

Asynchronous Network Management System (ANMS)

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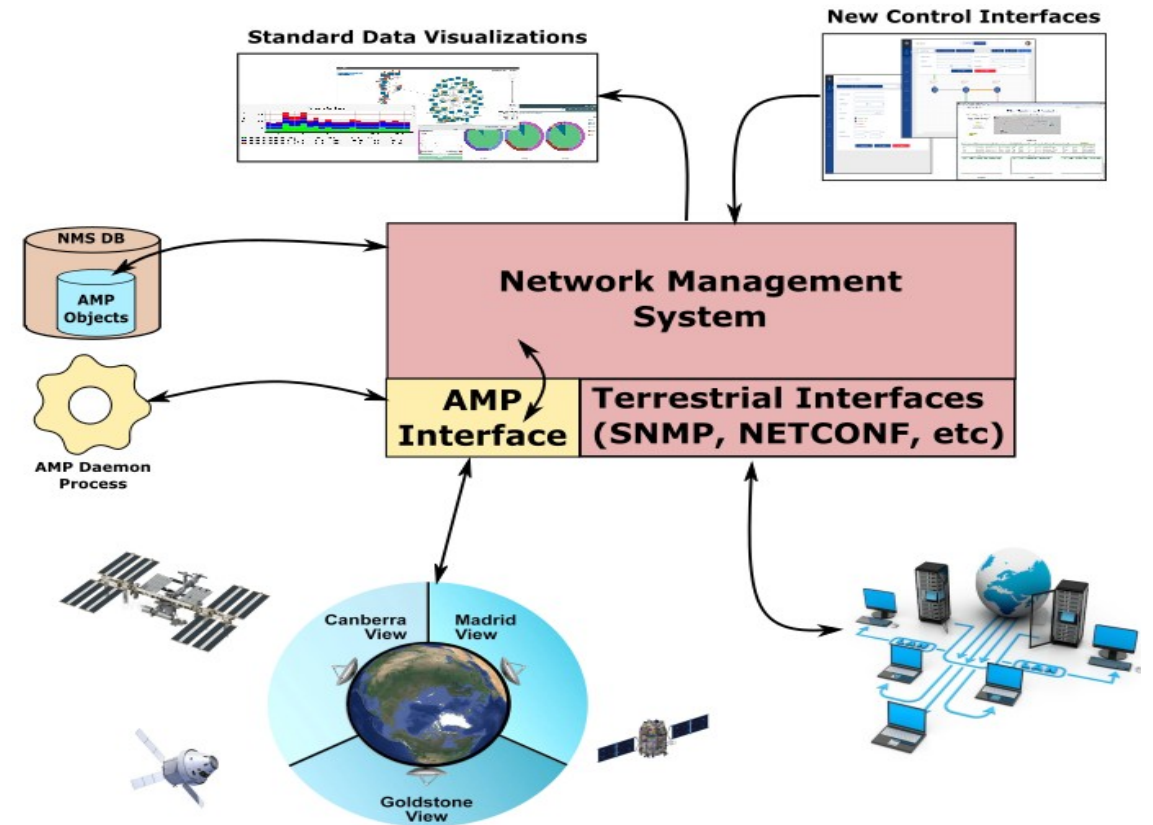
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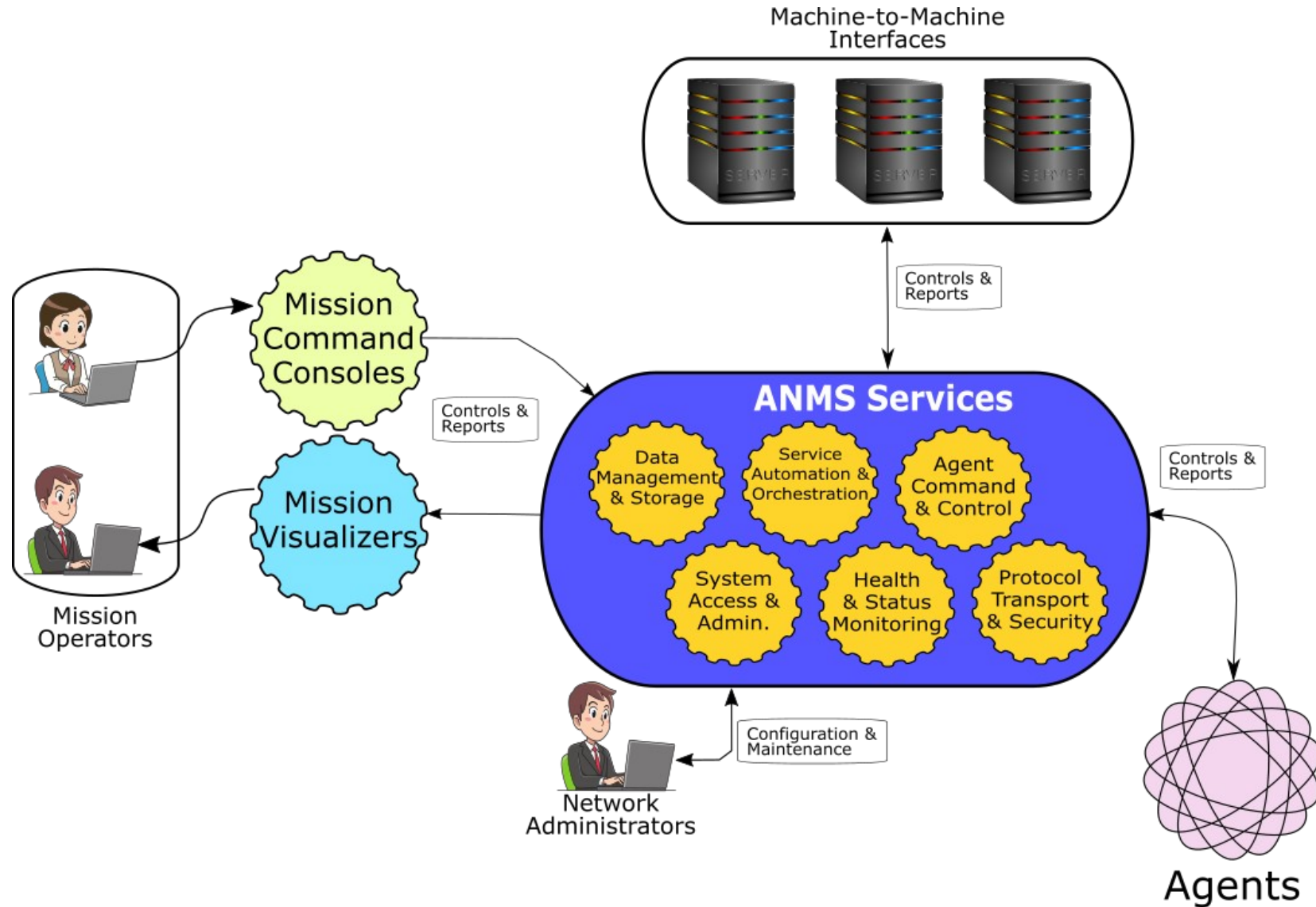
Tool for the monitoring and control of network nodes comprising a space-terrestrial internetwork.

