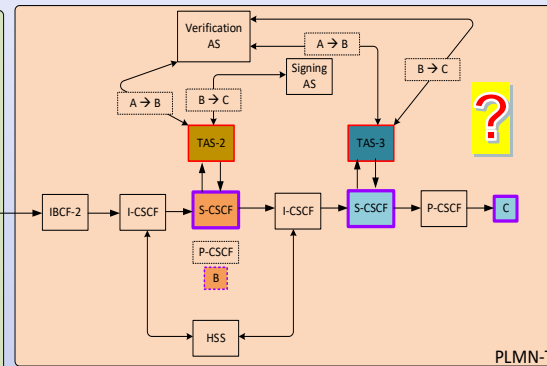
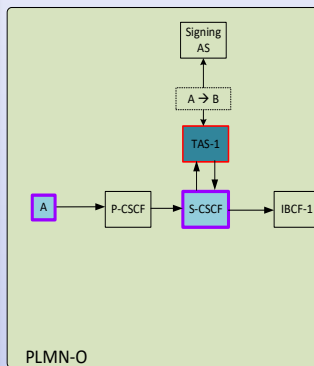
When signing/verification not required for intra-CSP sessions, IBCF approach may be used. What tells the Egress IBCF (with LBO) in PLMN-T to not to sign (B's number)? No STIR/SHAKEN results to C's LEMF in PLMN-T, but may be delivered in VPLMN-T

STIR/SHAKEN – redirected as intra-CSP with signing/verification rules (TAS)

Signing required, verification not



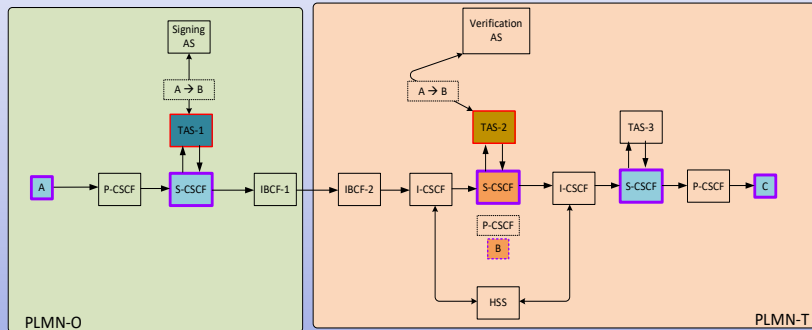
Signing required, verification required



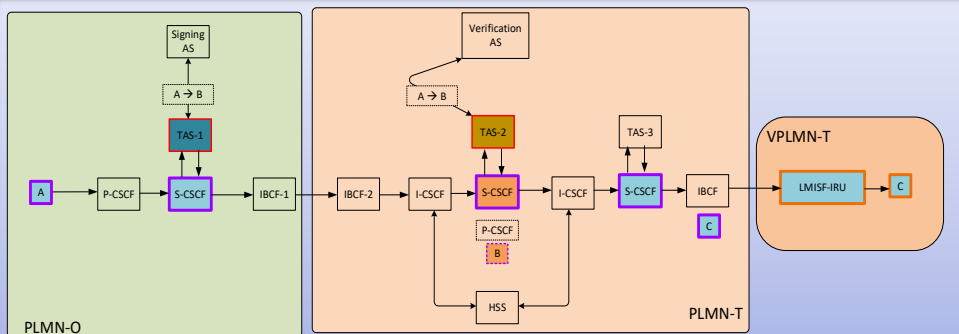
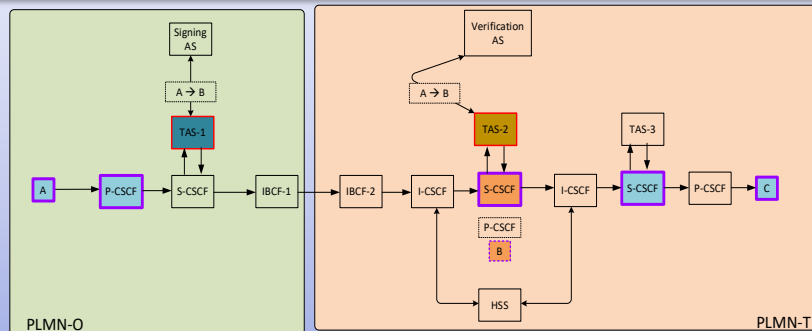
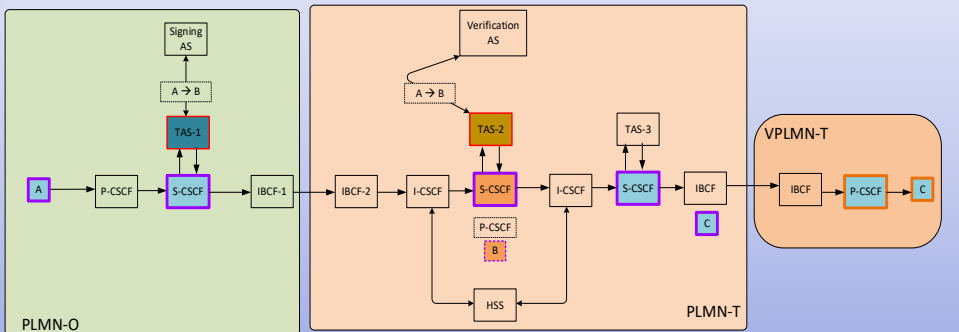
When verification not required for intra-CSP sessions, no STIR/SHAKEN results (of A) to C's LEMF

STIR/SHAKEN – redirected intra-CSP with no signing/verification required rules (TAS)

