Reminder – Motivation

• To validate the application and reusability of Anima components.
• In large networks, prefix management still depends on human planning. Management of IPv6 prefixes is rigid and static after initial planning.
• The autonomic networking mechanism is to dynamically and autonomically manage IPv6 address space in large-scale networks.
• Ideally, administrators just configure a single IPv6 prefix for the whole network and the initial prefix length for each device role.
Reminder – Overview

• A prefix requesting device needs more address space.
  ➢ Discovers peer devices that may be able to provide extra address space by GRASP Discovery message for the PrefixManager objective.
  ➢ Then negotiates with a discovered peer for the needed address space using GRASP messages.

• In a single administrative domain, the network operator manages all PrefixManager devices with the same Intent rules, flooded using GRASP.

• Discovery, negotiation & flooding messages go through the secure Autonomic Control Plane (ACP).
Main Changes in WG –00 draft

• Focus is on prefix management at the network edge (i.e. assume that core is already numbered).
  ➢ But the solution is not restrictive.

• The description is now much more specific about the usage of GRASP.

• The mechanism is now intended to be “PD friendly”.
  ➢ If nodes support DHCPv6 Prefix Delegation, it will be used.
  ➢ If not, the GRASP negotiation itself will delegate a prefix.
GRASP objectives (1)
in CDDL notation

objective = ["PrefixManager", objective-flags, loop-count, PD-support, length, ?prefix]

loop-count = 0..255 ; see GRASP spec
objective-flags /= ; see GRASP spec
PD-support = true / false ; indicates if sender supports PD
length = 0..128 ; requested/offered prefix length
prefix = bytes .size 16 ; offered prefix in binary
GRASP objectives (2)
in CDDL notation

objective = ["Intent.PrefixManager", objective-flags, loop-count, text]

loop-count = 0..255 ; see GRASP spec
objective-flags /= ; see GRASP spec

; The text object would be the relevant intent statements (format TBD) transmitted as a single string. Alternatively, we would use the proposed CBOR encoding for yang.
Next Steps

• Reviews and comments wanted, of course.
• We also want a volunteer to try writing a prototype PrefixManager ASA.
  ➢ Easiest would be to write in Python 3 since there is a prototype GRASP implementation and API.