

Network Centric Warfare for Coalition Integrated Defense Against Terrorism

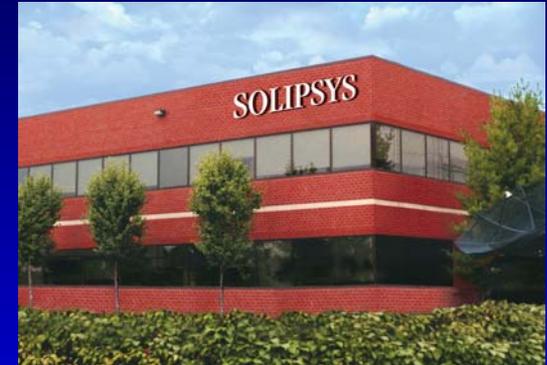
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Corporate Overview

- **Founded in March 1996 by Senior Researchers at Johns Hopkins University/Applied Physics Lab**
- **Core Business is the Design and Development of C4ISR Software Products for Military Use**
- **165 Employees and Growing**
- **Headquarters in Laurel Maryland, Offices in Kauai, HI and Norfolk, VA**
- **Specializing in Network-Centric Warfare and C2 Systems**
- **Over 50 Percent of Staff have Advanced Engineering Degrees (MS or PhD)**
- **Merger with Raytheon made Solipsys a Wholly-Owned Subsidiary in 2003**



Problem...

- **Challenge: to provide an integrated international, real-time sensor information dissemination system to defend against terrorism**
 - **Multiple governments, jurisdictions, organizations**
 - **Multiple networks with restricted collaboration**
 - **Myriad of encryption systems**
 - **Limited and diverse communications**
 - **Intelligence Boundaries**
 - **Real-time data distribution**
 - **Distributed Command Authority**

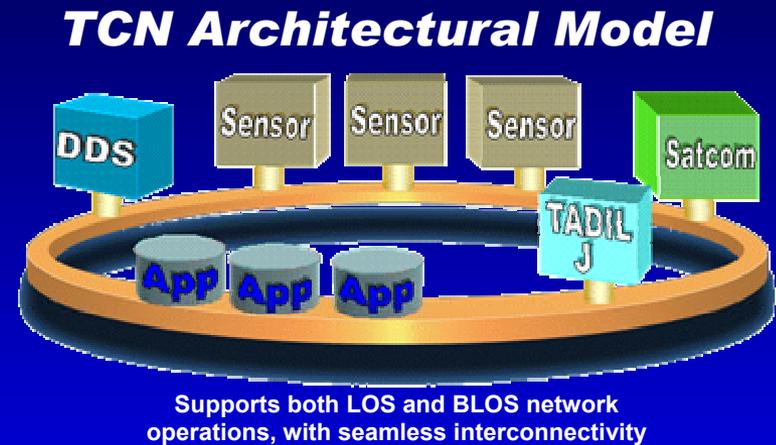
Solution...

Tactical Component Network (TCN)

