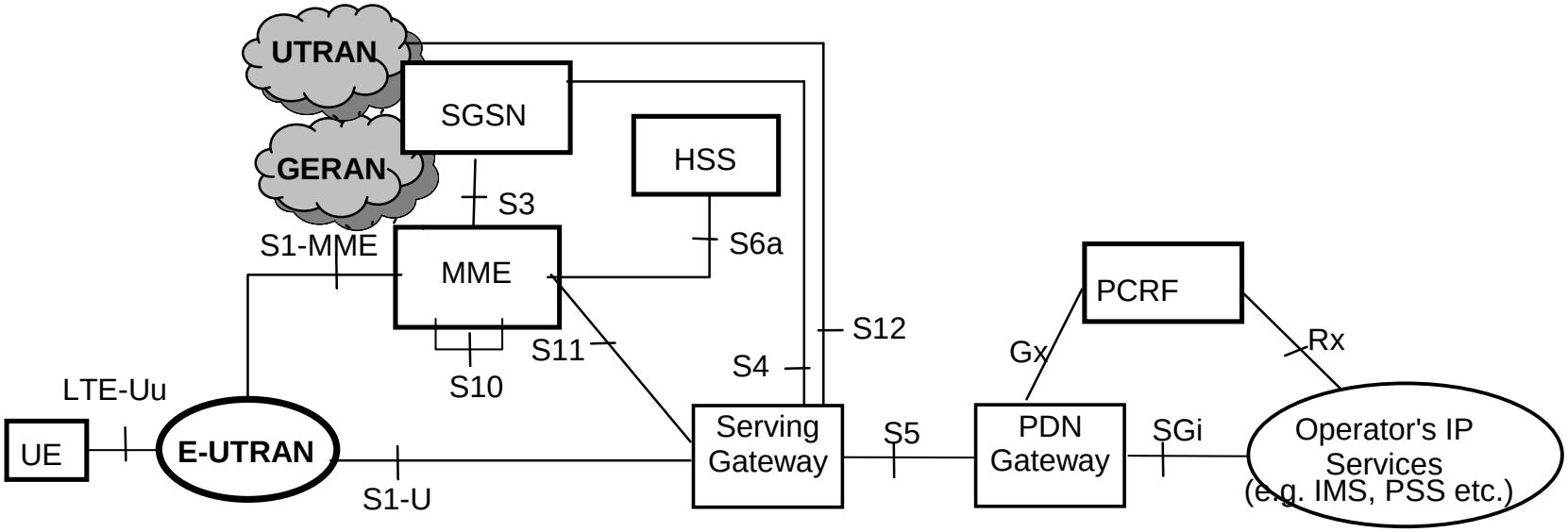
SPIRENT LANDSLIDE LTE TESTING

July 2009
Rev A

LTE Non-Roaming Architecture 3GPP Access



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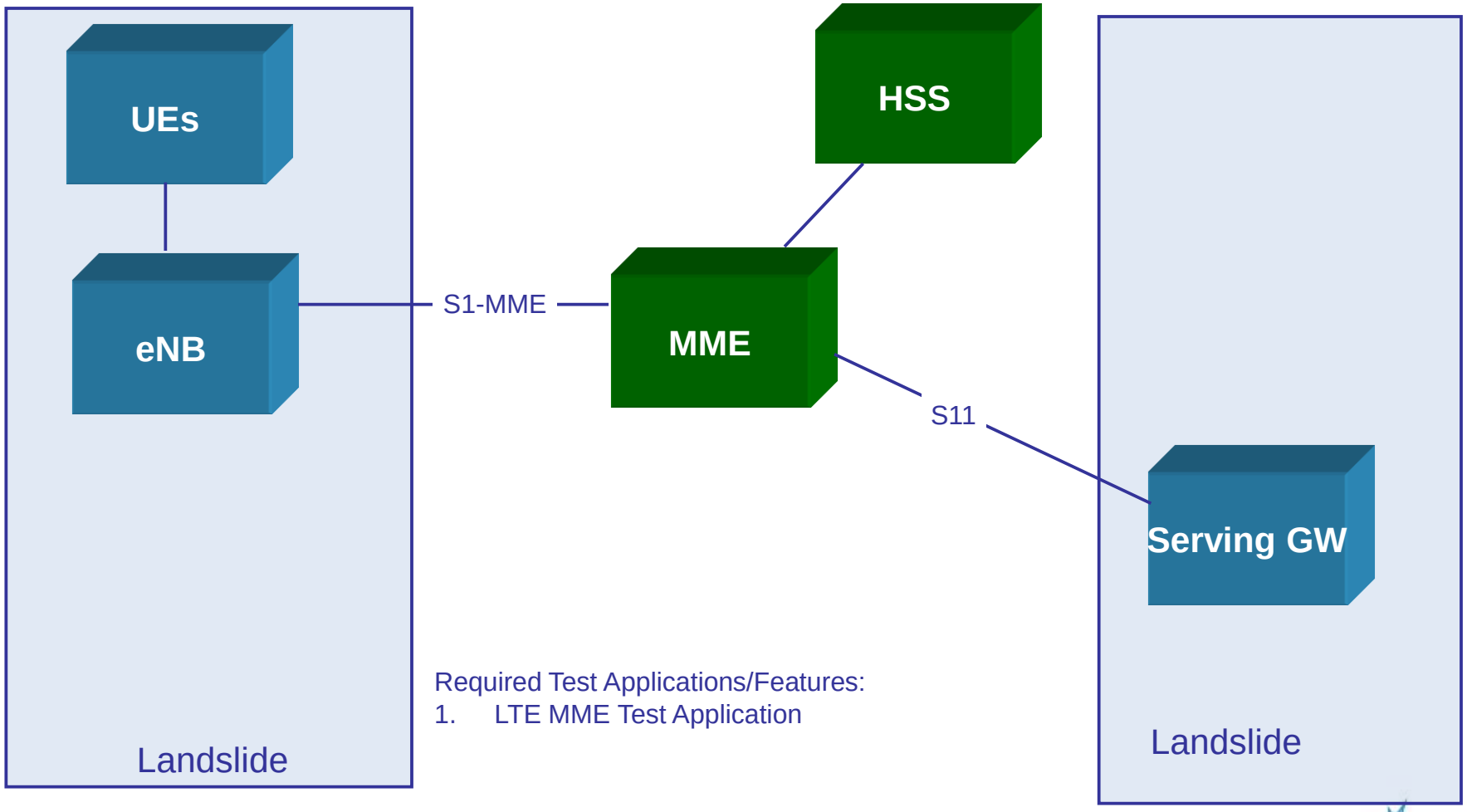
PHASE 1
RELEASE 6.1

July 2009
Rev A

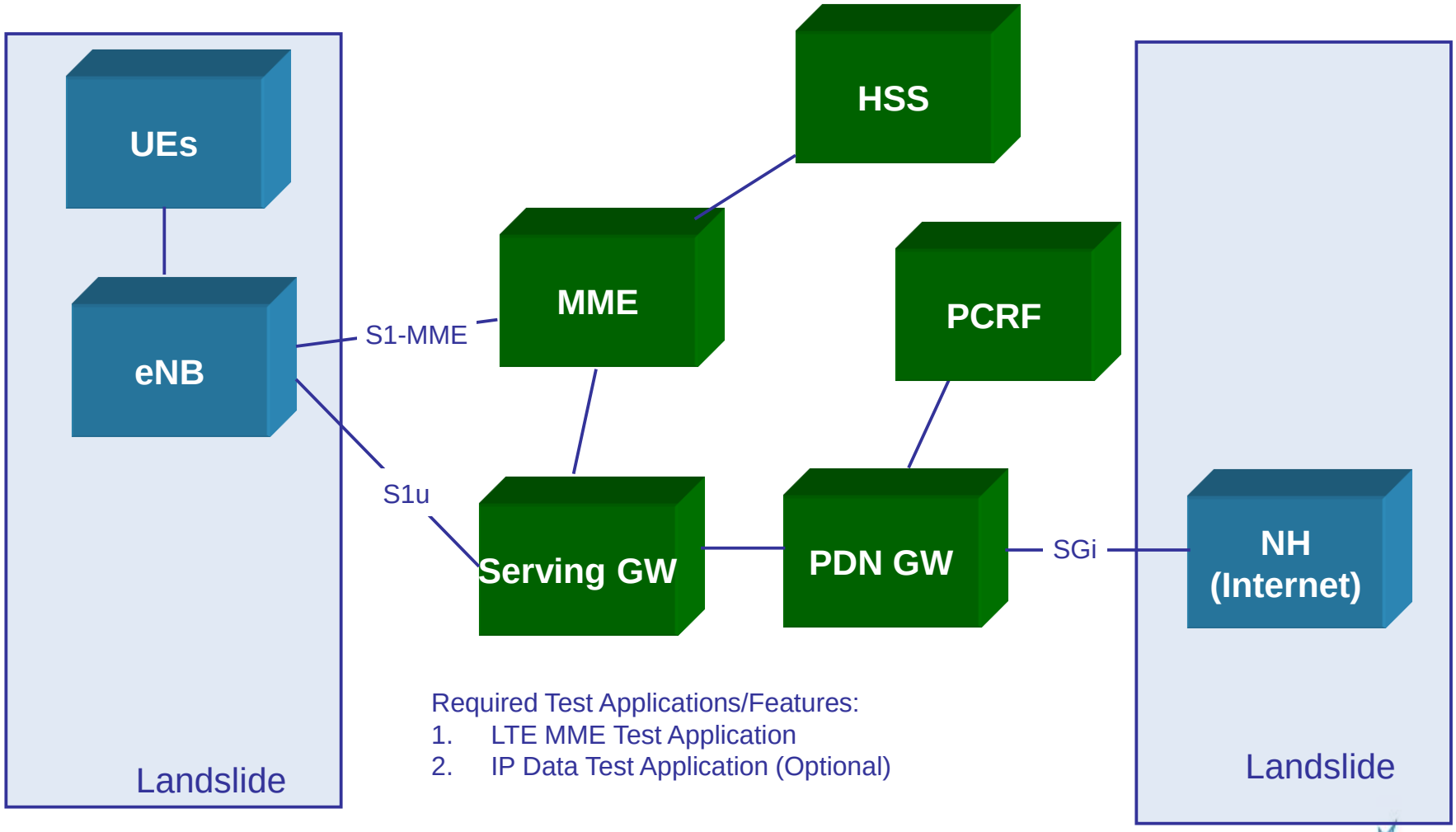
Test Configuration: MME Nodal (No HSS)



Required Test Applications/Features:

1. LTE MME Test Application

Test Configuration: End-to-End



Required Test Applications/Features:

1. LTE MME Test Application
2. IP Data Test Application (Optional)

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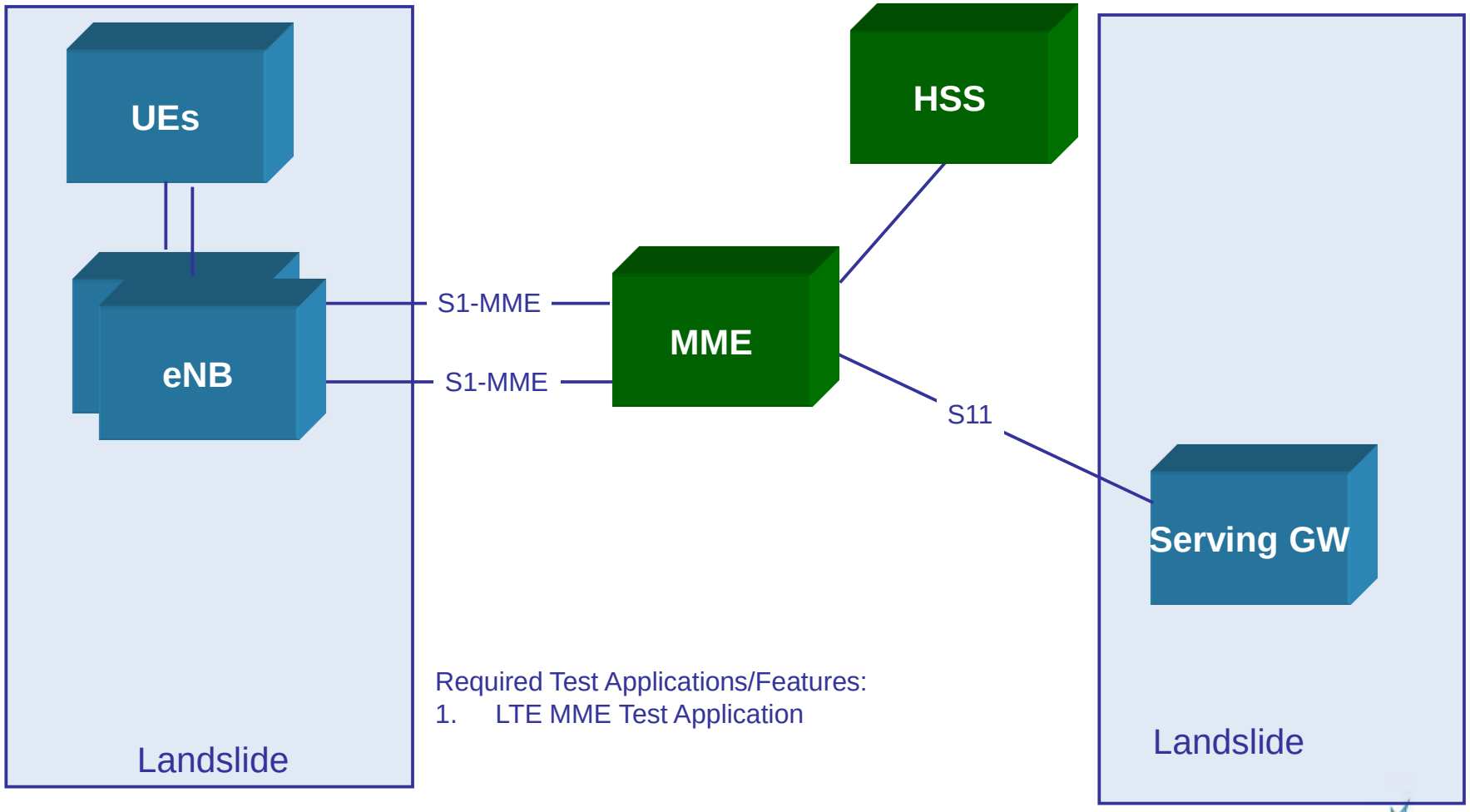
Test Configuration: Intra-MME Handoff



Required Test Applications/Features:

