Forti-Update

UNOLS Council November 2023

ARF CI/CS Collaborators

- **CIWG** - Cyberinfrastructure Working Group
  - Operations Focus
  - Science Focus
- **HiSeasNet**
- **SatNAG** - Satellite Network Advisory Group
- **ARF NextGen Firewall Team**
- **OmniSOC**
- **Fortinet Application Engineering**

NextGen Firewall -What?

- Fortigate firewalls on ship *(it slices! it dices!)*
  - Manages all WAN connections. Phones home to shore.
  - (Preferably) manages all onboard networks, although split installations with an existing router are possible.
- Fortigate firewalls at SIO/URI *(but wait, there's more!)*
  - Provides US-based IP address.
  - Can tunnel all traffic back to home institution, to provide campus addressing.
- FortiAnalyzer
  - Displays device inventory, and tracks data utilization by device
  - Handles traffic data distribution to OmniSOC (ResearchSOC)
- FortiManager
  - Handles configuration for shipboard and hub systems
  - Applies templates and manages data entry during commissioning
  - Configuration of all devices is backed up here

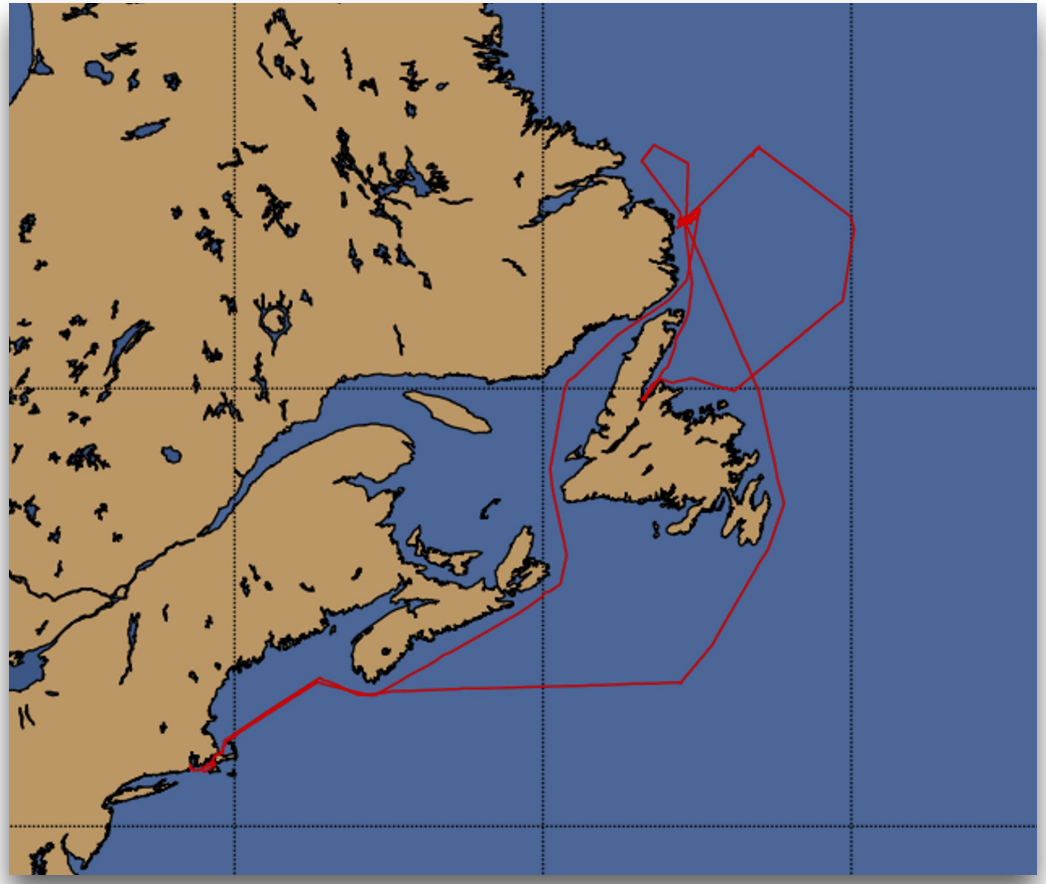
Phase I Results

Very Impressed!

