SDN Layers and Architecture Terminology

draft-haleplidis-sdnrg-layer-terminology-06

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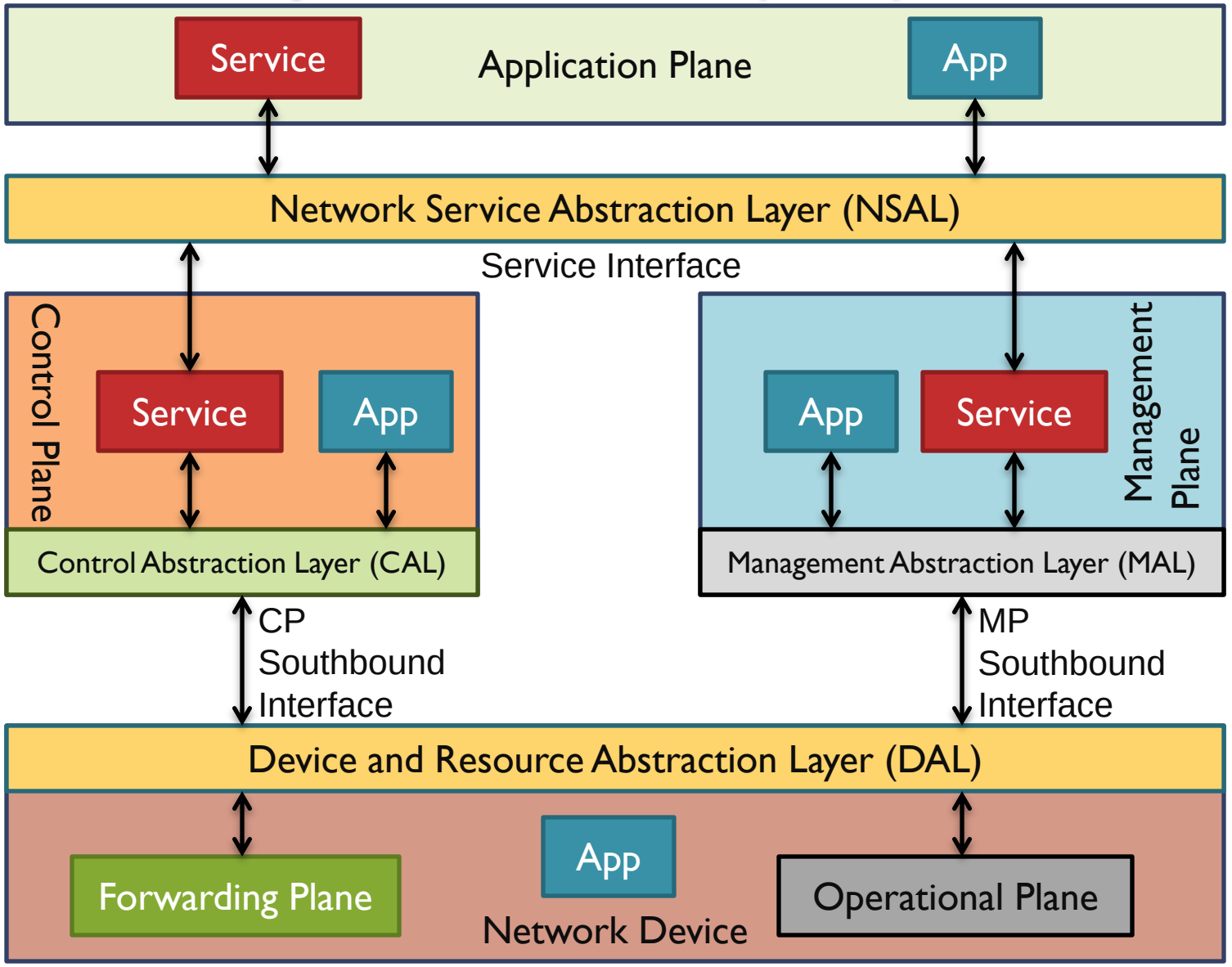
Changes since London (-04)

- 2 updates since IETF 89
  - Added to peer-review literature
    - Additional survey papers
    - RINA architecture
    - CAP theorem
- Addressed comments received by email and during the IETF 89 SDNRG meeting
  - Mailing list discussion re: control vs management
- Included coverage of
  - SNMP
  - PCEP

SDN Layers Model (-06)



Control vs Management (1)

- Discussion on what is "control" and what is "management"
- Valuable to make design choices
- Management *is* part of SDN
  - Need to distinguish characteristics of interfaces
- Based on the SDNRG meeting and mailing list discussion a set of key characteristics to distinguish between the two was added
  - Thanks for the contributions!

Control vs Management (2)

- Timescale
  - Control reacts very fast
  - Management usually slow(er)
- Persistence
  - Control associated with ephemeral state
  - Management associated with persistent state
- Locality
  - Control usually distributed, located near the network device
  - Management traditionally centralized

Control vs Management (3)

- CAP Theorem
  - Control Plane usually local and fast (available)
  - Management plane usually centralized (consistent)
  - Tool for analyzing design choices on control vs management
  - Example: Centralizing a controller increases consistency but keep in mind the availability tradeoff
- Any further comments on this?

Operational "Plane"

- Comments on whether the operational plane is a "plane" on par with the others (e.g. the management one)
- Editorial approach to avoid impasse
  - Draft opts to define it as "operational plane" on par with the others
  - But, we clearly document that some folks in SDNRG do not consider it a "plane"
  - Plane: Distinction between different areas of operations

NFV Discussion

- Recall discussion at IETF 89
  - Attempt to describe how NFV relates to SDN
- NFV uses management plane interfaces to instruct the operational plane to:
  - Reserve resources
  - Instantiate operational/functional virtual resource(s) on top of physical resources
    - Resources can then be abstracted by DAL (document makes no differentiation between physical and virtual)

Points not Addressed

- Work on other SDO activities
  - Opted not to include significantly more text.
  - A wiki page may be more suitable
- Research issues:
  - Out of scope of this document
  - Scholarly papers already cover this topic (salient ones cited in the draft)
  - SDNRG wiki page is more suitable
- Matrix of SDN projects vs model:
  - Again, a wiki page is more suitable

Moving Forward

- Comments / Feedback
  - Thanks to all contributors on the list and the SDNRG meeting(s) for the discussion and comments.
- Believe document is mature enough
  - Moving towards publication for IETF 91?