

GRASP Objective for CATS Metrics Distribution

draft-yao-anima-grasp-cats-metrics-distribution-00

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Background

- What is CATS?
 - Computing-Aware Traffic Steering (CATS) is a TE approach aiming to optimize traffic steering to service instances by jointly considering dynamic computing resources and network states.
- What's the relationship with ANIMA?
 - CATS requires **distribution of computing metrics** across the network to enable efficient traffic steering decisions. (currently chartered on single-domain deployment)
 - Need a proper signaling protocol for metric distribution.
 - GRASP is a potential candidate which fits for distributed deployment model.

Document's Goals

- Define a unique GRASP Objective for CATS metrics distribution.
- Specify data encoding format for encapsulating CATS Level 0/Level 1/Level 2 metrics, aligned with the CATS metrics definition.
- Standardize two GRASP-based CATS metrics distribution schemes: active flooding (for proactive metric dissemination) and on-demand synchronization (for reactive metric retrieval);
- Define message formats, processing behaviors, and cache management rules for GRASP nodes handling CATS metrics.

GRASP Objective for CATS Metrics Distribution

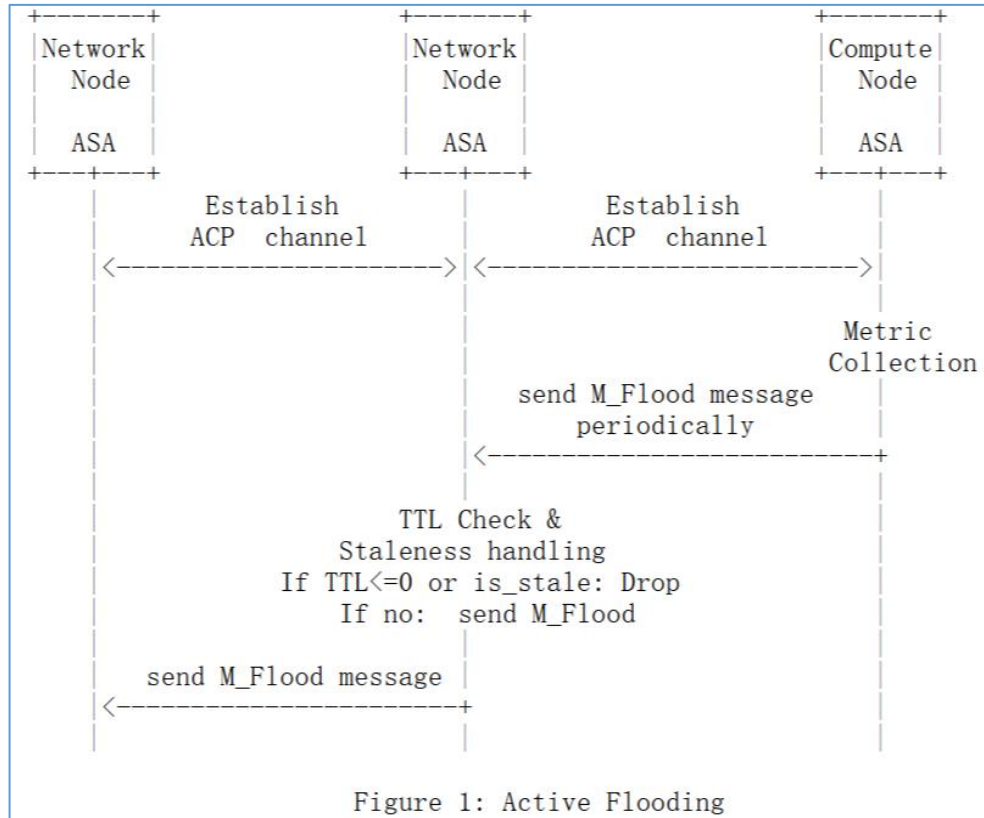
- Objective Name: *local-zone:cats-metric*
 - This name MUST be used by all ASAs when transmitting or receiving CATS metrics via GRASP. The namespace "local-zone" is reserved for CATS GRASP Objective within the specific area, and "cats-metric" identifies the objective as CATS metrics distribution.
- Objective Data Structure
 - CATS Service Contact Instance - ID (CSCI-ID), Metric_type, Metric_Level, Metric_Format, Metric_Value, Metric_Source, Timestamp, Expiry.

```
CBOR
```