TAS based approach is used



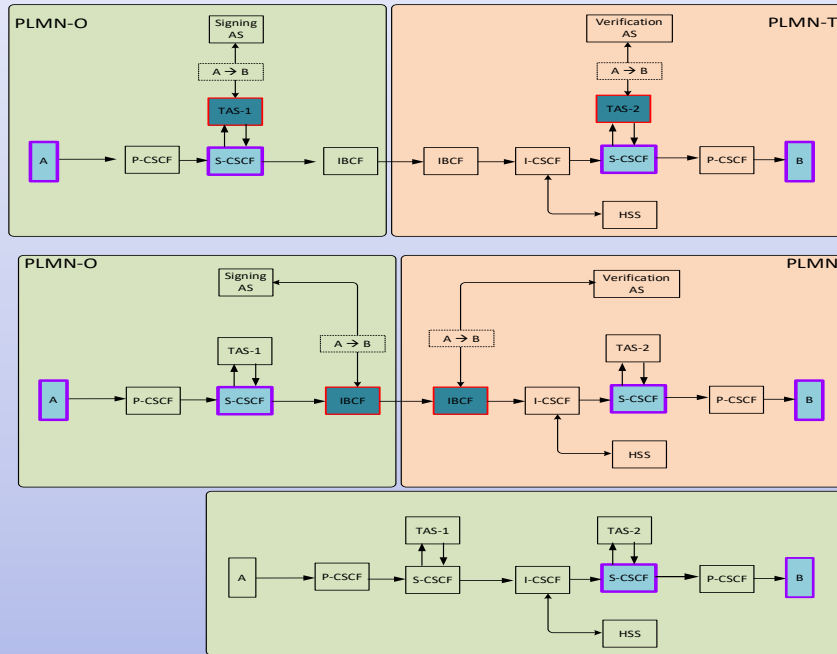
TAS based approach is used



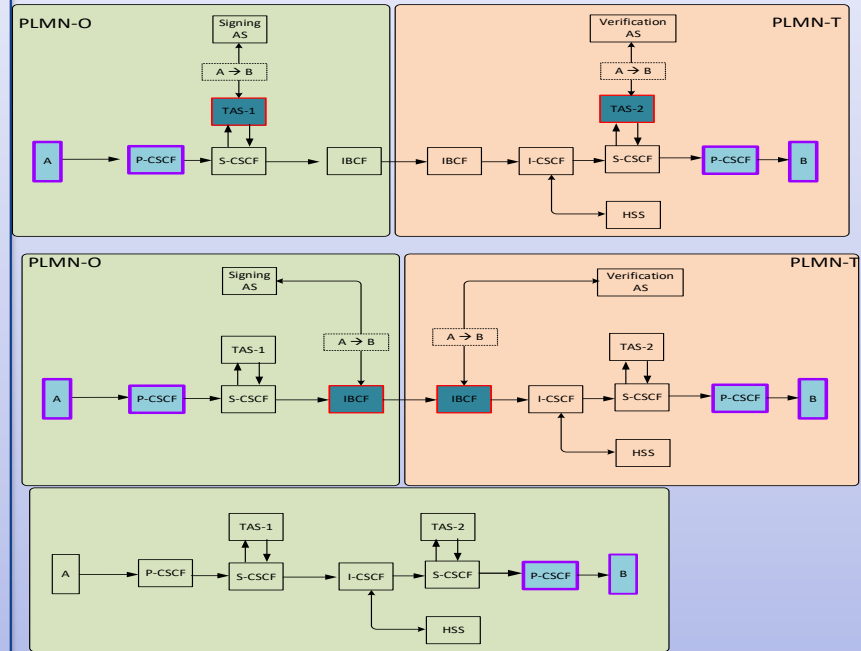
When signing/verification not required for intra-CSP sessions, no STIR/SHAKEN results to C's LEMF in PLMN-T, but may be delivered in VPLMN-T

No signing/verification for intra-CSP sessions

Default for non-STIR/SHAKEN LI



Alternate for non-STIR/SHAKEN LI

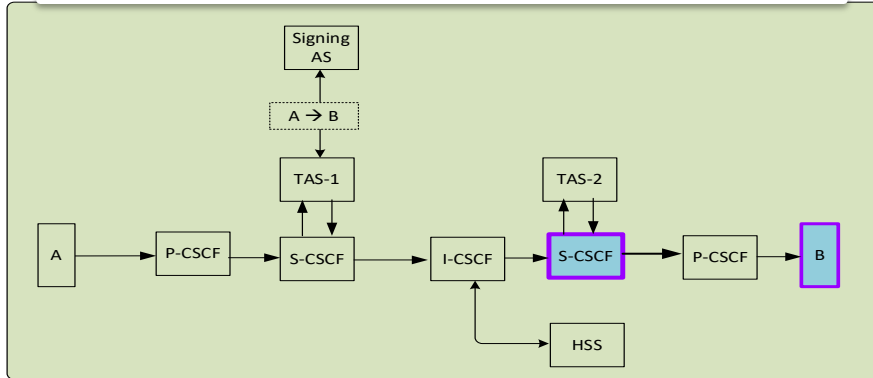


Non-LI question:
How does the TAS determine intra-CSP session?

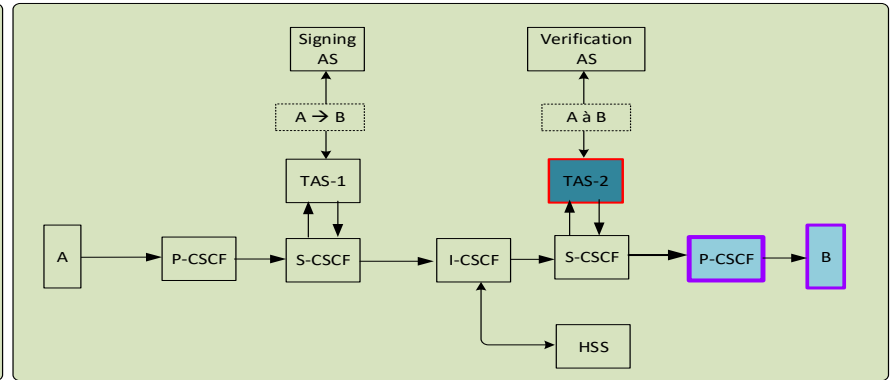
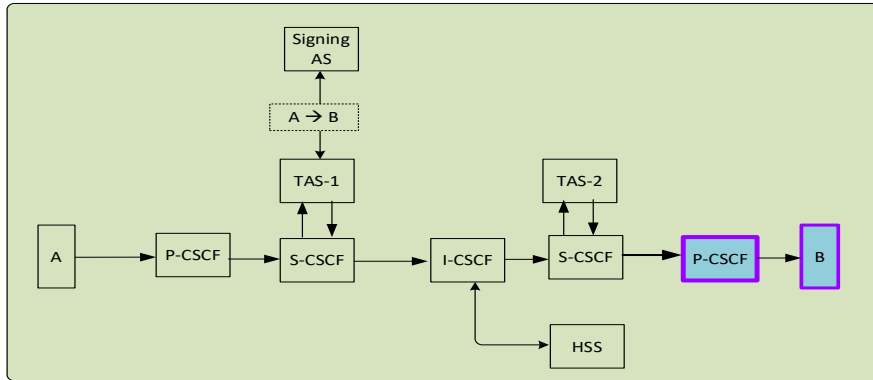
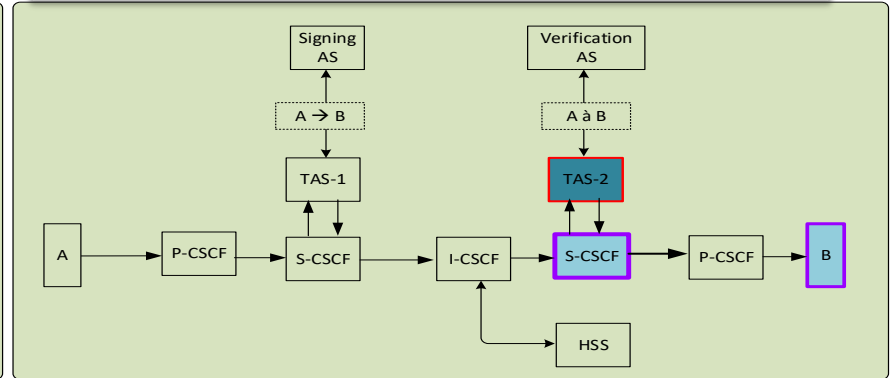
Summary

