Program Executive Office
Command, Control, Communications,
Computers and Intelligence (PEO C4I)

Inmarsat Integration with Advanced Digital Networking System (ADNS)

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Automated Digital Networking System (ADNS)

ADNS IS THE WIDE AREA NETWORK FOR THE U.S. NAVY.

Deployed Mobile Networking for SHIPS | SUBMARINES | AIRCRAFT

ENCLAVE INDEPENDENT

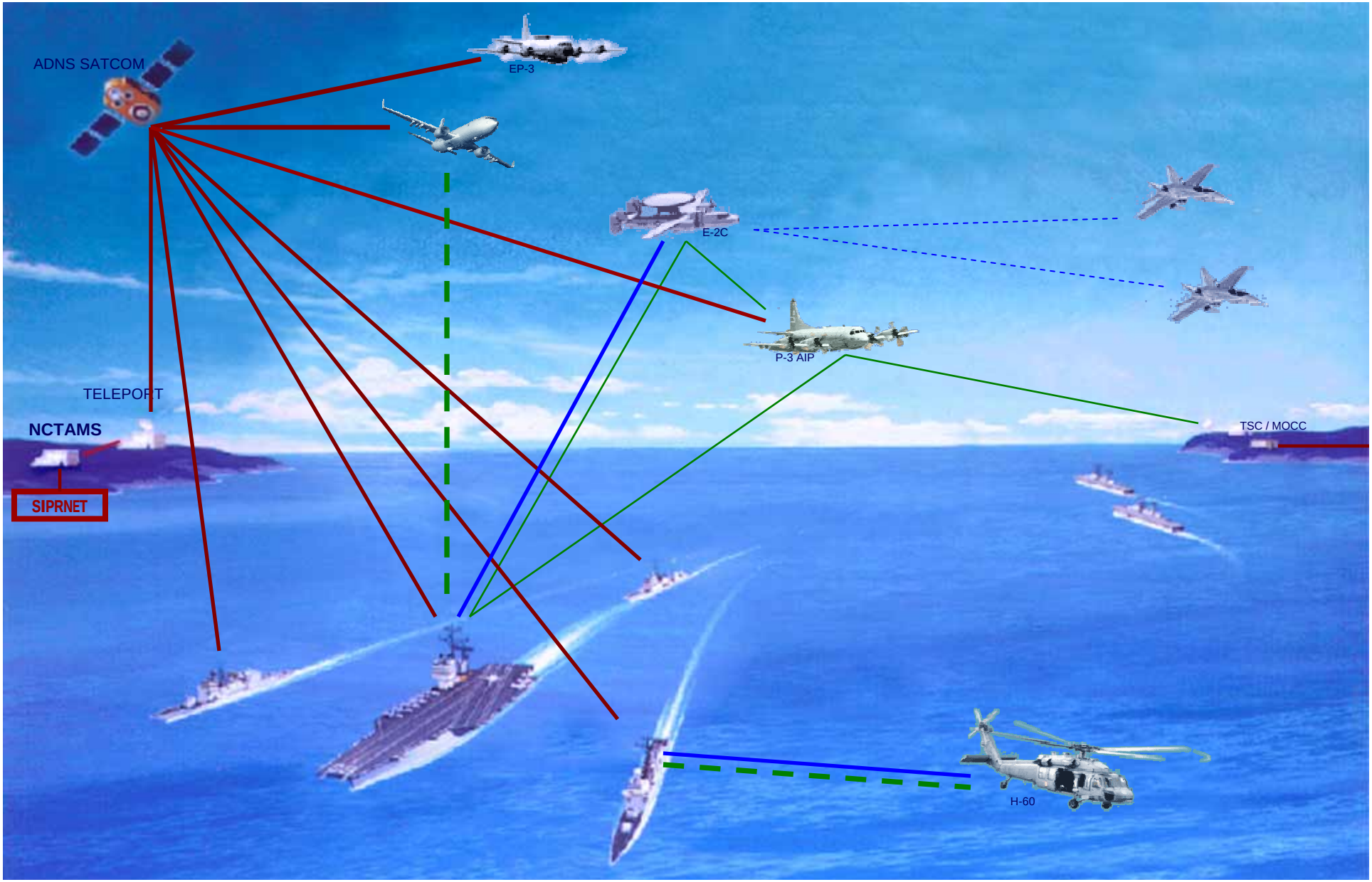
SIPR | NIPR | SCI networks | CENTRIXS

RF PATH INDEPENDENT

SATCOM | LOS