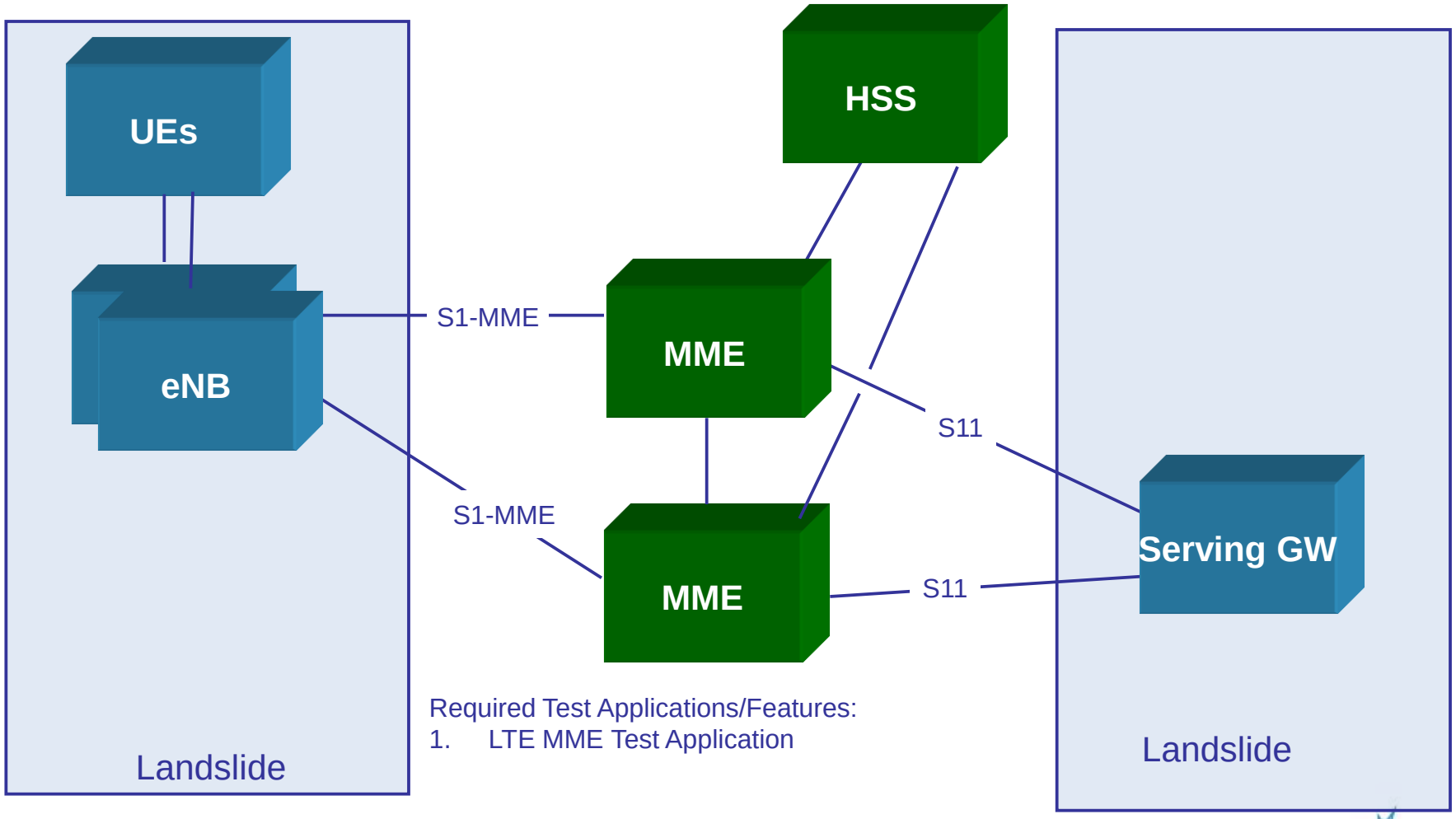
1. LTE MME Test Application

Note: Intra-MME H.O. also available in E2E test

PHASE 2
RELEASE 6.5

July 2009
Rev A

Test Configuration: Inter-MME Handoff



Required Test Applications/Features:

1. LTE MME Test Application

Note: Inter-MME H.O. also available in E2E test

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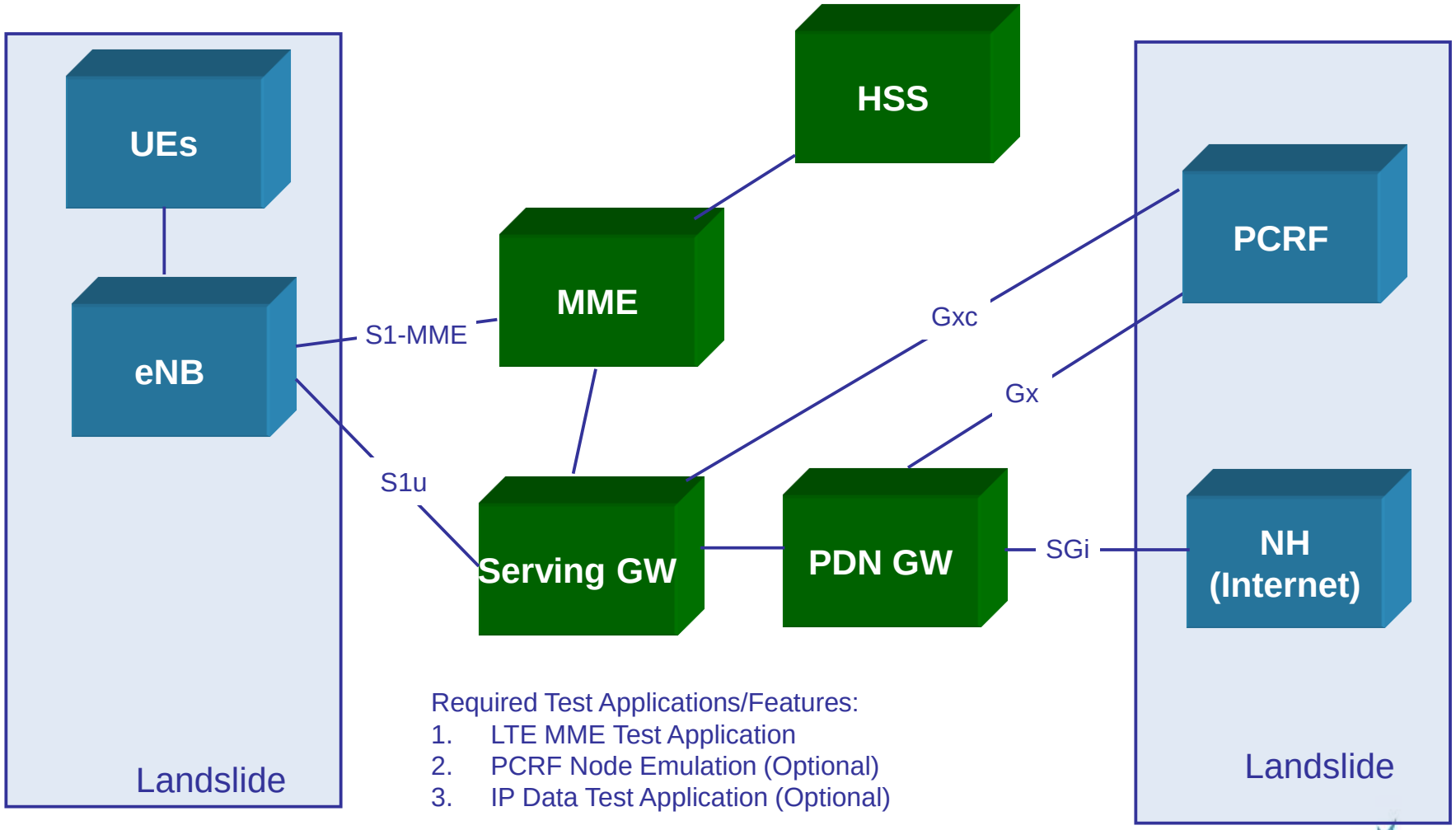
Test Configuration: End-to-End w/optional PCRF



Required Test Applications/Features:

1. LTE MME Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)

Gxc applies only if PMIP based interface (s5/S8) between SGW and PDW. This applies Everywhere where a Serving GW is being tested.

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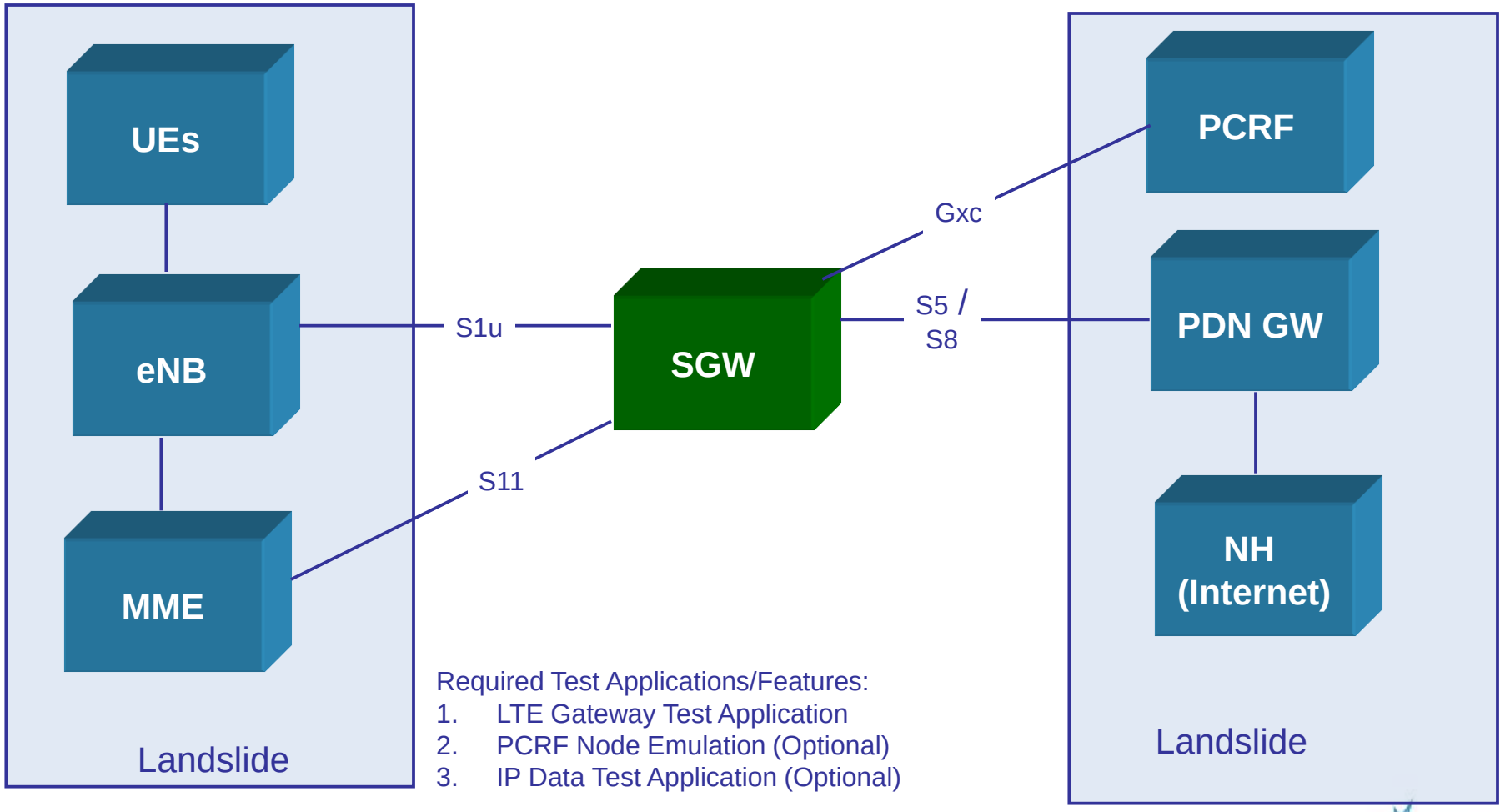
Test Configuration: Serving Gateway Nodal LTE



Required Test Applications/Features:

1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)

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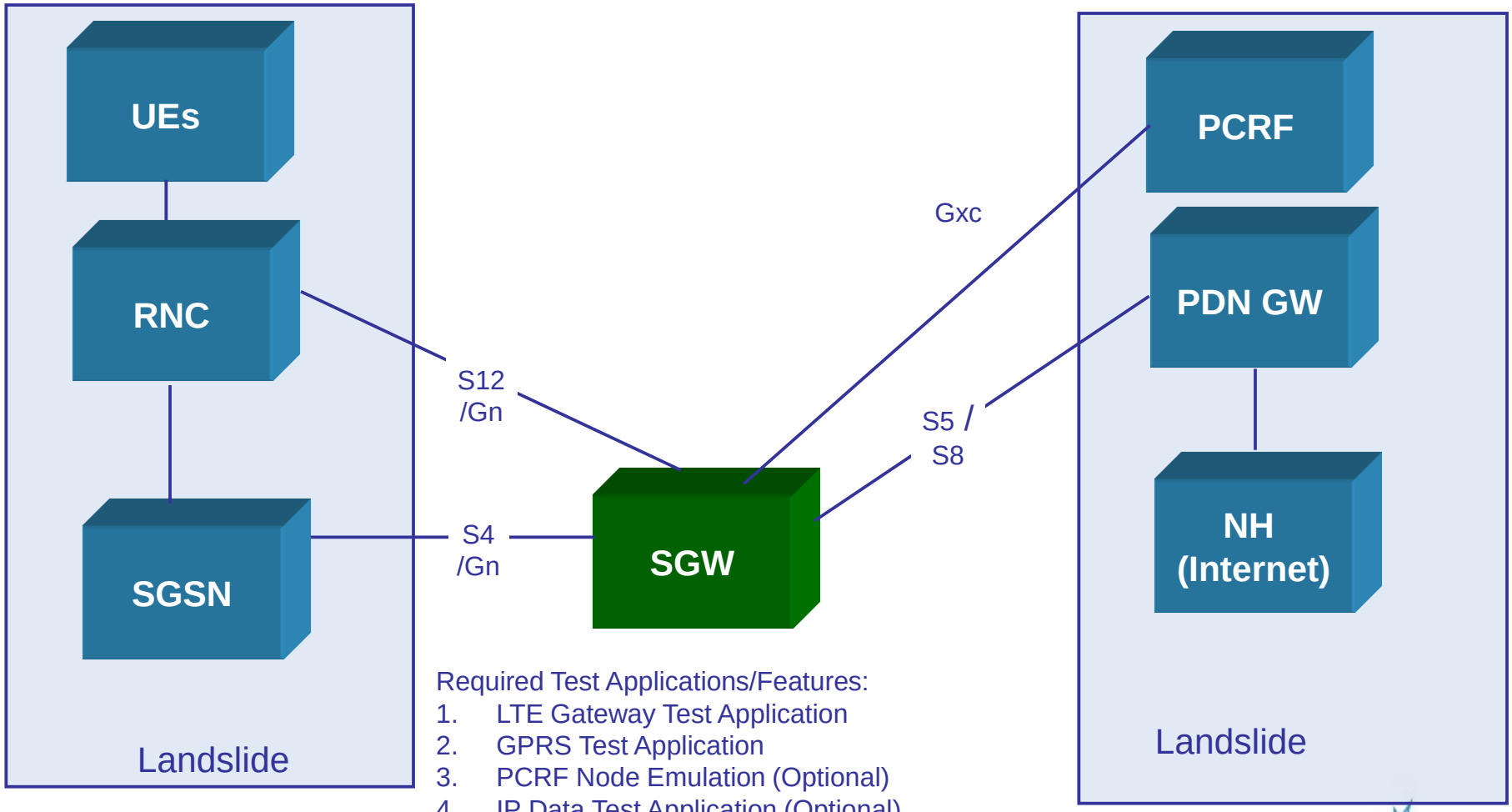
Test Configuration: Serving Gateway Nodal – 3GPP



