

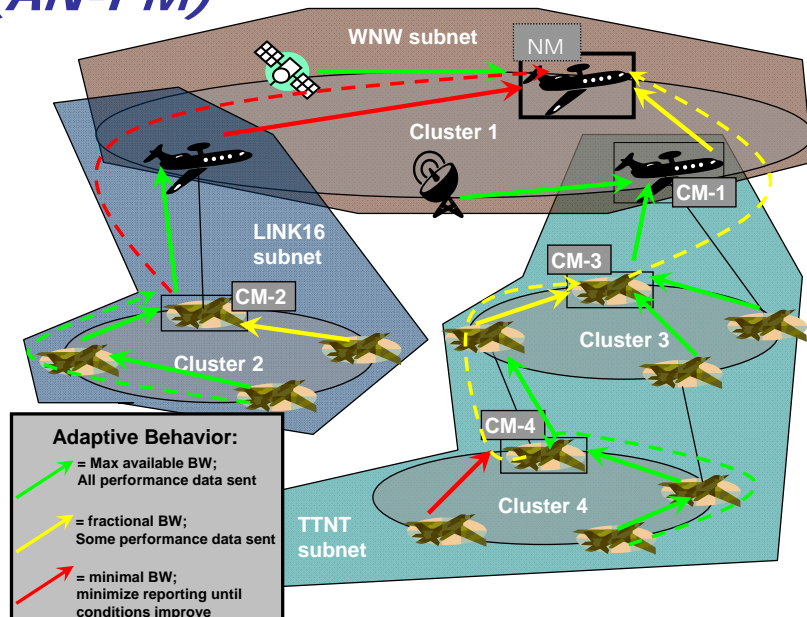
# Ad hoc Network Performance Management Tool (AN-PM)

## General Description

Today's commercial approaches to network management and performance monitoring are not well suited to the Airborne Networks (ANs) because they are not well-behaved, are not static, and do not have as much consistent bandwidth. The DataSoft AN-PM approach can mitigate these challenges by intelligently and automatically adapting to dynamic network conditions in the Airborne Network

AN-PM is a policy-based tool to manage, configure, and control network nodes in a dynamic environment with high mobility, unreliable and temporary links, legacy networks, hostile interference and possible low data rate capacity.

The AN-PM network deploys a hierarchy of Intelligent Agents (IAs) that collect and forward performance data to a central Network Manager (NM).



## Intelligent Agent Hierarchy Dynamically Adapts to Network Conditions

### Features

The system is one piece of software (the IA) to be deployed on the airborne platforms.