- Fortigate handles WAN balancing *better* than Peplink
- Identification and blocking of problem users is manageable (not great)
- 28 day cruise from Woods Hole to Labrador Sea without a single connectivity issue

The result of two factors

- Adequate bandwidth and dual independent VSATs. Hiseasnet, NSF, & ONR
- Solid firewall, solid network engineering, and lots of homework



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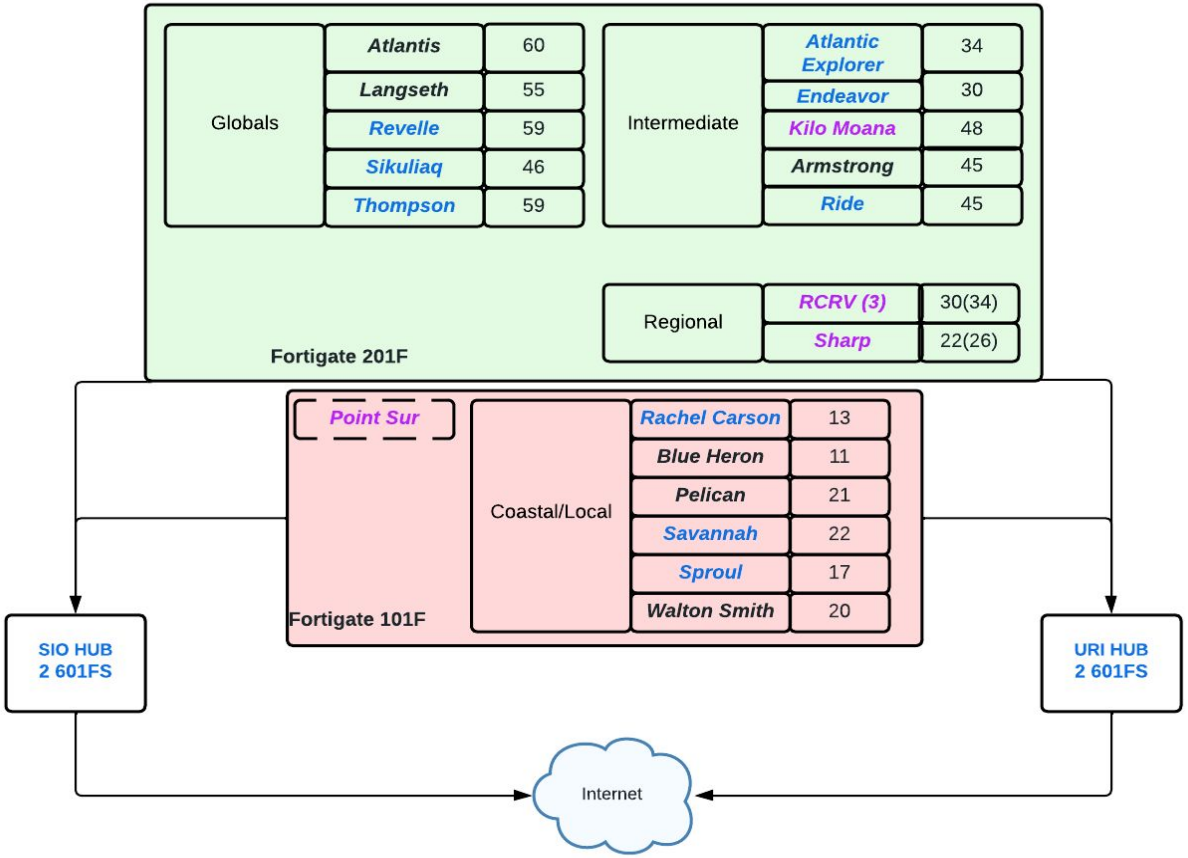

- Ships will connect to redundant hubs (SIO + URI)
- Ships retain the "failsafe" local Internet
- Each vessel will have dual devices for High Availability (HA).
- Each vessel will have a US IP address and optionally tunnel back to home institution.
- Connection will be seamless as they switch connections.
  - FX and Sealink
  - Cell and Starlink

Thank You!

Questions?