Required Test Applications/Features:

1. LTE Gateway Test Application
2. GPRS Test Application
3. PCRF Node Emulation (Optional)
4. IP Data Test Application (Optional)

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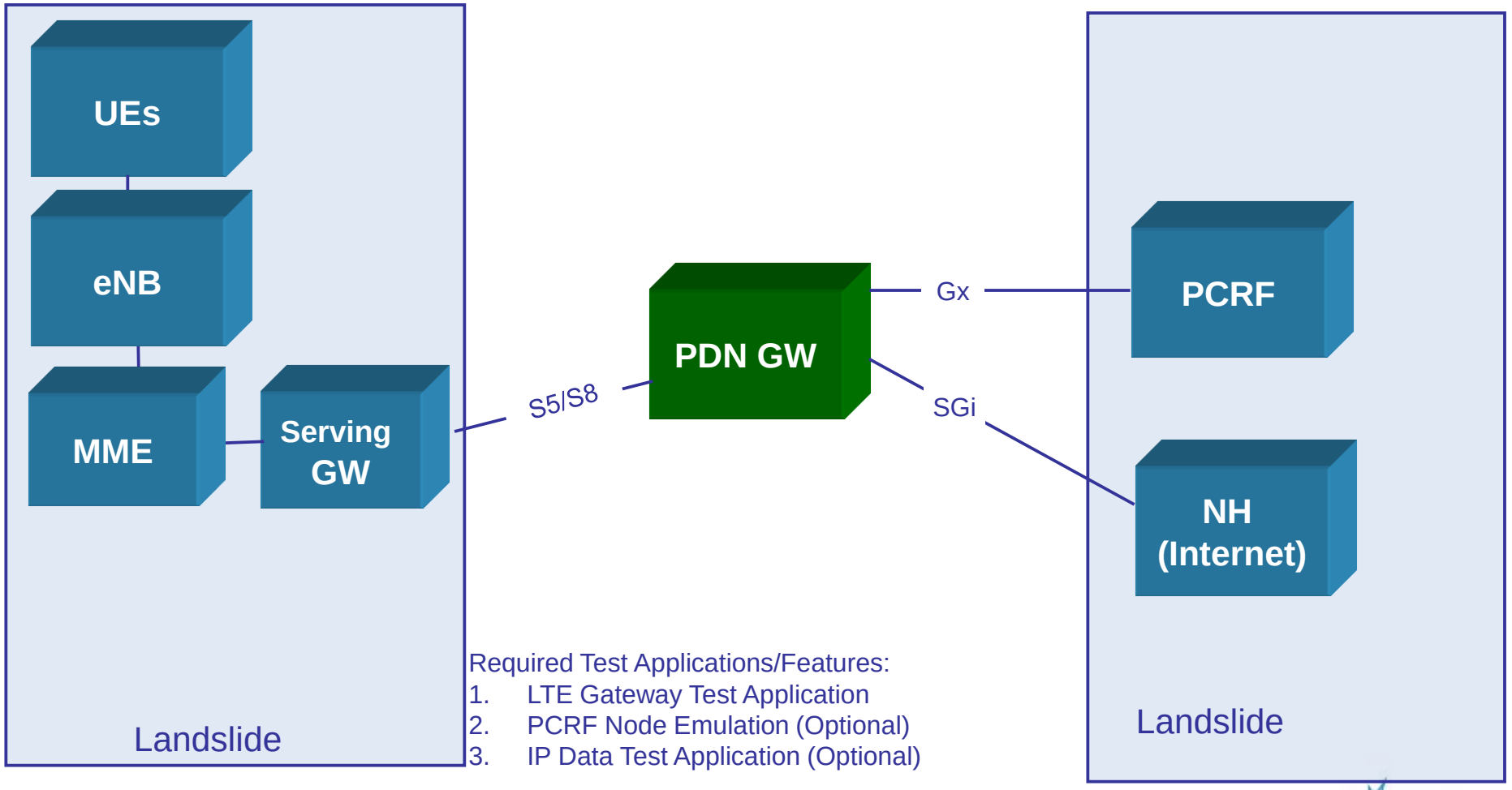
Test Configuration: PDN Gateway Nodal



Required Test Applications/Features:

1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)

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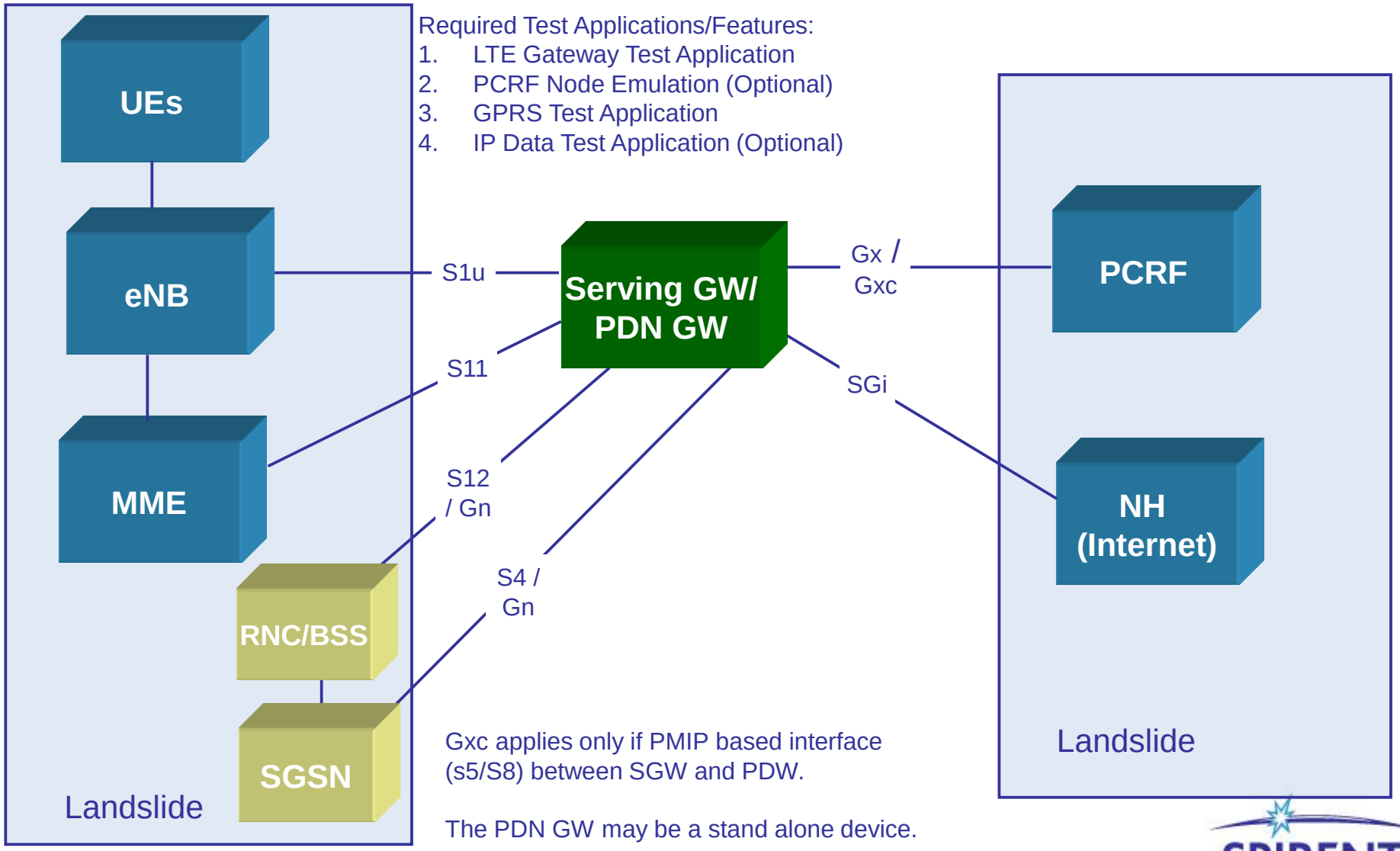
Test Configuration: Combined Gateway Nodal



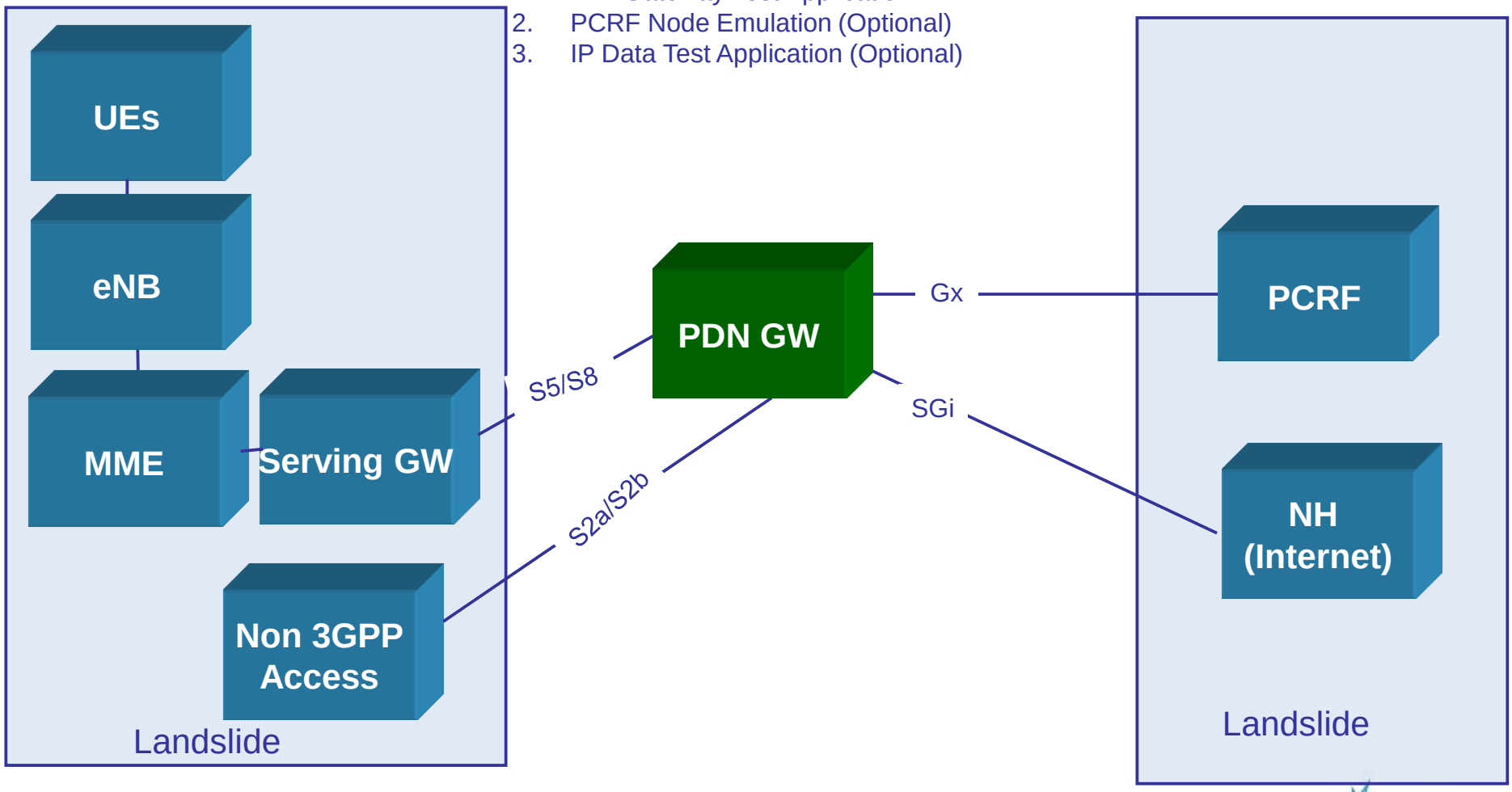
PHASE 3
RELEASE 7.0

July 2009
Rev A

Test Configuration: PDN Gateway Nodal Non-3GPP Access

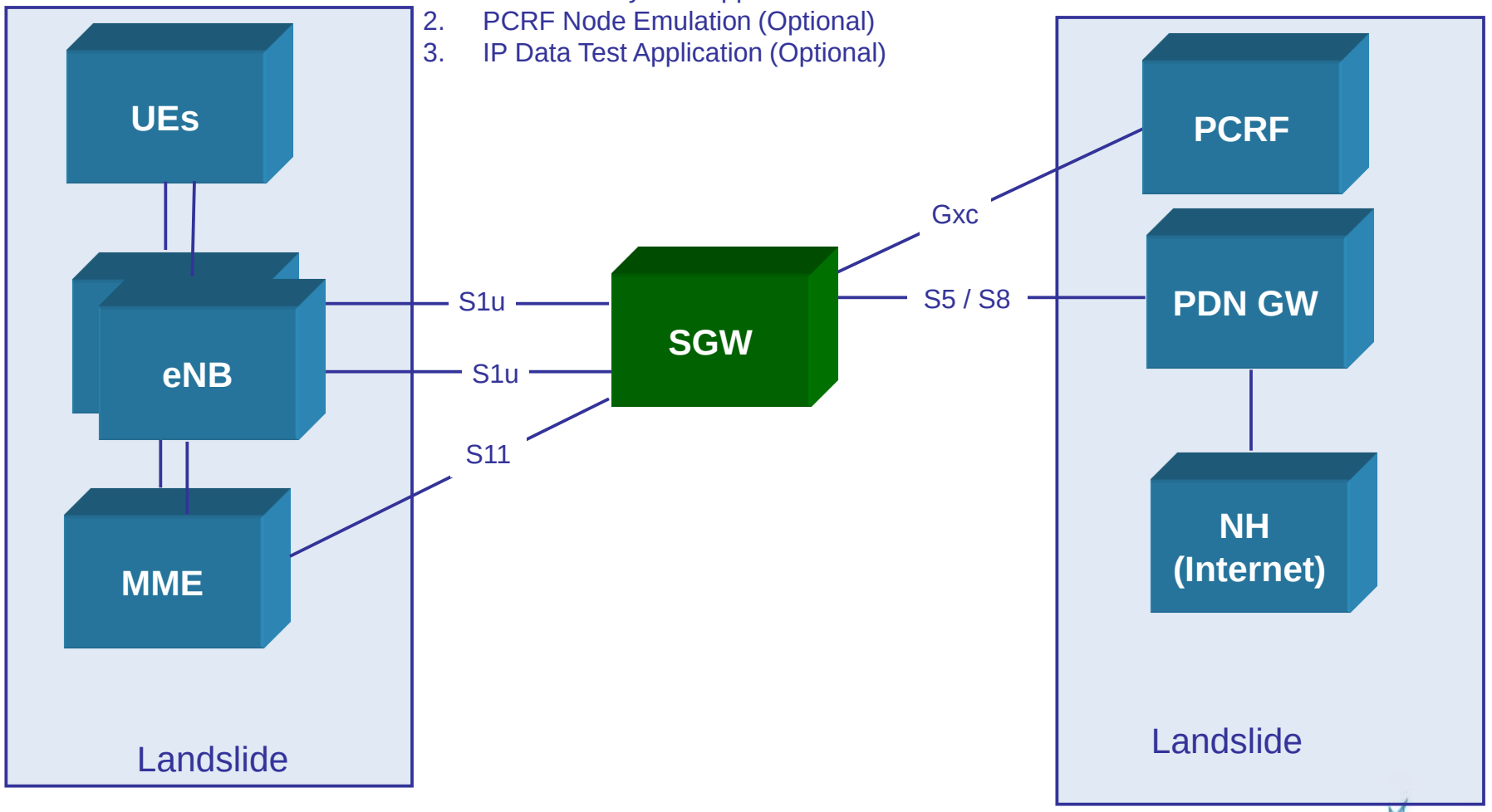
Required Test Applications/Features:

