Stable Connectivity

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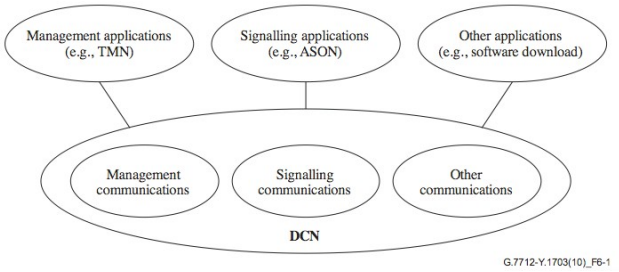
draft-eckert-anima-stable-connectivity-01

T.Eckert

M. Behringer

Overview

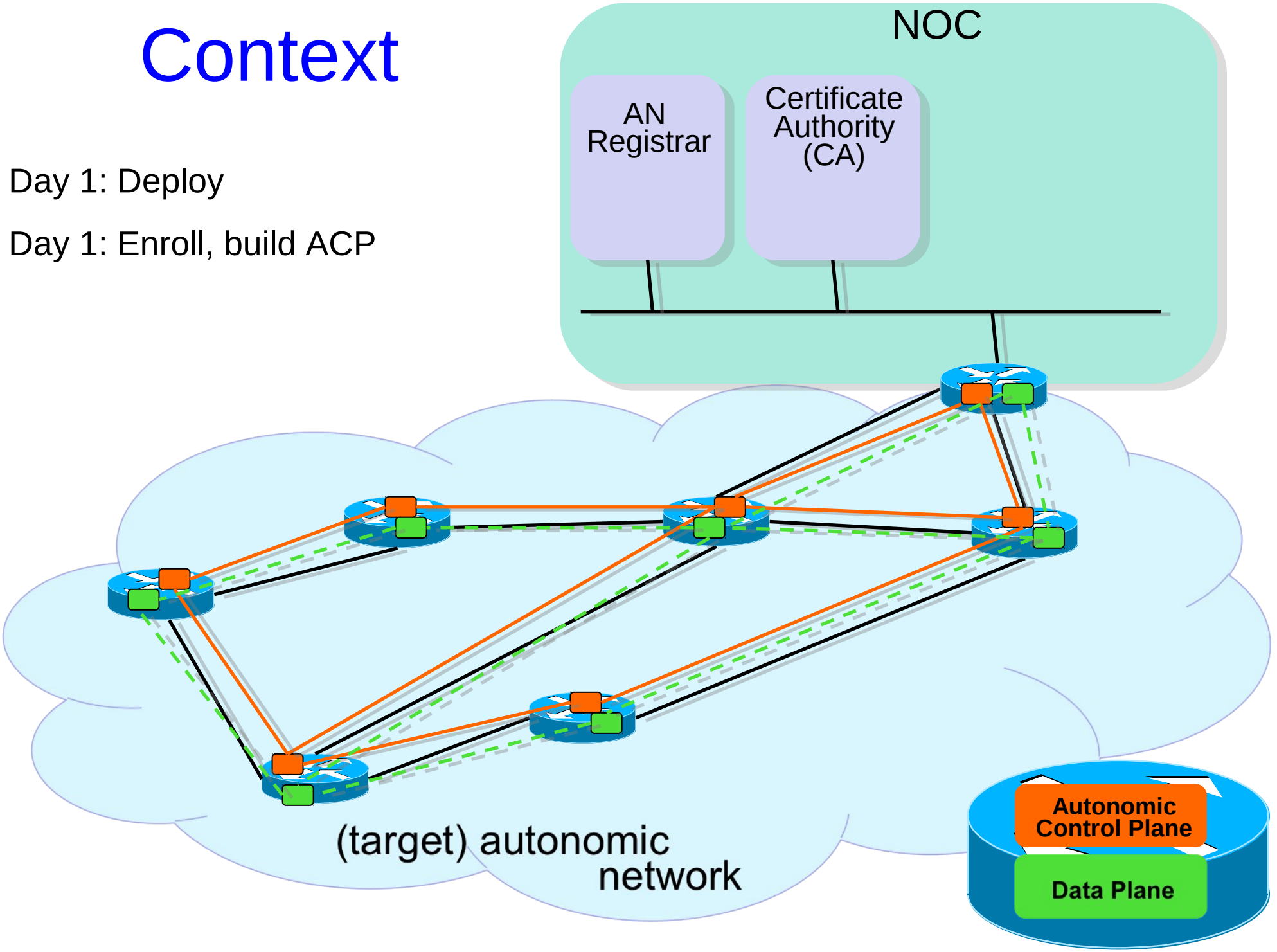
- Refresher
  - Covers important details helpful to remember during ongoing WG work (ACP / reference model)
- Stable-connectivity:
  - Use-cases for ACP
- Centralized NOC using ACP
  - Virtual inband “out-of-band” network
  - Virtual “Data Communications Network” (DCN)
  - Describe options how to use it
- Distributed agents using ACP
  - Out of scope today



