An Auto-deployment Mechanism for Resource-based Network Services

draft-ietf-anima-network-service-auto-deployment-01

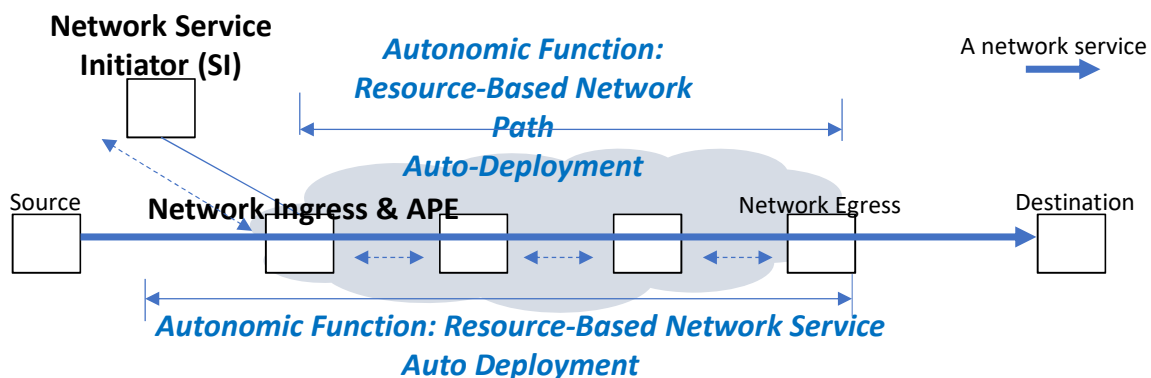**Presenter: Yujing Zhou**

Joanna Dang, Sheng Jiang, Zongpeng Du, Yujing Zhou

ANIMA WG

IETF-113 : March 2022, Online

Recall: Problem statement & Overview

- **The core goal of this draft is to establish a set of automatic negotiation mechanism to achieve the negotiation and distribution of network resources in the domain network between the service client and the network.**
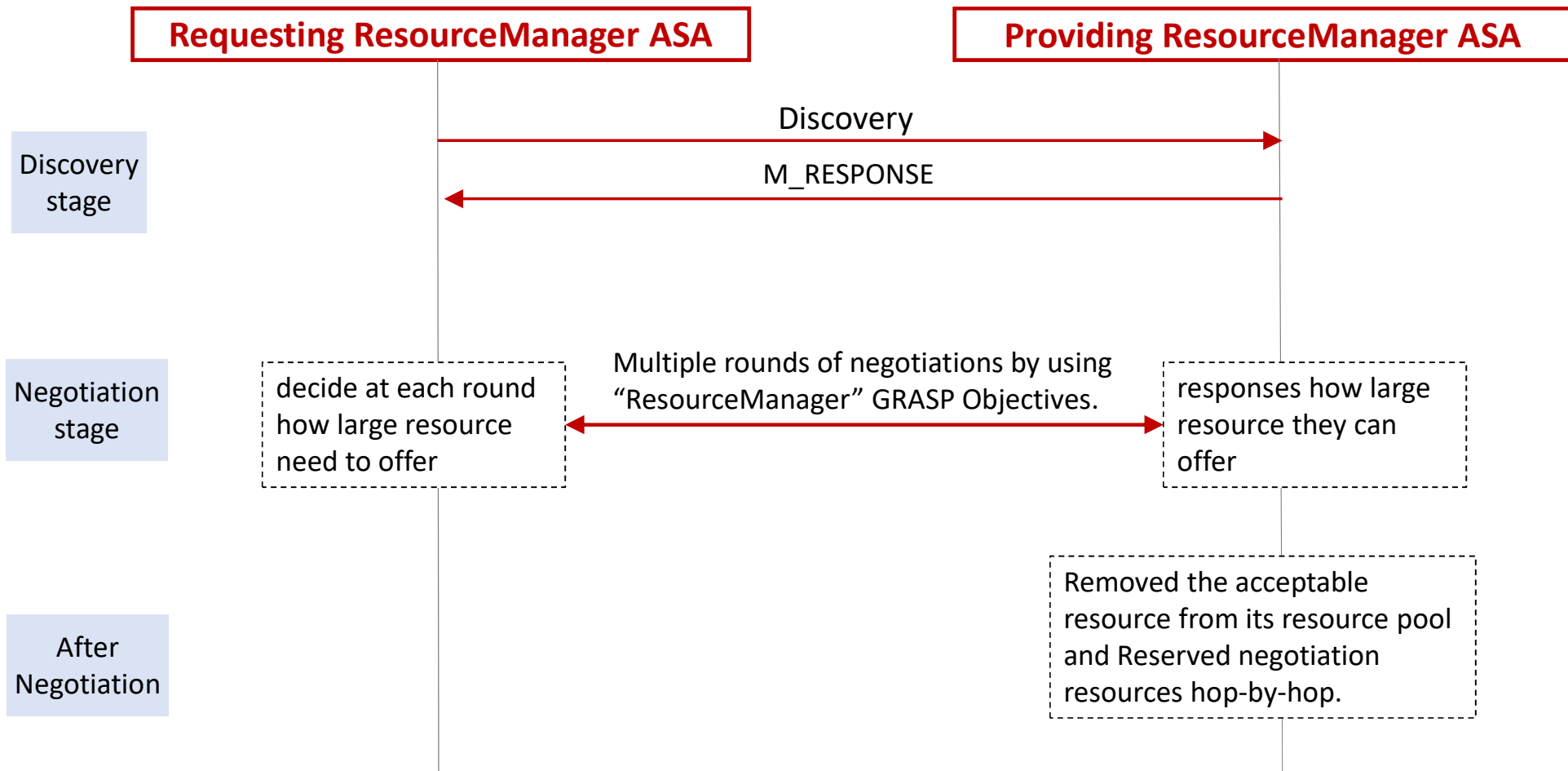