1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)



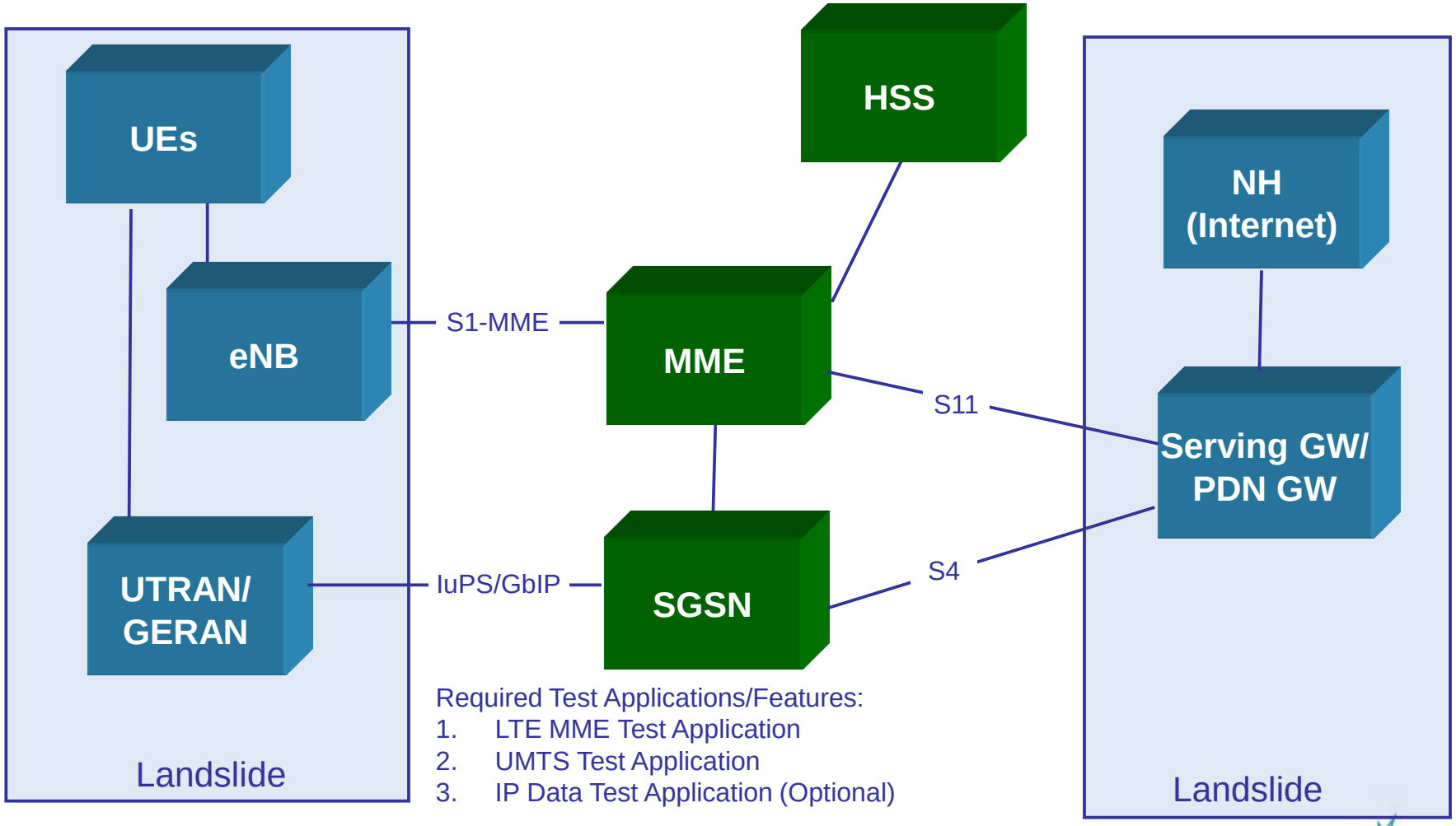
Test Configuration: X2 Intra-SGW Handoff

Required Test Applications/Features:
1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)



Note: Intra-SGW H.O. also available in Single GW Nodal test

Test Configuration: SGSN-MME Handoff



Required Test Applications/Features:

1. LTE MME Test Application
2. UMTS Test Application
3. IP Data Test Application (Optional)

Note: SGSN-MME H.O. also available in E2E test

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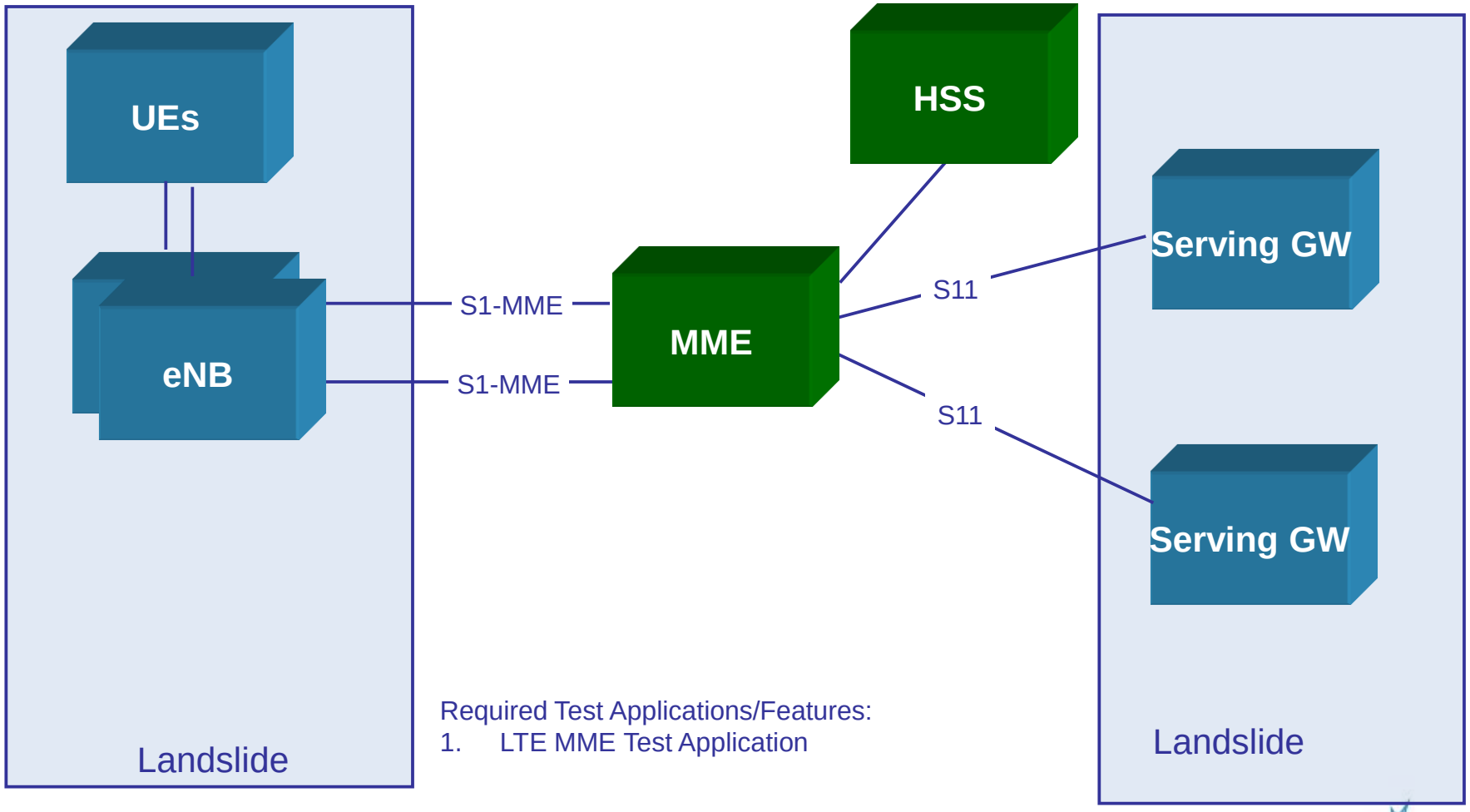
Test Configuration: Intra-MME Handoff - New Serving GW (5.5.1.1.3)



Required Test Applications/Features:

1. LTE MME Test Application

Note: Intra-MME H.O. also available in E2E test

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Additional Phase 3 Items

- S5/S8 Interface support for PMIPv6 over IPv4 transport (without UDP Header)
  - This is in addition to PMIPv6 and GTPv2 support
- Dedicated Bearer Support for Serving GW testing – both network initiated via optional PCRF Node and mobile initiated via the test application itself.

PHASE 4
RELEASE 7.5

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Landslide LTE Functional Test Enhancements

Message Editing

- Edit Header
  - Configure all static header fields.
  - Corrupt auto generated fields like sequence number and length.
  - Change the message type field.
- IE Editing
  - Messages will include default set of IEs.
  - User will be given option to add, modify, or delete IEs.
- Initial deployment for S11 messages with S5/S8 following.
- Unscheduled engineering builds will be provided as functionality becomes available.
- Full capability will be delivered as part of the 7.5 GA Release.

Enhanced Error Reporting

- Continue to add detailed error messages in trace level 5 as previously demonstrated.

Required Test Applications/Features:
LTE Gateway Test Application
LTE Functional Test Feature

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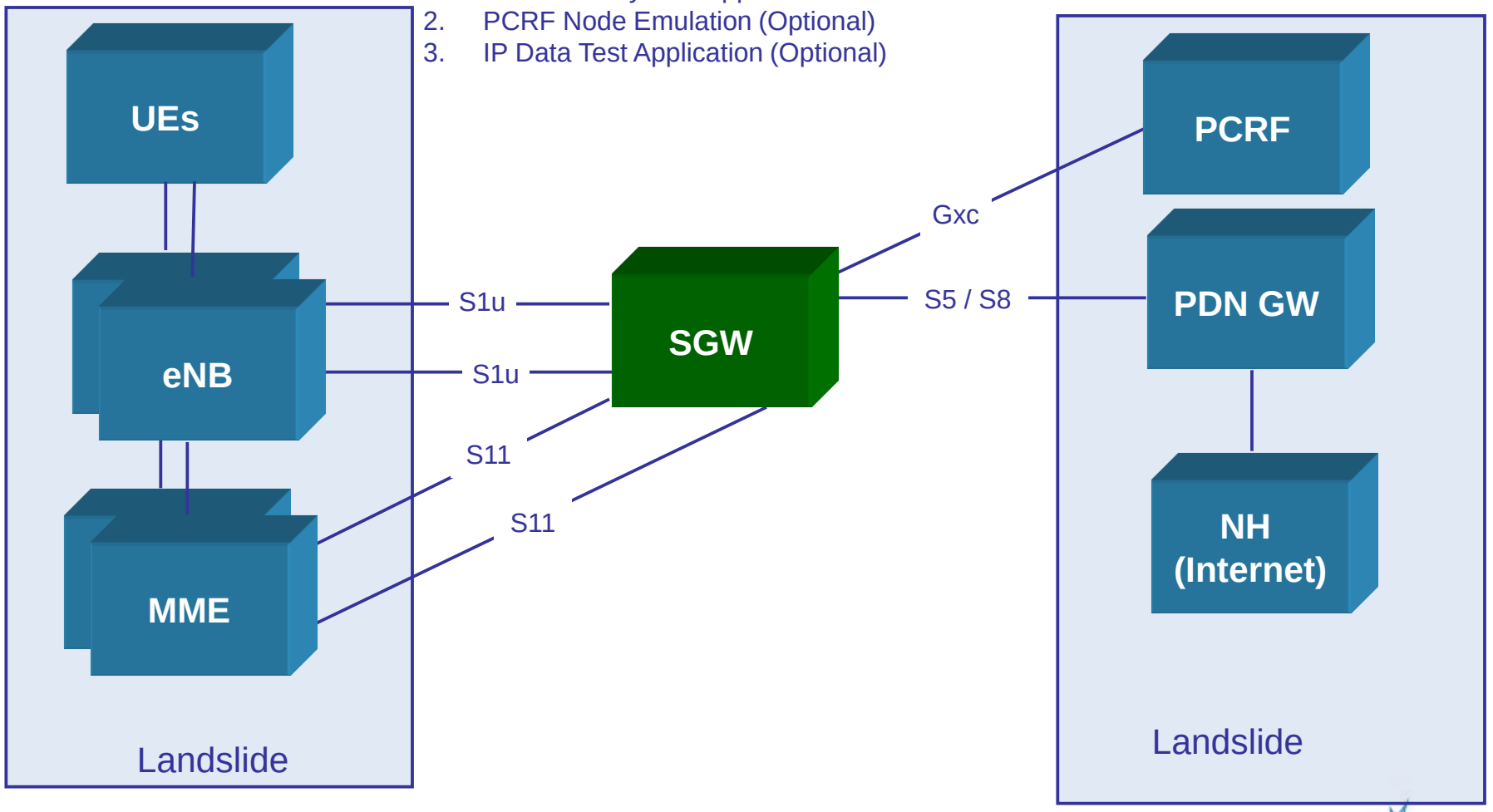
Test Configuration: S1 Intra-SGW Handoff

