

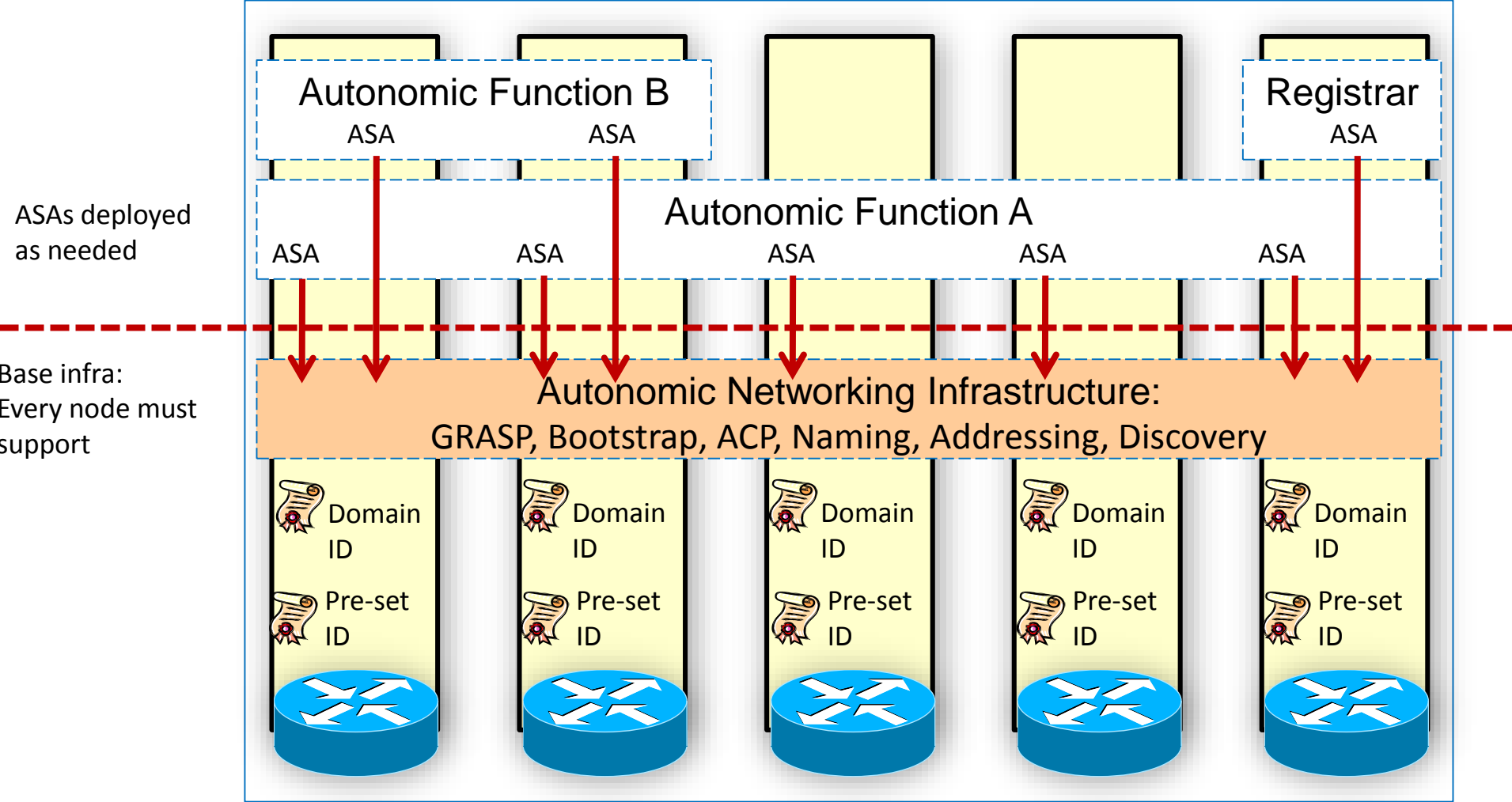
A Reference Model for Autonomic Networking

draft-ietf-anima-reference-model-02.txt

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Reference Model – High Level View



Network with autonomic functions

Changes from -01:

New section on ASA life cycle management

- New section 7.2; key points:
 - ASAs will come from different organisations, have different objectives
 - Therefore: Need an agreed management model
 - Life cycle: Install, deploy, control
 - Describe interactions between ASA and ANI in different states
 - Self-description: Needed for ASA management
 - Control the execution (at least “start” and “stop”)

- Added Pierre Peloso as co-author.