- Enable missions operating over challenged networks, such as Delay/Disruption-Tolerant Networks.
- Enable organizations developing AMP implementations.
- Baselining draft Asynchronous Management Protocol (AMP) specification.
 - Will track with changes made to this approach through standardization.



Reduce the risk and learning curve for the testing and operational deployment of DTNs

Layer 1 Decomposition



Demo

ANMS v0.1.1

AMMOS ANMS Application

localhost:9030/home

System Administrator Logout

Monitor

Network

Alerts 3

Agents

Messaging

System Management

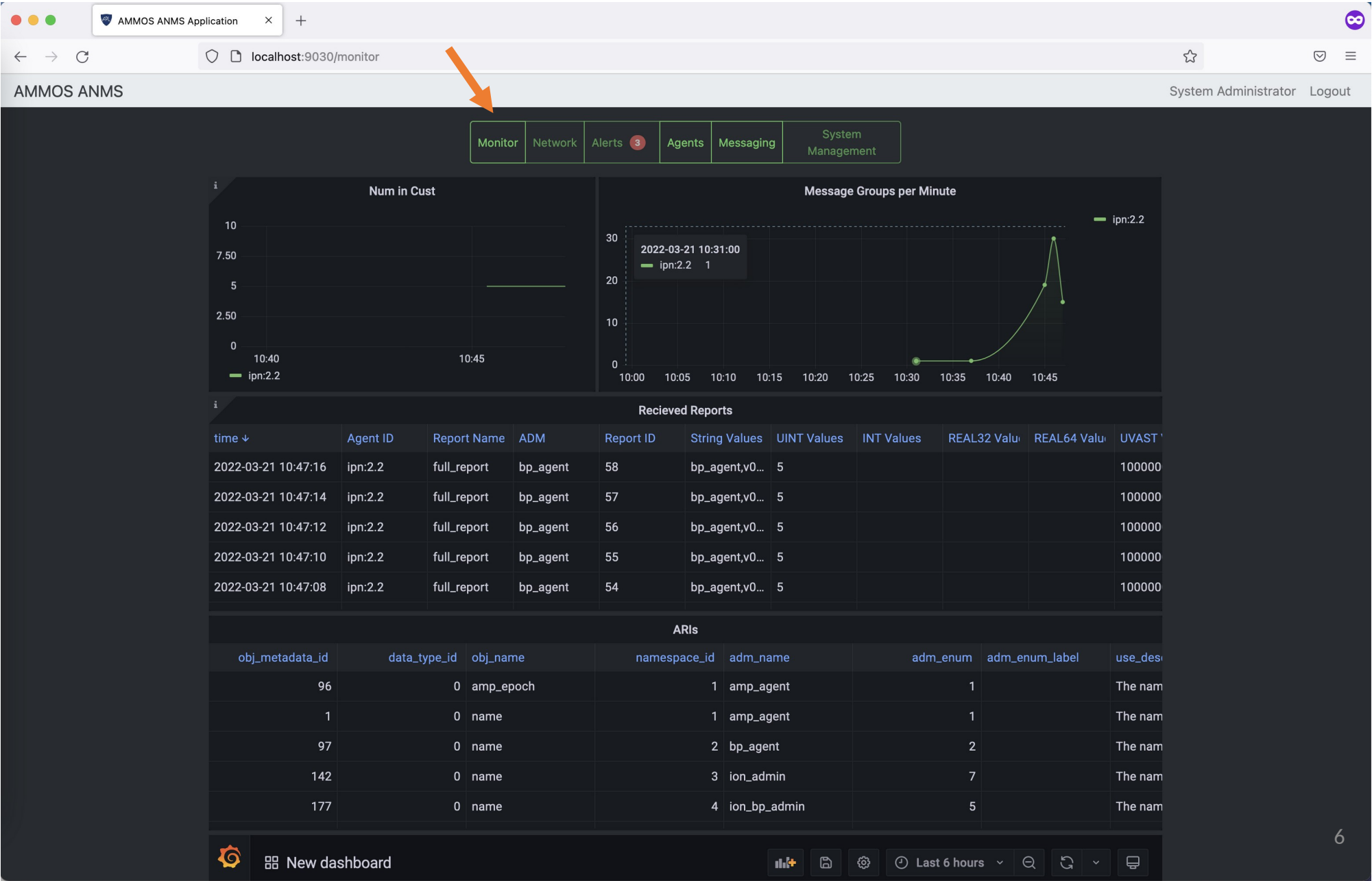
v0.1.1 initial implementations

Welcome to AMMOS

ANMS

commit: 'bb5926b'

ANMS v0.1.1 – Monitor Tab



ANMS v0.1.1 – Grafana visualizations of full_report variables and message rate



ANMS v0.1.1 – Agent Tab

AMMOS ANMS Application

localhost:9030/agents

AMMOS ANMS

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Agents

registered_agents_id	agent_id_string	first_registered	last_registered
1	ipn:2.2	2022-03-21 10:31:57	2022-03-21 10:37:13

Address of admin to add: ipn:2.2

node is:

Add Node

index of admin to manage: 1

node is:

Manage agent

Command Sent:

Amp Version: 8 - https://datatracker.ietf.org/doc/draft-birrane-dtn-amp/08

Manage Agents on network

ANMS v0.1.1 – Agent Management

index of admin to manage: 1

node is: 1

Manage agent ▶

De-register
Build Control

TBR Command:

Start(seconds from receipt): 0

Period(seconds): 1

Count: 60

Available Reports:

Send Time Based Rule

RAW Command:

0x0

Send Raw Command

Print Agent Reports
Print Agent Tables