Required Test Applications/Features:
1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)



Note: Intra-SGW H.O. also available in Single GW Nodal test

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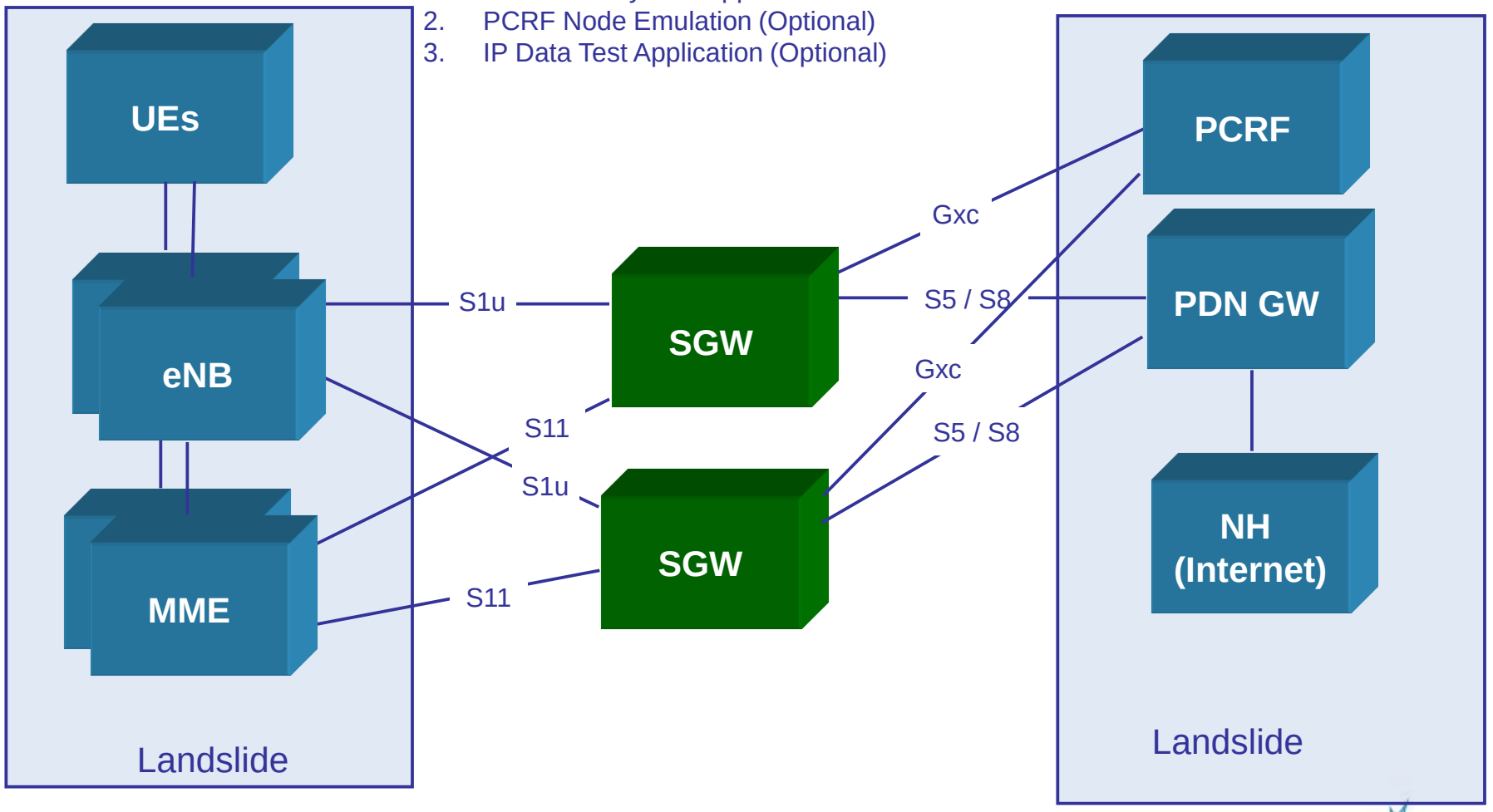
Test Configuration: S1 Inter-SGW Handoff

Required Test Applications/Features:
1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)



Note: Intra-SGW H.O. also available in Single GW Nodal test

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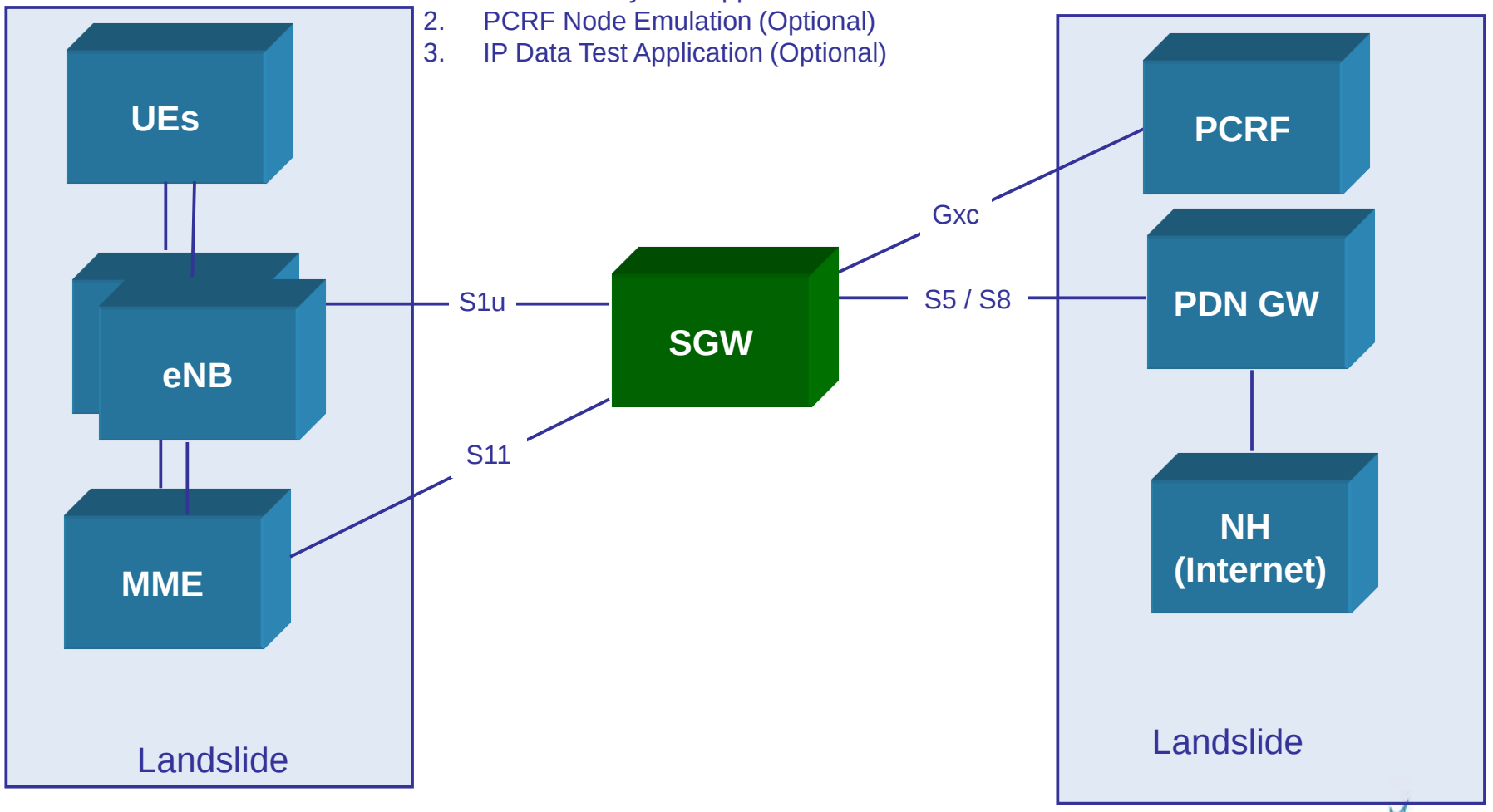
Test Configuration: X2 Intra-SGW Handoff

Required Test Applications/Features:
1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)



Note: Intra-SGW H.O. also available in Single GW Nodal test

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Additional Phase 4 Items

- S1 Release Procedure (V4, V6, Dual Stack
- Idle to Active Transitions (UE initiated Service Request)
- Idle to Active Transitions (Network initiated)
- Dedicated bearer activation (Network Initiated)
- Dedicated bearer deactivation (MME Initiated)
- Dedicated bearer deactivation (Network Initiated)
- QoS/Bearer Modification (Network Initiated)
- HSS Initiated default bearer request (from UE side)
- PMIPv6 Revocation for SGW Testing

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Phase 5
Release 8.0

PRE-GATES 1 & 2
Subject to change

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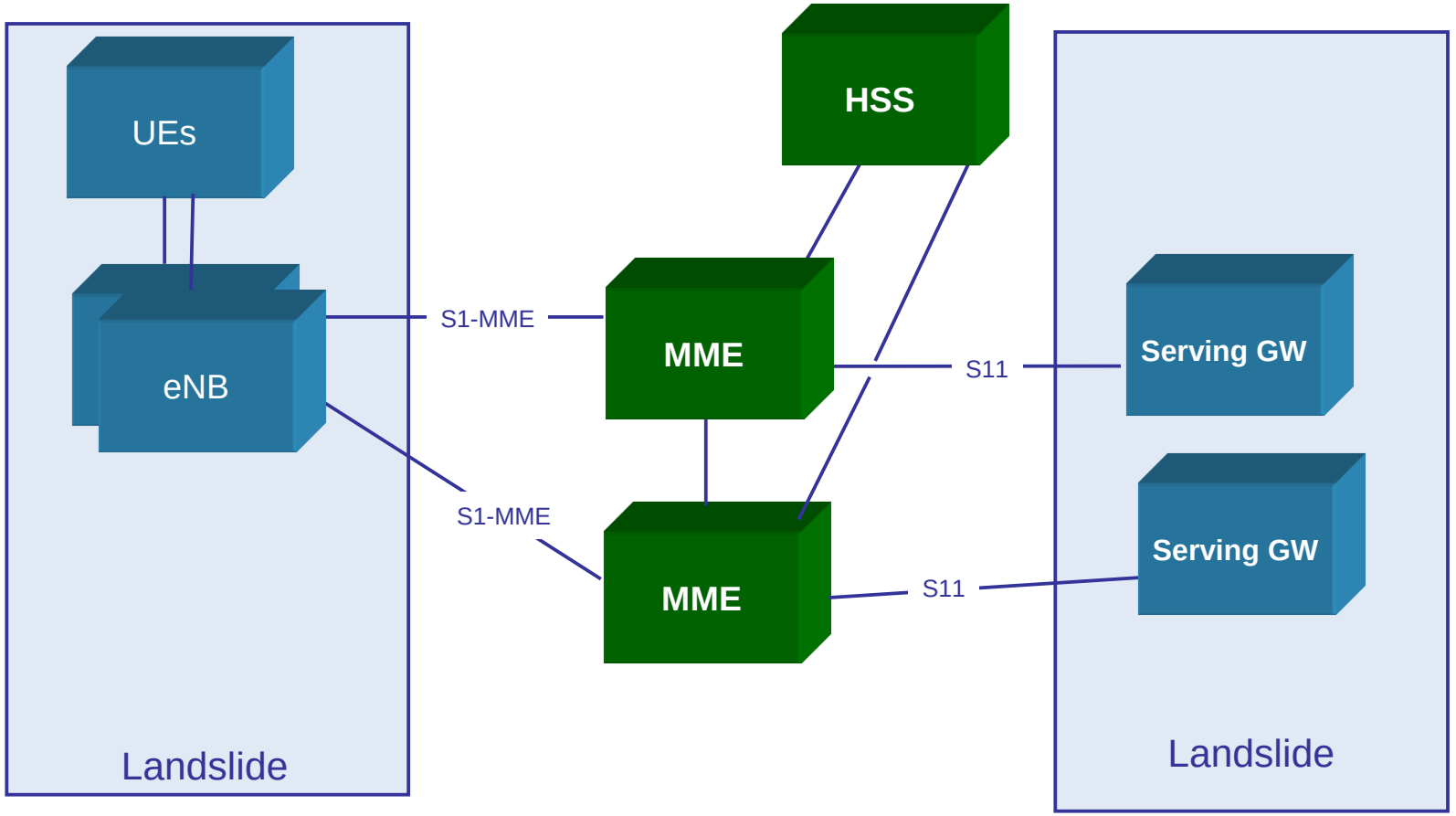
Rev A

