SatNAG

Satellite and **N**etwork **A**dvisory **G**roup

2024 UPDATE

SatNAG

Satellite Network Advisory Group

UNOLS
UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

NSF

SatNAG - Satellite and Network Advisory Group

- **Advisory Group Members**
  - Rebecca Hudak / Woods Hole Oceanographic Institution
  - Ken Feldman / University Of Washington
  - Erich Gruebel / University Of Rhode Island
  - Julian Race / University of Alaska Fairbanks

- **Mission Statement**

  - To steward the objective, effective and efficient use of ship to shore network resources and cyber infrastructure and optimize positive customer experiences for the UNOLS fleet and to serve as a technical consultant to the Academic Research Fleet (ARF) leadership.

- **What We Do**
  - SatNAG works in good faith as advocates to the benefit of ARF over personal or home institution interests to advise NSF, the ARF community, and UNOLS Council about key aspects of satellite communication and fleetwide network management.

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SatNAG's Role

SatNAG's Regular Duties - A day in the life:

- Review satellite communication service levels, market rates, performance, priorities, and broad strokes budget.
- Advise funding agencies on fleetwide technology needs and project priorities.
- Advise on technology resource allocations.
- Facilitate fleetwide technology collaborations.
- Establish bandwidth management policies.
- Digest and communicate complex technology decisions to the broader community.

Cyber-Threats to Research Facilties

- **ALMA** Radio Telescope Array
  - October 2022 ransomware attack
  - 48 day shutdown
  - $250,000/day repairs

- **NOIRLab** Astronomical Observatories
  - August 2023 cyber attack
  - 60 day shutdown
  - Affected numerous partner observatories

- Both events led to lost research time & rapid, extensive, and costly repairs and hardening against future attacks

OmniSOC

SatNAG - Cyber-Threats to Research Facilities

- **U.S. Academic Research Vessels are Cyber Targets**
- **SatNAG is one of several groups who are working together and putting in the hard work *before* a major incident**
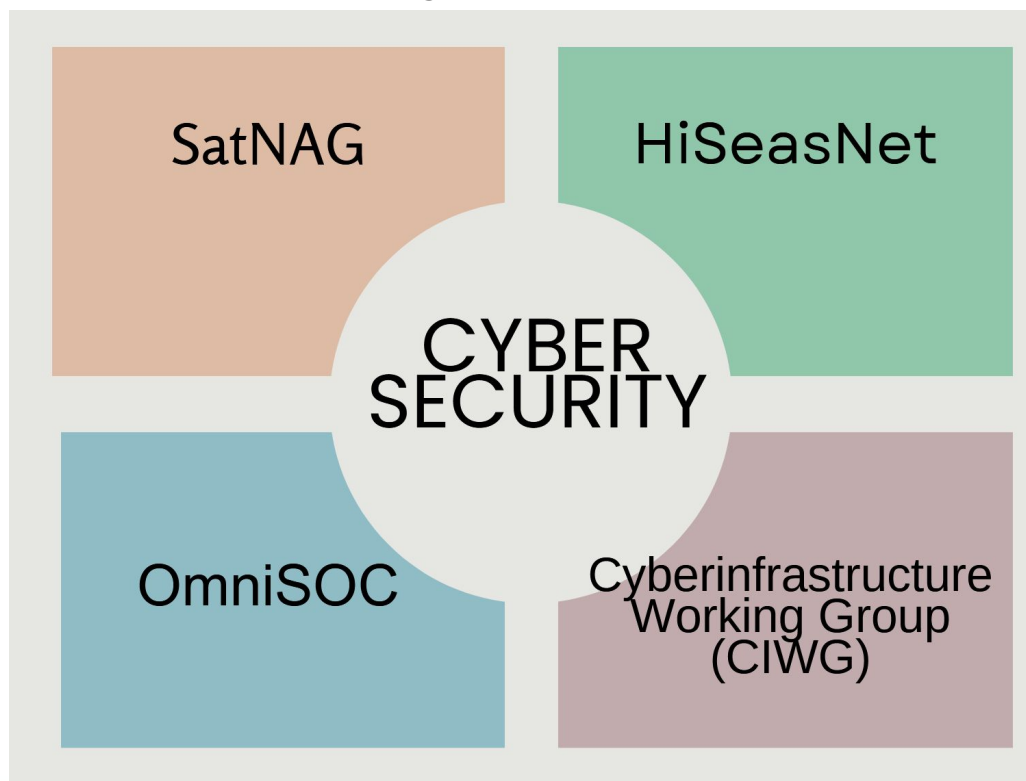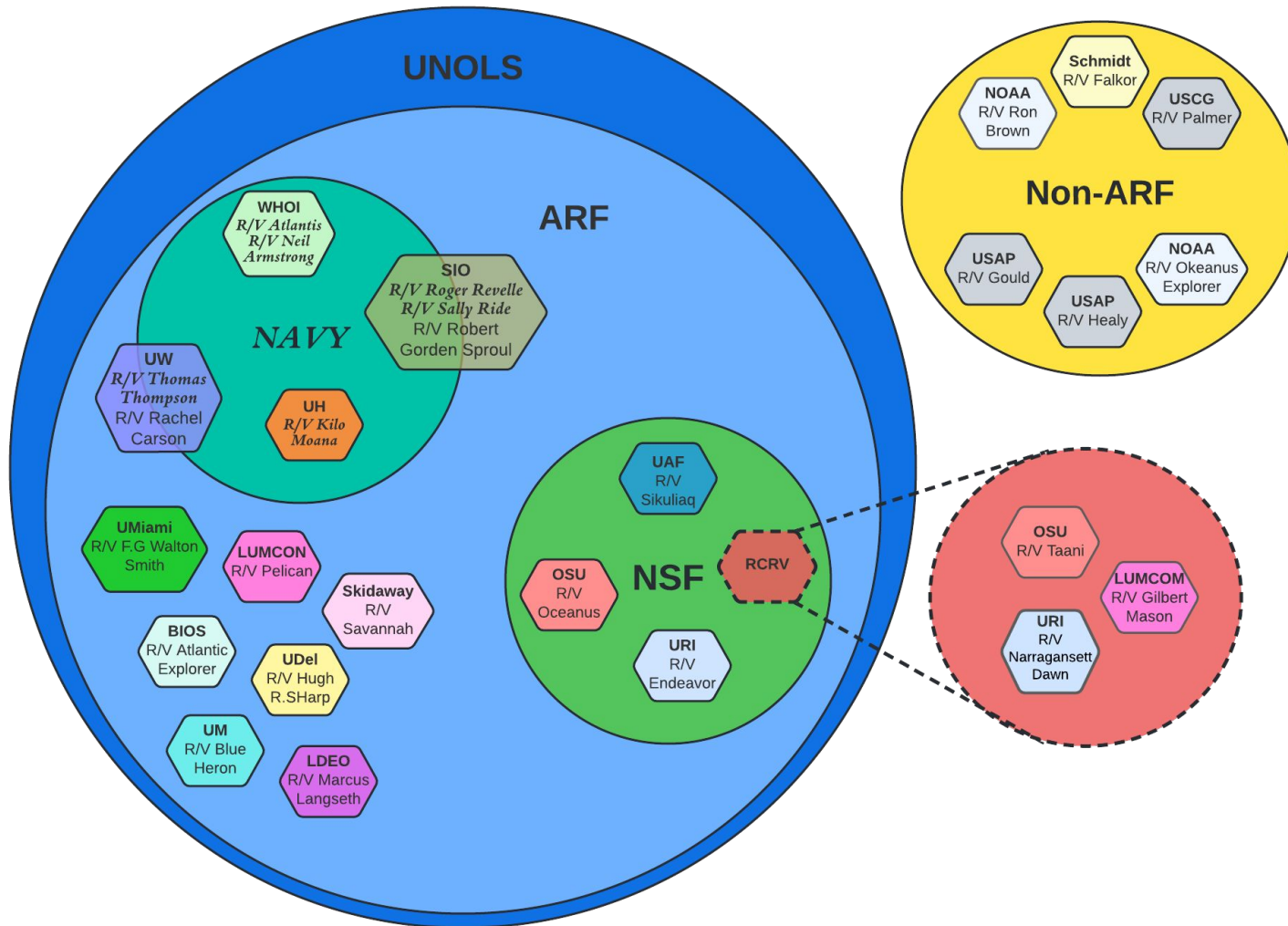
ARF Governance Landscape

