Autonomic Network Intent and Format
**draft-du-anima-an-intent-01**

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Introduction

- Autonomic Network → supposed to work with minimum intervention from human operators
- Some form of guidance/information/orders still needed to meet specific requirements → Intent
- Autonomic Nodes should be able to unscramble the meaning of the intent with no ambiguity and act accordingly

Intent

Autonomic Network
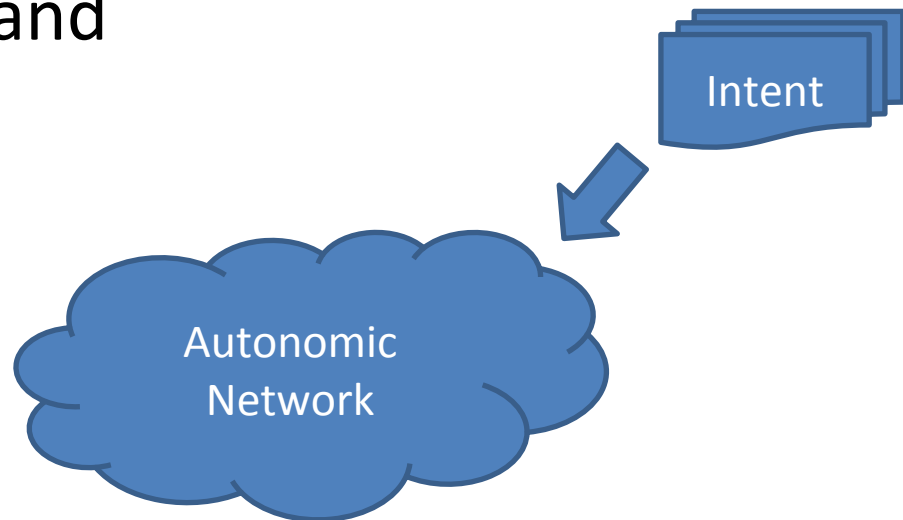
Intent Definition

- Intent: "*An abstract, high level policy used to operate the network*" (quoted from [RFC7575])
  - Different from the NMS method, no need to configure every node directly

- Intent examples
  - Prefix management [I-D.jiang-anima-prefix-management]
  - What kind of IGP (such as OSPF) or transport layer technology (such as MPLS) should be used for the autonomic domain?

Intent Parts

- Intent common part
  - Common information needed by every intent

- Intent specific part
  - Specific information that influence the configuration of the nodes
    - Detailed content and format of the specific part → defined under its specific application environment by other documents

Intent Example

- A prefix-management Intent in JSON format:
  {"example_intent":
  [{"intent_type": "IPv6_prefix"},
  {"autonomic_domain": "Customer_X_intranet"},
  {"version": 73},
  {"date": "20150606"},
  {"content": [{"max_prefix_length": 60},
      {"min_prefix_length": 48},
      {"max_prefixes_per_customer": 2},
      {"SLA_check_needed": true},
      {"enable_log": false}]}]}

  Common part

  Specific part

- [I-D.jiang-anima-prefix-management]
- Note: This is used for example, details may be subject to change

Uniform Format of the Autonomic Network Intent

- Autonomic intent: the root tag for the intent
- Intent type: association with a specific ASA
- Autonomic domain: scope
- Intent version: synchronization purposes
- Model version: model definition
- Name: human readability
- Timestamp: timestamp of the creation of the intent
- Lifetime: lifetime in which the intent may be observed
- Signature: security mechanism (authentication, integrity, and non-repudiation)

Uniform Format of the Autonomic Network Intent

- Content: It contains the main information of the intent
  - E.g., objects, policies, goals, configuration data
- Detailed contents and formats should be defined under their specific situations by documents that specify the ASAs
- Within the content, there may be "sub_intents"

Open Issues (1): Administrative and Service Intents?

- Self-management
  - Network infrastructure
  - Network services (that run over the network infrastructure)
- Possible features of intents defined for a specific service:
  - Such intents may have a smaller scope than administrative ones
    - Only nodes related to the service need to know this intent
  - Such intents may have a limited (shorter?) lifetime
  - Only one administrative intent for a giving autonomic domain, many service intents

Open Issues (1): Administrative and Service Intents?

- Should we organize intents into separated Administrative and Service Intents?
- Option: service intent as a "normal" intent for a certain ASA, such as an Autonomic Service Provision Agent

Open Issues (2): Common part of Administrative Intent

- Should the intent be a single one in a given AN domain with a hierarchical version, or multiple intents, each of which targets different Autonomic Service Agent?

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Thank you. Questions?

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