Phase 5: Additional Handovers

LTE – LTE Handovers

MME Nodal, S1 Inter-MME, Inter SGW Handoff

Required Apps:
MME Test Application



Note: also available in E2E test

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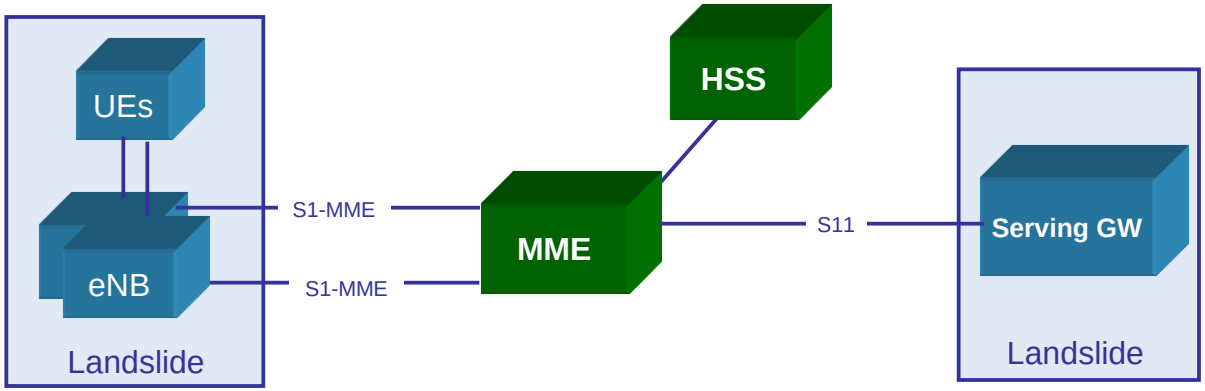
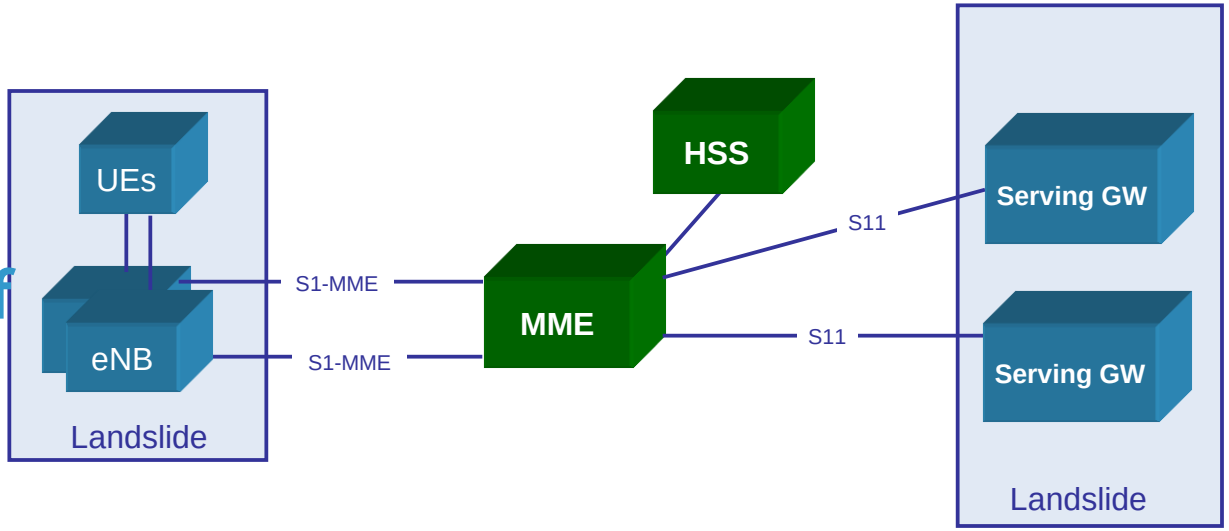
MME Nodal, X2 Intra-SGW Handoff

Required Apps:
MME Test Application



MME Nodal, X2 Inter-SGW Handoff

Required Apps:
MME Test Application



Note: also available in E2E test

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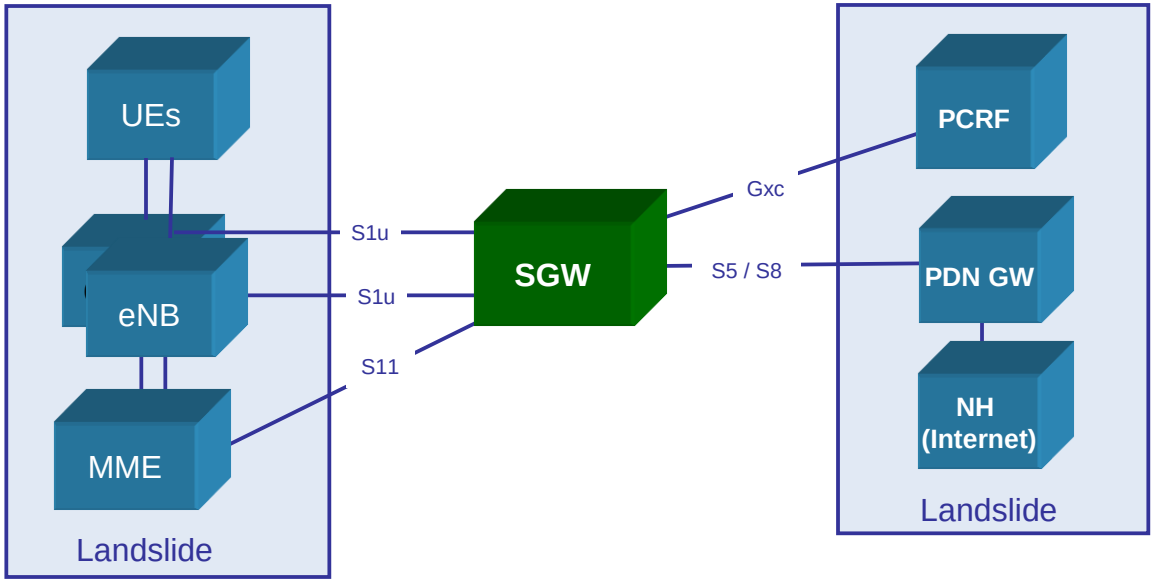
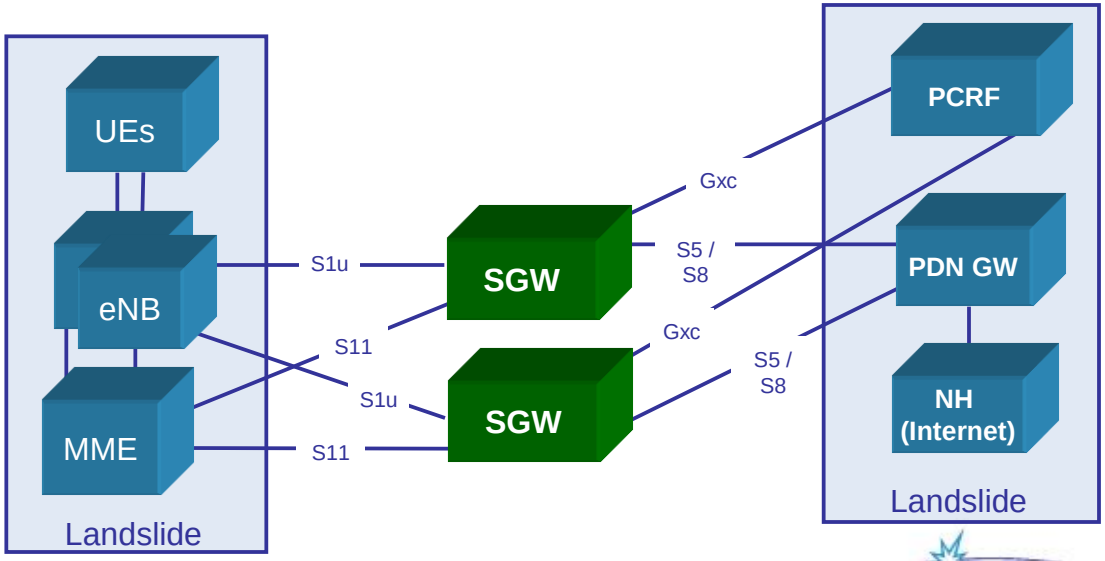
SGW Nodal, S1 Intra-SGW Handoff



Required Apps:
LTE Gateway Test Application
PCRF Test Application (optional)
IP Data Test Application (optional)

SGW Nodal, S1 Inter-SGW Handoff

Required Apps:
LTE Gateway Test Application
PCRF Test Application (optional)
IP Data Test Application (optional)



Note: also available in Single GW Nodal test

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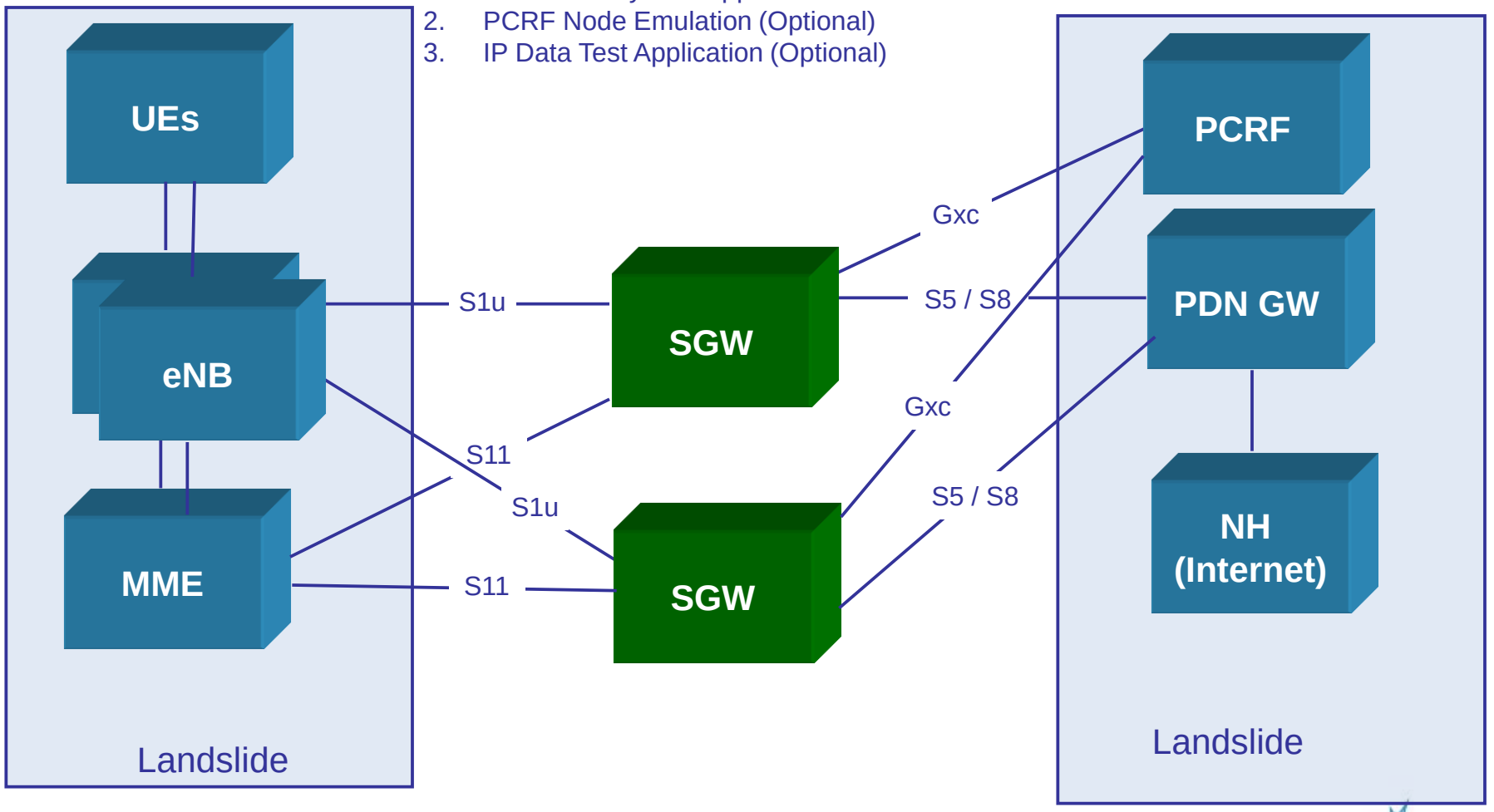
SGW Nodal, X2 Inter-SGW Handoff

Required Test Applications/Features:
1. LTE Gateway Test Application
2. PCRF Node Emulation (Optional)
3. IP Data Test Application (Optional)



Note: Intra-SGW H.O. also available in Single GW Nodal test

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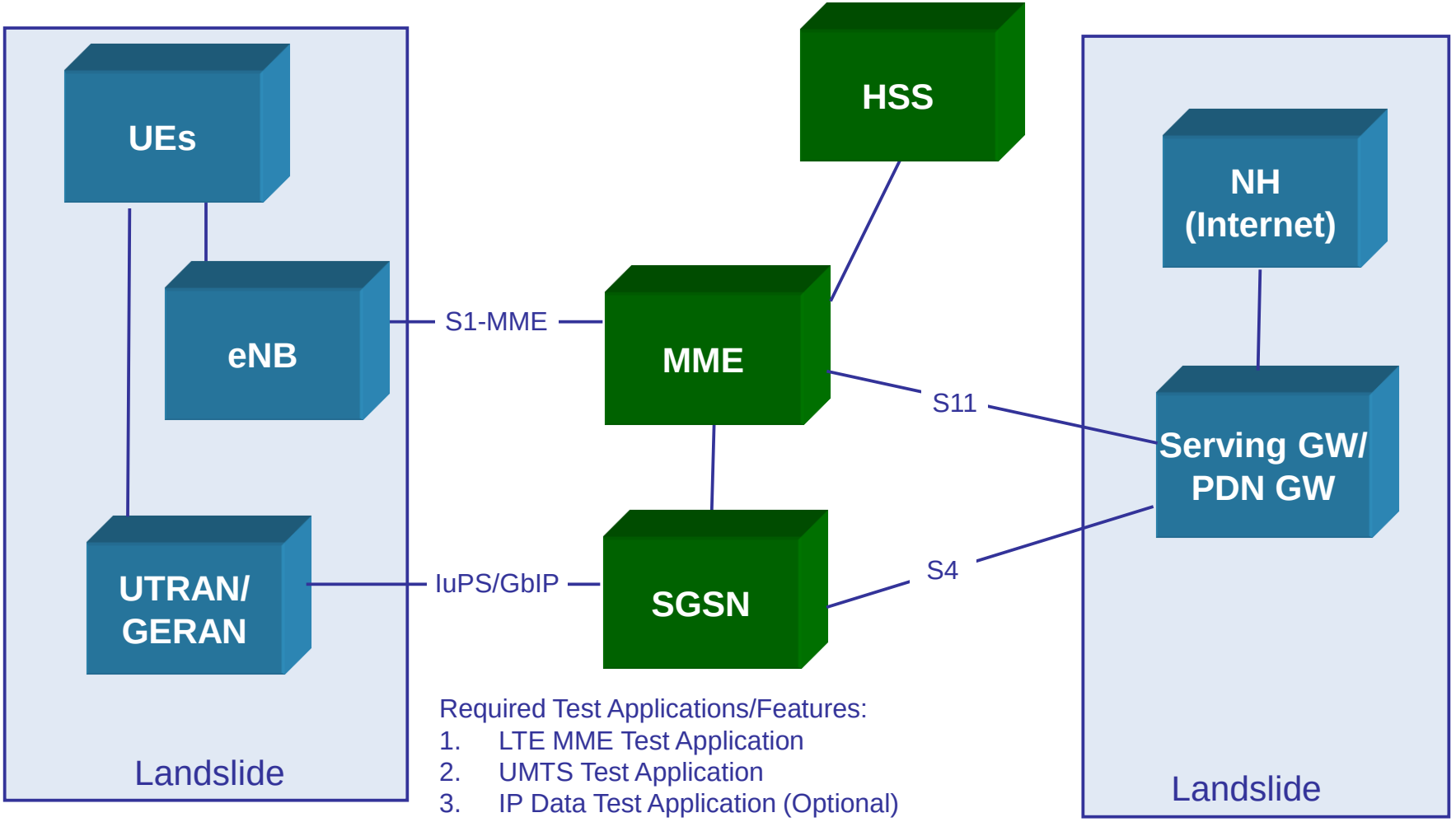
LTE – UTRAN/GERAN Handovers

Test Configuration: SGSN-MME Handoff



Required Test Applications/Features:

1. LTE MME Test Application
2. UMTS Test Application
3. IP Data Test Application (Optional)

Iu is already supported. Gb to be added in this release.