Intra-CSP sessions with signing required

No STIR/SHAKEN results (of A) to B's LEMF

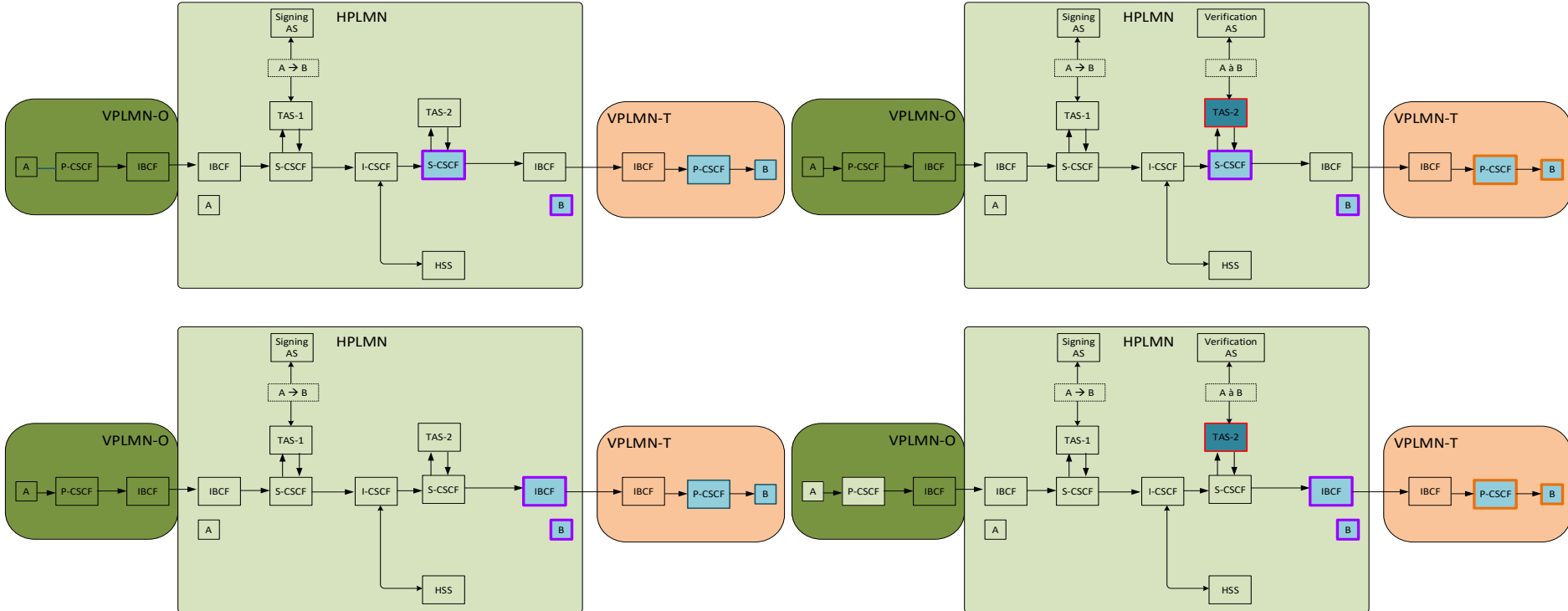


STIR/SHAKEN results (of A) to B's LEMF



Intra-CSP sessions when signing required - roaming cases

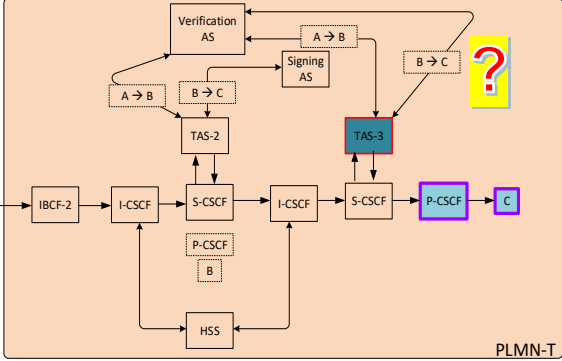
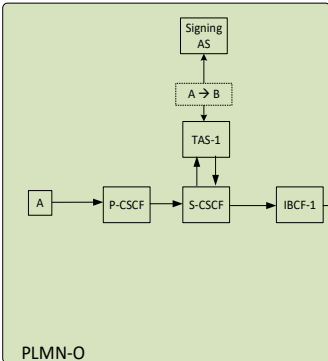
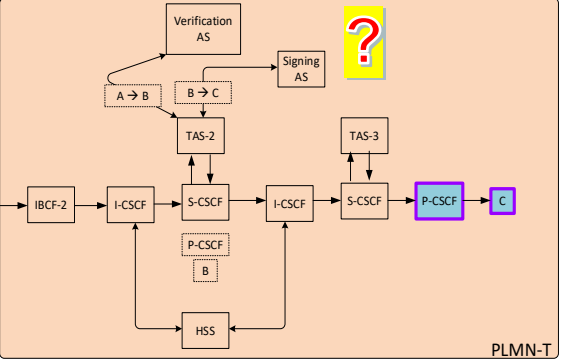
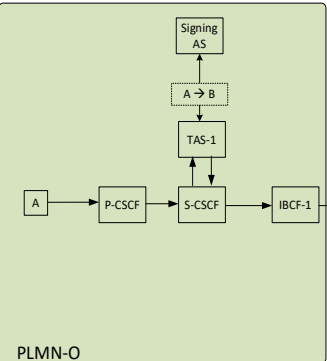
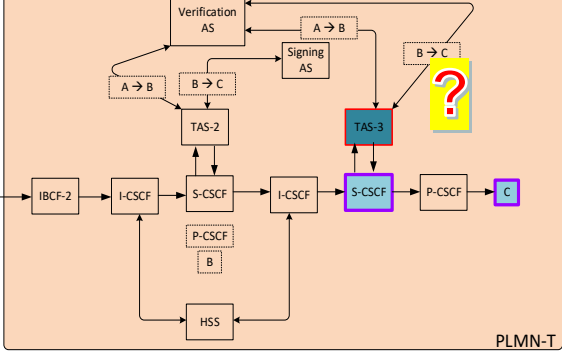
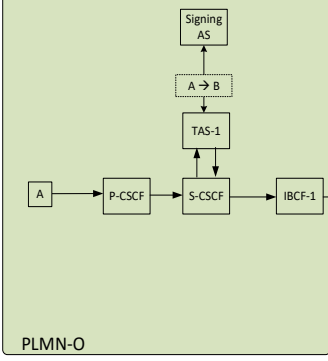
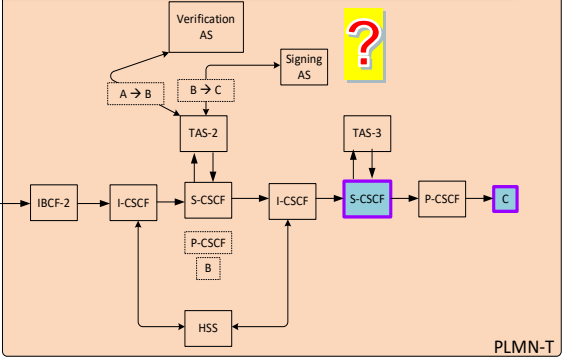
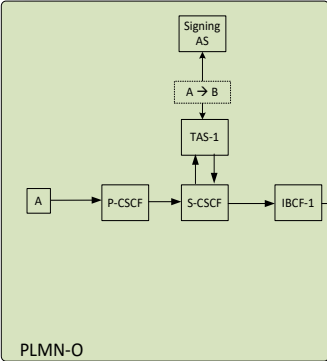
No STIR/SHAKEN results (of A) to B's LEMF (PLMN-T and VPLMN-T) STIR/SHAKEN results (of A) to B's LEMF (PLMN-T and VPLMN-T)



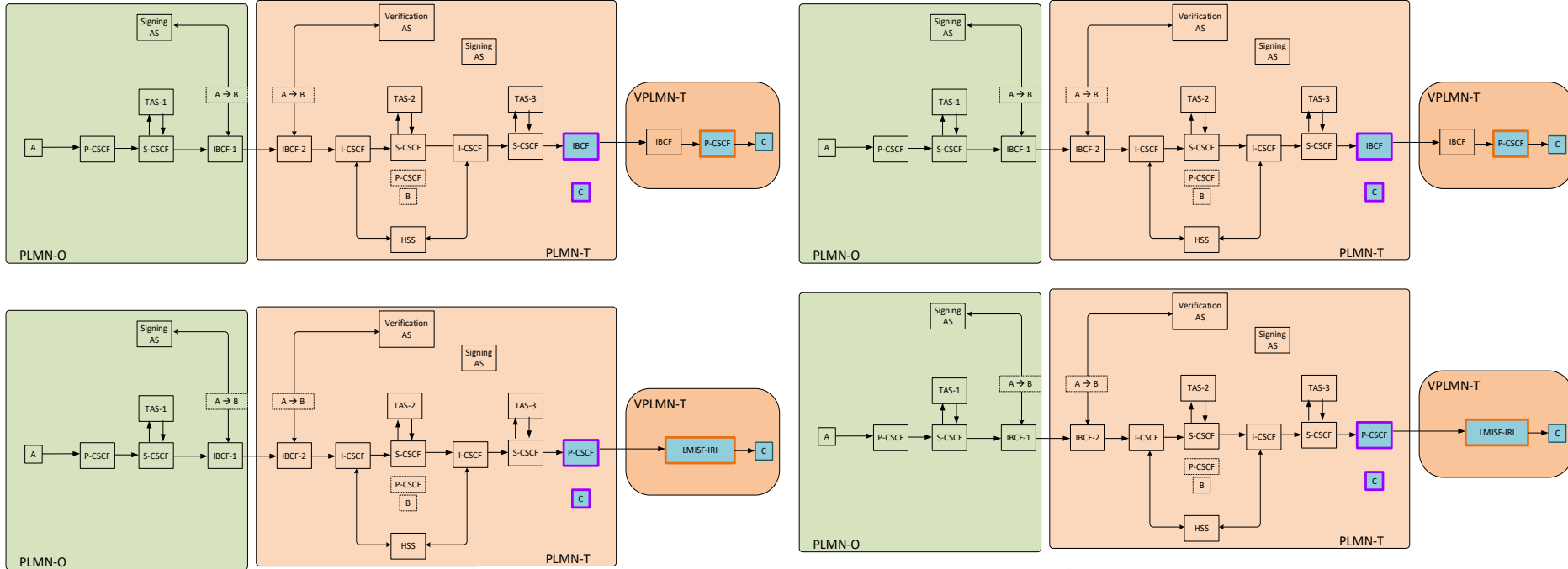
Intra-CSP redirected sessions with signing required

