

Updated OmniRAN Network Reference Model with Backhaul

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Abstract

The presentation updates omniran-14-0051-01-CF00 (“OmniRAN Network Reference Model with Backhaul”) recognizing the outcome of the September 2014 meeting of the IEEE 802.1 OmniRAN Task Group.

Updated OmniRAN Network Reference Model with Backhaul

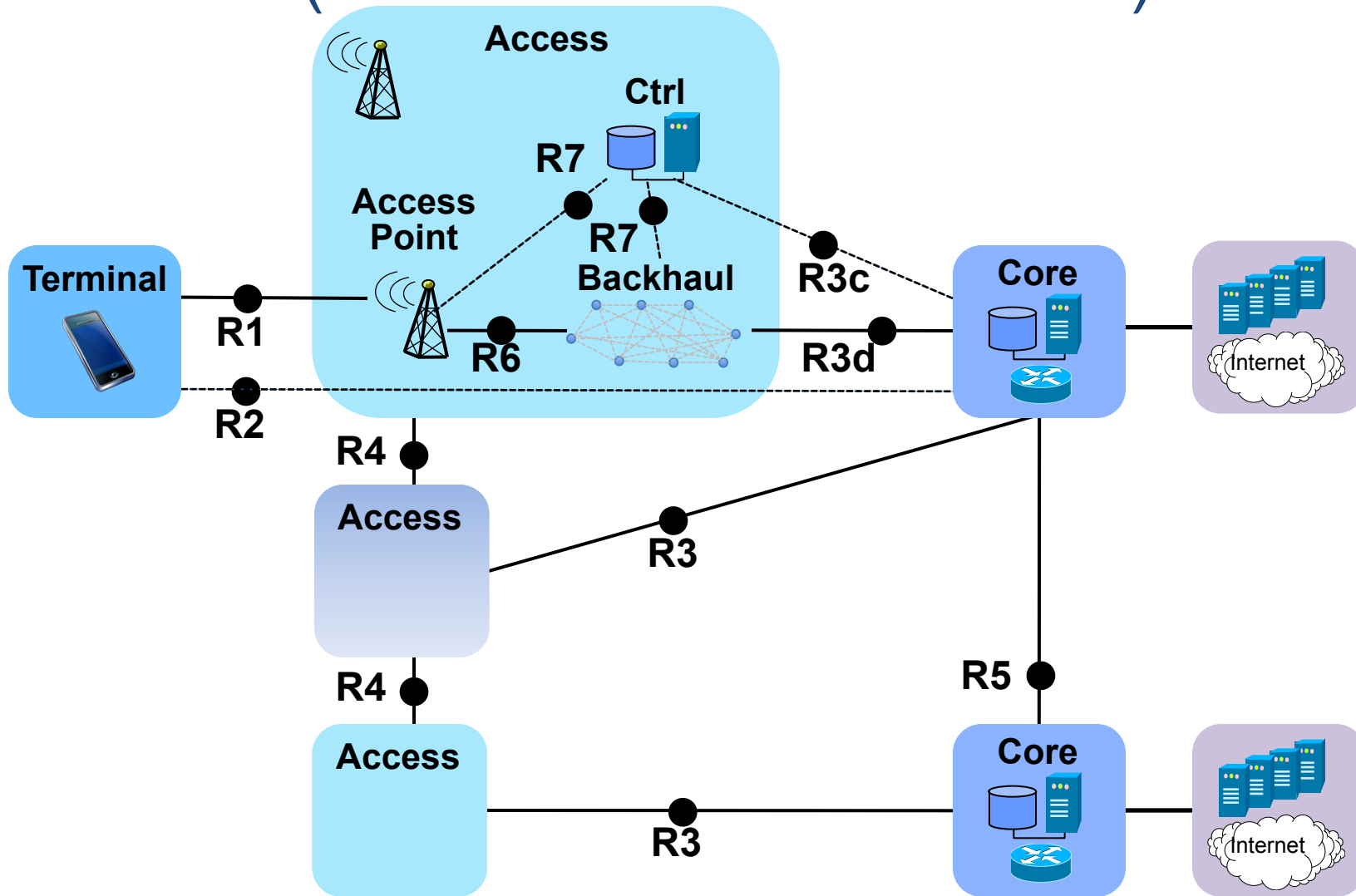
Roger Marks
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Background