Context

Day 1: Deploy

Day 1: Enroll, build ACP

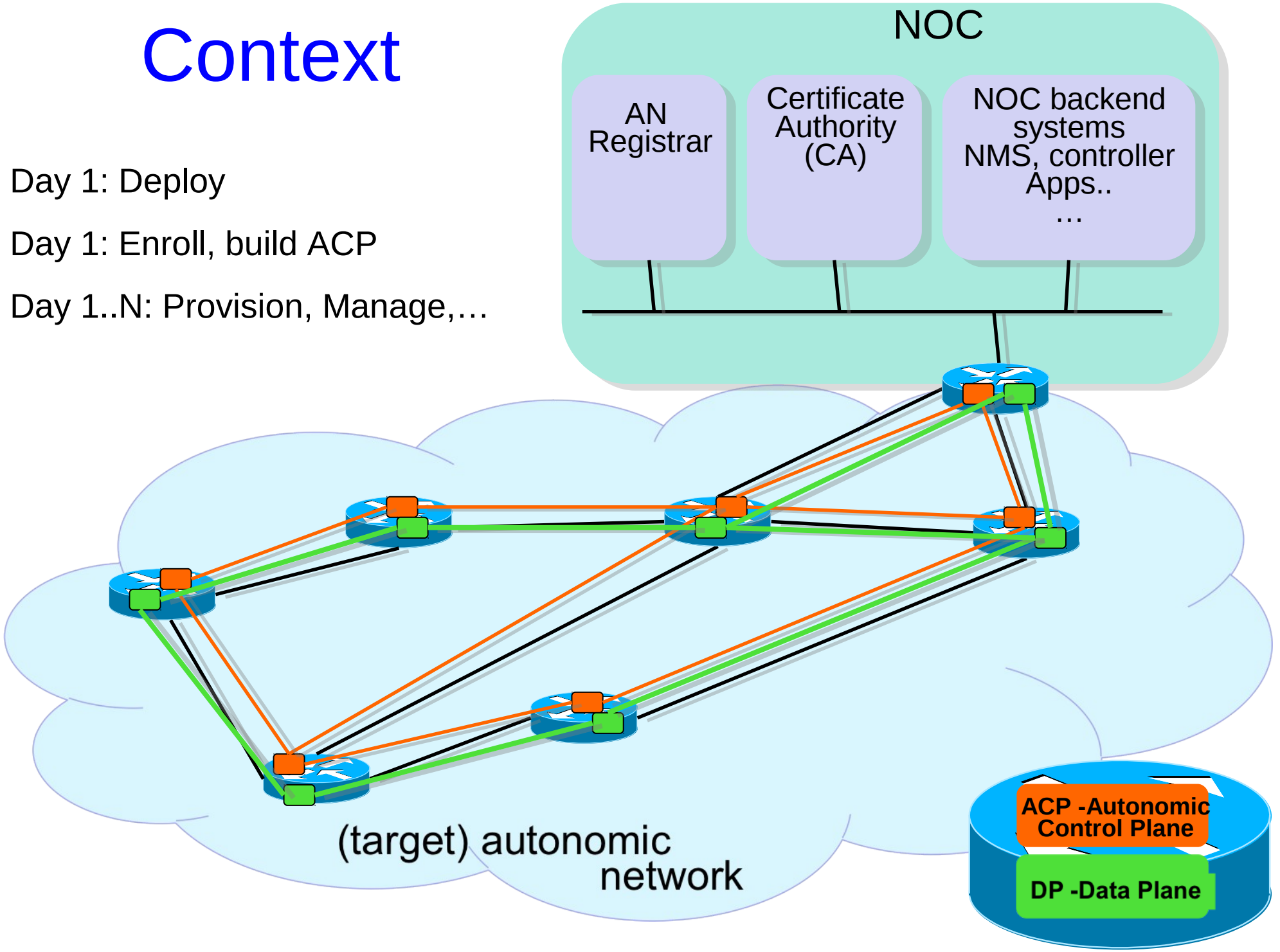


Context

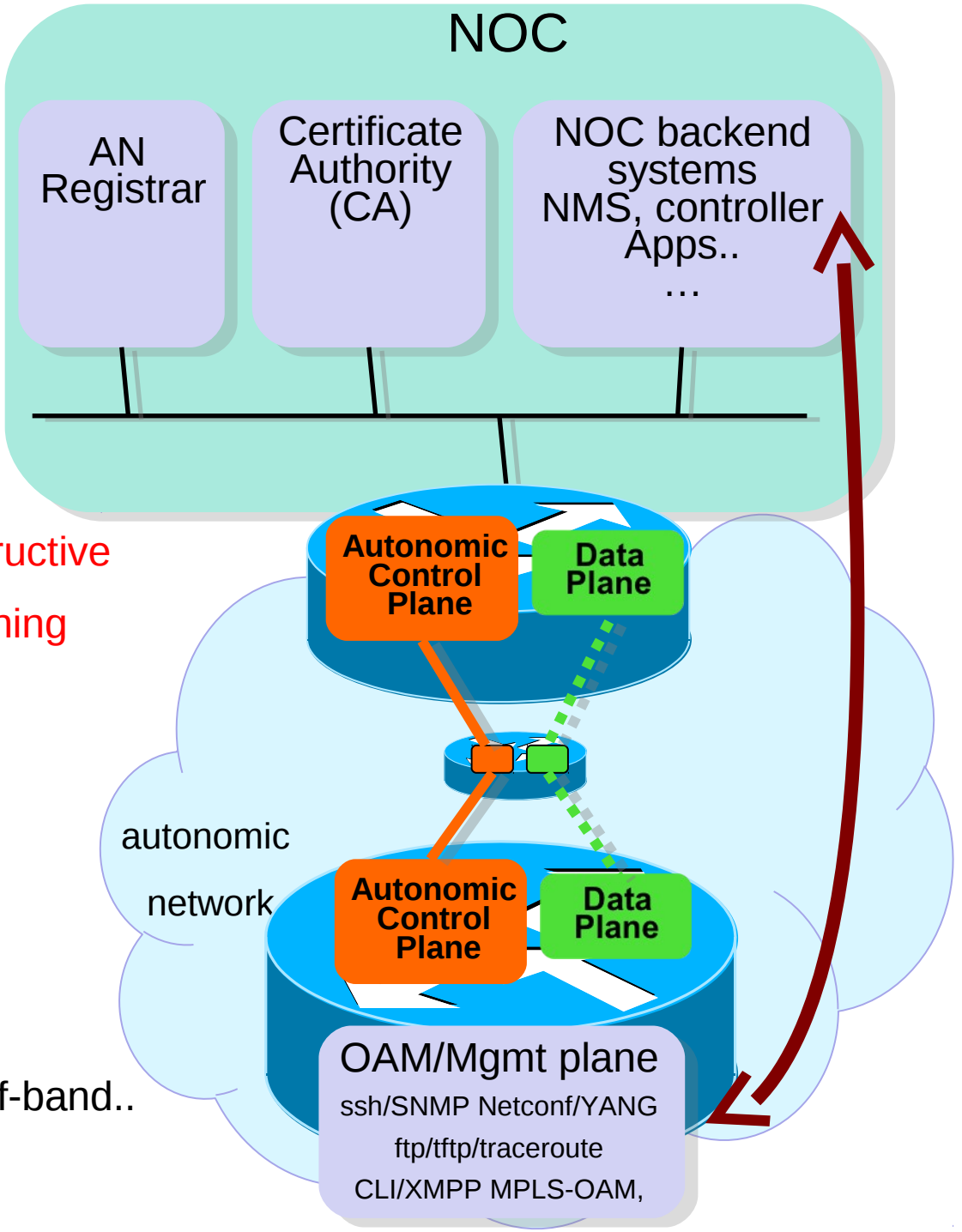
Day 1: Deploy

Day 1: Enroll, build ACP

Day 1..N: Provision, Manage,…



Scope



Communication

- **NOC ⇔ OAM/MGMT**

Using DP to modify DP can be self-destructive

Workijng around that can make provisioning complex

Day 0/1: Use ACP to build DP

Day N: Use ACP to change DP

Dual-path:

ACP reliable, secure, potentially slow

DP fast, insecure, ?unreliable?