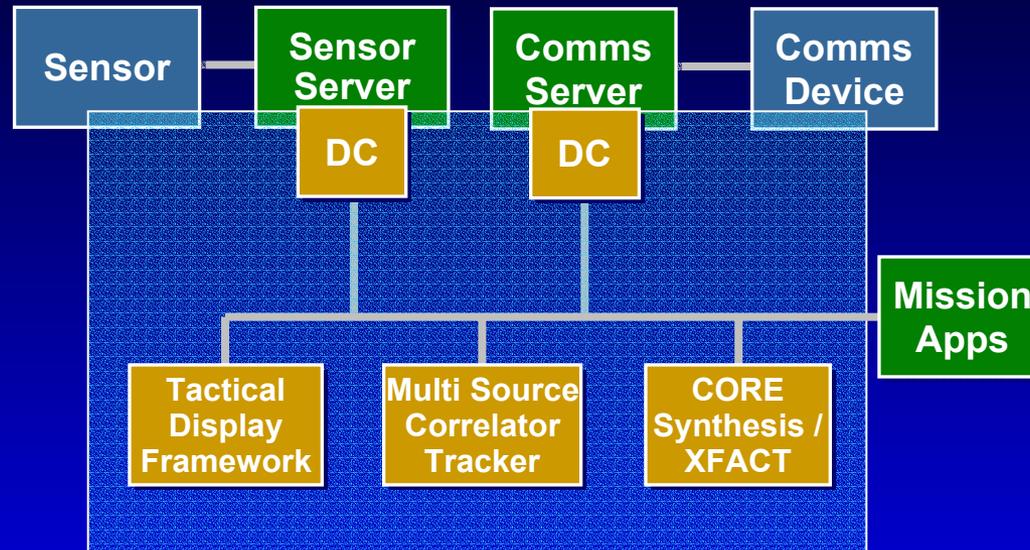
- **A software application suite for real-time sensor collaboration that provides:**
 - **Open Architecture framework**
 - **Employs a well defined API that facilitates component based systems integration**
 - **Hardware independence allows for a scaleable application**
 - **Communications flexibility**
 - **Patented “Goal oriented” algorithms enable data exchange that eliminates redundant information, optimizing use of available bandwidth**
 - **Not tied to a specific radio or device**
 - **Extensible to multiple communication paths**
- **Demonstrated and robust technology**
 - **Four years of lab, land-based and deployed test and assessment**
 - **Meets requirements ranging from target engagement to situation awareness**
 - **Demonstrated support for 3rd party component development**

TCN Approach

- Sensors and communications resources collaborate to form a **Single Integrated Picture (SIP)**
 - Data distribution based on user-defined accuracy requirements (smart pull vs push technique)
 - Data is created and delivered in a source independent form (supplier can be anonymous and users can be segregated based on a need to know)
 - Addition of new sensor, communications device or application program does not require change to other network participants (**extensible, interoperable**)
- Supports simultaneous, real-time collaboration between Joint and Coalition network participants in support of the **Global Information Grid (GIG)**
- Incorporates and extends mission-centric network architectural concepts to meet users needs



TCN Architectural Components



- **TCN Foundation Applications**
 - **Data Conditioner (DC):** Data abstraction layer for sensors and comms devices
 - **CORE Synthesis/XFACT:** TCN fusion and collaboration
 - **Tactical Display Framework (TDF):** Battle management and C2 display
 - **Multi Source Correlator Tracker (MSCT):** Data link integration, legacy system interfaces, dissimilar source correlation and tracking
- **Sensor Server, Comms Server, and Mission Apps (depicted in green) are developed by third party (e.g., LM for AEGIS, NG for E2C, Boeing for AWACS, etc.)**