Fortigate Next-Generation Firewall Project

What is it?

Modern hardware, network engineering, and cyber-support
services for U.S. research vessels

Why do we need it?

-Operator's obligation to provide performant and SECURE networks

-Deliver a positive and consistent user experience for sailing scientists

What's the status?

-Installed on Endeavor, Sikuliaq, AE, Kilo Moana, Thompson

-Coming soon to Savannah and Rachel Carson

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Fortigate Hub Architecture

SatNAG - 2024 Year in Review

- **Cyber Infrastructure Working Group (CIWG)**
  - Technical consulting and liaison role
- **ARF-Firewall-Team**
  - Development and deployment of the Fortigate Next-Gen Firewall
- **NSF 2024 TrustedCI Cybersecurity Summit**
  - Building Collaborations with other NSF Large Facilities and TrustedCI regarding Cybersecurity and cyberinfrastructure
- **Cyber Training and Engagement Cruises**
  - RV Sikuliaq - March 2024
  - RV Endeavor - December 2024
- **SaferSeas Act Technology Implementation Review**
- **Organize RVTEC Cyber Monday**
- **Updated UNOLS Internet Use Policy**
  - satnag.unols.org/internet-use-policy
  - Need for quotas alleviated by Starlink, Navy bandwidth expansions, and NGFW

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2025 Goals

- **Fortinet Firewall**
  - Foster the rapid rollout
  - Refine service as issues are found
  - Enhance Security monitoring with OmniSOC
- **New Pilot Project - Direct Fleet IT Support**
- **Continue collaboration with HSN, CIWG, OmniSOC, Trusted CI**
- **Promote Cyberinfrastructure Training Cruises**
  - Another on R/V Sikuliaq in April
- **Maintain the user-facing SatNAG website content**
  - Ongoing Cyber Infrastructure/Security section
  - Fortigate information
- **Work with the fleet program directors:**
  - **Laura Stolp - NSF - Cyberinfrastructure**
  - **Tim McGovern - NSF - Oceanographic Technical Services**
  - **Rob Sparrock - ONR - Oceanographic Research Facilities Program**

Thank You!

Questions?