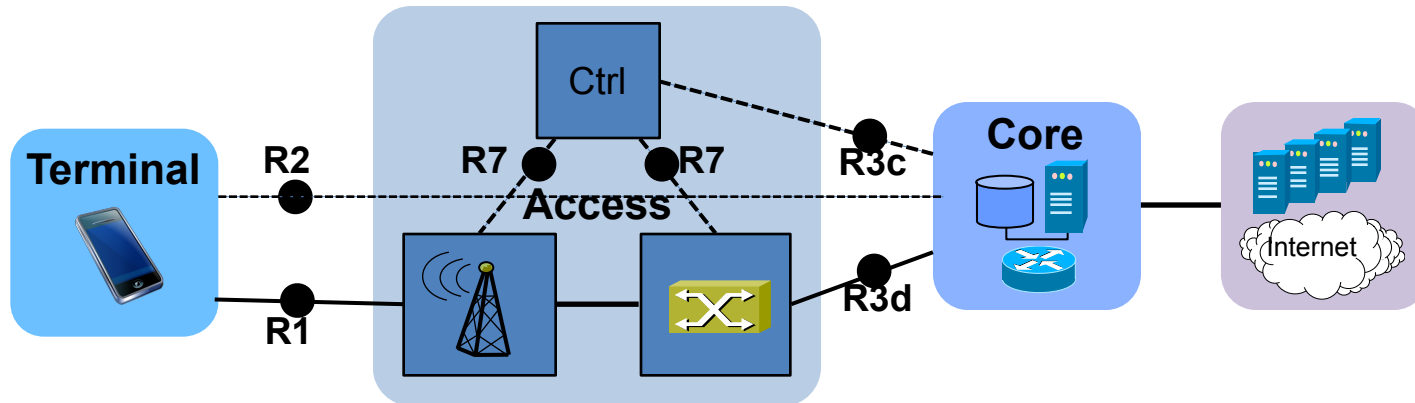
- Contribution omniran-14-0051-01 (“OmniRAN Network Reference Model with Backhaul,” 2014-07-15) reviewed prior contributions with respect to the tentative P802.1CF Network Reference Model (NRM) and recommending dividing the Access block into individual Access Point and Backhaul elements.
- The September OmniRAN TG session concluded with updates to the NRM (omniran-14-0069-01).
- Contribution omniran-14-0066-00 at the September session addressed backhaul in the NRM, particularly in terms of VLANs.

NRM with Backhaul

(from omniran-14-0051-01)