No STIR/SHAKEN results (of A) to C's LEMF

STIR/SHAKEN results (of A) to C's LEMF

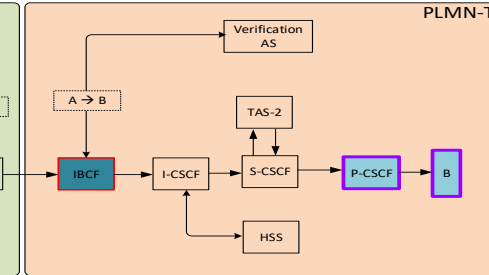
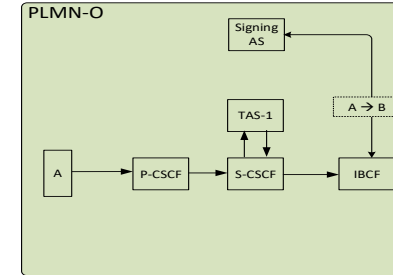
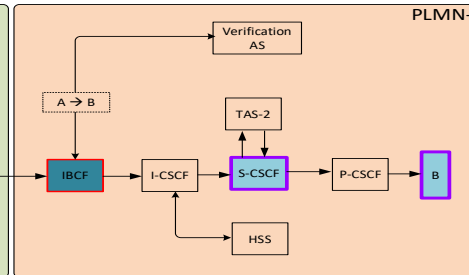
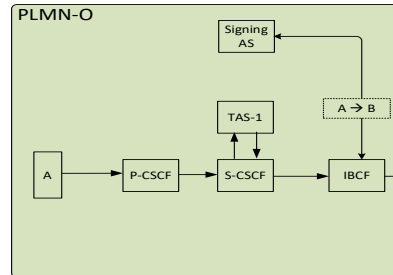
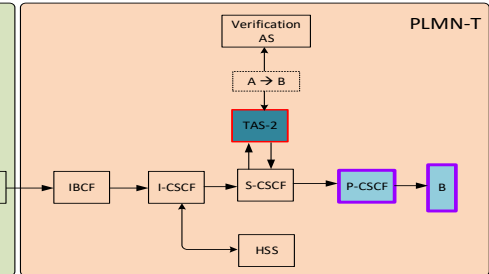
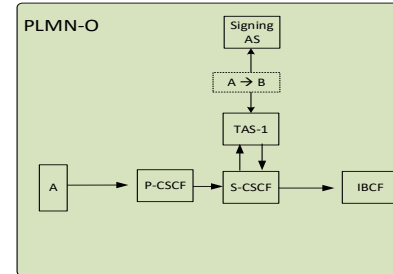
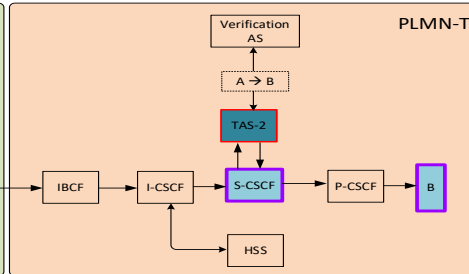
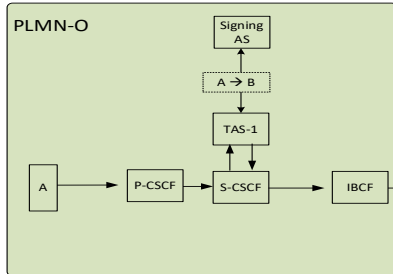
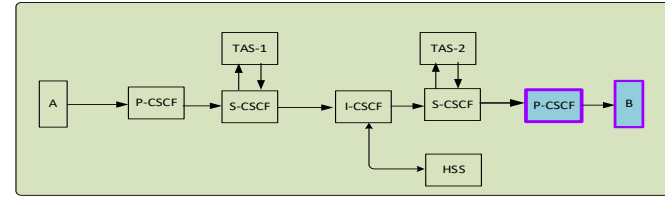
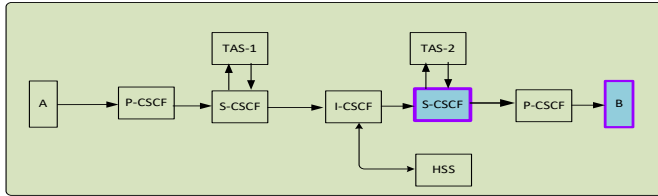


No signing/verification for intra-CSP sessions



STIR/SHAKEN results (of A) to C's LEMF in VPLMN-T, but not in PLMN-T

No signing/verification for intra-CSP sessions – undefined stage 3 clarity on TAS