How to monitor DP ? Inband (DP), out-of-band..

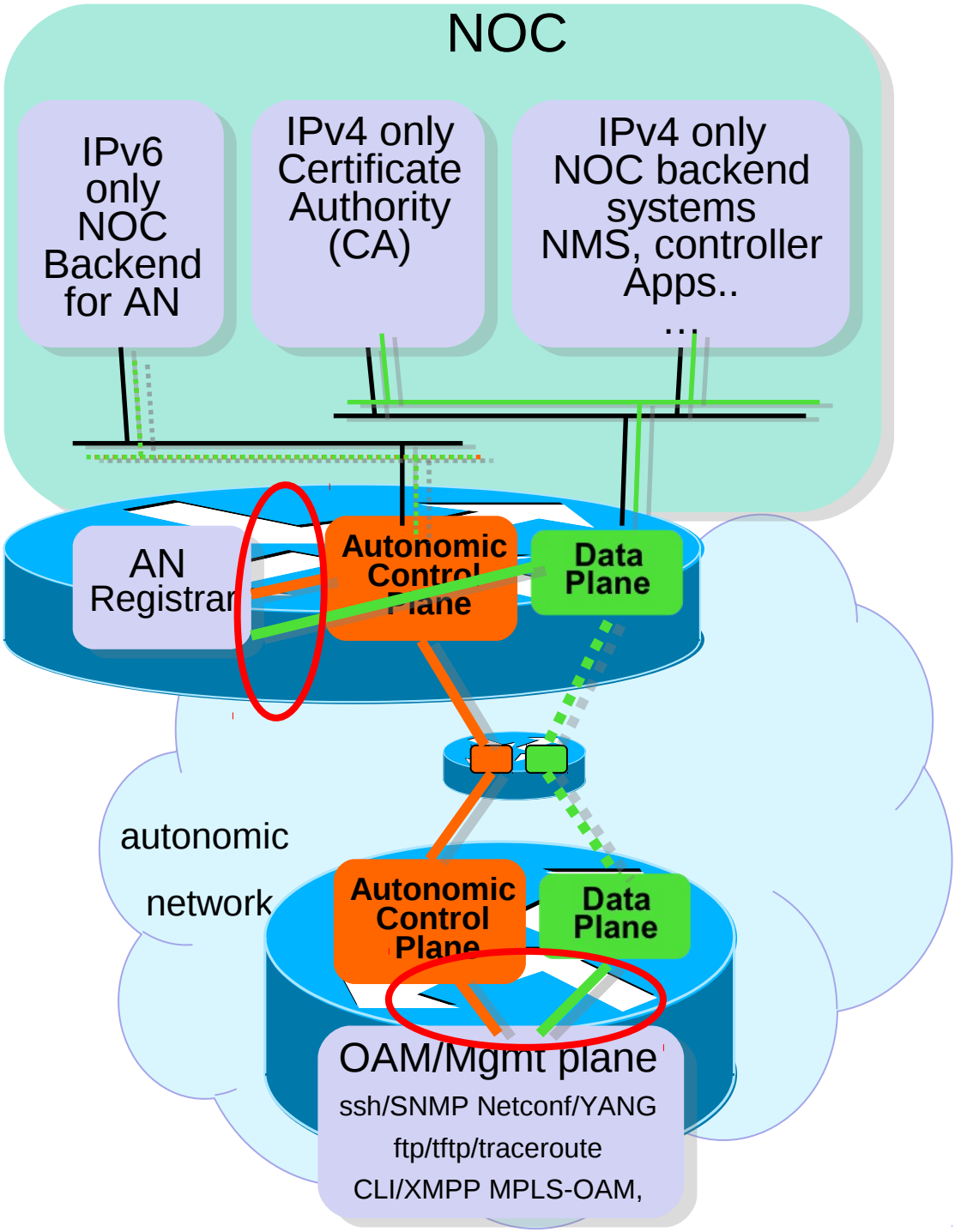
Solution (1)

Jumpstart

IPv4 only network

Start IPv6 ONLY to access ACP with new/limited NOC functions

Registrar needs to access DP to get to IPv4 only CA



Solution (2)

BAD ?!

