Handling of RNC reset

Vodafone Group

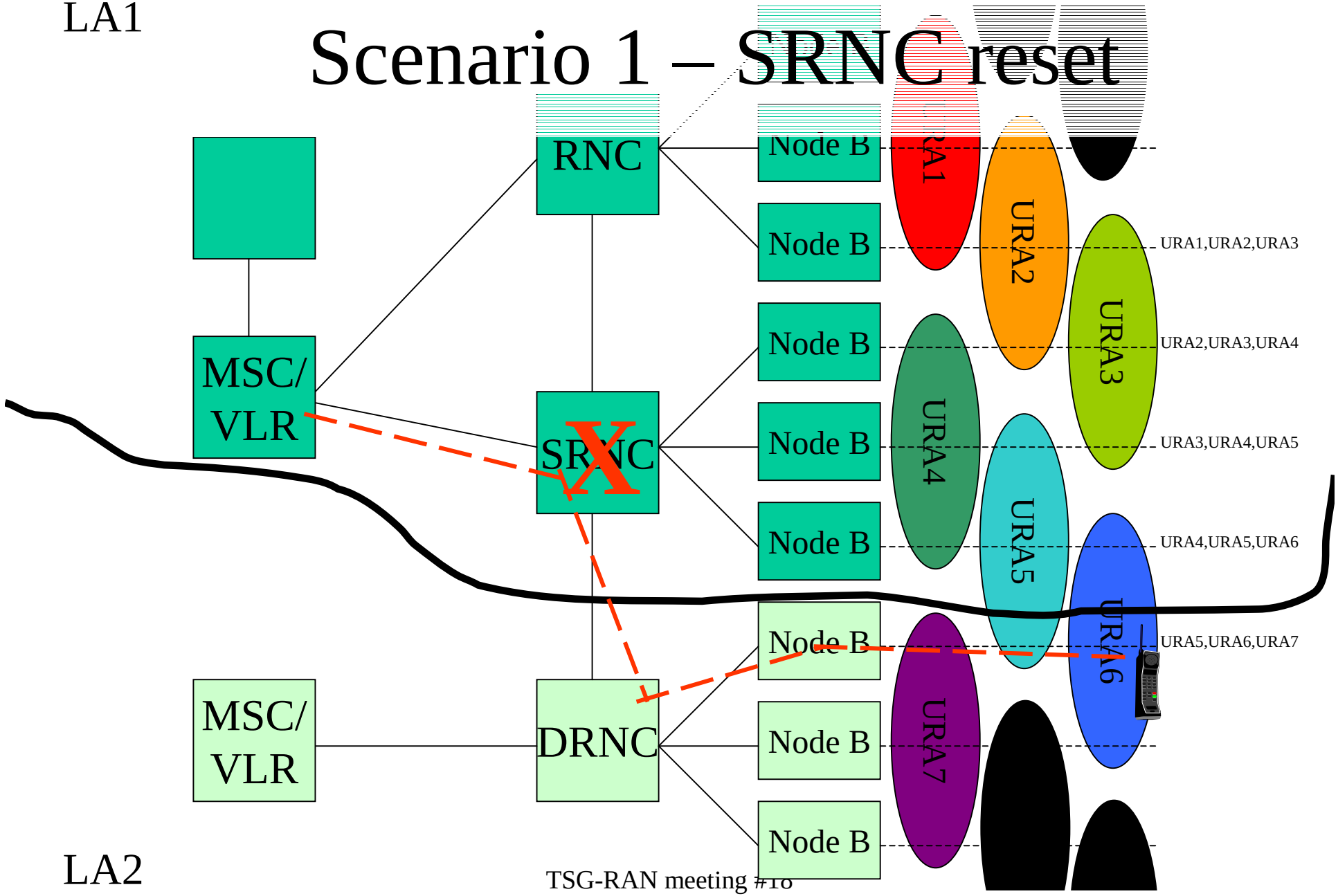
RP-020885

TSG-RAN meeting #18
New Orleans, Louisiana, USA

RNC reset - requirements

- Operators need a method to handle resets of equipment in a smooth manner
- Operator will need to the ability to control the subsequent load from UE upon recovery from reset.
- Operators need a simple method to provide recovery from reset.