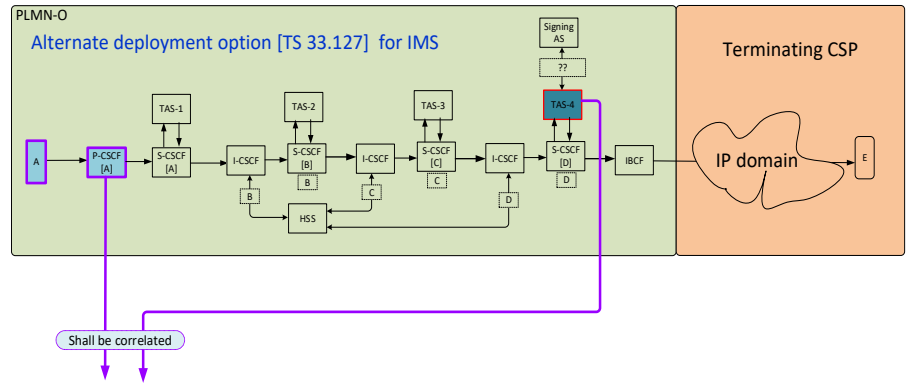
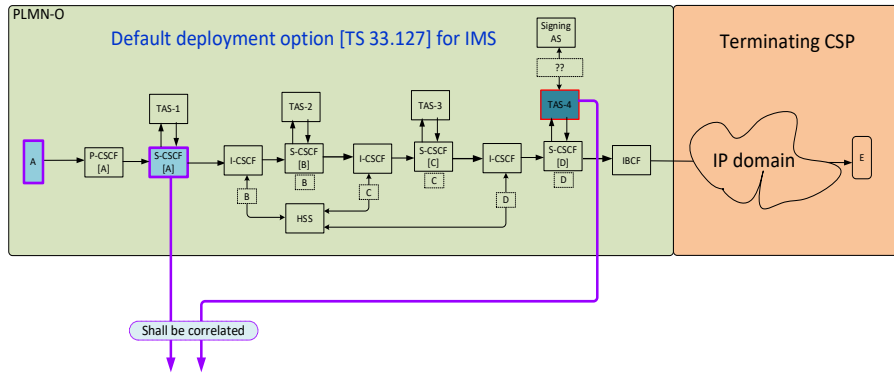
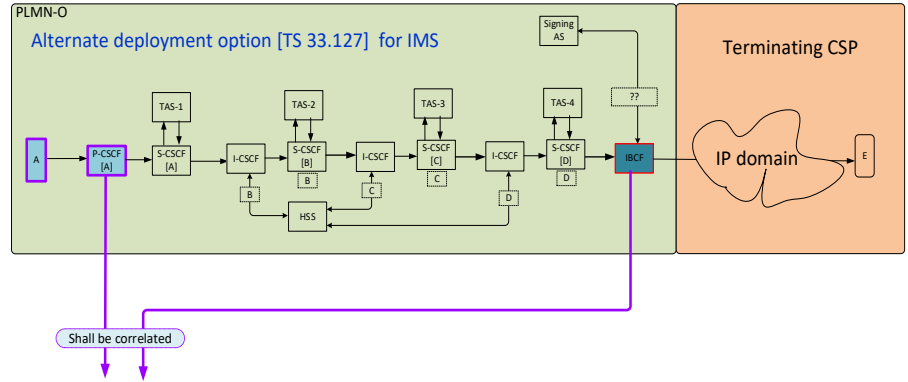
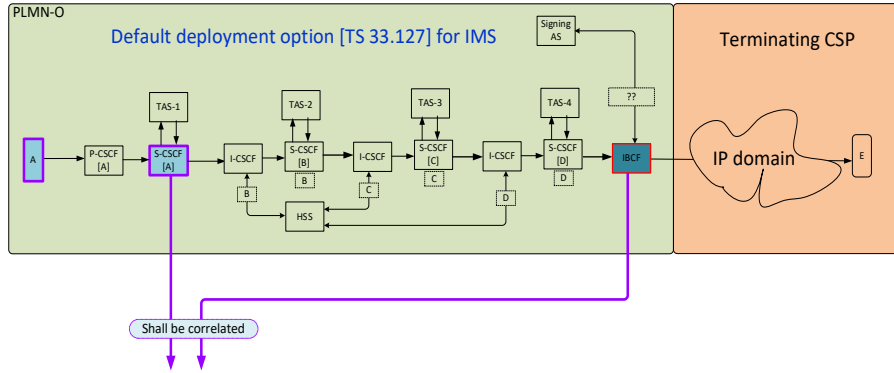


Non-LI issue – how does the TAS determine to sign/verify only for inter-CSP sessions?

NOKIA

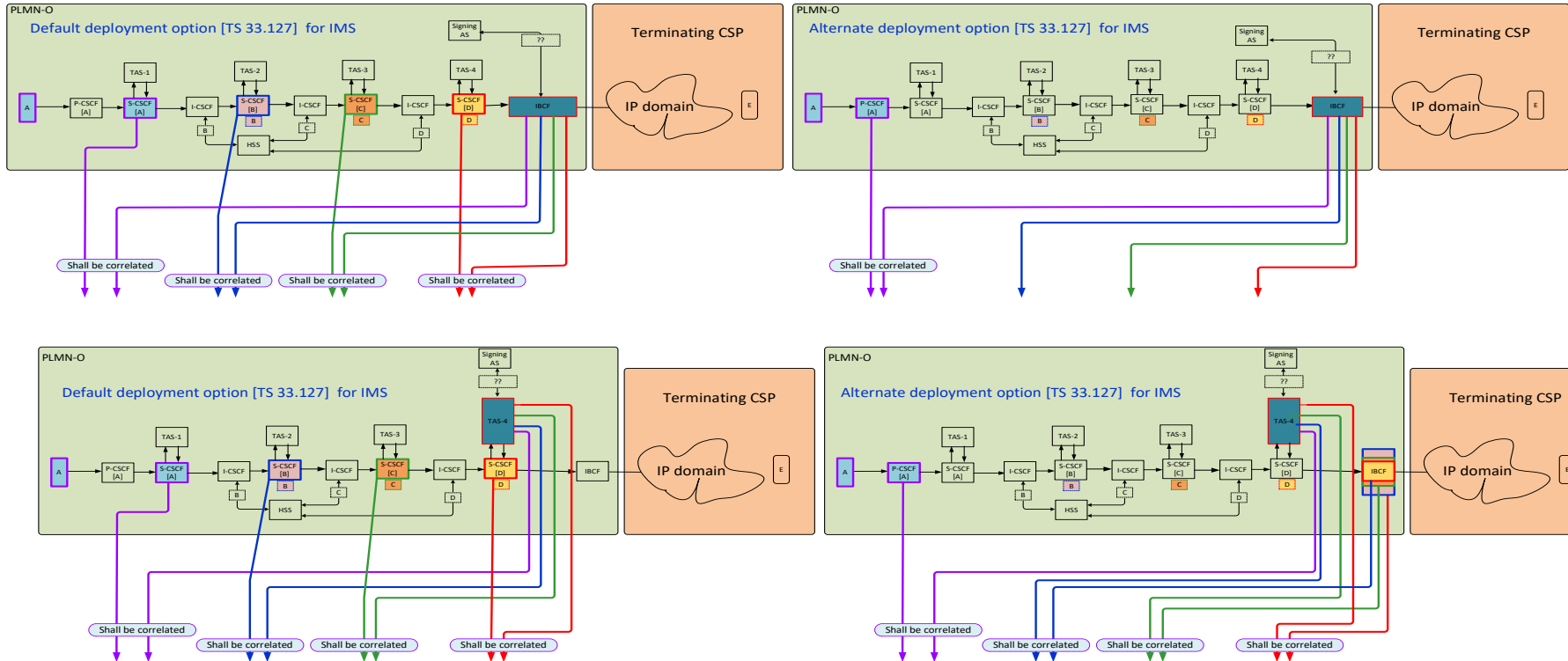
Pre-meeting discussions

No signing/verification for intra-CSP sessions - two STIR/SHAKEN options



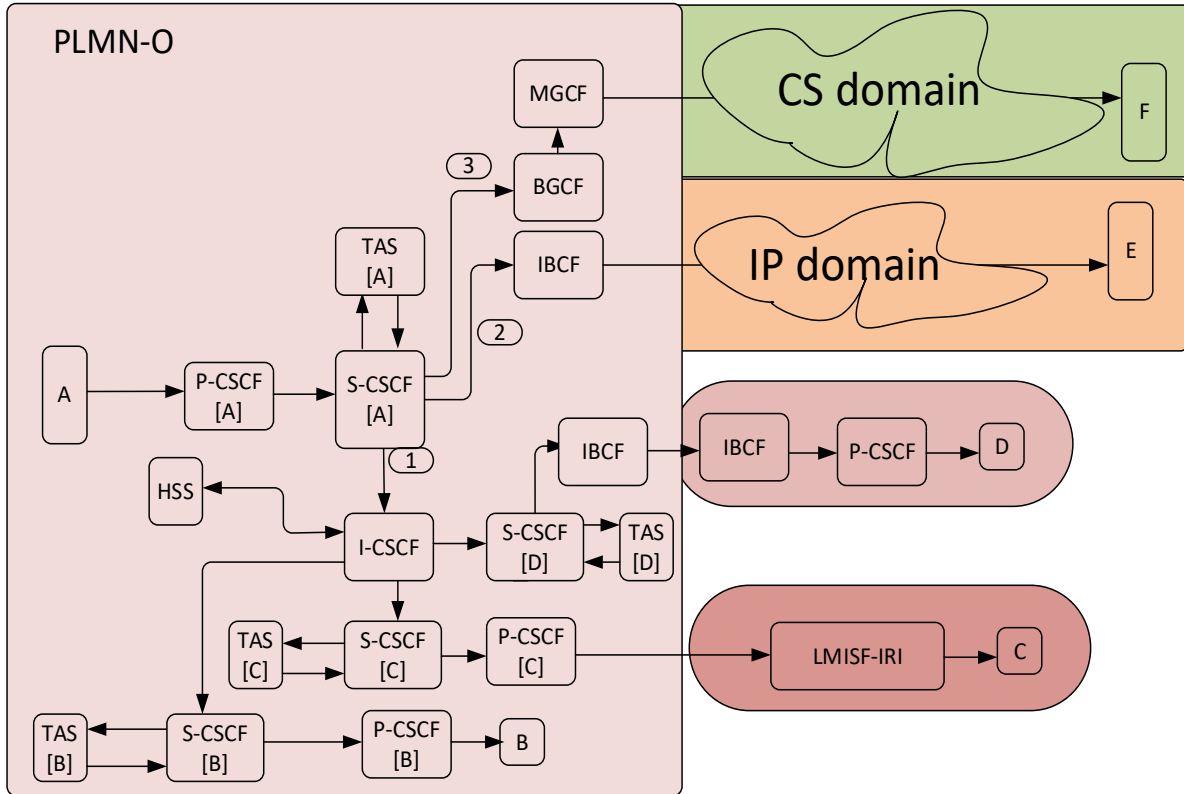
Non-LI issue – are the signing of [A], [B], [C], [D] required?
IBCF is expected to interact with the Signing AS for all?