Note: SGSN-MME H.O. also available in E2E test

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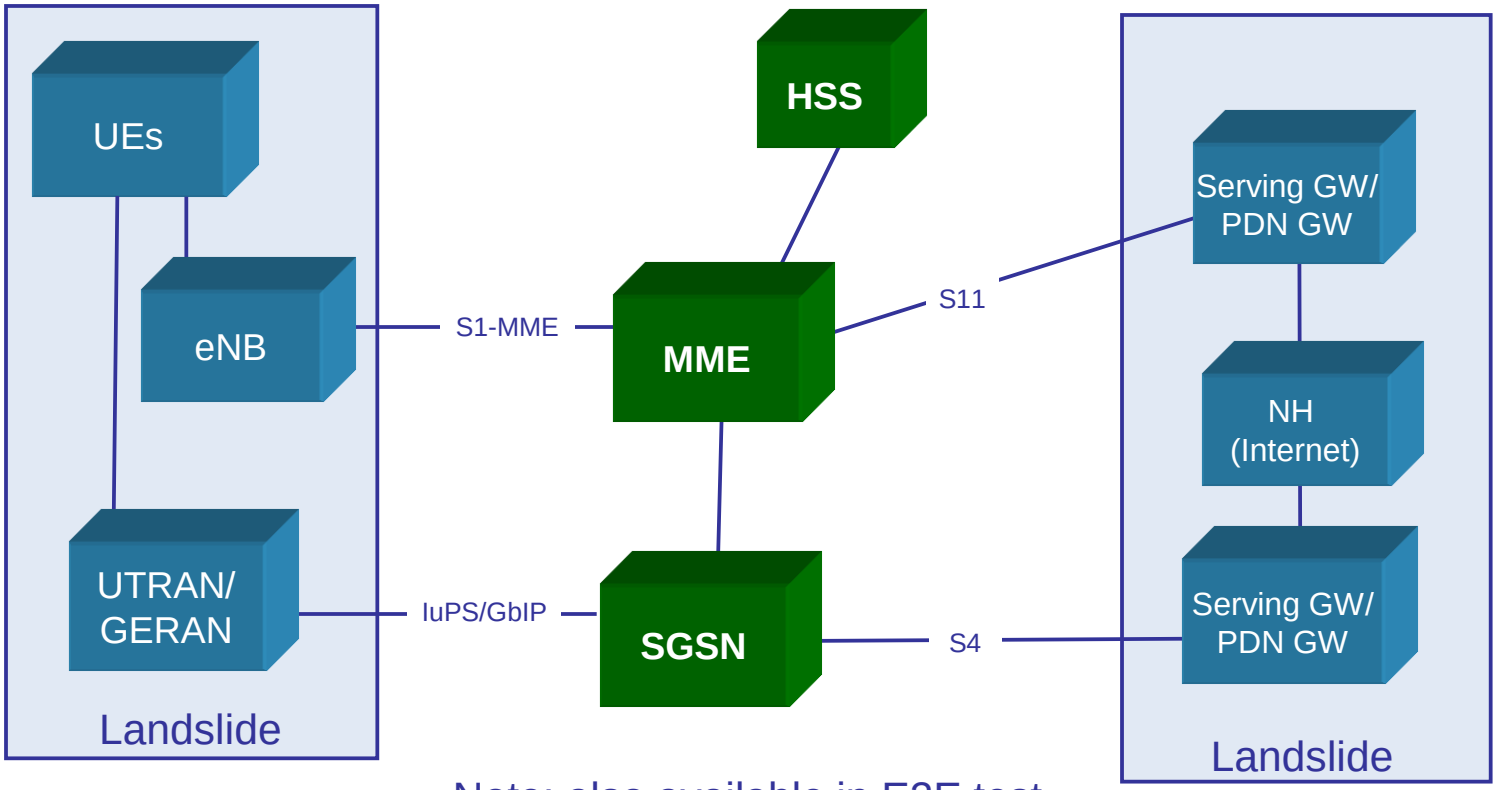
Test Configuration: MME Nodal, E-UTRAN - UTRAN/GERAN Handover, New SGW

Required Apps:
MME Test Application
UMTS Test Application
IP Data Test Application (optional)



Note: also available in E2E test

Support for both Iu and Gb SGSNs is required (figure would be the same but the messaging is different).

The figure is the same when going from LTE to SGSN as when going from SGSN to LTE, the difference being in which emulated element the UE begins.

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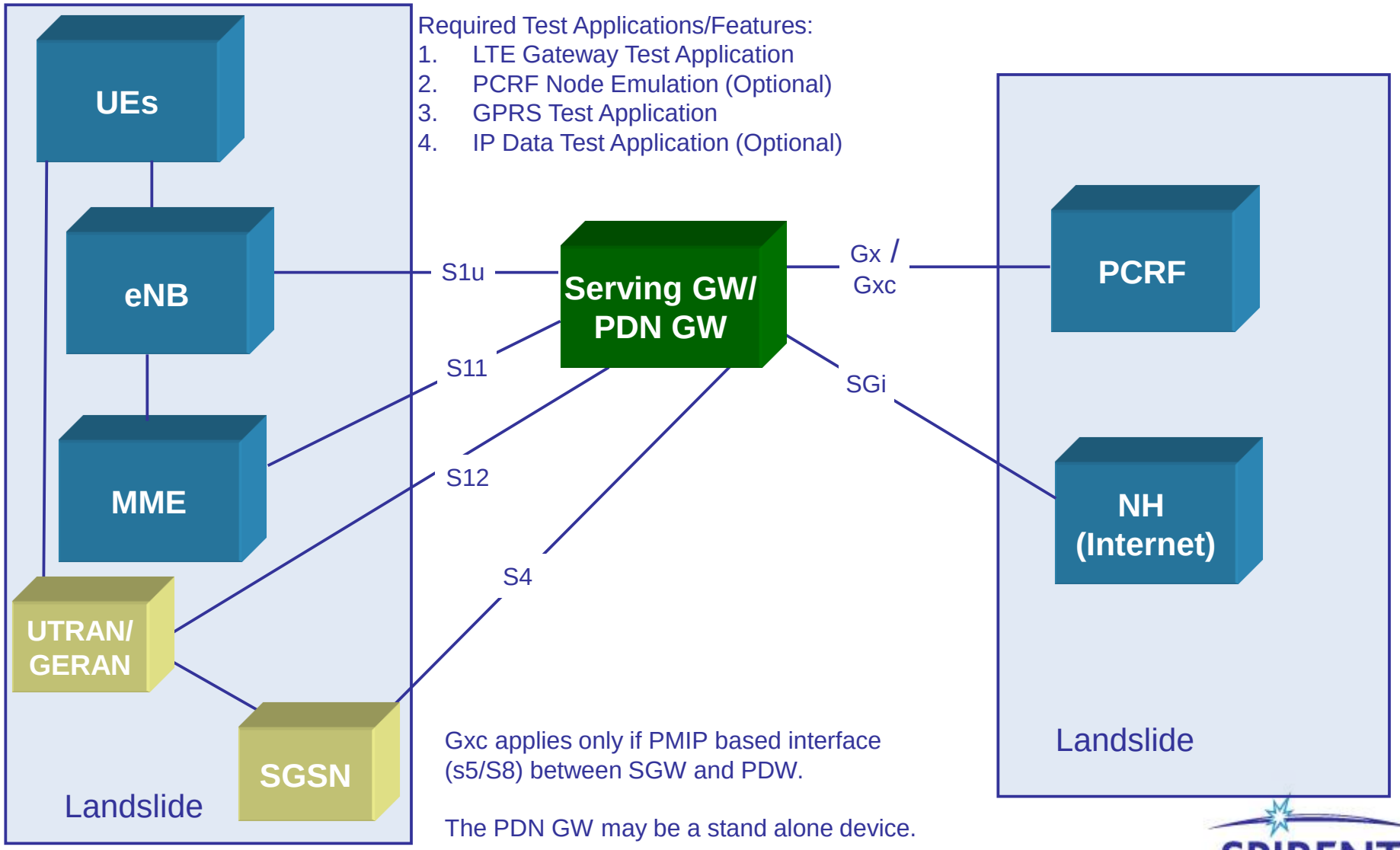
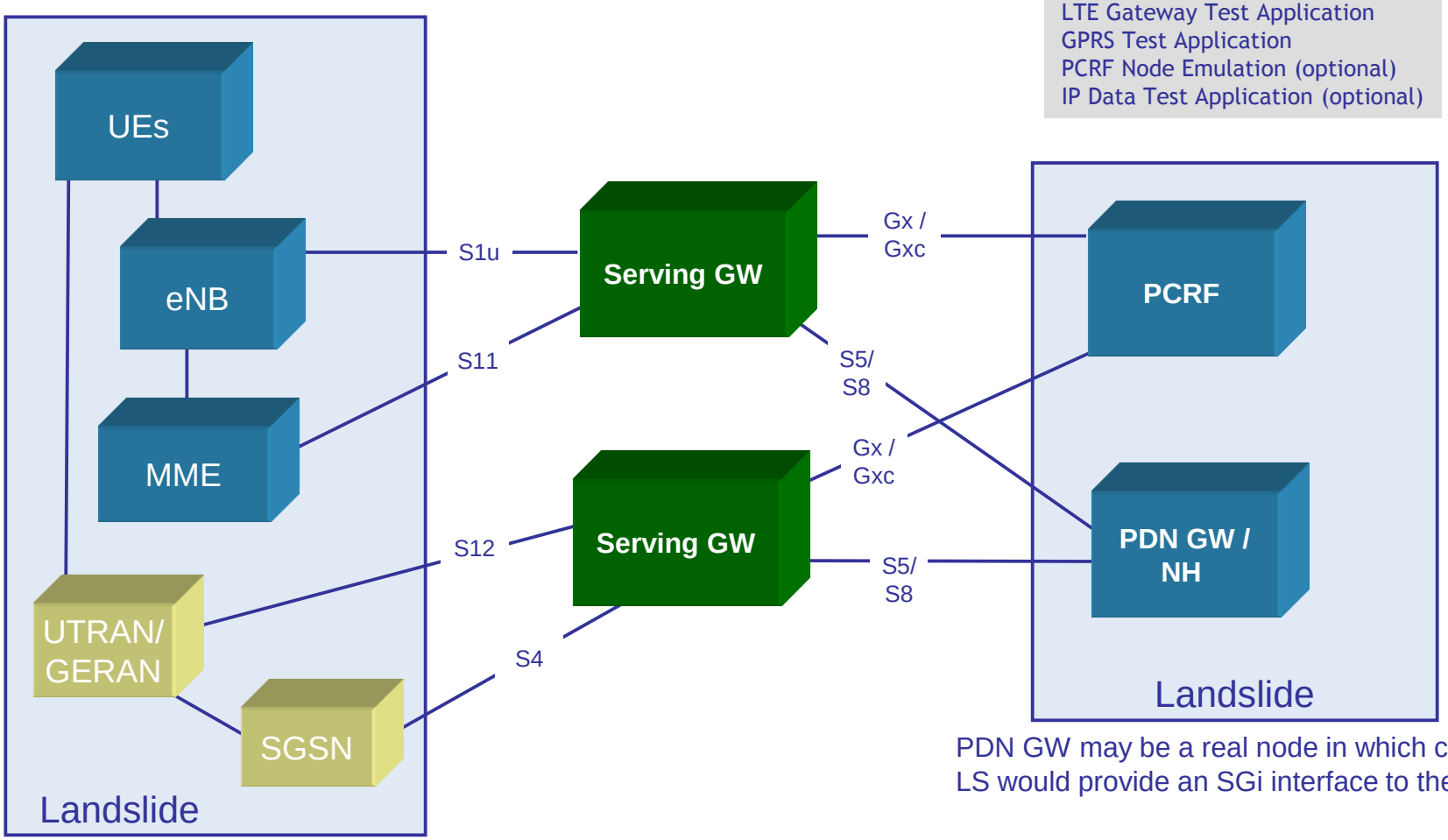
Test Configuration: E-UTRAN to UTRAN/GERAN Handover, same SGW



Test Configuration: SGW Nodal, E-UTRAN - UTRAN/GERAN Handover, New SGW

Required Apps:
LTE Gateway Test Application
GPRS Test Application
PCRF Node Emulation (optional)
IP Data Test Application (optional)



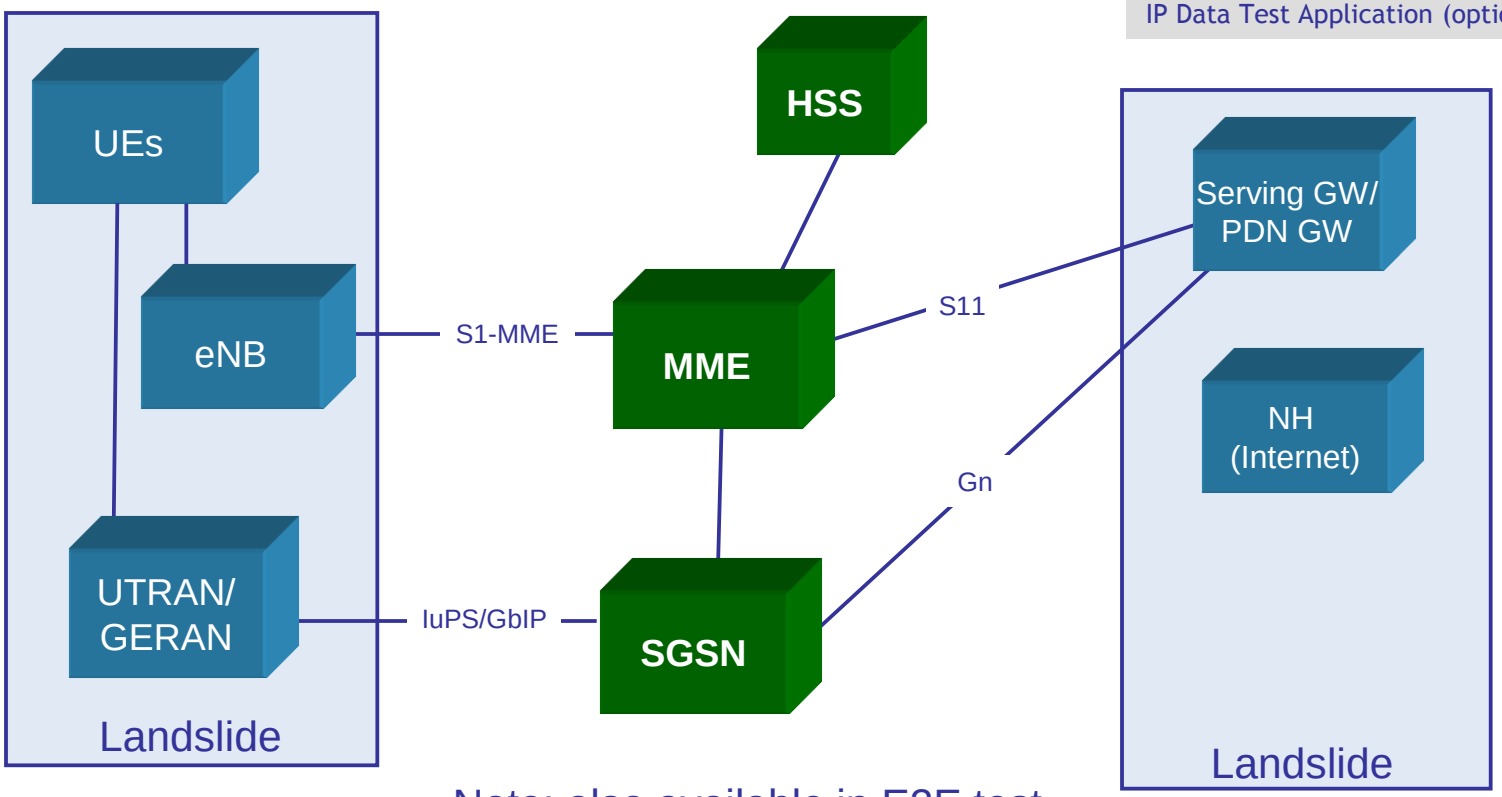
PDN GW may be a real node in which case LS would provide an SGi interface to the NH.