Scenario 1 – SRNC reset



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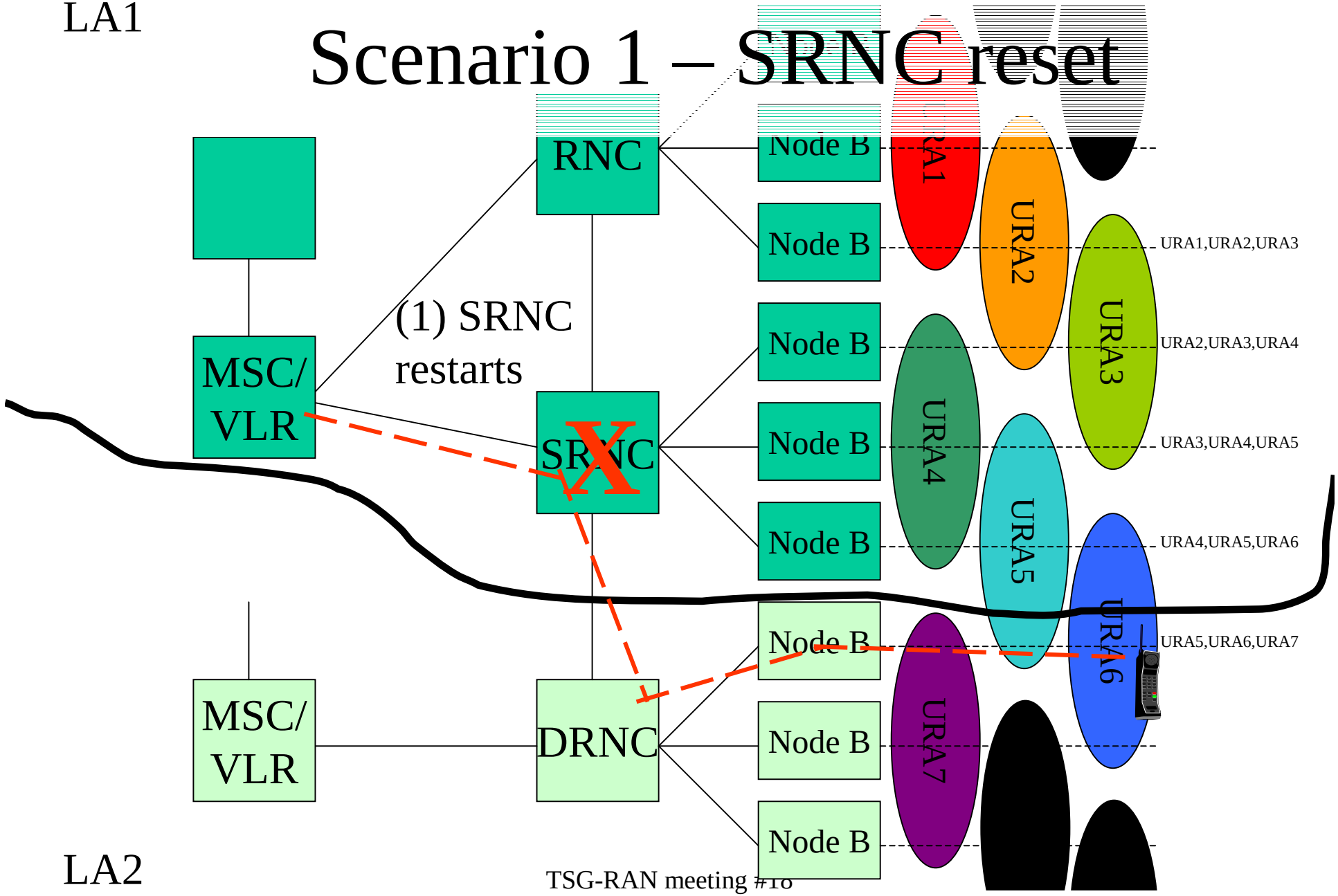

