



UNITED STATES
SPACE FORCE

Cyber-Enabled Space Operations

*Colonel Shay Warakomski
Senior Cyber Officer
U.S. Space Force*



Changes in Leadership...

- CSO
 - LOE 1: Field Combat-Ready Forces
 - LOE 2: Amplify the Guardian Spirit
 - LOE 3: Partner to Win
- USSPACECOM
- VCSO
- COO & Deputy COO
- SpOC/CC
- Senior Cyber Officer
- Deputy CTIO
- STARCOM Director of Cyber Ops
- SSC CIO



"YOU CAN'T BE A SPACE HERO
WITHOUT ONES AND ZEROS"

Lt. Gen. DeAnna Burt
Chief Operations Officer, U.S. Space Force





INTEGRATION OF ACQUISITION, OPS, & TESTING/TRAINING

Cyber resiliency and space mission assurance require effective partnerships across the space acquisition, operations, and testing/training communities

SpOC actively defending key cyber terrain, correlating events/incidents across weapons systems, and coordinating response actions with Mission Deltas

STARCOM generating warfighting cyber operators through foundational and advanced training, realistic exercises, and system-of-systems cyber testing of space capabilities

SSC driving cybersecurity, vulnerability management, and hardening actions across weapon systems development and sustainment





USSF's First Space Strategy

■ CSO signed **28 April 2023**



Foreword

The United States' ability to project spacepower is inherently reliant on its ability to operate in cyberspace. Launch, command and control, communications, and ground-based sensors and space-mission data at some point must traverse cyberspace. As our doctrine, *Spacepower*, makes clear, cyberspace operations within the network dimension of space operations represent the primary linkage to all other warfighting domains. This dependence means that cyberspace superiority is critical to space superiority at the time and place necessary for the United States to prevail in conflict.

Near-peer competitors and other potential adversaries are relentlessly conducting malicious cyber activity across all sectors of the United States' infrastructure, exploiting valuable data systems during competition, and have demonstrated the ability to deny, disrupt, degrade, destroy, or manipulate vital information and networks during conflict. Assuring delivery of space effects for the United States, its allies, and its mission partners is critical to joint force operations. The United States Space Force must defeat these threats in cyberspace to preserve freedom of action in the space domain. Current cyber capabilities are insufficient in capacity and scope to effectively defend our military space capabilities from potential adversaries, and while the partnership with United States Cyber Command is critical for our success, the ultimate responsibility of ensuring military spacepower lies with the United States Space Force.