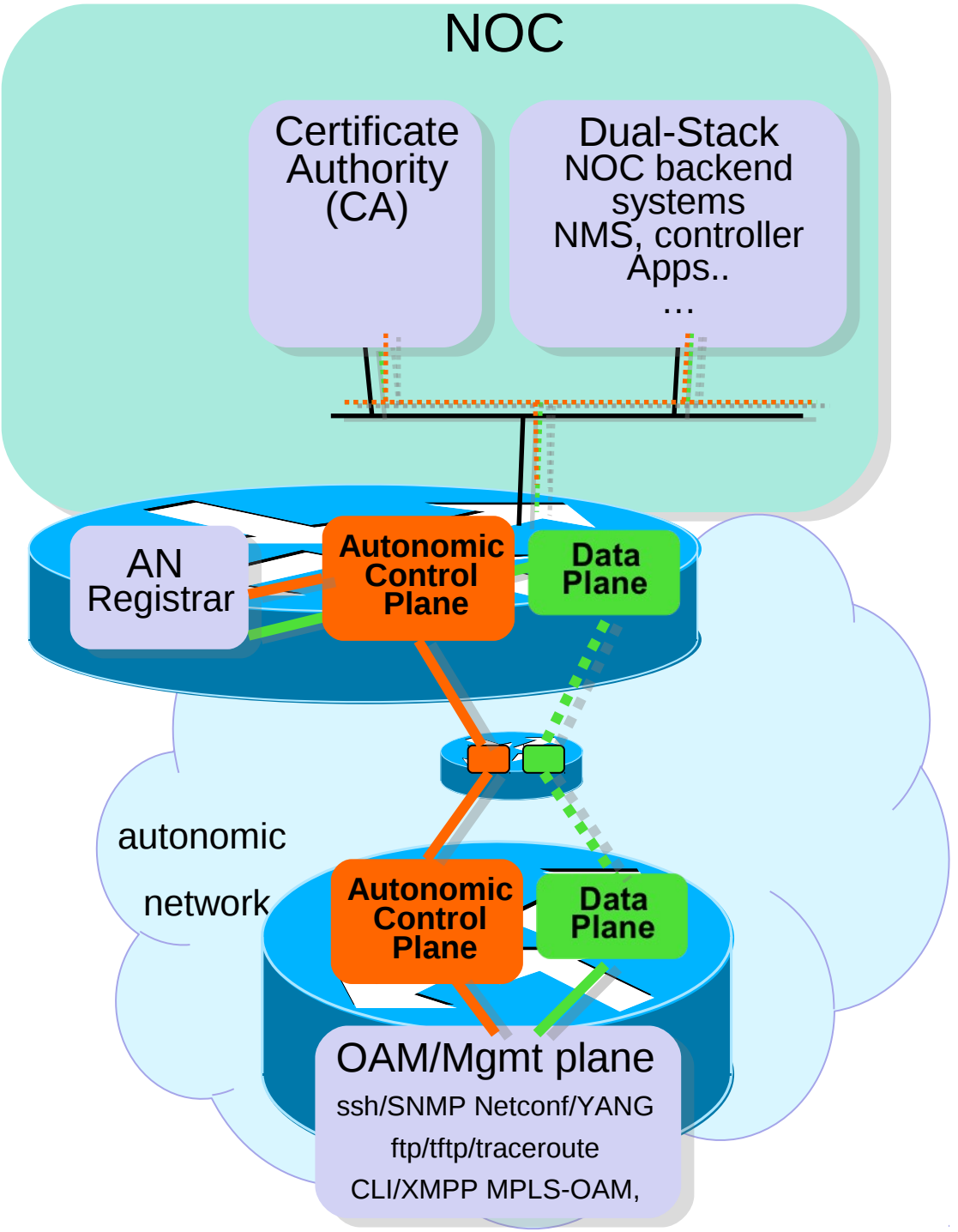
Dual-Stack NOC option 1

- IPv6 ONLY ACP
- IPv4 ONLY DP

ACP to NOC router setup

Use DNS to select ACP/DP

Not a sufficient solution to work with a network that wants an IPv6 data plane



Solution (3)

