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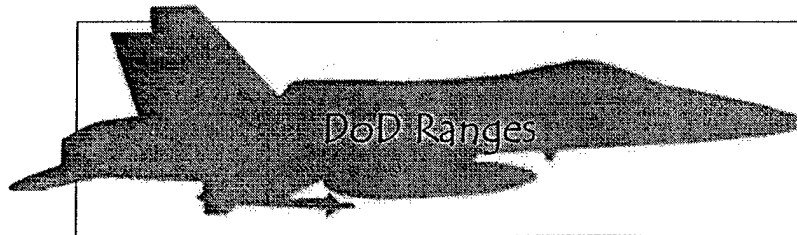
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Telemetry Networks



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Data Acquisition Networks T&E Need

- Meet ever increasing data acquisition requirements
 - Driven by complex weapons platforms
 - Faster avionics
 - Increased simulation and modeling
- Timely insertion of leading edge technology
- Future data acquisition systems must be network oriented
- Leverage Telecommunications investment
 - Standards; Hardware; Software

Network Centric Testing

- For many reasons, we are being driven towards commercial network technology
 - Diminishing test funds
 - Diminishing spectral resources
 - Geographically disperse test facilities and assets
 - » Joint test exercises
 - Increased modeling and simulation
 - » including Hardware in the Loop
- Judicious choices of network architectures and protocols makes this work
- Test Networks are required

Traditional Systems

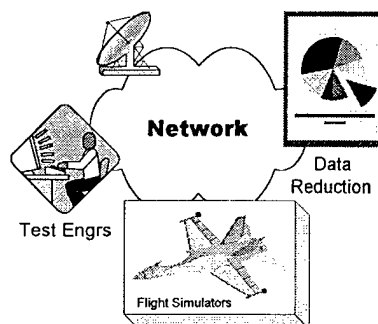
- Operates via standards unique to the instrumentation community (IRIG 106)
 - Does not leverage COTS vast Telecom market
 - Leading edge technology slow to be introduced
- Architectures are based on 20 year old technology
- Does not meet the “network compatibility requirement

On-Board Data Acquisition Networks

- Easily interface with the global network infrastructure
 - World Wide Web, Local networks, etc.
- Are *Very Fast and getting faster!*
 - 10 Gigabit FC and Ethernet
- Have an open architecture based on commercial standards
 - Easily incorporate leading edge/legacy technology
 - » e.g. AF302 SBIR, CAIS to Fibre Channel bridge

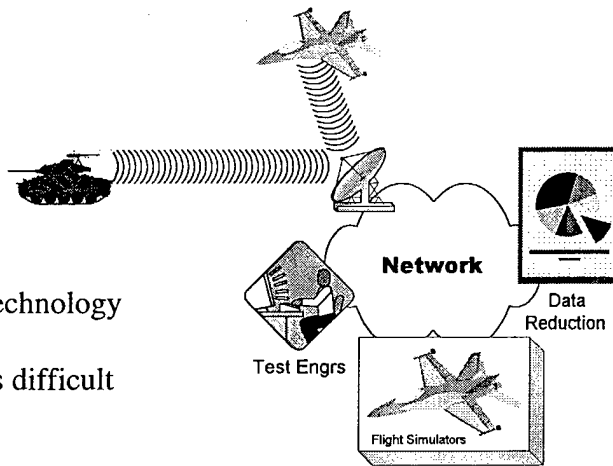
Ground-Based Networks

- Many standards groups addressing requirements.
- Traditional network arena



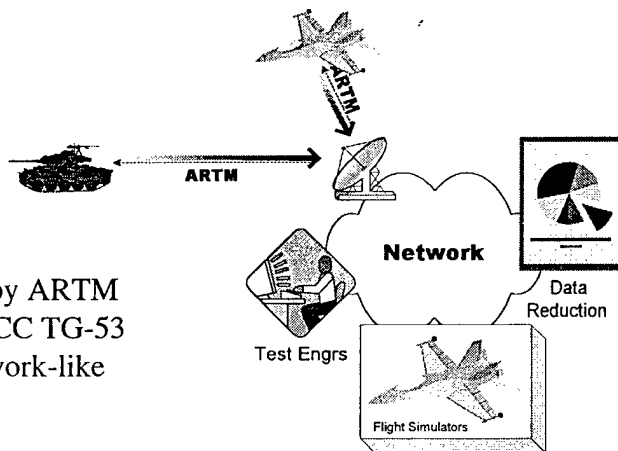
Traditional Systems

- Based on older technology
- Uni-directional
- Adaptive formats difficult

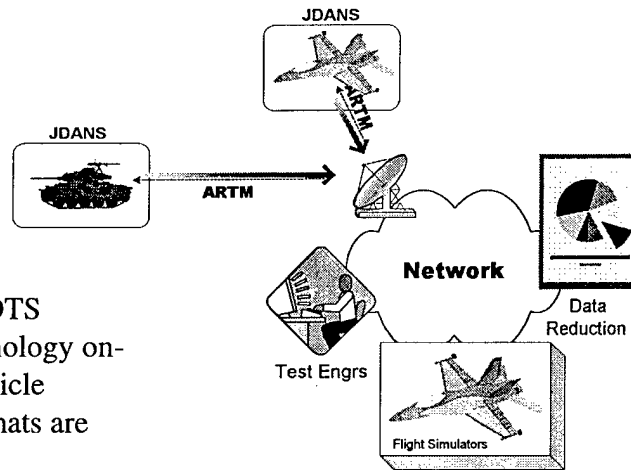


Packetized Telemetry

- Being worked by ARTM program and RCC TG-53
- Will allow network-like connectivity

