

Asynchronous Network Management System (ANMS)

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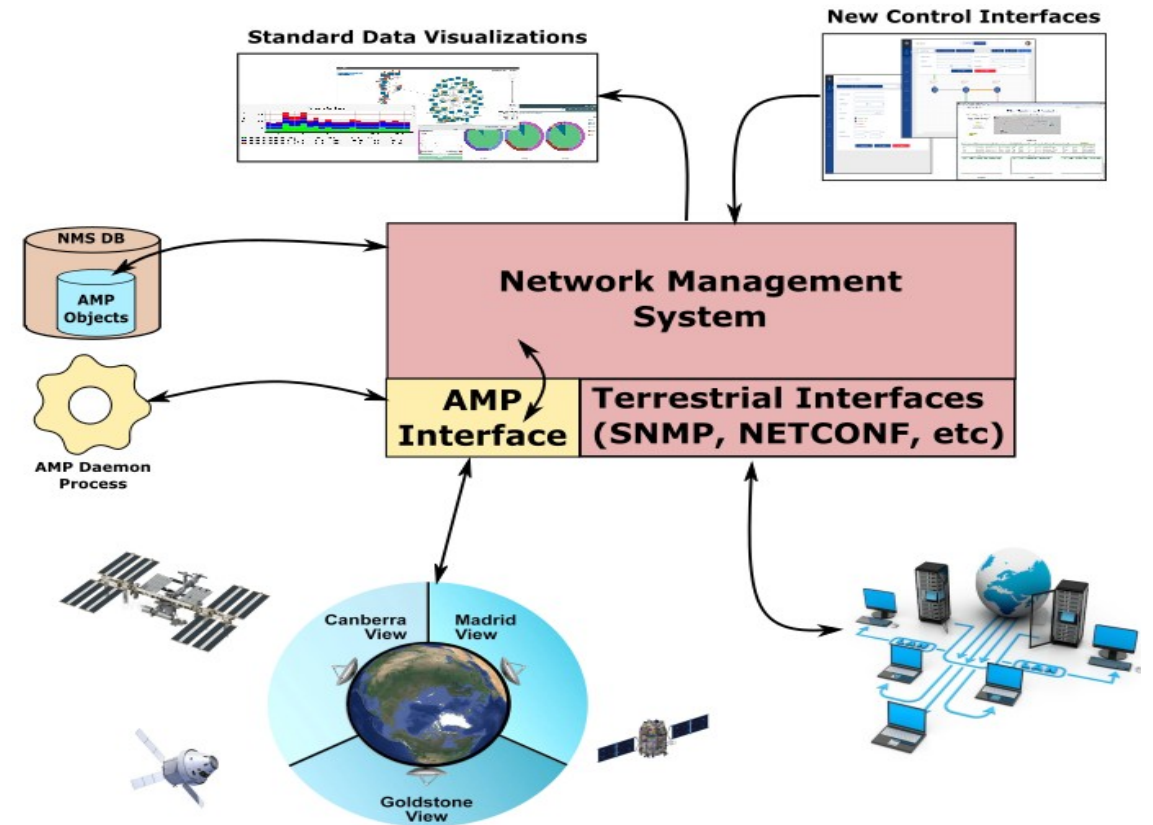
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Asynchronous Network Management System (ANMS)