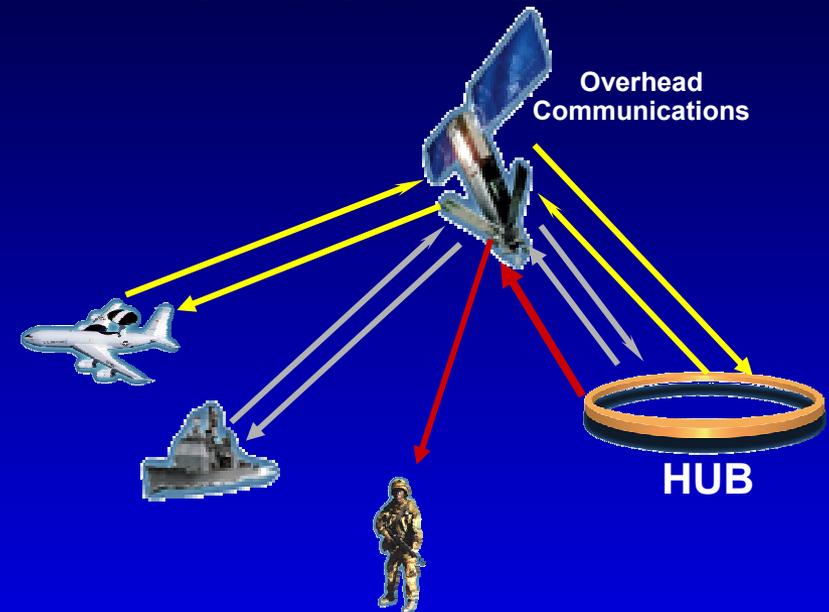
TCN – Coalition Military Application

TCN Local Network



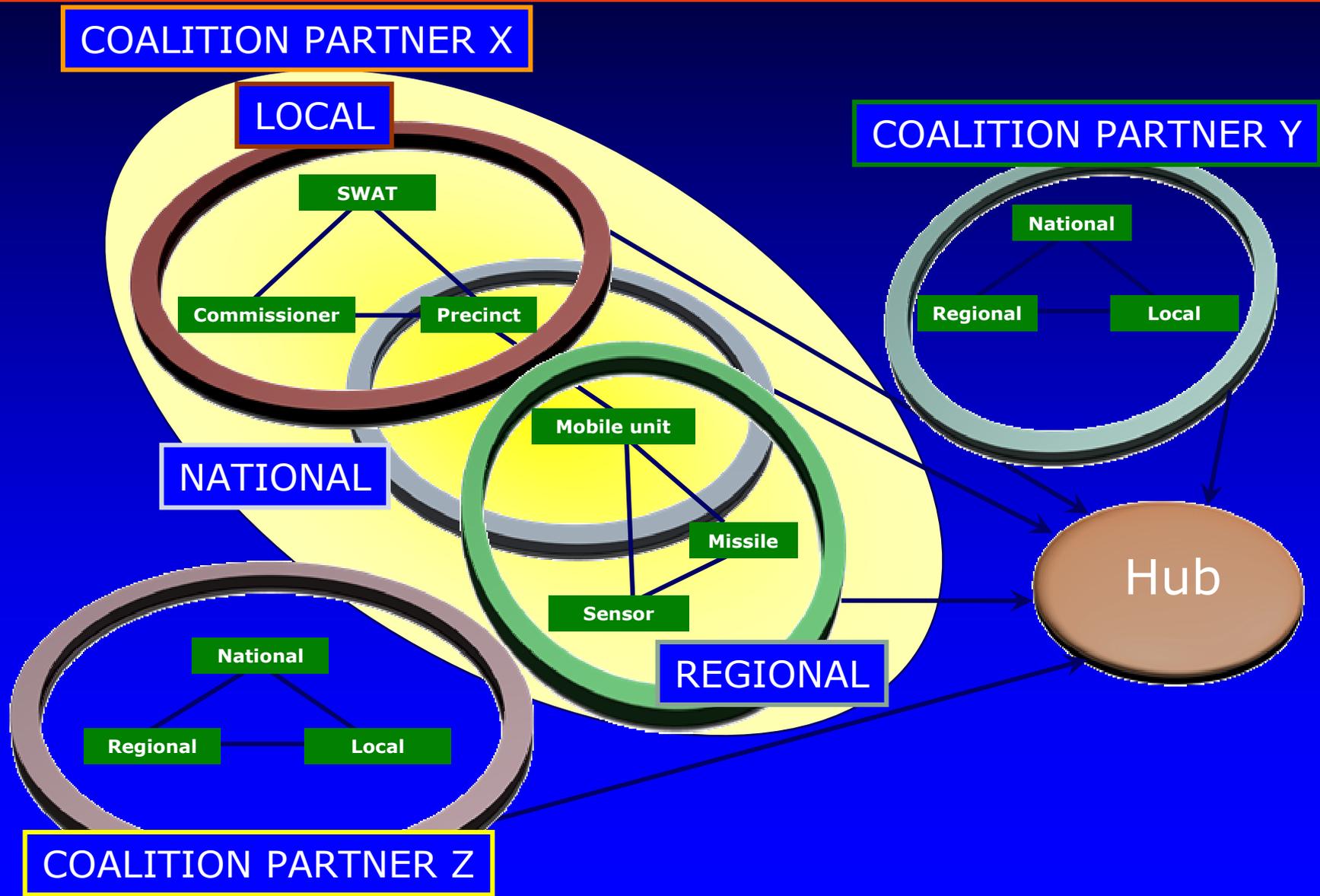
- Support time critical communications among peer-to-peer participants
- Aggregate bandwidth shared between participants based on user needs