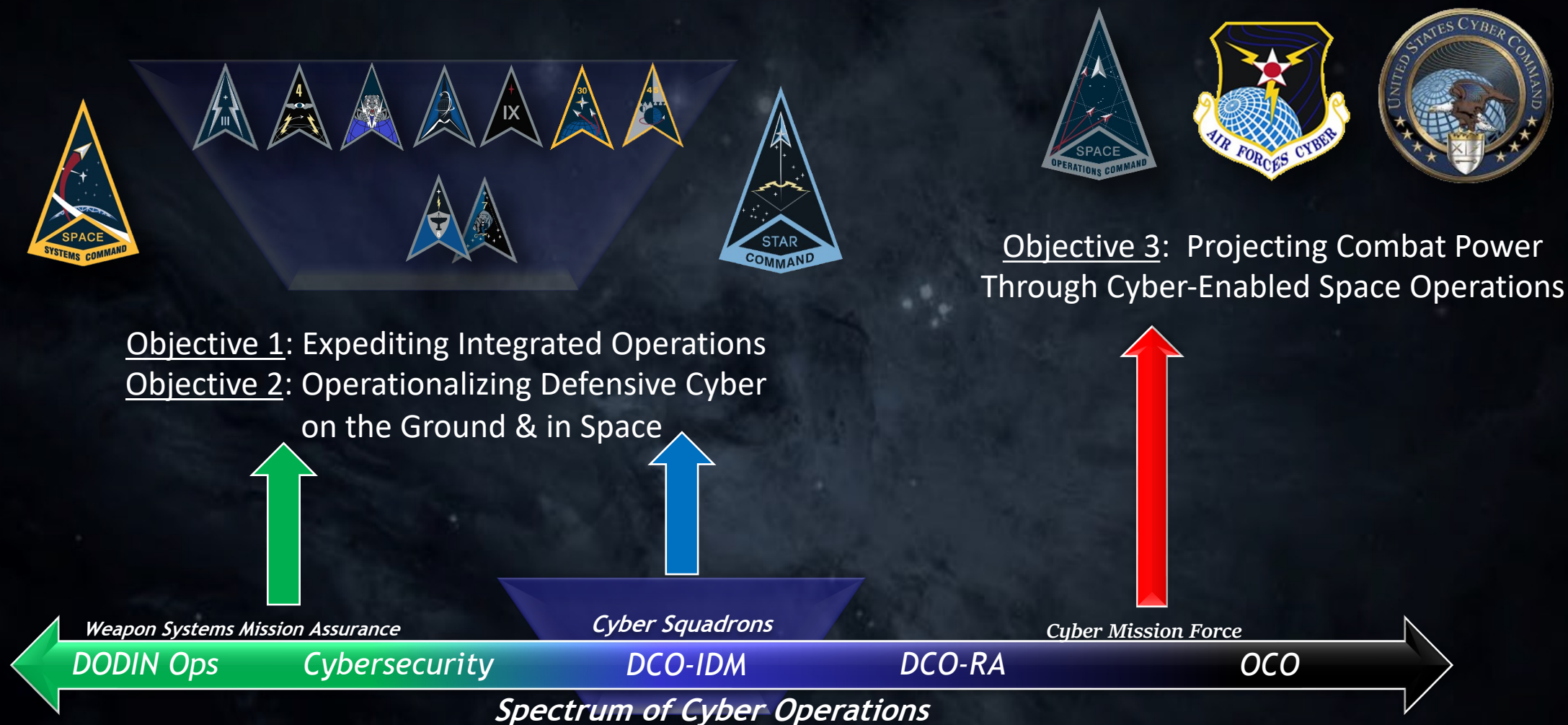
This strategy is not system-focused or platform-based, rather it is mission-focused. The USSF will transform organizationally, operationally, tactically, and functionally to ensure Guardians at all levels are trained and ready to deliver space effects through *Cyber-Enabled Space Operations*. To achieve this, Guardians must be properly organized, trained, and equipped to compete and win against any adversary at any time. Cyber Guardians must be ready to deny adversary operational advantage against our space capabilities and provide options to hold hostile forces at risk, first to deter potential adversaries from aggression and irresponsible acts in space, and to prevail in conflict if deterrence fails.

This is not simply another challenge to be resourced. Implementation of this strategy is imperative for the well-being of the Nation. I am devoted to our success and committed to empowering our Guardians to fight and win in the cyberspace domain.