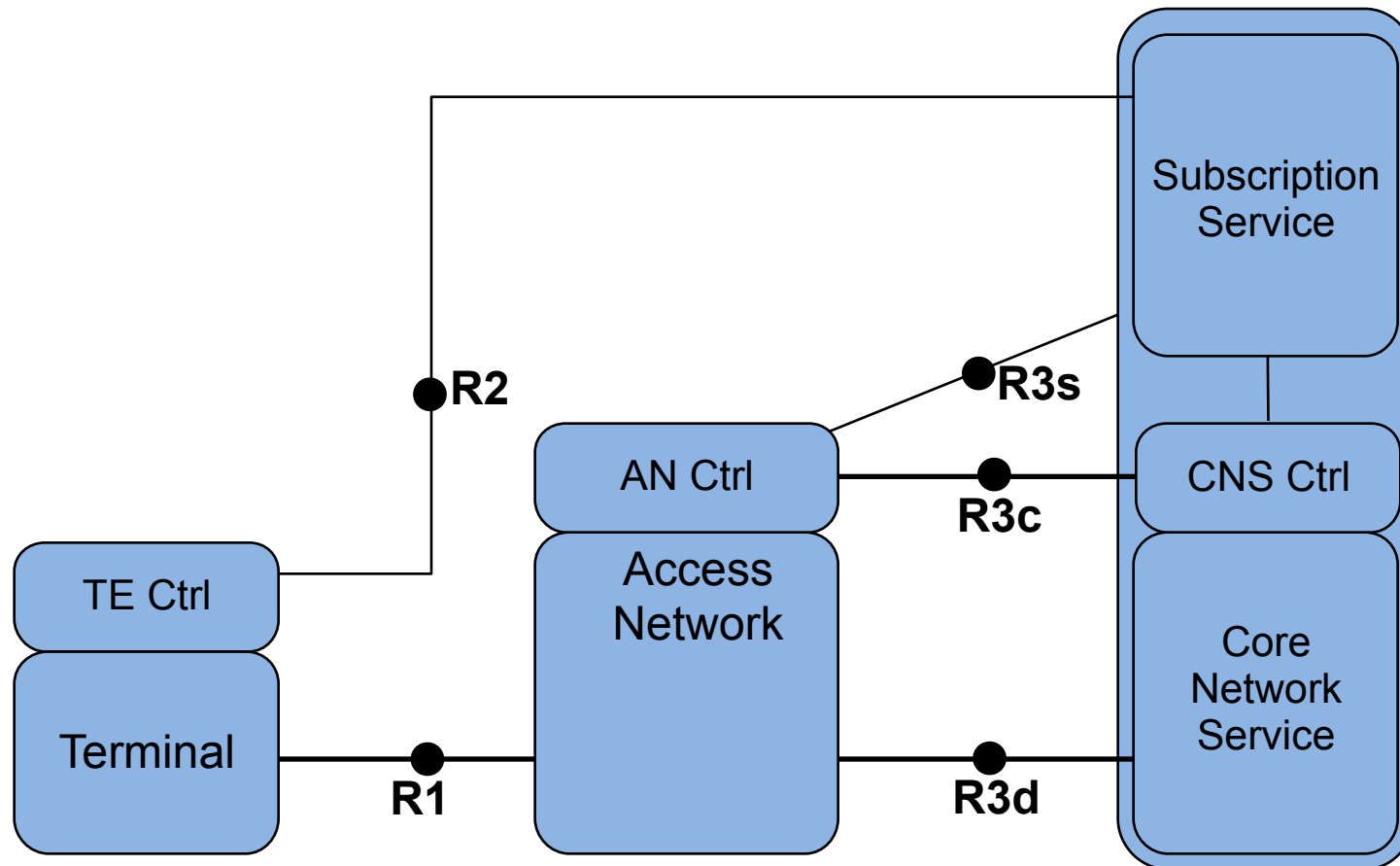
NRM with further details inside Access (from omniran-14-0066-00)



Note: Compatible with model from omniran-14-0051-01;
no reference point between backhaul and access point.

