

CSOC

The Business of Space



CSOC Office of Commercialization

NP099-027



CONSOLIDATED SPACE OPERATIONS CONTRACT

What is CSOC?

- Consolidated Space Operations Contract
- Contract started January 1st 1999
- Consolidates seventeen different contracts across five NASA centers for Ground Operations
- \$3.44B over 10 years
 - Savings of over \$1.4 B over 10 years, 40% attributed to Commercialization
- Industry team led by Lockheed Martin

Lockheed Martin Space Operations



CONSOLIDATED SPACE OPERATIONS CONTRACT

AlliedSignal BOOZ-ALLEN & HAMILTON CSC GTE

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CONSOLIDATED SPACE OPERATIONS CONTRACT

CSOC Goals

- Reduce cost of operations and management of NASA's ground systems and communications infrastructure
- Privatize and commercialize NASA infrastructure
- Increase the level of service to NASA

*To help NASA focus on Space,
not on Space Infrastructure*

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Commercialization Focus

- Space Network
- Ground Network/Deep Space Network
- Wide Area Network

*Near Term Emphasis on GN/DSN/WAN
Commercialization*

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Strategic Vision

- ID/IQ Contract (By 5 to 6/00)
 - All potential providers priced for services in GSA-like schedule
 - NASA buys capacity - deep discounts
 - Price per pass/price per minute
 - Available for other users
 - Access to all providers
 - NASA and users reap price breaks
 - Contracts and interfaces in place
 - Enable load management across diverse customer base
 - Overall management of demand
 - Streamlined acquisition and management process

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Architectural Challenge

- Unified Ops Concept
 - CSOC Integrated Operational Architecture developing unified ops concept for asset management
 - “Behavior Modification”
 - ID/IQ development of “Standard Services”
 - Migration towards commercially-driven standards
 - » Integrated Systems End-to-End (User to Spacecraft) around Internet protocol suite and WWW
 - » Maximize use of standardized S/W - COTS
 - Commercial relationships drive towards interoperability
 - Market determines pricing and standards
 - Special/mission-unique services available--at higher cost
 - Migration towards globally dispersed network of networks accessible through single interface
 - Driven by industry standards (WWW and evolving protocols)

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IOA Interfaces

- Systems and Interfaces have different responsible organizations
 - The vehicles and on-board systems (NON-CSOC)
 - The link from the vehicles to the ground (NON-CSOC)
 - RF/IF/Antennas (CSOC)
 - The ground system (CSOC)
 - The terrestrial network extension from the ground system (CSOC)
 - The control center (CSOC)
 - Compatibility and interoperability across the system (CSOC and NON-CSOC)
 - Compatibility with Ground Systems (CSOC and NON-CSOC)
 - IP and Other Users and Partners (NON-CSOC)
- Work to apply Standards to Major External and Internal interfaces
 - Internet 5 Layer model provides a standards based approach to apply to interfaces

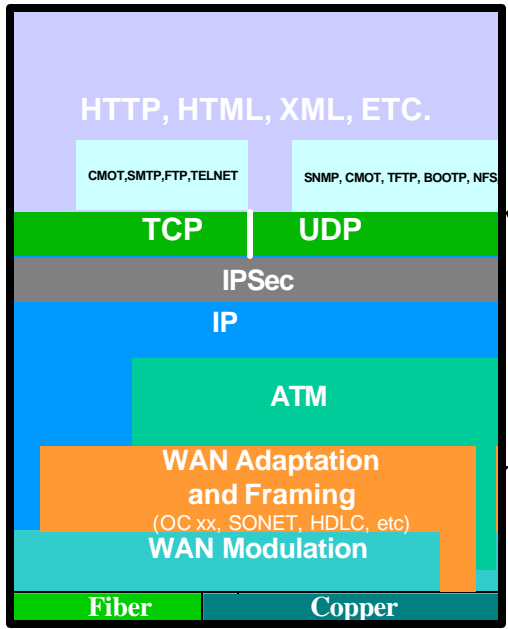
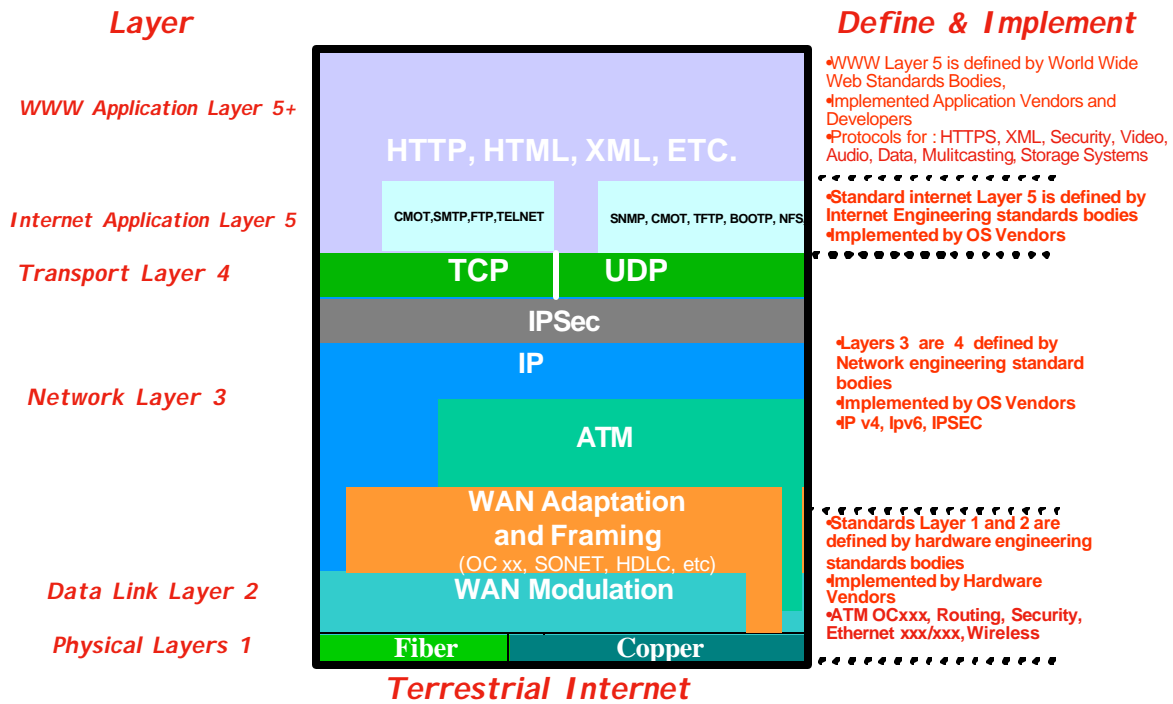
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Ground Communications Standards