No signing/verification for intra-CSP sessions



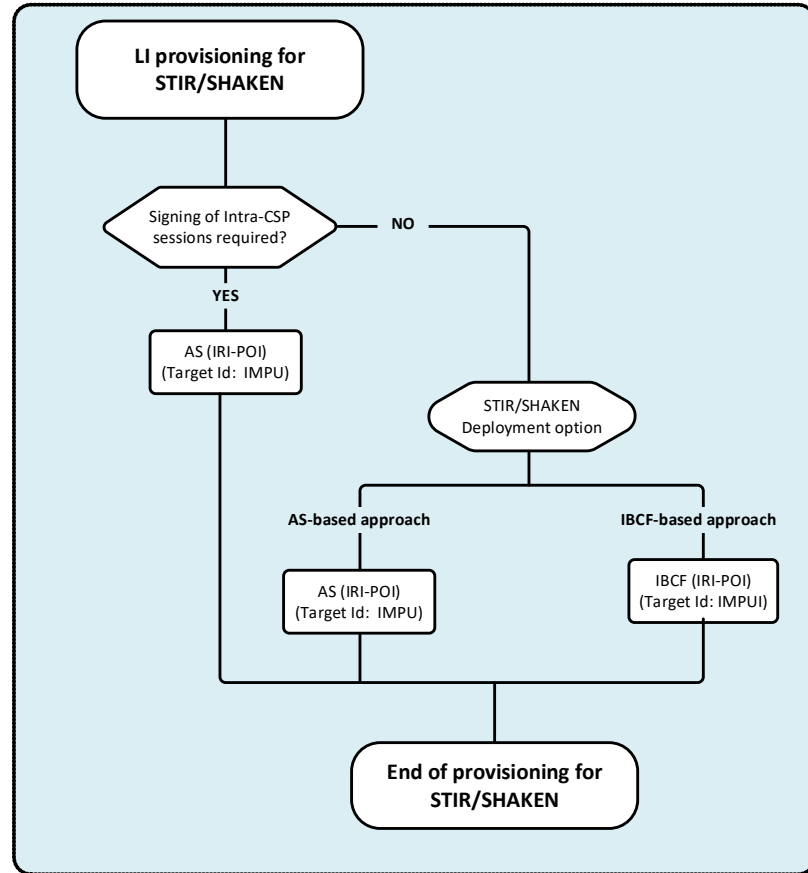
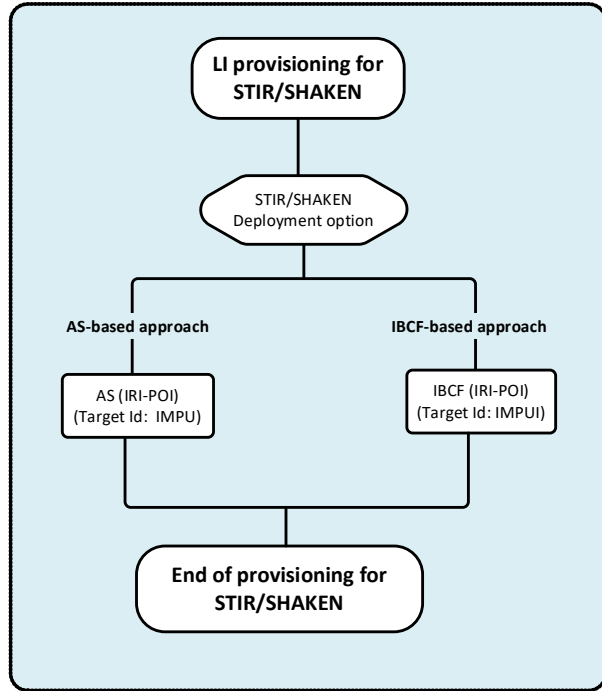
Non-LI issue – are the signing of [A], [B], [C], [D] required?
 TAS [D]/IBCF is expected to interact with the Signing AS For all?

Conditional situations – only signing aspects are shown



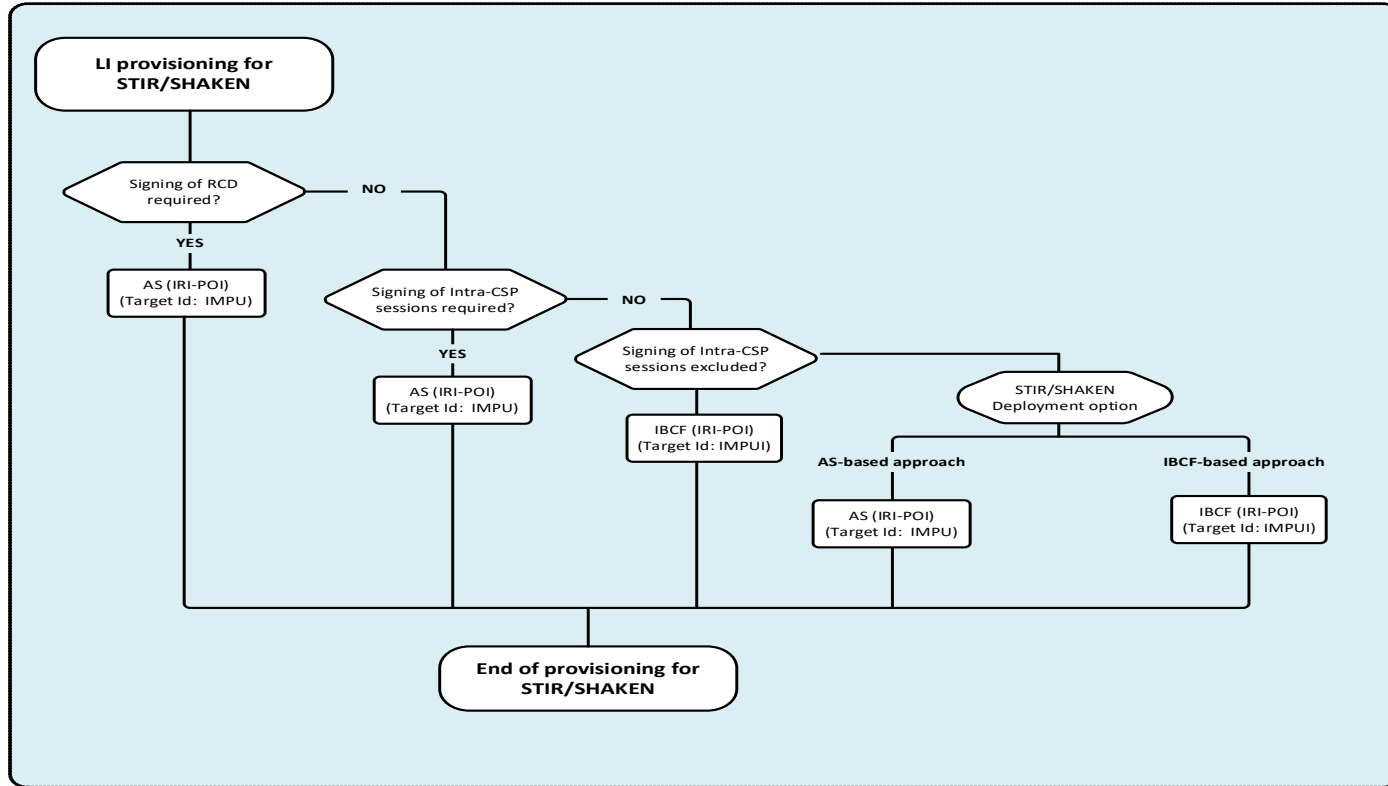
- How does the TAS determine whether the call is intra-office or inter-office?
- How does the IBCF determine whether to sign or not sign (inter-CSP Vs outbound roaming LBO)?