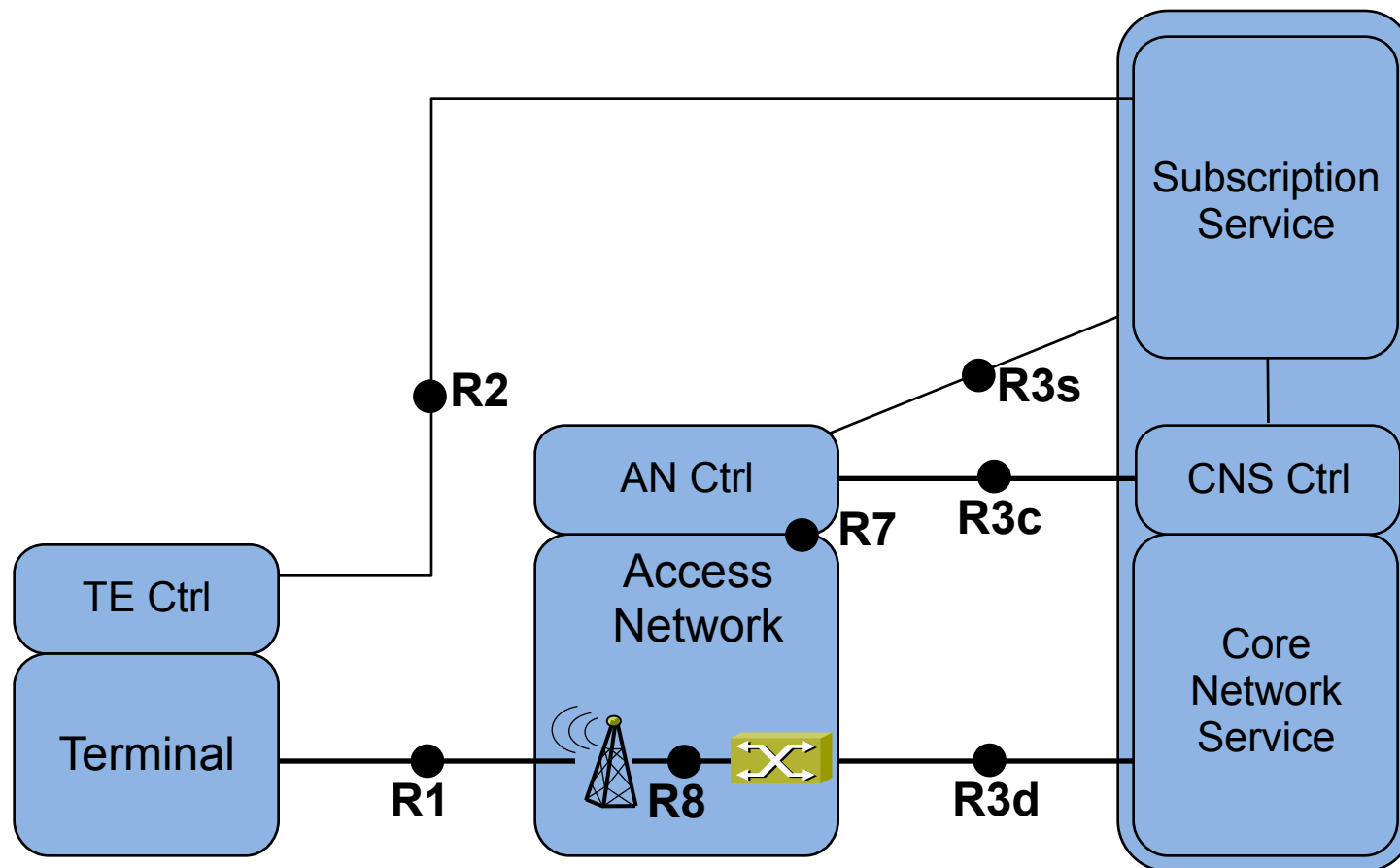
Core NRM

(omniran-14-0069-01)