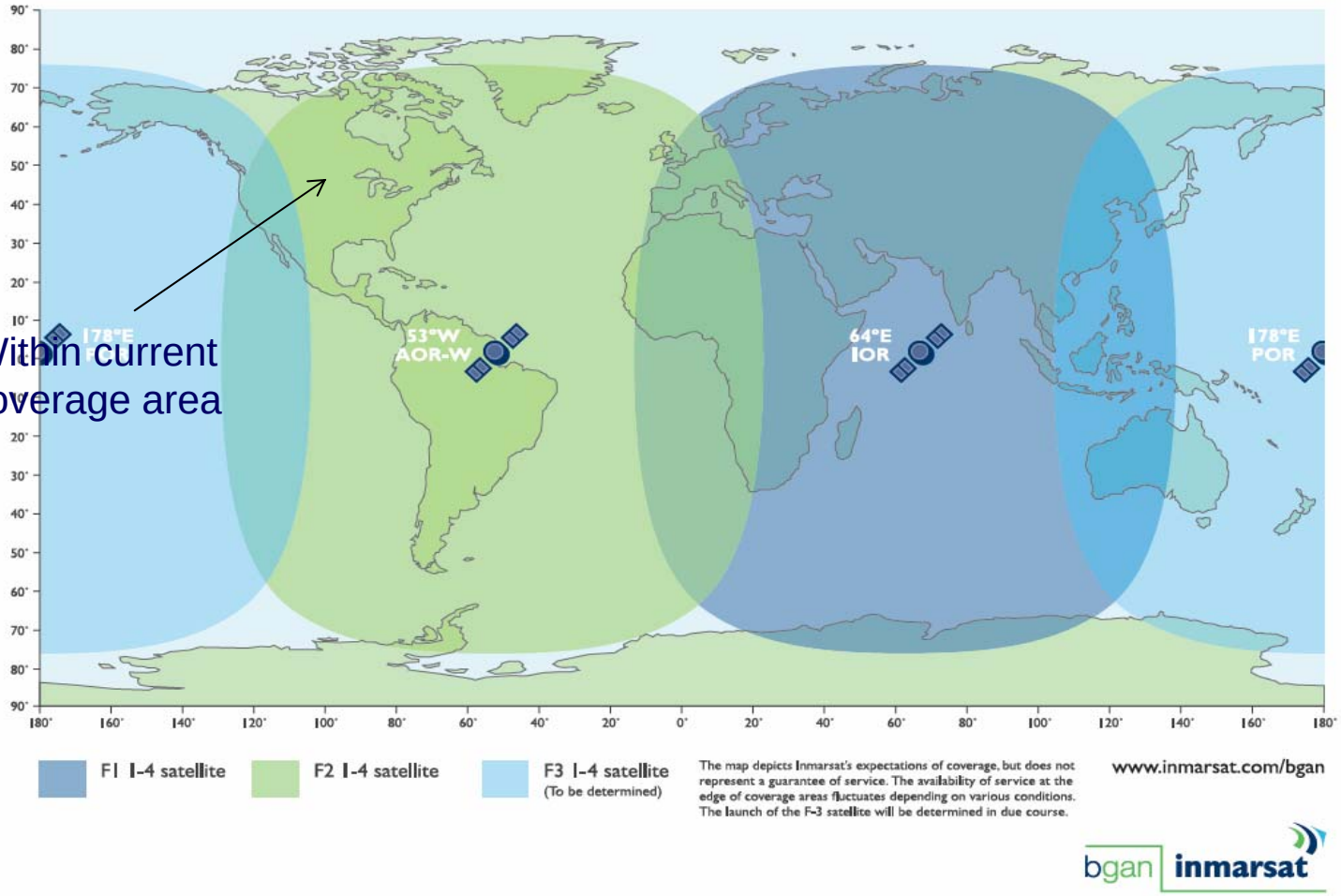
The ADNS Program ties together hardware, software, links and services to provide a mobile Wide Area Network (WAN)

- Network Routing Configurations/Architecture
- Security posture (to conform with DOD requirements)
- RF comms paths
- Terrestrial Entry Points (NCTAMS)
- LAN interfaces (platform dependent)



Dynamic networking architecture connects ships, submarines, aircraft.
Applications provide capability to warfighters. Those applications function over the network.