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

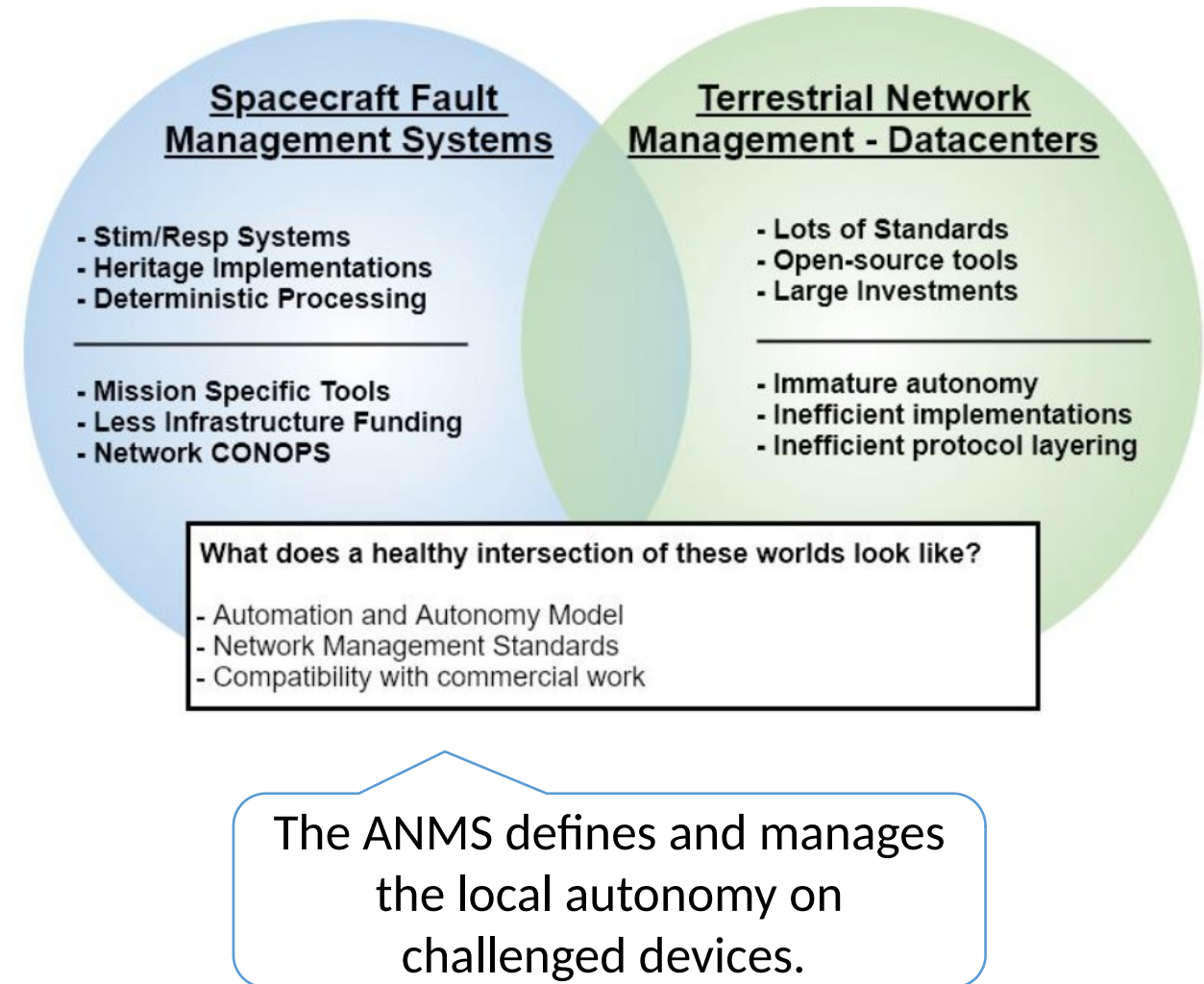
- Enable missions operating over challenged networks, such as Delay/Disruption-Tolerant Networks.
- Enable organizations developing AMP implementations.
- Baselining draft Asynchronous Management Protocol (AMP) specification.
 - Will track with changes made to this approach through standardization.