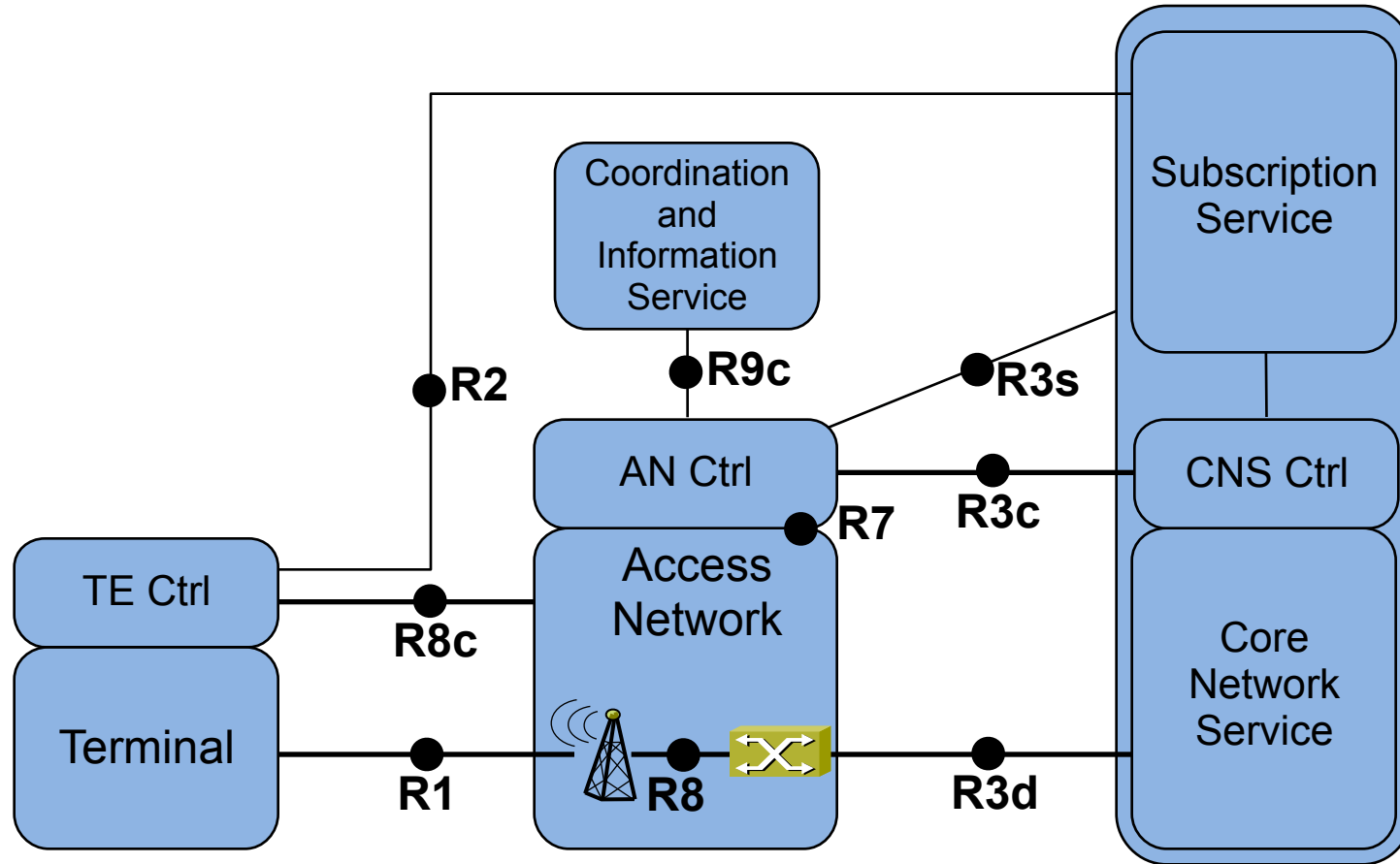
Note: More detailed NRM with R8c and CIS over R9c also provided; added details do not affect Access network.

Core NRM with backhaul



Note: R7 and R8 added.