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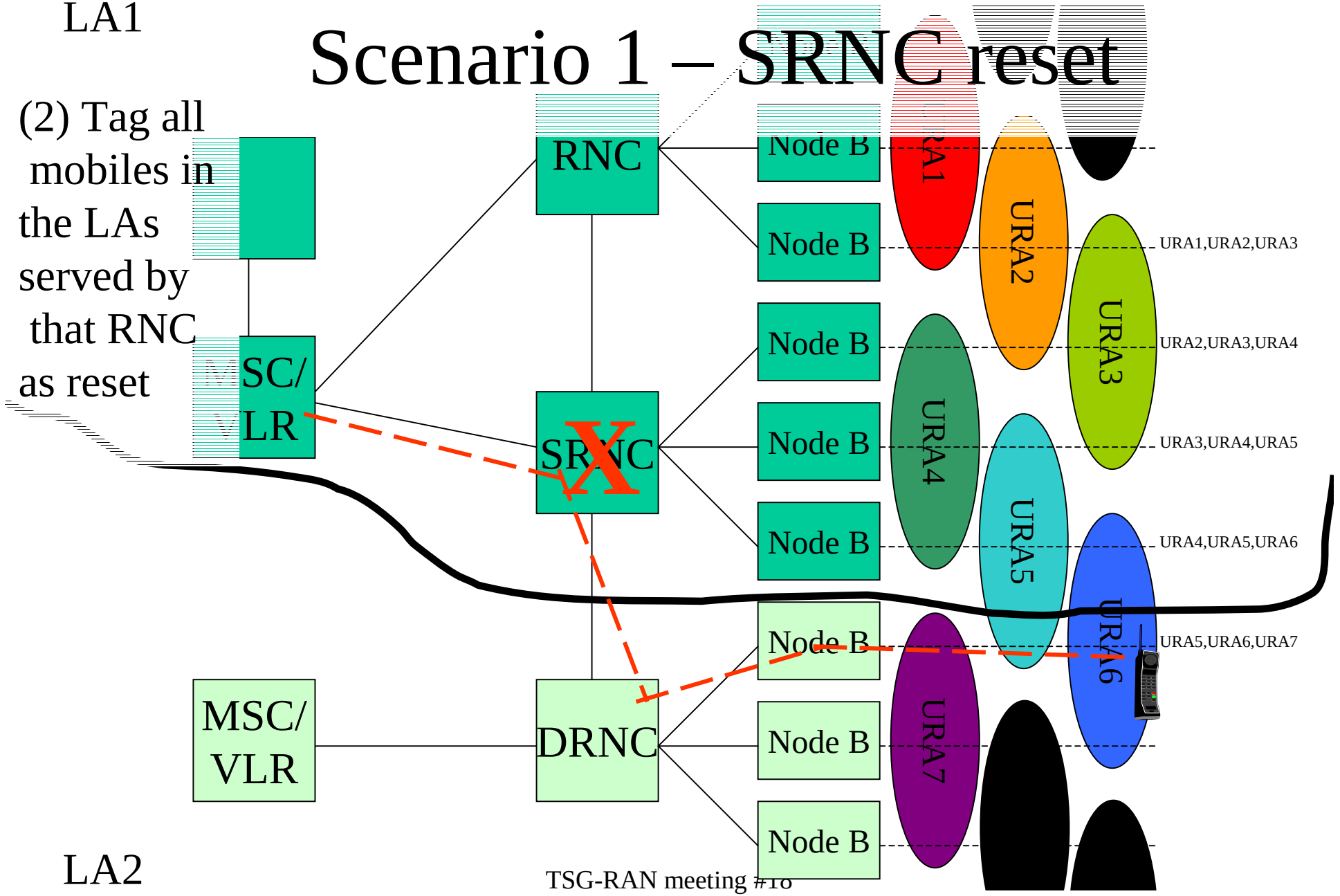