LIPF logic



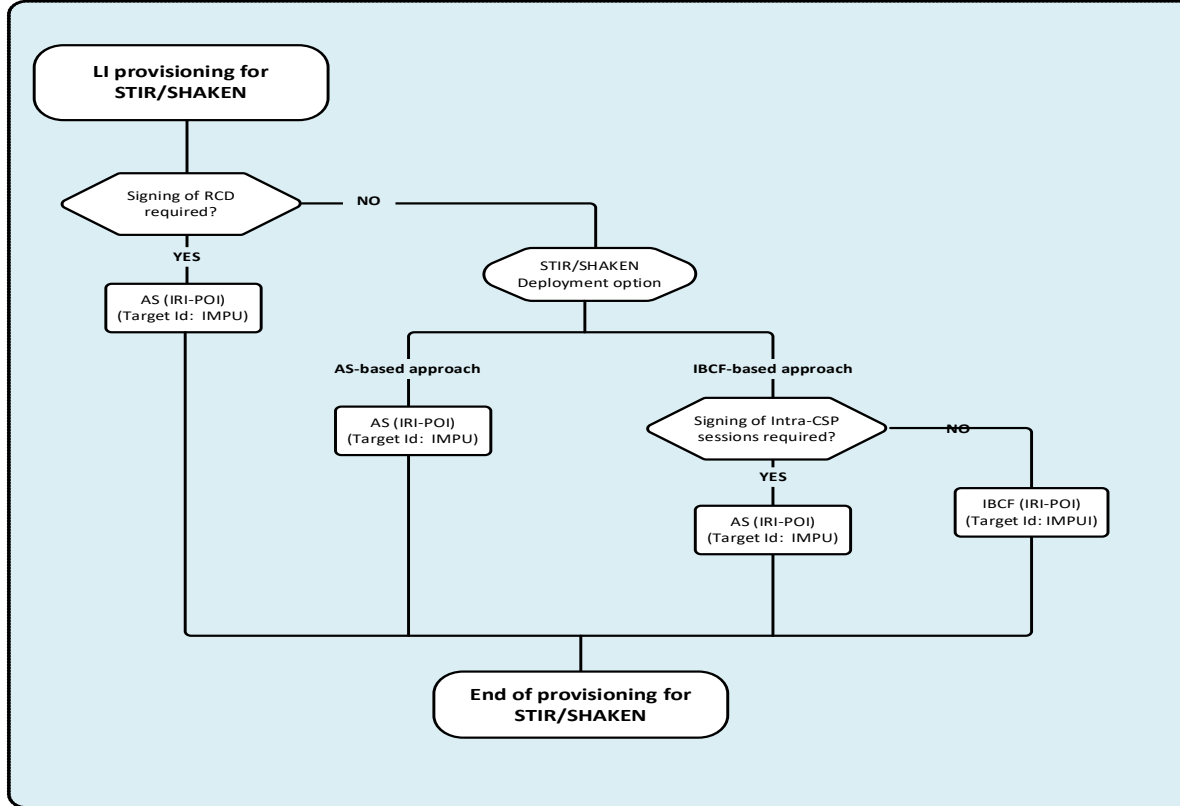
Pre-meeting discussion results

LIPF logic: Possibility 1



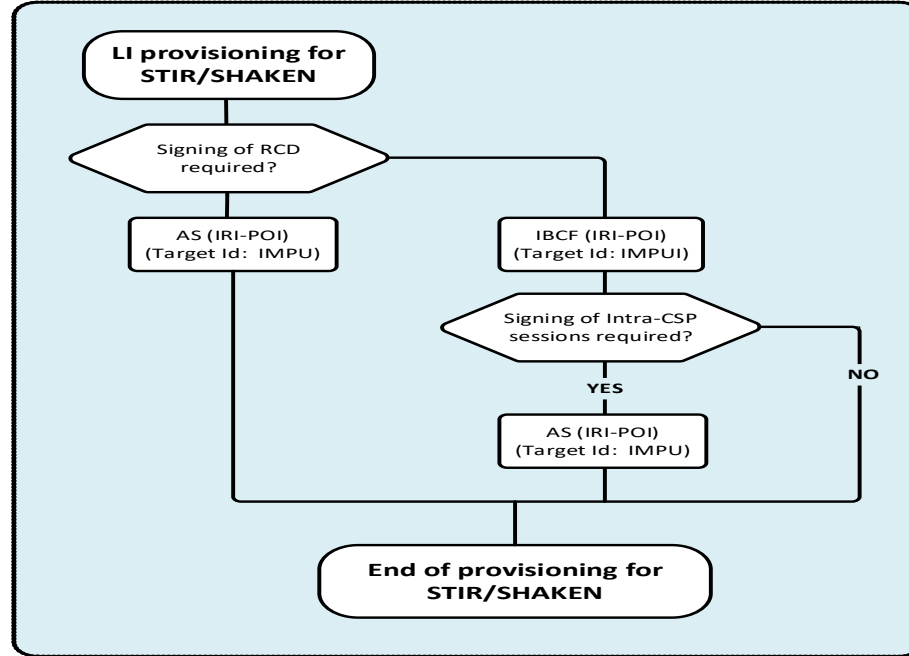
AS-based Vs IBCF may not be the deployment options, rather perhaps should be conditional options