The real solution

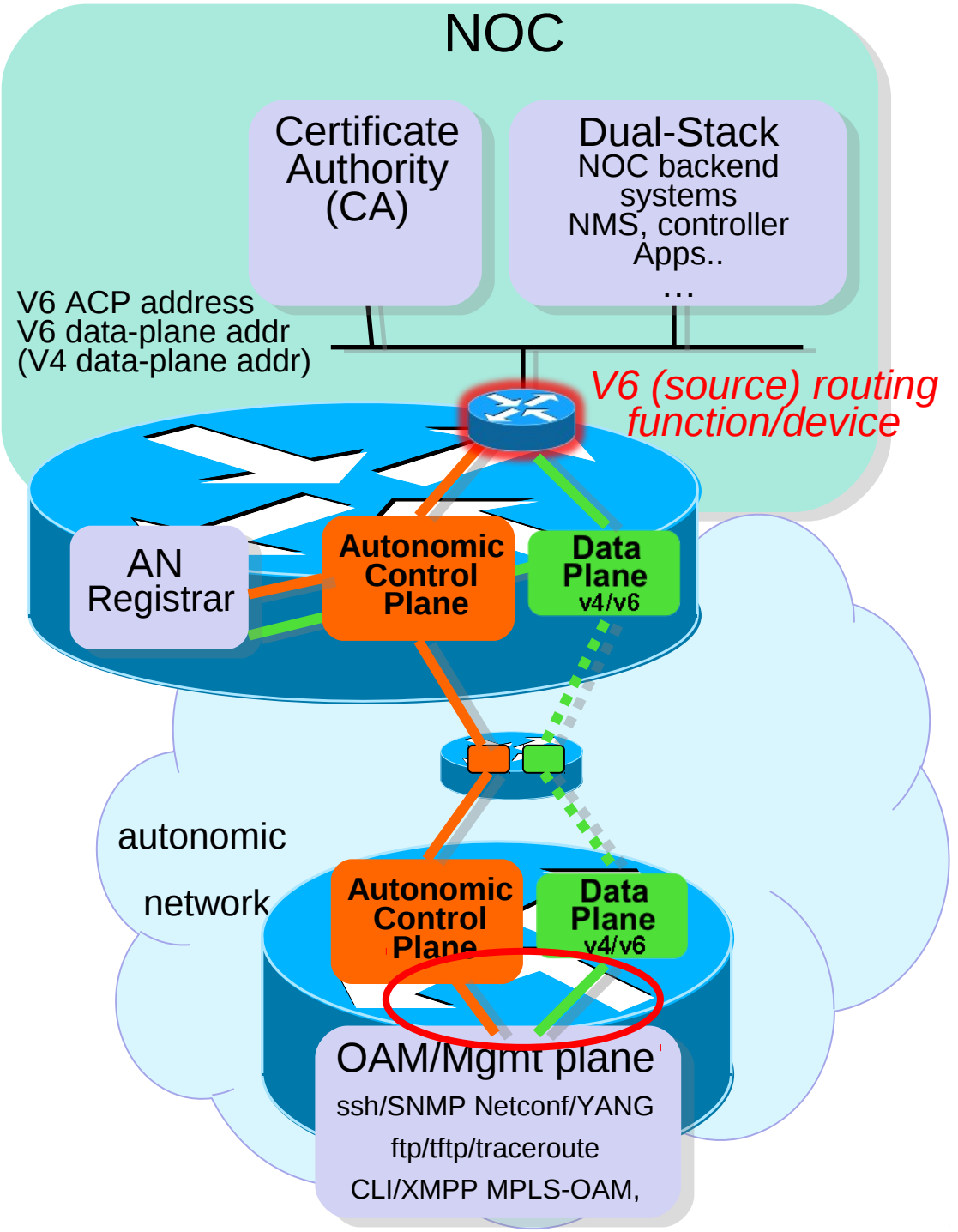
IPv6 access to DP AND ACP

Single address NOC devices for both ACP/DP:

> Requires source/dest routing for return traffic (OAM->NOC)

Recommend separate ACP and DP address on NOC devices.