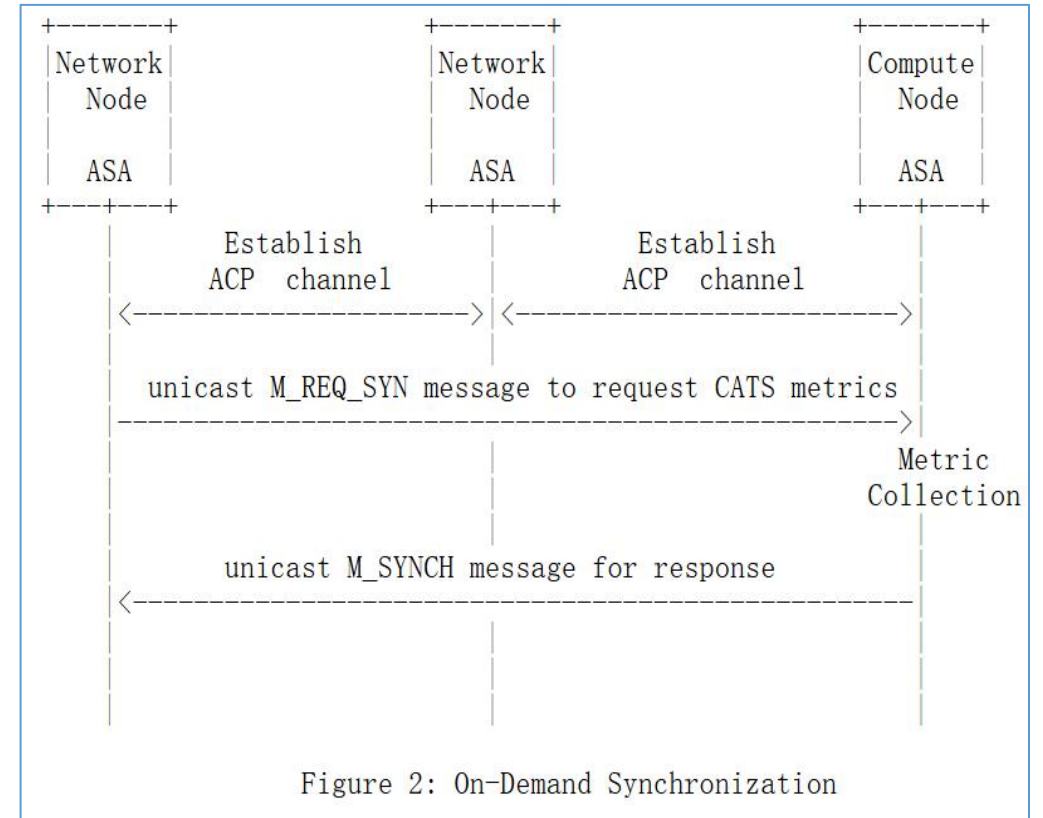
```
{  
  "CSCI-ID": "2001:db8:1::100",  
  "Metric_Type": "compute_norm",  
  "Metric_Level": "L1",  
  "Metric_Format": "unsigned integer",  
  "Metric_Value": 8,  
  "Metric_Source": "normalization",  
  "Timestamp": 1719283200,  
  "Expiry": 15  
}
```

Example of GRASP Objective for CATS
Metrics Distribution

CATS Metrics Distribution Schemes



Active Flooding



On-demanding Synchronization

Next Steps

- CATS metrics definition document is becoming stable and will ask for WGLC after IETF125. Then CATS solutions start.
- For metrics distribution, we need signaling protocols, BGP, GRASP, etc. As CATS WG suggests, detailed protocol extensions are left to other WGs. Authors come to ANIMA for soliciting GRASP experts' technical advice.
- Authors will coordinate CATS with ANIMA on this draft.