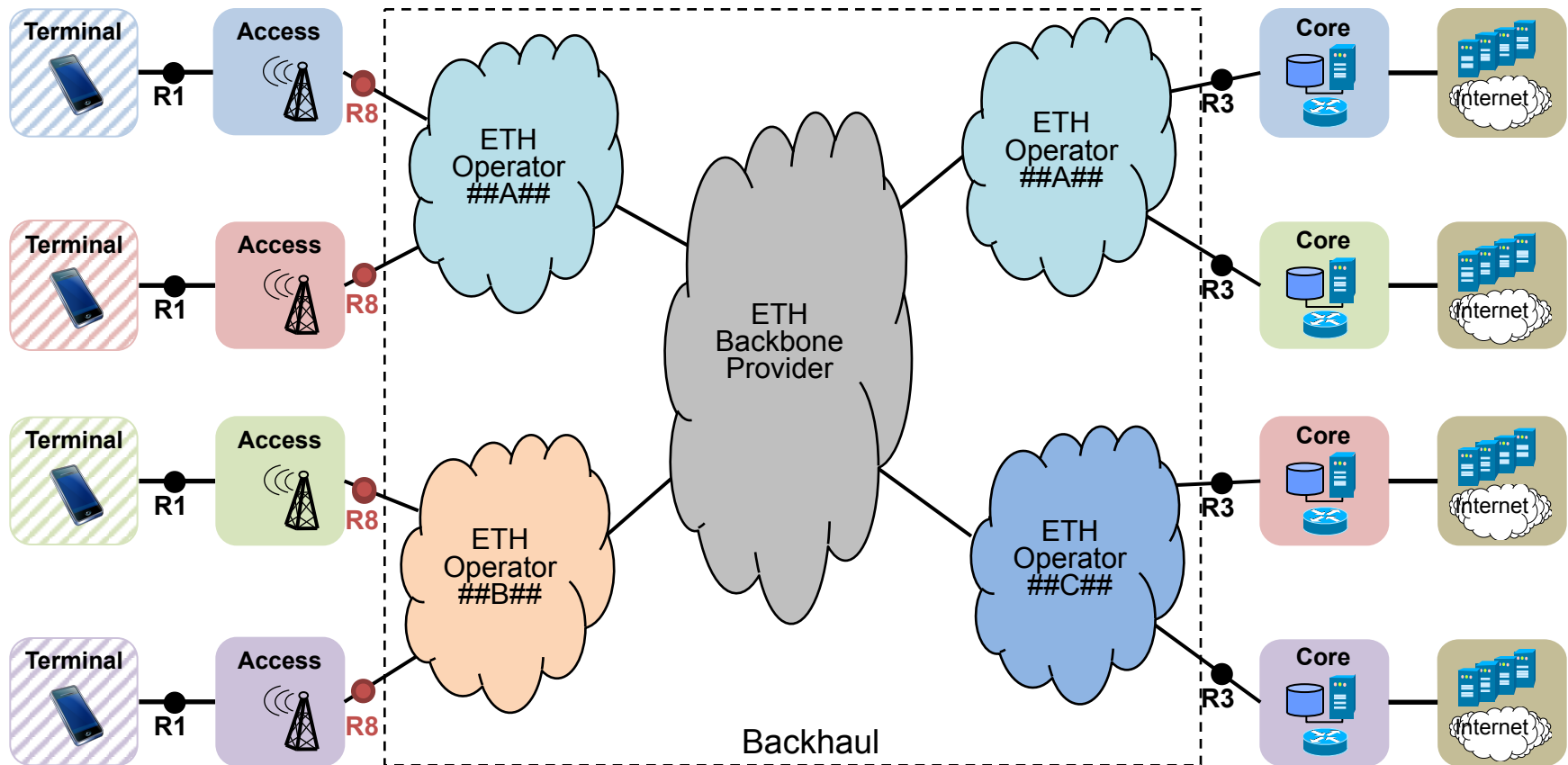
NRM with R8c and CIS over R9c with backhaul



Need for R8

- Reference point R8 is indicated between the access and backhaul.
- Contribution omniran-14-0066-00-CF00 thoughtfully observes that “Backhaul is mostly represented by stacked VLANs.”
- The interfaces to a VLAN-based backhaul are standardized; e.g., Metro Ethernet Forum standardizes Carrier Ethernet so that VLAN tags at the ports are interpreted by the backhaul network in terms of VLAN ID, class of service, and drop eligibility.
- To reflect such usage, reference points R3D and R8 must be specified as part of the NRM.

VLAN Deployment Example for Backhaul Provisioning (revision based on omniran-14-0066-00)



Need for R7

- Reference point R7 is indicated between the Access Control and the Access Network (including both backhaul and access point).
- R7 supports SDN control of the elements of the Access network.
- Could consider dividing R7 into separated backhaul control and access point control, considering that the requirements are very different.

Conclusion

- Backhaul should be represented in the NRM.
- Backhaul can be added to the NRM completed at the September session.
- Backhaul can be incorporated as an element of the Access Network.
- Backhaul should be delimited by reference points at both the Core and Access point ends.
- Reference point should be provided at Access Network control.