Joint Prototyping and Experimentation Maritime (JPEM)

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JPEM Overview

- **Ongoing series of maritime technology discovery and showcase events**
  - Supports the first maritime look at innovative technologies
  - Offers a streamlined process to increase the speed of identifying responses to emerging threats.
  - Supports the joint forces and interagency users by:
    - Exploring the military utility of new capabilities,
    - Reducing the risk of emerging technologies and concepts of operation.
  - Encourages system developers to engage directly with the warfighter in the maritime environment and rapidly adapt technologies around operational needs.
  - Support Critical Technology Areas and Joint Warfighting Concepts
- **Sponsored by OSD R&E I&M, facilitated by NSWC Naval Warfare Center Carderock (NSWC) Combatant Craft Division (CCD)**
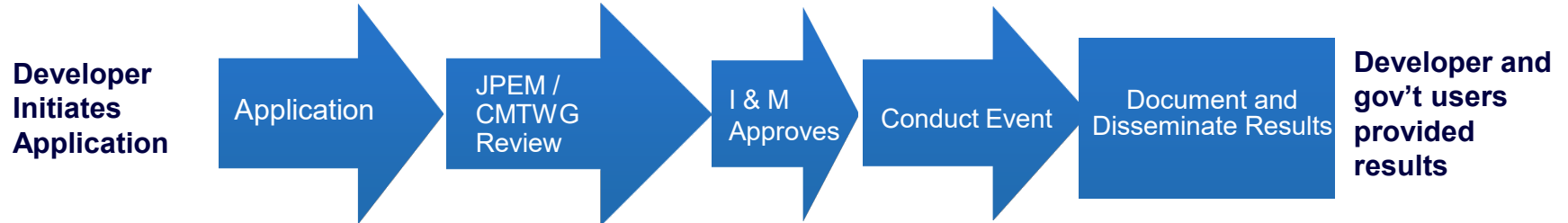
JPEM Focus Areas

- Conduct discovery events in a realistic maritime environment against a relevant tactical backdrop using representative threat scenarios
    - Provide venue / platform for maritime discovery
- Work with government stakeholders and warfighters to identify needs, gaps, requirements and transition paths
- Foster commercial innovation by giving small business and non-traditional system developers a deep understanding of military missions and joint maritime operations
- Discover and evaluate new innovative joint technologies in the commercial space quickly – days/weeks vs months/years
- Open to all: Joint, small business, industry, government and international partners
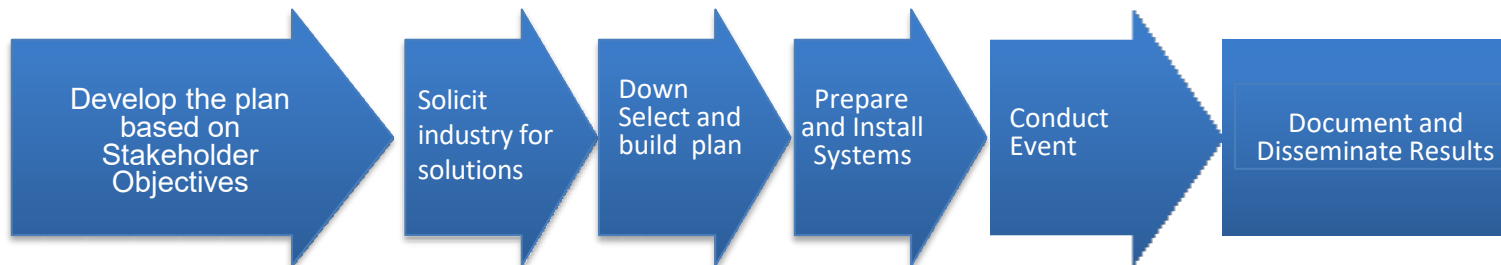
JPEM Event Process

- *Technology Discovery Events* are controlled by system developer

Developer Initiates Application → Application → JPEM / CMTWG Review → I & M Approves → Conduct Event → Document and Disseminate Results → **Developer and gov't users provided results**