LIPF logic: Possibility 2



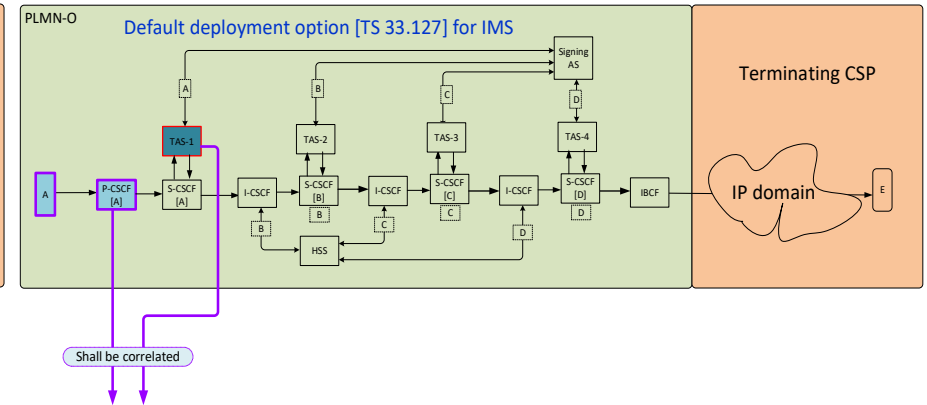
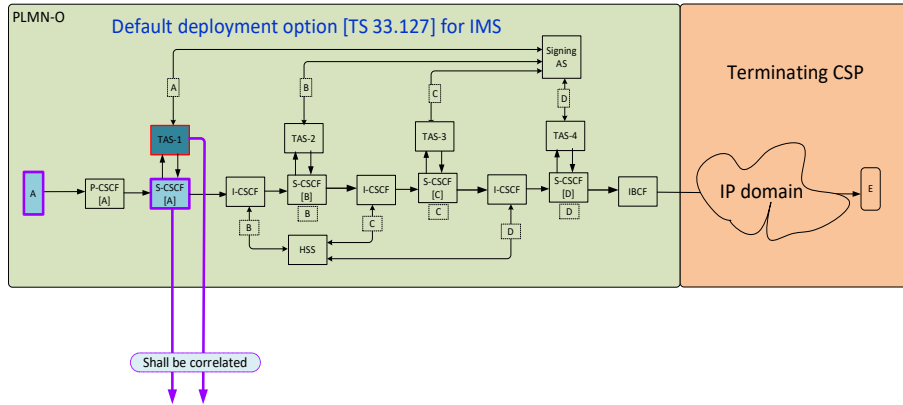
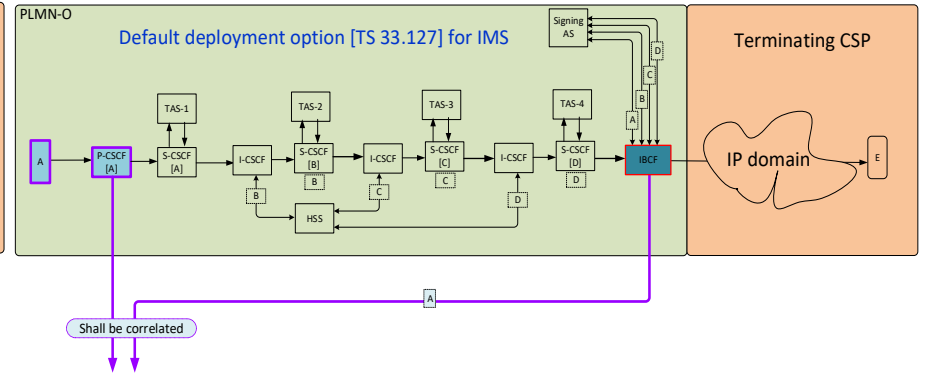
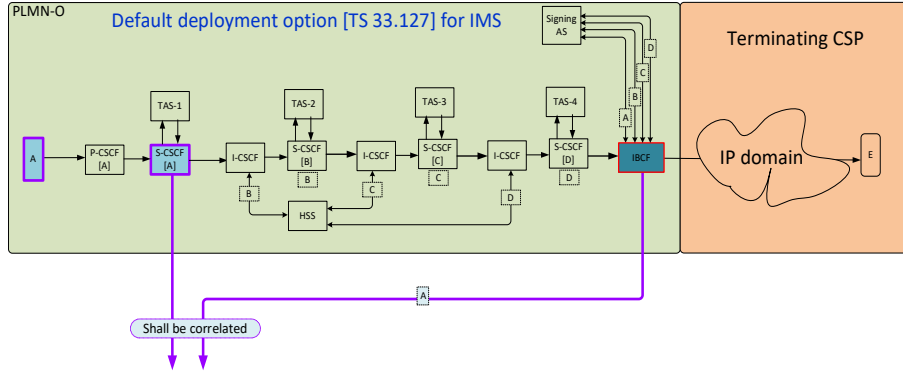
AS-based Vs IBCF may not be the deployment options, rather perhaps should be conditional options

LIPF logic: Possibility 3

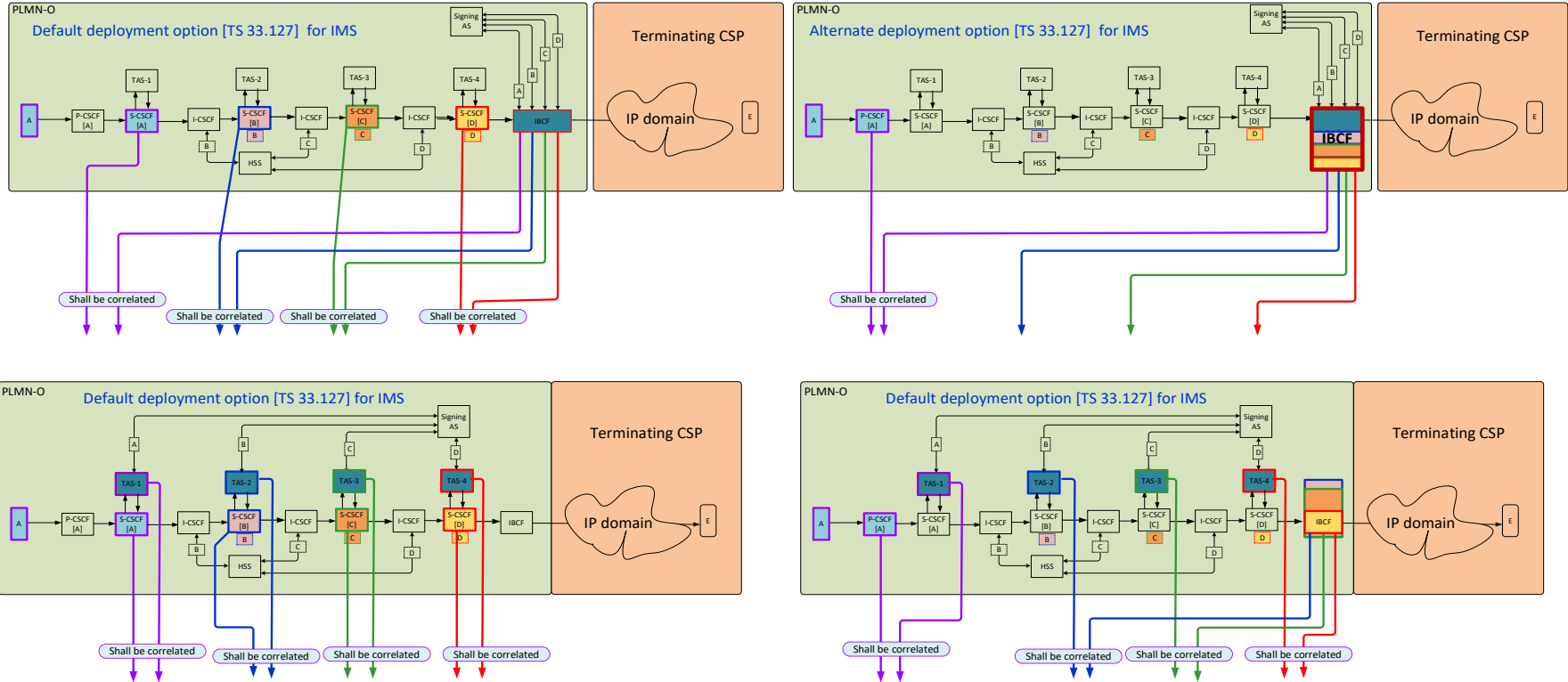


AS-based Vs IBCF may not be the deployment options, rather perhaps should be conditional options

Conditional situations – only the signing aspects are shown



Conditional situations – only signing aspects are shown



Summary of pre-discussion results

- TS 33.127 requires changes
 - The way the NFs are identified for STIR/SHAKEN and RCD/eCNAM.
- The CRs for TS 33.128 will have to accommodate the pre-meeting discussion results:
 - LI_X1, LI_X2.
- Still, open questions:
 - Delivery of STIR/SHAKEN results when redirected party is a target may not happen.
 - Roaming cases: no verification of signed redirected party numbers.
 - Even when intra-CSP sessions are not to be signed, when the called party is outbound roaming, it will be signed.
 - Are CT1 specifications evolving?
- STIR/SHAKEN aspects are different in 3GPP and ATIS
 - 3GPP: AS and IBCF and ATIS: S-CSCF and IBCF.
- RCD/eCNAM are not considered in 3GPP

Discussion continues...