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

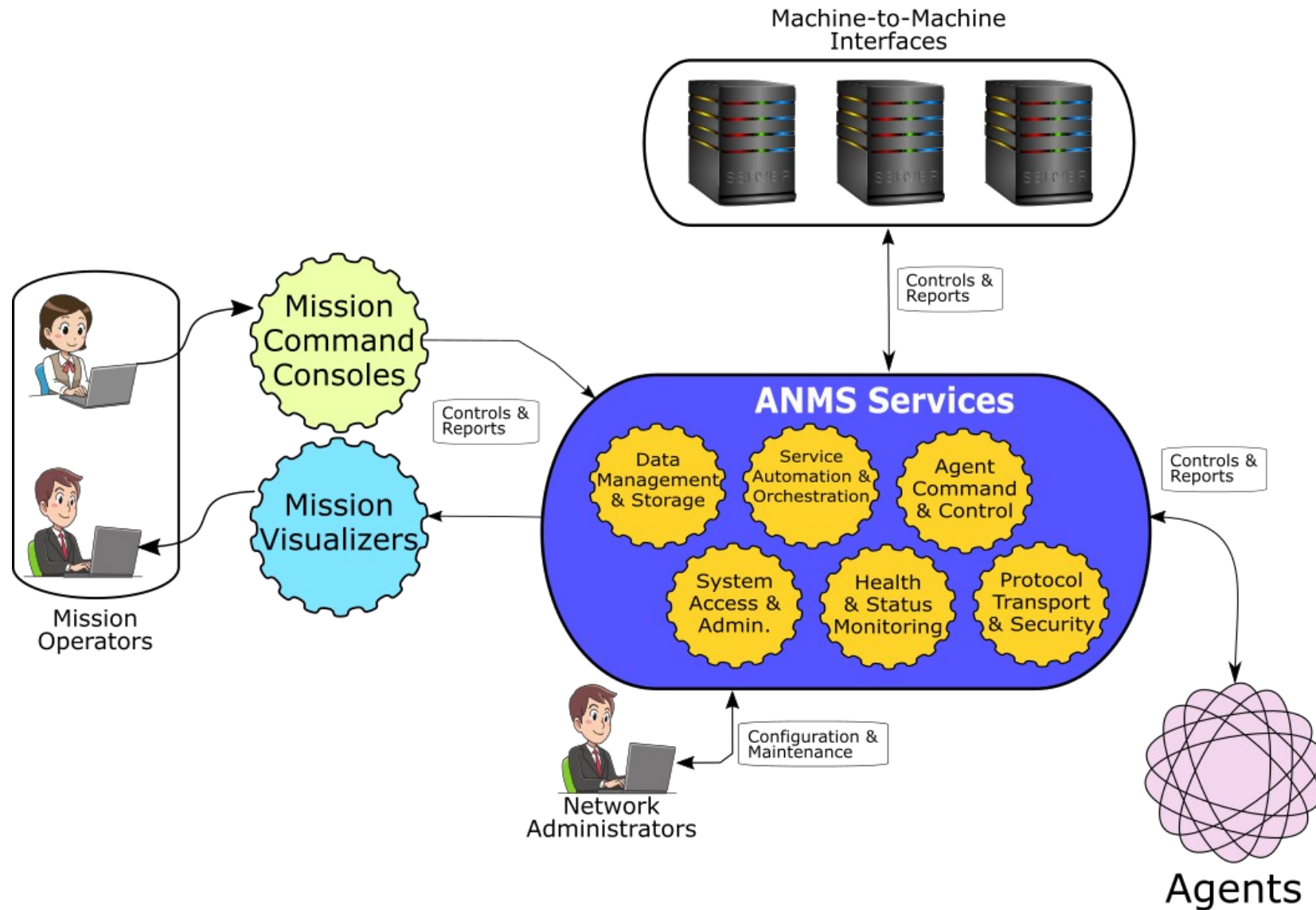
System Objectives

1. Monitor/Control network nodes comprising space-terrestrial internetworks.
 - Support emerging NM approaches for challenged networks.
2. Interoperate with existing network management tools.
 - Convergence at the challenged/unchallenged network boundary.
3. Manage reference implementations of Bundle Protocol (BPv7) Agents.
 - Local autonomy
 - Common supporting protocols (BP, BPsec, SABR, LTP)
 - Initial focus on ION; ION ships with a reference NM agent.