- *Capability Discovery Events* are controlled by stakeholders from government commands or agencies (eg., J6, Trident, RADAR, etc)

Develop the plan based on Stakeholder Objectives → Solicit industry for solutions → Down Select and build plan → Prepare and Install Systems → Conduct Event → Document and Disseminate Results

- *Classified Programs* are controlled by government commands

JPEM program provides process, coordination, and oversight to lower burden on joint stakeholders

Recent Discovery Events

- **Discovery Events based on Gov't stakeholder mission or technology focus**
  - OSD (R&E) I&M Contested Logistics in a maritime environment.
  - NRO Brigantine
  - SOCOM and IC – 20 plus technologies in 2 weeks
  - ONR SCOUT Sprint – Focus on SOUTHCOM/JIATF-S mission area
  - Bold Quest 2022 – Joint and partner nation discovery event
  - NSA Storm Force

- **60 plus technologies from partnering novel innovators and government stakeholders**
  - 46 Small business

JPEM Program Highlights

- Average 60 plus technologies onboard each year since 2015
- Over 70% transition to DOD or other government organization
- Key Enabler – More than half of the technologies are from small business and other non-traditional industry partners
- For many it is the first opportunity for observation on-the-water
- Facilitate joint maritime discovery events – Operate in open ocean, littoral or expeditionary regions
- Work with all services for Contested Logistics, JADC2, Trusted AI and Autonomy, and Joint Fires
- Prototype events result in TRL increase
- Prototype Demonstration in Operational Environment
- Promote Industry and government interaction and exchange
- Over 160 CRADA's with commercial industry partners since 2015

Technology Maturation

- **Examples**

- LRUSV prototype to USMC POR – Conducted sea trials
- NSW SATCOM Systems – Introduced during exercise
- Sea Machines SM-300 - Introduced Autonomy in a box
- DSIT Point Shield – ARGUS underwater security program
- Modern Intel - Advanced TRL to 7 and awarded an AFRL AFWERX contract
- Martin USV – VBAT – US Army Futures and SOUTHCOM
- Aerosonde UAV – Fleet Forces Command - USS Higgans
- PACFLT Radar Evaluation and selection
- Next Generation Surface Search Radar (NGSSR)

M-80 STILETTO is the primary venue for discovery events

- Built in 2006 by DOD OFT as a Concept Demonstrator
- Turned over to NSWC CCD in 2009 and converted to Maritime Technology demonstration platform for OSD(R&E).
- Specifically modified to rapidly integrate new maritime technologies for evaluation of technical feasibility, maturity, and military value

- Capabilities include integration and evaluation of maritime systems for FNC3, ISR-T, Cyber warfare, AI/ML, Autonomy, Assured PNT, Demand Reduction and many more.

- The flexible infrastructure supports quick integration of sensors, communications equipment, and other air, surface, and subsurface platforms that provide a low barrier for entry more suitable for non-traditional and small businesses compared to more conventional DoD platforms

Craft Overview

Physical Infrastructure

- Carbon Fiber Construction
- Length 89'
- Beam 41'
- Draft 2.5'- Full Load
- 78 LongTons-Full Load
- 47 Knot Max Speed
- 30 Knot Cruising
- 600nm Operation Range
- Radars: Furuno, SIMRAD HALO-4
- EO/IR Cameras: FLIR
- Electronic Network Infrastructure: Flexible, modular, and re-configurable near plug-and-play installation capability
- Multiple generators
- Arch with ample room for sensors
- Bolt on/off capability
- Pre-existing cableways and conduits

- Payload Area 2,000 sq-ft
- Port CIC
- Starboard CIC (TSCIF)
- Bridge
- L&R Ramp 11mRIB
- UUV, USV & UAV Operation Capabilities
- SATCOM, 1GB LAN