The target of the draft:
- ❖ Ensure the QoS requirements for service.
- ❖ Multiple rounds of negotiations improves the success rate of service deployment.
- ❖ The network resources can be used more efficiently.

Major Changes from IETF112 season

- We updated objectives options and added options for service description.

- The draft add an auto-deployment mechanism to release or increase resources when the SI change its need. Details in sections 6.4 and 6.5 of the draft.

- We add topology ASCII pictures to express the case more easier to understand.

- Editorial changes to make the text more organized.

Auto-deployment Process

Requesting ResourceManager ASA   **Providing ResourceManager ASA**

Discovery

M_RESPONSE

Discovery stage

Negotiation stage

decide at each round how large resource need to offer

Multiple rounds of negotiations by using "ResourceManager" GRASP Objectives.

responses how large resource they can offer

After Negotiation

Removed the acceptable resource from its resource pool and Reserved negotiation resources hop-by-hop.

GRASP Objective Options Update

objective = ["ResourceManager", objective-flags, loop-count, ?objective-value]
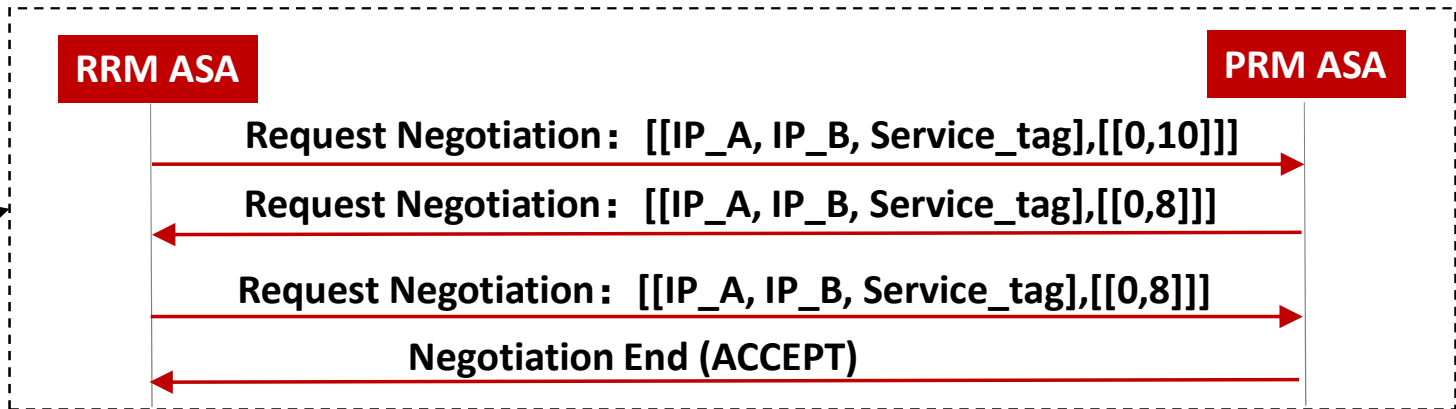
- ❖ ResourceManager Objective are GRASP Objective options and it is based on CBOR.
- ❖ The objective-value include two part:
  - ❖ Service-information
  - ❖ Resource-information
- ❖ Different types can be described in an objective option.

```
n-s-deployment-value
    + service-information
        + source-ip-address
        + destination-ip-address
        + service-tag
    + resource-information
        + resource-requirement-pair
            + resource-type
            + resource-value
```

Example of Negotiation Process

RRM ASA

PRM ASA

Request Negotiation： [[IP_A, IP_B, Service_tag],[[0,10]]]

Request Negotiation： [[IP_A, IP_B, Service_tag],[[0,8]]]

Request Negotiation： [[IP_A, IP_B, Service_tag],[[0,8]]]

Negotiation End (ACCEPT)

[0,10] → bandwidth 10 Mbit/s
But ASA can only provide
bandwidth 8 Mbit/s.