B. CHANCE SALTZMAN
General, USSF
Chief of Space Operations



USSF's First Space Strategy Objectives





USSF's First Space Strategy LOEs



Organize
and Employ
Combat
Ready
Forces

Develop
Cyber
Guardians



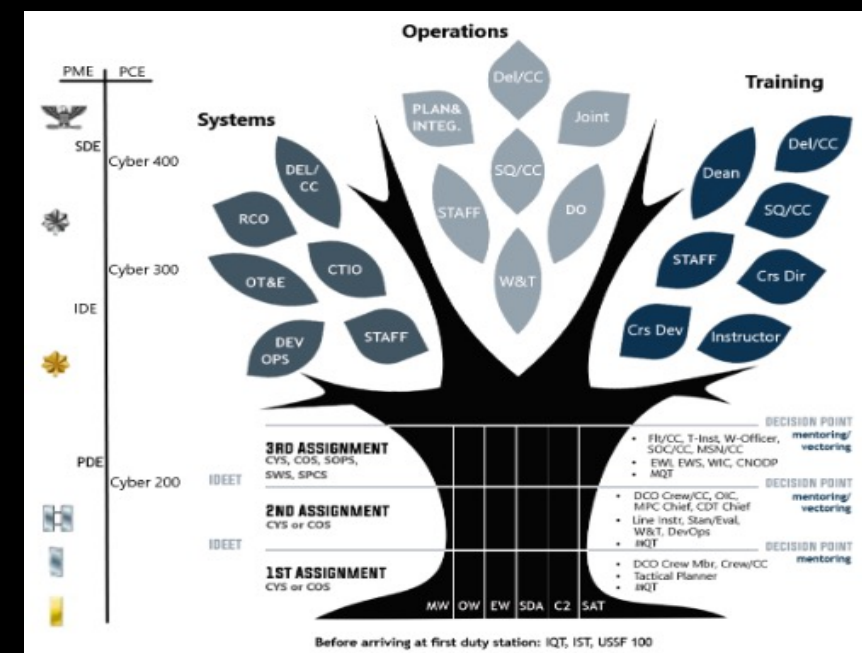
Deliver
Resilient
Space
Capabilities





2023 Personnel Landscape

- One officer specialty **17S Cyber Operations**
- One enlisted career field **5C0X1 (D, R, S, N shreds)**
- Incorporated **23 inter-service specialties** into **one** Cyber Operations career field
- Space Cyber Center
- Partnering with USAF on Cyber Training
- Cyber Squadrons aligned to Mission Areas
- Integrating Cyber into Space Power