TCN Global Network



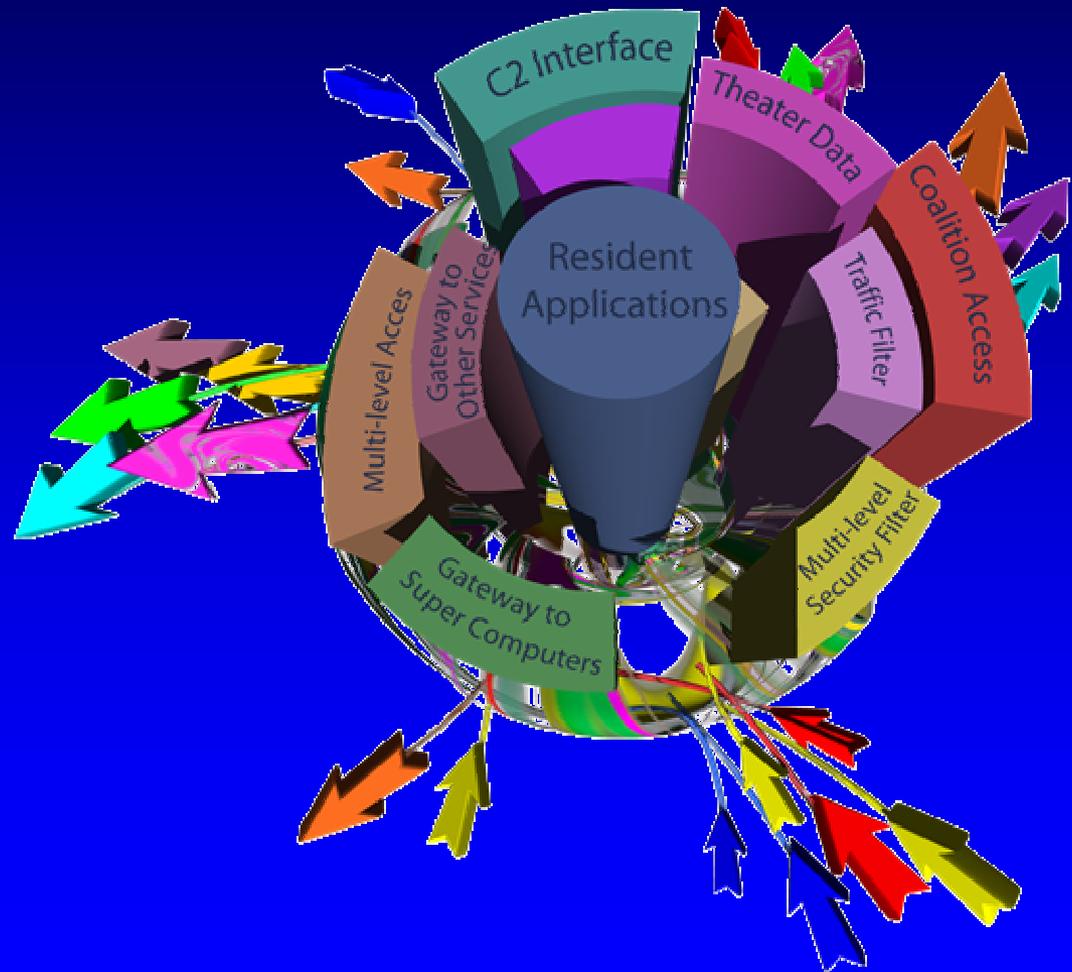
- User connectivity is not constrained by Line of Sight - Global reachback
- Secure real-time data available via LEOs or other overhead assets
- Hub provides access control, database support, processing enhancements and central applications