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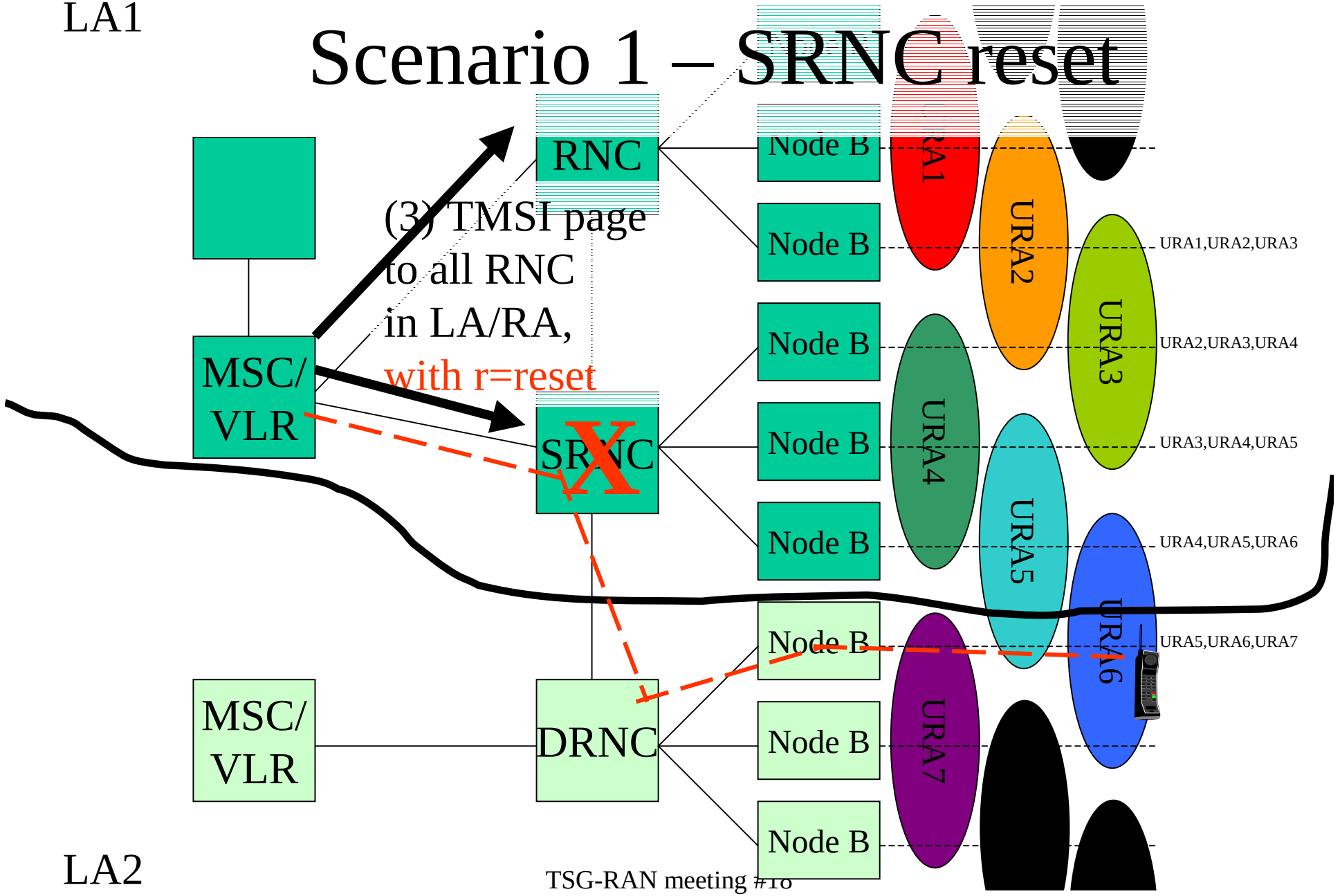