Write Agent Reports to file
Clear Agent Reports
Clear Agent Tables

Choose:

Start (seconds from receipt)

Period (seconds)

Count

Report:

Which Report?

ltp_agent.endpointReport

bp_agent.endpoint_report

✓ bp_agent.full_report

amp_agent.full_report

Allows users to construct and send control to add new time-based rule for report generation, and without direct CBOR interaction.

An example of more user-friendly options to come.

ANMS v0.1.1 – ARI Transcoding

AMMOS ANMS Application

localhost:9030/messaging

System Administrator Logout

MonitorNetworkAlerts3AgentsMessagingSystem Management

MgrDB

AGENTS

AMP DB

NM MANAGER

UTILITIES

Currently accepts CBOR Hex (0x...) AMP-CBOR (ie: ari:0x...), or AMP URIs (ie: ari:/IANA:...). This tool is experimental and some data types may not be fully implemented at this time.

Input (CBOR or URI) *

ari:/IANA:amp.agent/Ctrl.gen_rpts([ari:/IANA:bp.agent/Rptt.full_report()],[])

Parse

Clear

TraceSummaryCBOR EncodingUML

Input: ari:/IANA:amp.agent/Ctrl.gen_rpts([ari:/IANA:bp.agent/Rptt.full_report()],[])

Parsed As: ARI

CBOR: c1154105050225238187182d410000

URI

ari:/IANA:amp.agent/Ctrl.gen_rpts([ari:/IANA:bp.agent/Rptt.full_report()],[])

JSON

```
{
  "class": "ARI",
  "type": 1,
  "namespace": 1,
  "adm_type": 1,
  "parameters": {
    "class": "TNVC",
    "values": [
      {
        "class": "AC",
        "ari": [
          {
            "class": "ARI",
            "type": 7,
            "namespace": 2,
            "adm_type": 5
          }
        ]
      }
    ]
  }
},
{
  "class": "TNVC",
  "values": []
}
```