Autonomic Network Intent and Format
draft-du-anima-an-intent-03

Zongpeng Du

Sheng Jiang

Jeferson Campos Nobre

Laurent Ciavaglia

Changes in version 3

Essentially a revised structure and new inputs:

- in Introduction
  - paragraph added on Policy Based Management (PBM) to highlight policy hierarchy and operations

- in Terminology
  - Some terms updated in terminology: domain, ANIMA Intent Policy

- Reorganization of the use case section

- New text added on sections 7, 8, 9:
  - Intent distribution, management and interpretation

Concept of Autonomic Network Intent

- An abstract, declarative, high-level policy used to operate an autonomic domain, such as an enterprise network (according to [draft-ietf-anima-reference](#)-model-01)

Concept of Autonomic Network Intent (2)

- An Autonomic Network will comprise **multiple ANIMA Intent Policies**.

- Different **ANIMA Intent Policies will be "interpreted"** by different entities in autonomic networks, and the "level" of understanding of the intent will impact how the intent will be presented to this entity. So there should be **"intermediate" mechanisms/functions that cater for the intent translation** continuum across the heterogeneity (in policy capabilities) of the network entities.

- Also, **ANIMA Intent Policies will possibly overlap** and this overlapping **should be managed** (e.g., avoid conflicts, resolve applicable policies in context).

3 Use Cases

Role-based Intent Example

- Description can be found in [I-D.ietf -anima-prefix-management].

- It is suggested that the prefix lengths for the CSG, ASG, RSG (different roles in IP RAN) can be assigned as an "intent". The information carried in the intent are distributed in the autonomic domain to influence the detail configurations on each autonomic node.

3 Use Cases

Coordination of Multiple Intents Example

- The operator may have an intent
  - "there should be enough hosts to keep CPU utilization less than 70%", and also another one
  - "there are few enough hosts powered so that electricity isn't wasted".
  - These two intents can both influence the ASA responsible for controlling how many hosts are needed.
  - The decision is made according to multiple factors, including network environment and intents entered by the operators.
  - In this case, the first intent should have a higher priority than the later one.
  - The two intents should be analyzed and coordinated to ensure the ASA act rightly.

3 Use Cases

Intent per Domain Example

- Let's consider a metropolitan network domain and a core network domain.

- For the metropolitan network domain, Operator A defines an Intent to minimize the link load variance.

- For the core network domain, Operator A applies the previously defined intent (activate load balancing if the load is superior to 0.6 on more than 30% of the links).

Intent distribution

- Envisaged mechanisms for distribution of inte
nt

  – GRASP [I-D.ietf-anima-grasp] and

  – ACP [I-D.ietf-anima-autonomic-control-plane].

- Plus: an active discussion thread on the list (cf.
flooding)

Ongoing discussion(s)

- An active discussion thread on the list.
- Some questions and examples summarized for open mic interactions
  - See next slides.
- Collecting feedbacks on the list
- Target:
  - Reach common understanding
  - Document intent-related aspects in new/existing IDs

Questions

1-Who writes intents?

2-How many intents?

3-How many domains?

4-What are the intent levels/hierarchy?

5-Where/by what is intent processed/compiled?

6-Flooding: what are the requirements?

7-How is intent understood by node/ASA?

8-Can an ASA write an intent for another ASA?

Examples

A-Do the right thing

B-Freeze network enrollment

C-Arrange VM guest distribution so that (CPU) utilization is < 70%

D-Assign prefixes to RAN nodes

E-Protect premium users traffic

F-Maximize energy savings

Thank you