LA1

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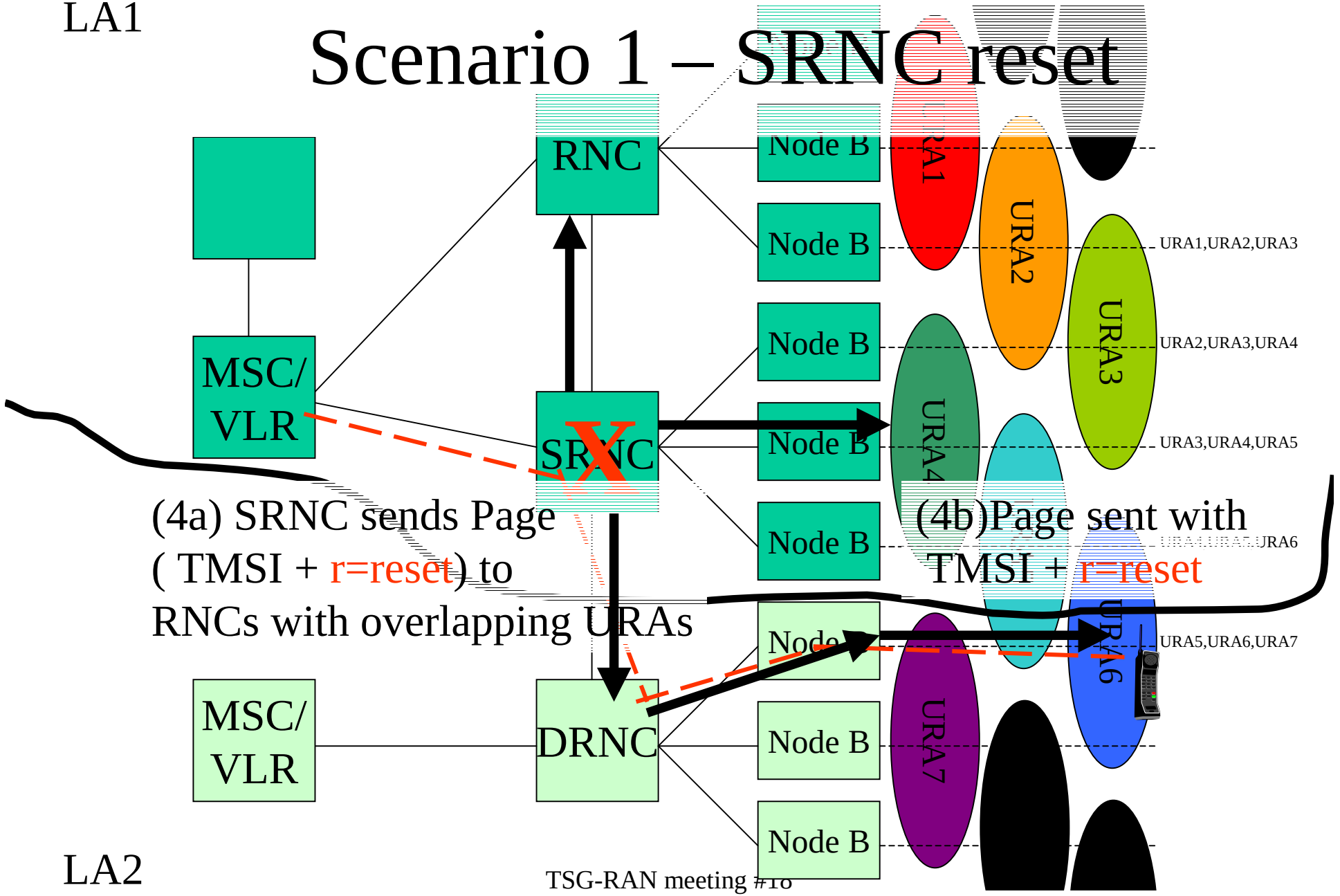

LA2

Scenario 2 – SRNC reset overlapping URA

- RNC has two options regarding forwarding paging across RNC boundaries with overlapping URA.
  - Forward to all RNCs with overlapping URA when r=reset.
    - Advantage: this is simple
    - Disadvantage: there is risk that there could be an increase in TMSI with reset pages throughout the network (although IMSI correlation by DRNC could limit this)

Scenario 2 – SRNC reset overlapping URA

- RNC has two options regarding forwarding paging across RNC boundaries with overlapping URA.
  - SRNC must store in a persistent manner all URA where it has UE's and forward the TMSI pages when r=reset.
    - Advantage: removes the explosion in TMSI paging
    - Disadvantage: has a dependency on persistent storage of URA to which the UE is connected.

Scenario 2 – SRNC reset overlapping URA

- Alternatively RNCs are configured to NOT have overlapping URA boundaries.

Scenario 3 – After SRNC reset, UE builds new RRC connection to SGSN

- Then paging from the MSC arrives in the SRNC with “r=reset” bit set. SRNC converts this into a page with RNTI.
- In DRNC, the UE may receive two pages (probably in same paging block), one with RNTI and one with TMSI:r=reset.
- UE responds to RNTI page.

Note: To handle cases of delay in SRNC, the UE should always wait one paging cycle following an r=reset page to see whether an RNTI page is following,

Conclusions

- UE's can be recovered without any group-ue release mechanism, with the advantage of a load that will be proportional to the rate at which UE's are paged in the reset RNC area.
- Reduced risk of denial of service attack through the sending of ONE unprotected group release message.