TCN Hub-and-Spoke Architecture

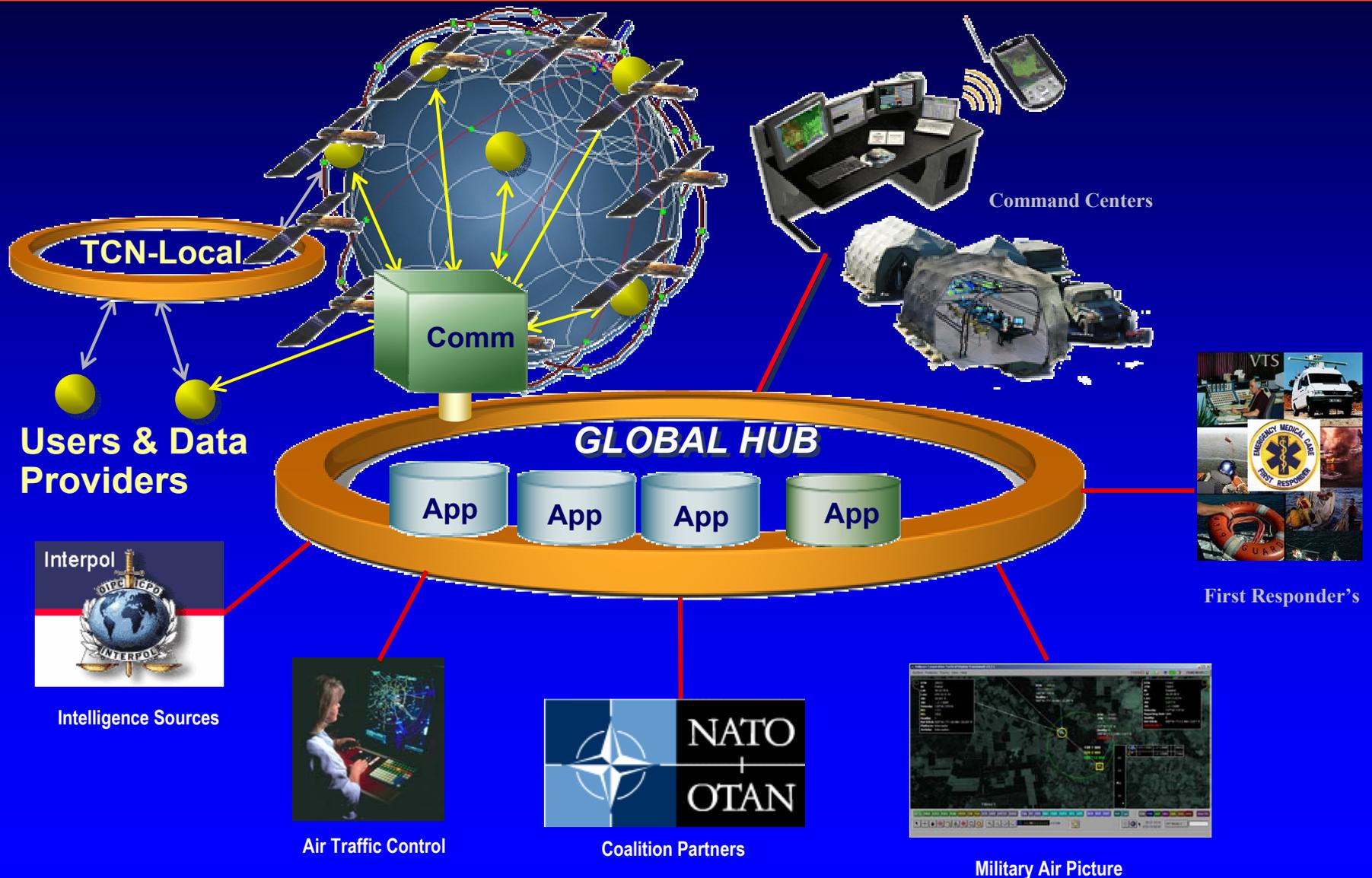


Hub Components/Functions

- Operating System
- Connection Manager
- Database Managers
 - Theater Data
 - Geographic Data
 - Cultural Features
- Data Archive
- Access Control
 - Traffic
 - Multilevel Access
 - Coalition Access
- Gateway Management



TCN Local/Global Operation



Summary

- Solipsys specializes in high performance fully customizable COTS software components that can be used individually for point solutions (displays, correlators, simulation tools, etc.) or coupled together to form a complete hardware-independent C2 system appropriate for each echelon of command
- Full TCN Brief available for download at: www.solipsys.com

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