Inmarsat BGAN coverage



Lab Facilities

SPAWAR
Systems Center
PACIFIC

Building 33

Airborne Networking Lab

Building 40

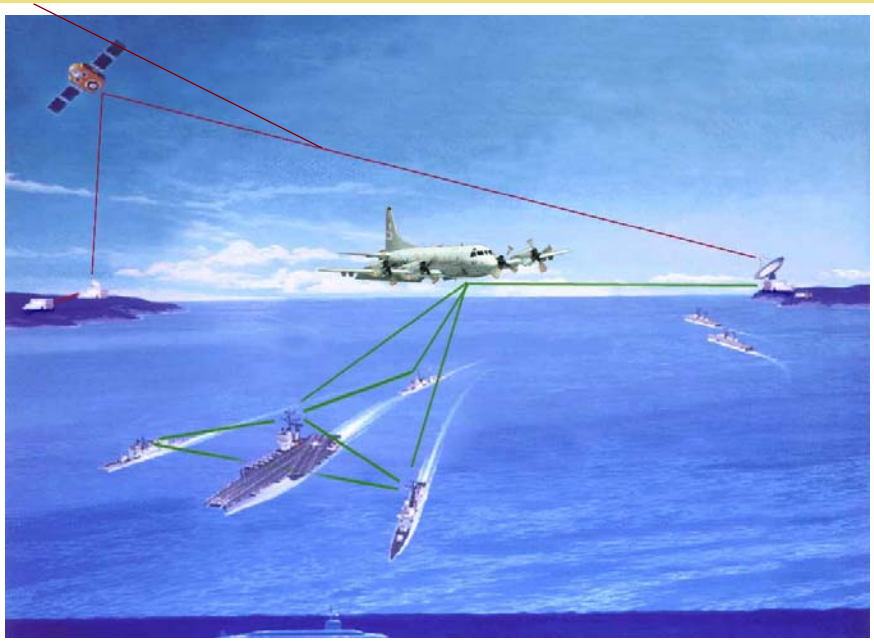
Gig-EF

Building 660

ADNS lab

P-3 AIP ADNS (HFIP/INMARSAT)

SPAWAR
Systems Center
PACIFIC



Capabilities / CONOPS

SIPRNET access for P-3 via Navy CVN, Ships, TSC ashore & INMARSAT SATCOM to NCTAMS

- Chat
- Email
- Imagery exchange
- Web browsing

Facilitates dynamic maritime patrol, information sharing between aircraft & rear nodes: CAOC, CVN, MHQ/MOC, TSC/MOCC) and ground units.

Timeline / Accomplishments

- 2005 : HFIP connectivity tested in Trident Warrior 05
- 2006 : ADNS development of multi-link network connectivity
- 2007-08 : INMARSAT Swift Broad Band development for wide bandwidth SATCOM connection

SATCOM connection enabled through NCTAMS

Goals and Objectives

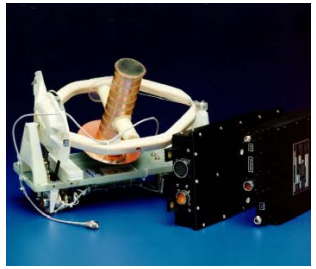
- Develop a Fault-Tolerant All-IP Black Core Ciphertext Airborne Network Architecture.
- Employ HAIPE Complaint INE Devices
- Provide World-Wide Airborne Network Connectivity

Requirements

- Utilize Swift Broadband
  - Operational analysis suggests that SBB allows significant savings over SW64
- Enable class of service control
- Utilizes HAIPE devices
- Utilize ADNS as WAN architecture
- Secure RADIUS server