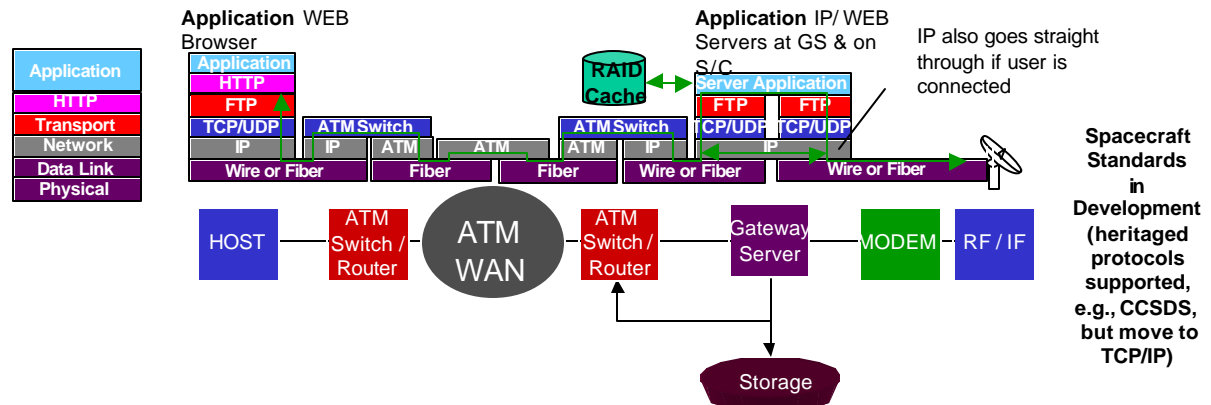
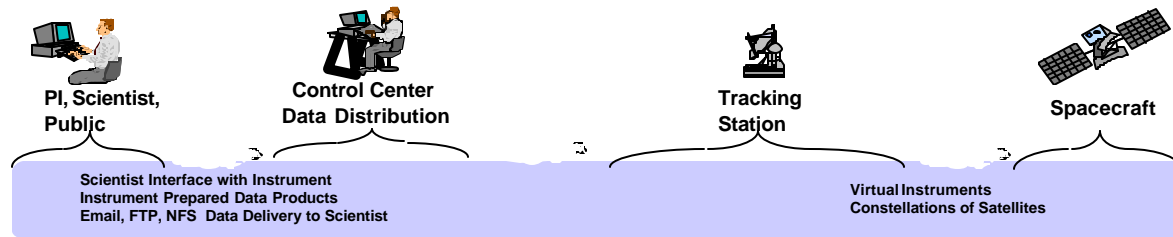


Terrestrial Internet

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End to End System



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CSOC Summary

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- Commercialization is Happening!
 - GN and WAN are linked
- IOA is Moving to Internet and Commercially-Driven Standards
- IOA will Support Heritaged Systems
 - Behavior modification under way to incentivize migration towards standard, standardized services

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