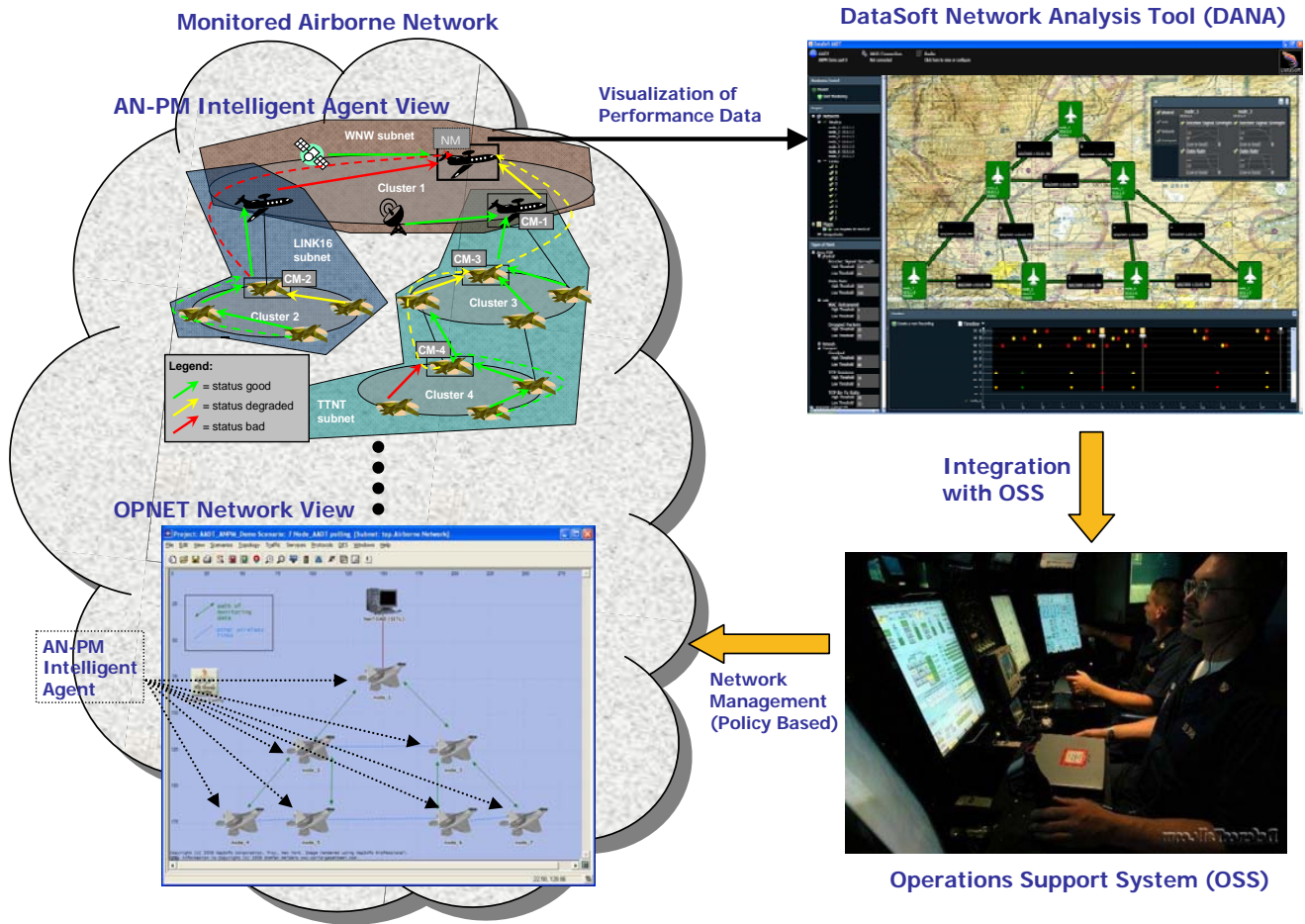
Each IA module performs a unique function such that fundamental changes in the AN software architecture and upgrades to the IA design can be easily accommodated, isolating the risk of changes to external and internal interfaces.

AN-PM is Waveform-Independent, supporting all IP-based Networks and allowing for easy insertion of New Protocols and Interfaces

The AN-PM techniques of Adaptive Data Forwarding Process based on data conditions of the node, data compression techniques and routing techniques reduce network monitoring overhead compared to standard polling approaches. Rigorous testing shows 80% reduction in average overhead and 60% reduction in peak overhead

## Benefits

- Provide E2E, seamless, internet-like communications capability
- Adapts quickly to changing conditions without impacting network performance
- QoS sensitive – gives priority to mission traffic
- Scales to large networks via hierarchical architecture
- Handles frequent topology changes & intermittent connectivity
- Reduces management overhead via data aggregation
- Open API to work with SNMP and COTS tools
- Policy-based operation that can be modified by OSS



**Conceptual Diagram of AN-PM Tool used to monitor an Airborne Network**

## Users

- Service Providers and Network Operators
  - Monitors and Tests Networks using both legacy and new 3G/4G/WiMAX technologies
- JTRS Radio Manufacturers
- Mobile device/handset Manufacturers
  - Allows manufacturer to test new technologies in current legacy network

## About DataSoft

DataSoft specializes in software and hardware research, design, and engineering of customized components, products, middleware, and protocols for communication systems based on software-defined radio technologies.

As the recipient of multiple Department of Defense research grants (SBIR), DataSoft is actively working on projects for the Joint Tactical Radio System (JTRS) that enable superior wireless communications capabilities. Expertise includes SCA, MANET, tunable RF components, network protocols, advanced network management, modeling and simulation.