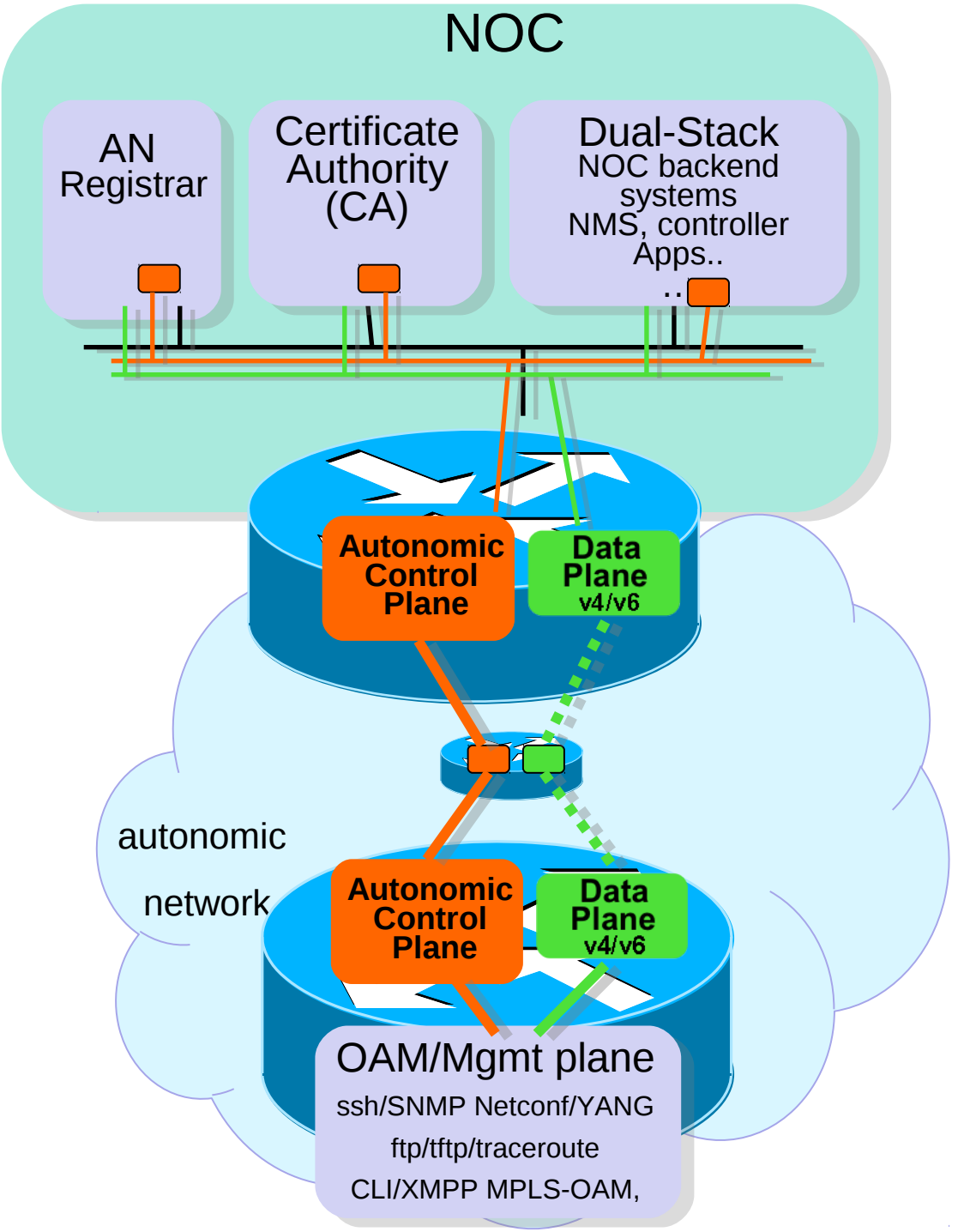
Automatic source-address selection based on dest-address as standard in IPv6



Solution (4)

Extends ACP security into NOC

Moves ACP/DP selection from ACP edge-router (3) into each NOC device.



More

MP-TCP

DP+ACP – automatically select best connectivity

Implementation challenge: both paths are in two VRFs – needs some shim-layer work in autonomic devices.

Hybrid step 3 / 4:

NOC devices do not have full ACP.

Just AN certificates

Can rely on ACP security if they are fine to only use TLS protocols across DP

Use legacy insecure protocols (tftp, DNS, SNMP, …) only across ACP

-01 rev:

Discussion about use of ULA addresses and unused lower bit part of ULA space:

Conclusion: Registered ULA addresses not necessary. “Self-publish” might be helpful

Thank You