Support for both Iu and Gb SGSNs is required. (figure would be the same but the messaging is different).

The figure is the same when going from LTE to SGSN as when going from SGSN to LTE, the difference being in which emulated element the UE begins.

Test Configuration: MME Nodal, E-UTRAN – Gn UTRAN/GERAN Handover, Same SGW

Required Apps:
MME Test Application
UMTS Test Application
IP Data Test Application (optional)



Note: also available in E2E test

Support for both Iu and Gb SGSNs is required (figure would be the same but the messaging is different).

The figure is the same when going from LTE to SGSN as when going from SGSN to LTE, the difference being in which emulated element the UE begins.

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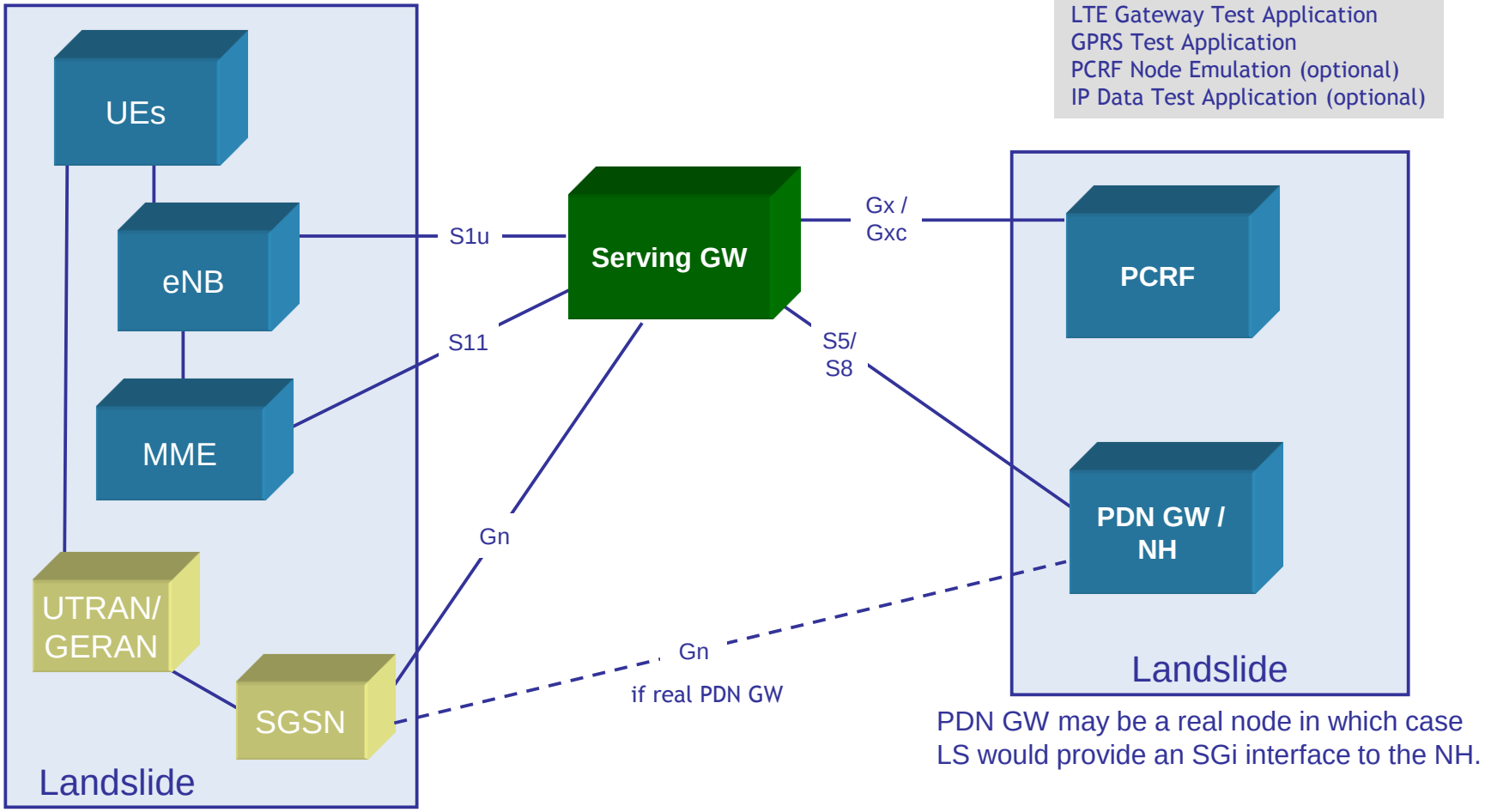
Test Configuration: SGW Nodal, E-UTRAN – Gn UTRAN/GERAN Handover, Same SGW

Required Apps:
LTE Gateway Test Application
GPRS Test Application
PCRF Node Emulation (optional)
IP Data Test Application (optional)



PDN GW may be a real node in which case LS would provide an SGi interface to the NH.

Support for both Iu and Gb SGSNs is required. (figure would be the same but the messaging is different).

The figure is the same when going from LTE to SGSN as when going from SGSN to LTE, the difference being in which emulated element the UE begins.

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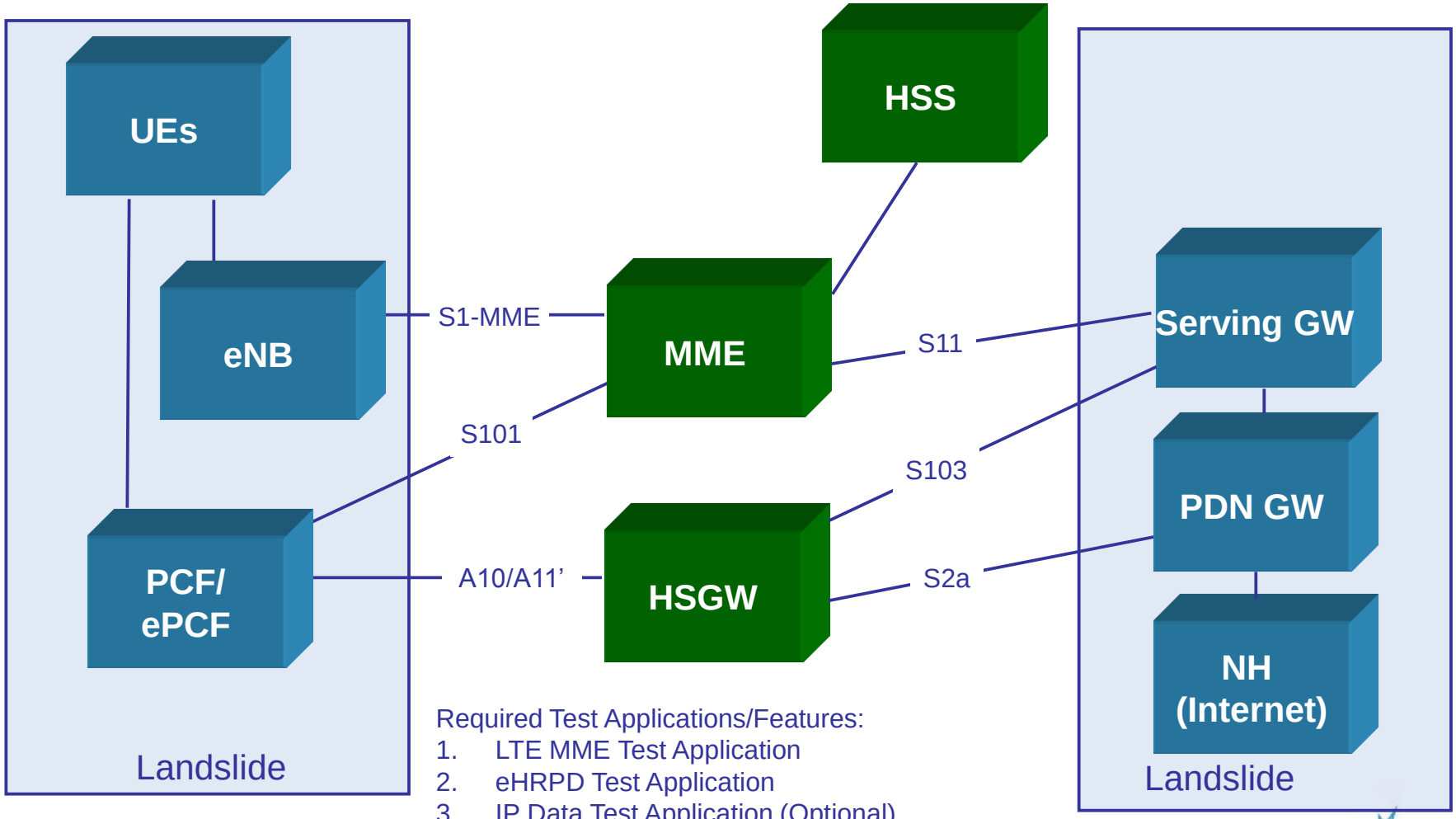
Phase 5: Additional Handovers

LTE – CDMA Handovers

Test Configuration: CDMA-LTE Handover



Required Test Applications/Features:

1. LTE MME Test Application
2. eHRPD Test Application
3. IP Data Test Application (Optional)

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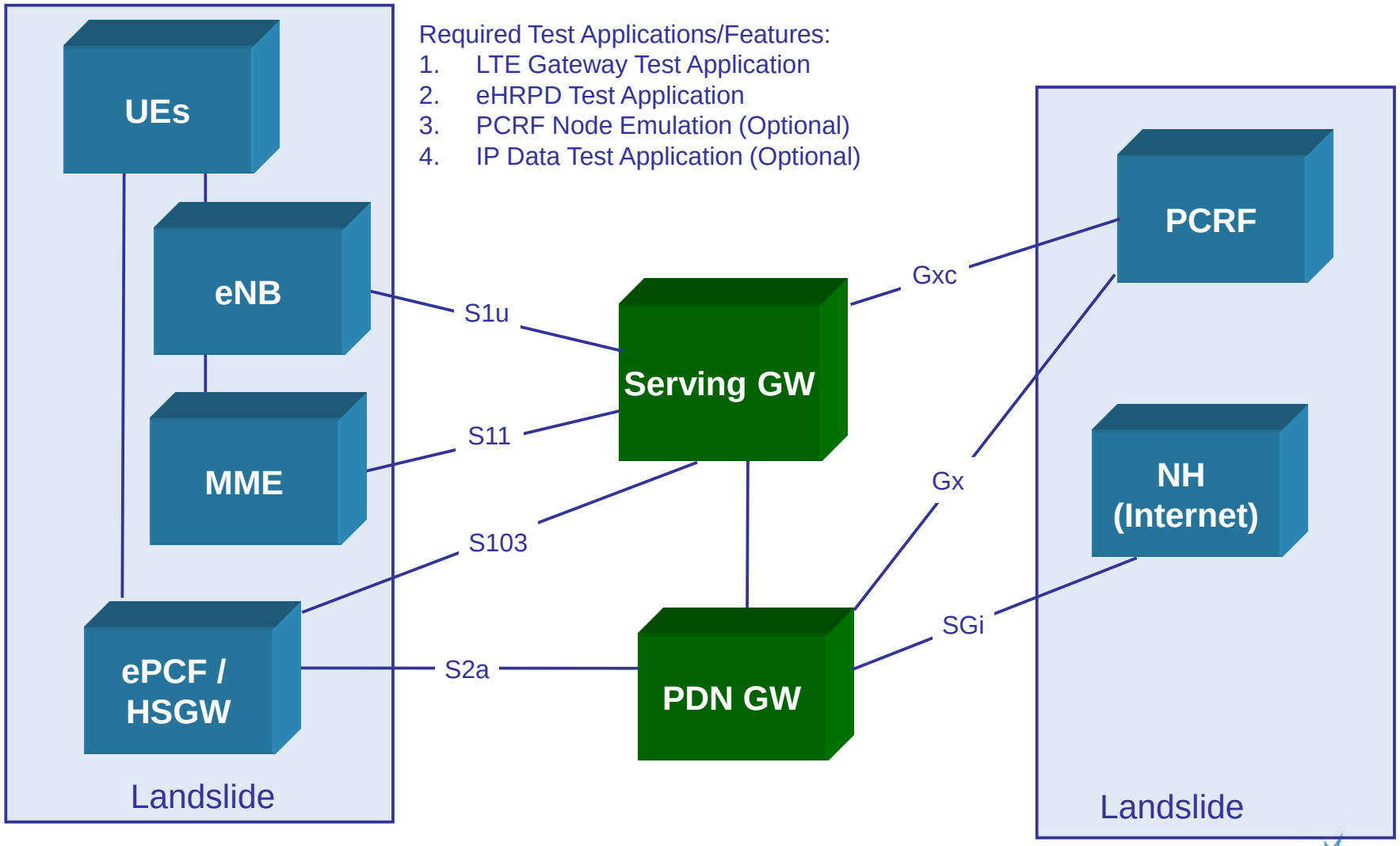
Test Configuration: CDMA-LTE Handover



23.402 9.1

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