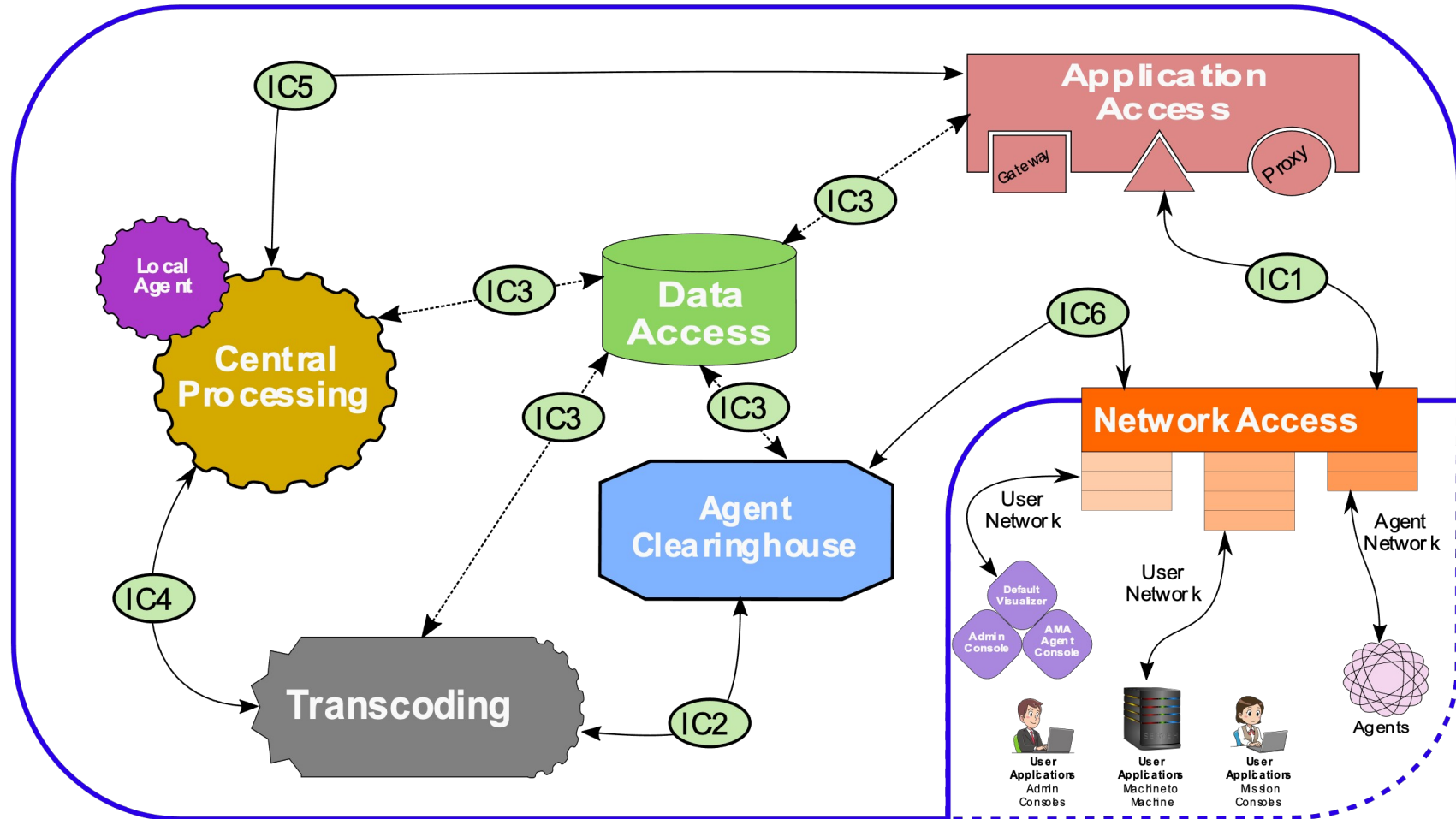


Provide a scalable capability to manage nodes over a challenged (DTN) network.

Layer 1 Decomposition



Layer 3 Decomposition



Environmental / Physical View



Modular, pluggable architecture to enable deployment in varying configurations

Current Activity: Spiral 1 Implementation Planning: Motivating Use Case

- Project decomposed into 5 spirals
 - Active development over next 2 years
 - Periodic capability drops
 - Spirals released open source
- Spiral 1 Driving Use Case
 - Configure AMA Agent local autonomy for report generation
 - Receive reports from multiple AMA Agents and provide them to visualization
- Implementation Details
 - Using ION AMA Agents (Release 4.1.0 from <https://sourceforge.net/projects/ion-dtn/>)
 - Containerize components for easy deployment/integration
- Expected Schedule
 - Release in early 2022
 - Looking for community feedback at that time

Spiral 1 Planning: Logical View of Components/Functionality

Legend

- Logical Module partially developed in Phase 1
- Logical Module not developed in Phase 1
- ANMS Structural Component
- External to ANMS