5C0X1 Cyber Operations

5C0X1N
Network
Operations

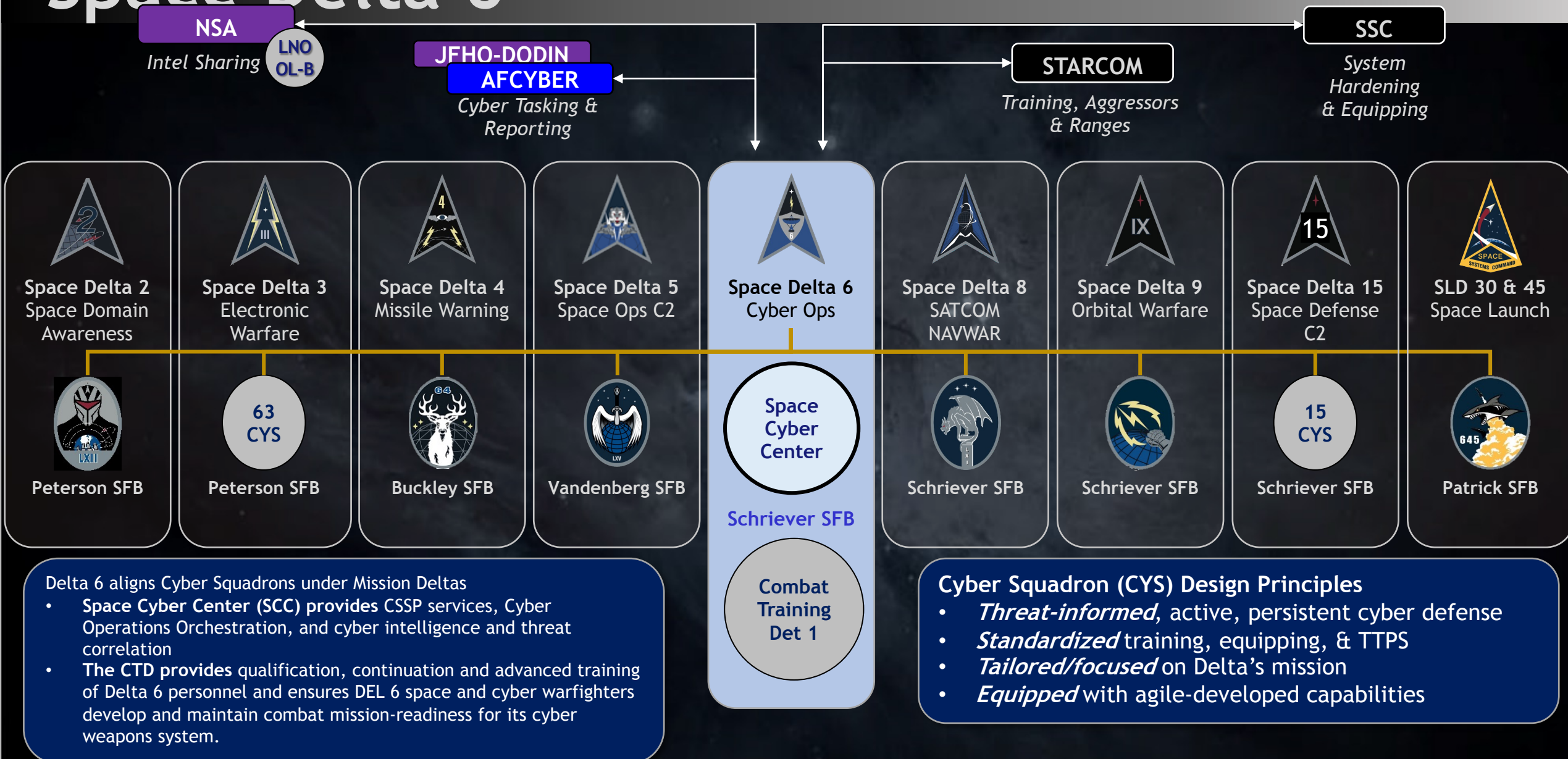
5C0X1R
SATCOM
Operations

5C0X1D
Defensive Cyber
Operations

5C0X1S
Systems
Operations



Space Delta 6





Cyber-Enabled Space Operations

Space Combat Squadron



Delta 6 cyber squadrons conduct cyber enabled space operations



Mission Deltas

Cyber, Space and ISR crews aligned under a single space mission Delta CC

Cyber Squadron

Space Squadron

ISR Det

Delta 7 delivers tailored ISR support for the space mission

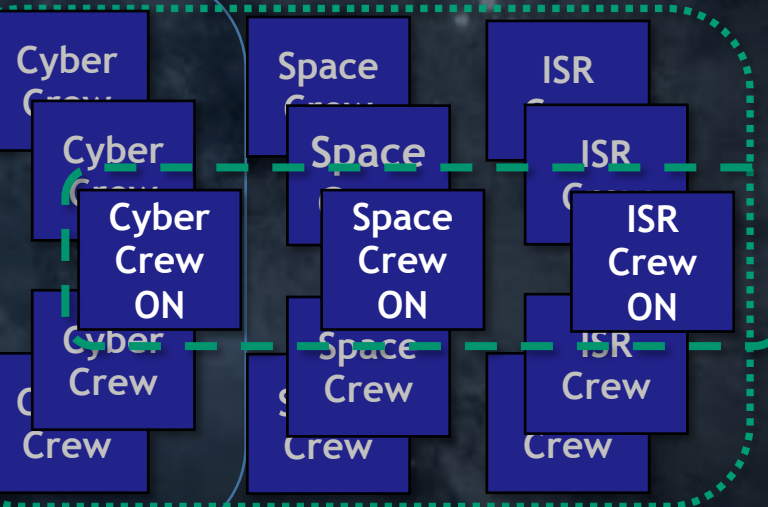


- Cyber Squadrons deliver cyber defense via MDTs
- MDTs are persistent on the space mission systems-*integrated in the space ops* squadron
- MDTs fill space ops roles with 5 crews in combat status and 3 in dwell status

Threat analysis
Mission planning
Incident response
Forensic analysis



Crew Rotation



- Crew members 'deploy' into the ON/ON CALL crews from squadrons and detachments
- Three ON crews make an *Integrated Combat Crew*
- Five integrated combat crews aligned to a Delta

Space Force Combat Squadrons enable the Space Force Generation Model



National Reconnaissance Office

NRO Mission: Overhead Intelligence Systems for National Security. The NRO acquires, operates, and maintains collection, processing, and dissemination systems used to produce overhead intelligence

NRO Cyber Delta 26 Mission: Ensure highly reliable and resilient IT Services and cyber defense for the NRO and its mission partners

- (U) 1,800 member Delta consisting of **5 squadrons, 2 Divisions & 6 Detachments** supporting 70,000 users at over 800 sites worldwide
- (U) Oversees 24/7/365 IT and Cyber Operations for the **Intelligence Community's largest network** supporting global intelligence dissemination and over 140 DoD, NASA, NRO and Space-X launches annually
- (U) Supports **6 NRO Space Deltas** delivering Cyber C2 and an enterprise view of NRO mission system cyberspace terrain to provide direct, on-net defense of assigned mission systems





How We Execute The LOEs...





SEMPER SUPRA

Cyber Guardians Wanted



UNITED STATES
SPACE FORCE

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