Auto-deployment Negotiation

Data Packet Transmission
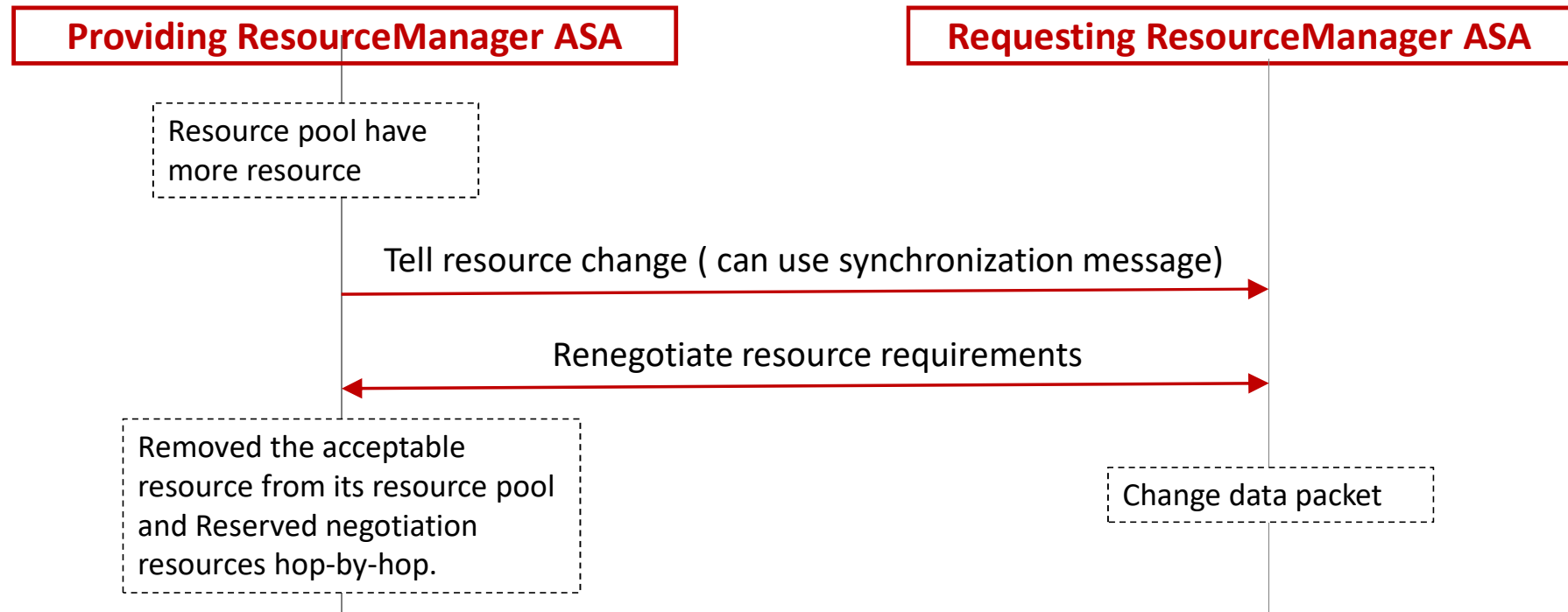
RRM ASA

SI

PRM ASA

Reserved negotiation resources hop-by-hop

ST

IP_B
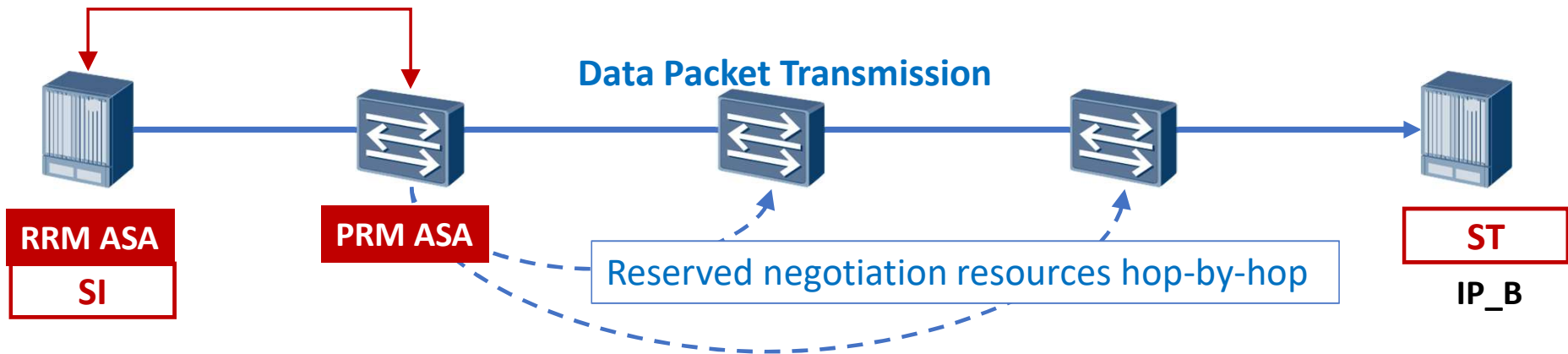
IP_A, Service_tag

An example of changing resource requirements

Next Step

- Further rework the draft (structure and application examples)
- Circulate outcome on the mailing list for further discussion
- Welcome to comment, contribute or co-author it!