Network Components

SPAWAR
Systems Center
PACIFIC



EMS AMT-50

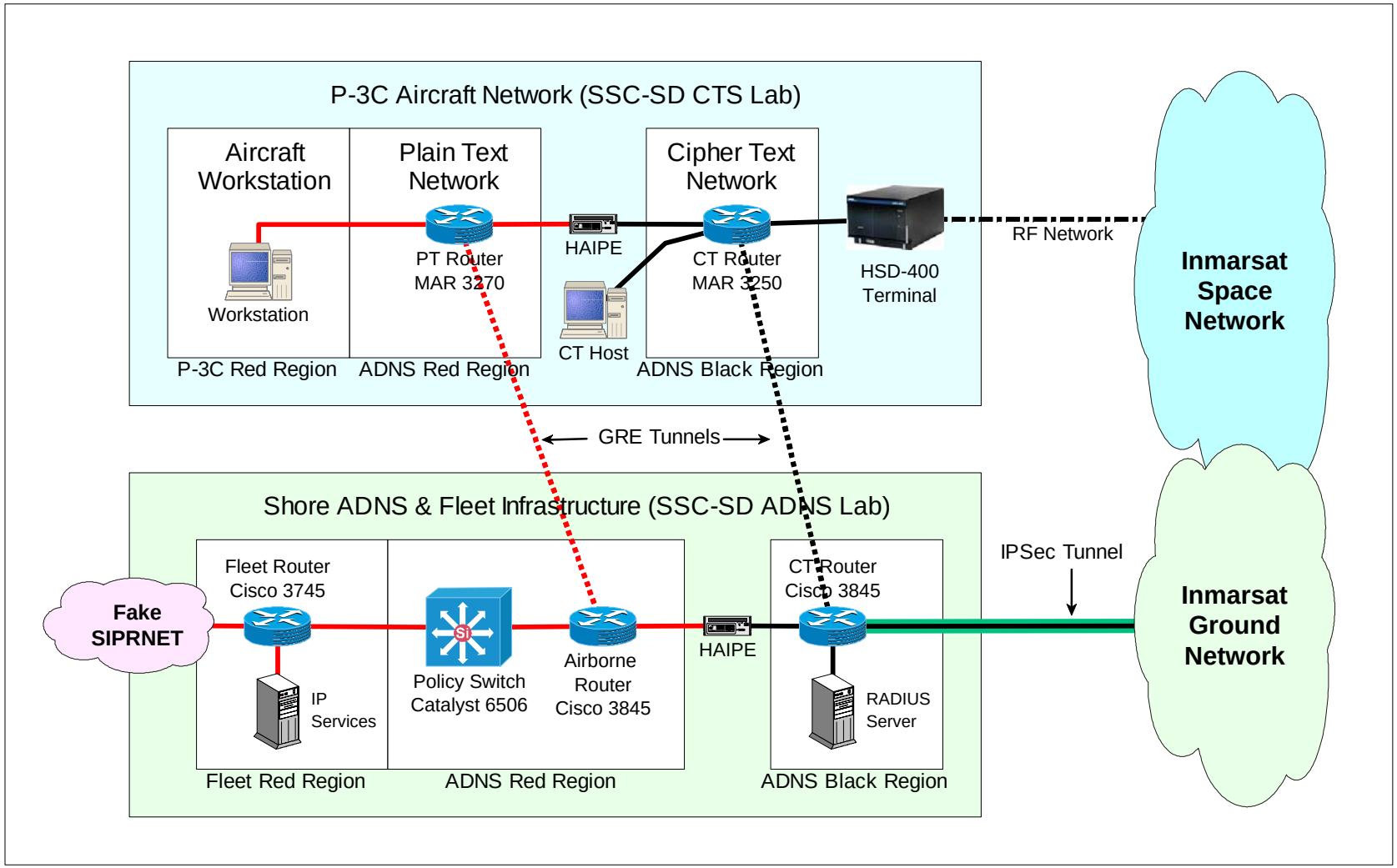
EMS HSD-400

EMS CNX-300

KG-175D

Cisco 3270

Initial Design



Design Considerations

SPAWAR Systems Center PACIFIC

Capabilities

- End-to-End connectivity between aircraft and shore classified networks
- Interoperable with shore ADNS networks
- Standard ADNS QoS policy enforcement

Limitations

- Requires GRE tunnels for Air-to-Ground routing
  - Cipher Text GRE tunnel
  - Plain Text GRE tunnel
- GRE tunnel overhead reduces available bandwidth
- No streaming class of service selection

Terrestrial Connection

- Utilizing leased lines for connection between Navy WAN and Inmarsat MeetMe point
- Utilization of T-1 circuits vs. IP transport network

Leveraging Infrastructure

- SSC-San Diego is investigating future opportunities to utilize the SWBB connectivity to the ADNS WAN
- Improved connectivity supports future applications, sensors, and services

Summary

- Providing P-3AIP a SWBB capability over existing ADNS infrastructure
- Designing a cipher-text solution
- Working through accreditation issues
- Aircraft installation Sept 08

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