Changes from -01: Simplified Naming Section

- “Should” assign a unique name
- Consistent scheme within a domain
- Typically assigned by registrar
- Persistent

- Default naming scheme:
 - <registrar-part>-<device number>
 - Example: 0123-4567-89ab-0001

Changes from -01: Intent Distribution

- Marked with a (*) → Not part of current charter
- Mostly a re-write, high-level only
- Intent distribution is part of the ANI
- Should change infrequently (order of days)
- Should flood to all nodes
- No need for targeted distribution models for now
- Monolithic: Flooded as a whole

Changes from -01: Other

- Intent section shortened
- updated / added references
- Some re-ordering
- Other editorial changes

Adjacency Table

- Information about adjacent nodes
 - “Note down what you see” – no judgement yet!
- Used to control autonomic processes, such as constructing the ACP, bootstrapping, etc.

Node-ID	i/f	Link address	ACP address	Domain	Certificate	Validity	Trust
<UDI-1>	Eth0	FE80:...	FD...	Example.com	<cert-info>	valid	Full (In domain)
<UDI-2>	Eth1	FE80:...	-	Example1.com	<cert-info>	valid	No
<UDI-3>	-	2000:...	FD...	Example.com	<cert-info>	Valid	Full (in domain)
<UDI-4>	Eth2	FE80:...	-	-	-	-	-

Feeding the Adjacency Table

AN discovery
(local)

draft-ietf-anima-grasp

AN discovery
(cloud redirect)

Non-autonomic inputs:

- Configured adjacencies
- DHCP options for AN
- DNS based
- ...

draft-ietf-anima-
bootstrapping-keyinfra-00
section-5.3 or
Reference model ??

Node-ID	i/f	Link address	ACP address	Domain	Certificate	Validity	Trust
<UDI-1>	Eth0	FE80:...	FD...	Example.com	<cert-info>	valid	Full (In domain)
<UDI-2>	Eth1	FE80:...	-	Example1.com	<cert-info>	valid	No
<UDI-3>	-	2000:...	FD...	Example.com	<cert-info>	Valid	Full (in domain)
<UDI-4>	Eth2	FE80:...	-	-	-	-	-

Using the Adjacency Table

Node-ID	i/f	Link address	ACP address	Domain	Certificate	Validity	Trust
<UDI-1>	Eth0	FE80:...	FD...	Example.com	<cert-info>	valid	Full (In domain)
<UDI-2>	Eth1	FE80:...	-	Example1.com	<cert-info>	valid	No
<UDI-3>	-	2000:...	FD...	Example.com	<cert-info>	Valid	Full (in domain)
<UDI-4>	Eth2	FE80:...	-	-	-	-	-

↓ draft-ietf-anima-bootstrapping-keyinfra-00 section-3.2

Node has no domain
And I have domain
→ Be a proxy to bootstrap that node

↓ draft-ietf-anima-bootstrapping-keyinfra-00 section-3.1

Node has domain
And I don't have domain
→ I bootstrap

↓ If response = "redirect"
Enter the redirect target into adjacency table; use this node to bootstrap.
draft-ietf-anima-reference-model-02.txt

↓ draft-ietf-anima-autonomic-control-plane Section 5.1

Node has same domain
→ Build ACP
→ Add ACP parameters to table

↓ ACP based functions, e.g, Intent distribution, negotiation, Synchronisation, etc.

↓ Outside scope for now.

Intent driven behaviour (tbd)

Needs More Work

Open Issues: Re-Work of ASA Section

- 7. Autonomic Service Agents (ASA)
 - 7.1. General Description of an ASA
 - 7.2. ASA Life-Cycle Management
 - 7.3. Specific ASAs for the Enrolment Process
 - 7.3.1. The Enrolment ASA
 - 7.3.2. The Enrolment Proxy ASA
 - 7.3.3. The Registrar ASA

- Some input already received (mostly Brian)
- Feedback after more implementation experience.

Open Issues

- Bring all future items into a single section?
 - Several people in favour, one suggested even an appendix.
 - But: Then sections are out of context (ex: security).
 - Still thinking... More feedback, please!

Open Issue: Relationship ASA / Autonomic Function

- Needs to be more clearly formalised.