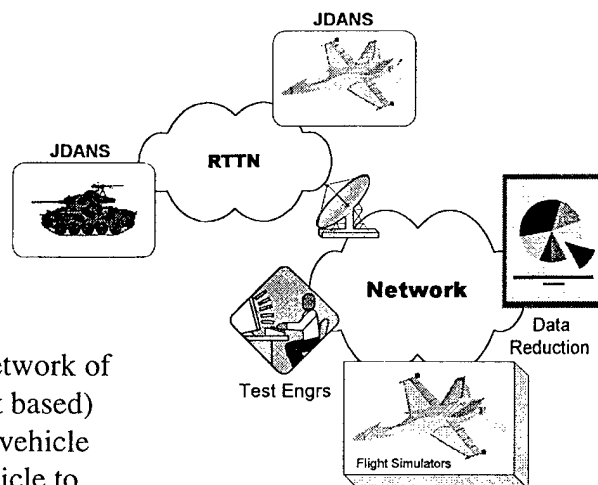


Data Acquisition Networks



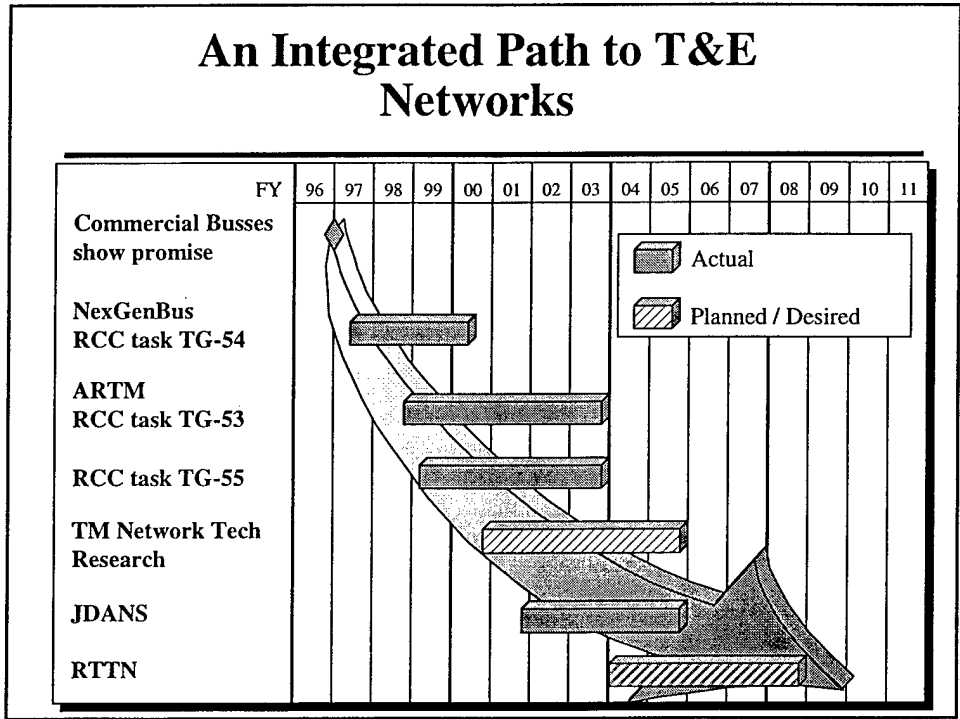
- Leverages COTS network technology on-board test vehicle
- Adaptive formats are second-nature

Telemetry Networks



- Treats entire data acquisition as a network of networks (Internet based)
- Enables seamless vehicle to vehicle and vehicle to ground connectivity

An Integrated Path to T&E Networks



Other DoD Efforts

-
- CENTS OSD/Air Force , Current
 - CAIS / FC Bridge Navy/AF Current
 - Smart Sensors OSD/Air Force Proposed
 - 2-RAD OSD/Army Current
 - VISION Army Current
 - ARTM OSD/Air Force Current
 - On-board data management
 - Wireless Network Navy Complete
 - FI 2010 OSD/Army Current

“Close Encounters” Analogy

- Networks are not a new concept
 - Independently, for different reasons, through different processes
 - » Many groups have identified networks as the future solution
- We are now trying to address these efforts
 - Identify common requirements
 - Consolidate common or overlapping tasks

SUMMARY

- Very definite and critical need
- Data Acquisition Networks/Telemetry Networks
 - The missing link to Network-Centric Testing
 - Leverages COTS capabilities and products for T&E
- JDANS/RTTN
 - Broad Tri-service and industry support
 - Focuses on commercial interoperability network stds
- If we don't act in a timely fashion ...
 - Risk losing momentum
 - Incompatible point solutions will develop