Over 60 maritime technology integrated onboard per year
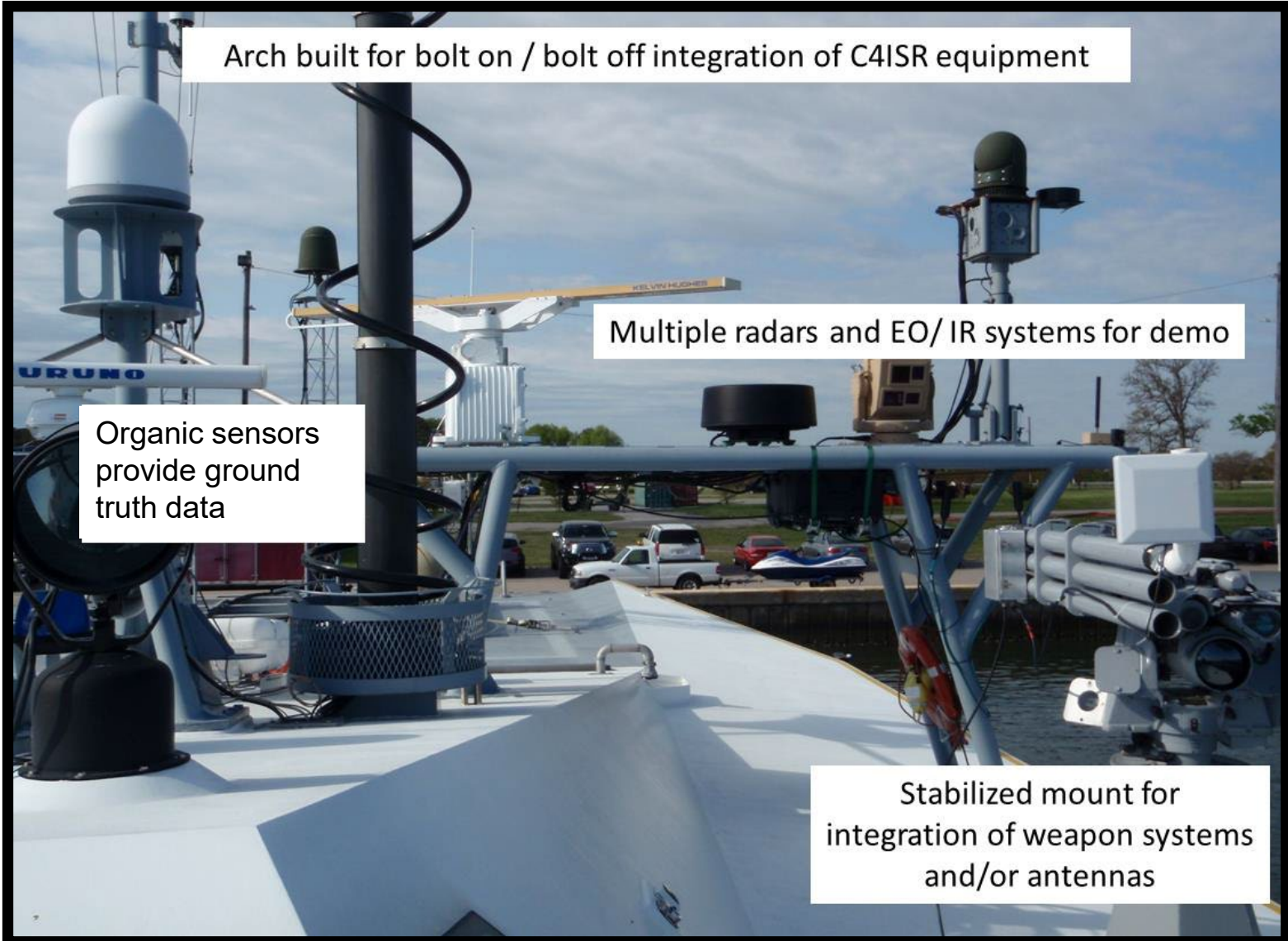**"A floating lab – that goes fast."**

Arch built for bolt on / bolt off integration of C4ISR equipment

Multiple radars and EO/ IR systems for demo

Organic sensors provide ground truth data

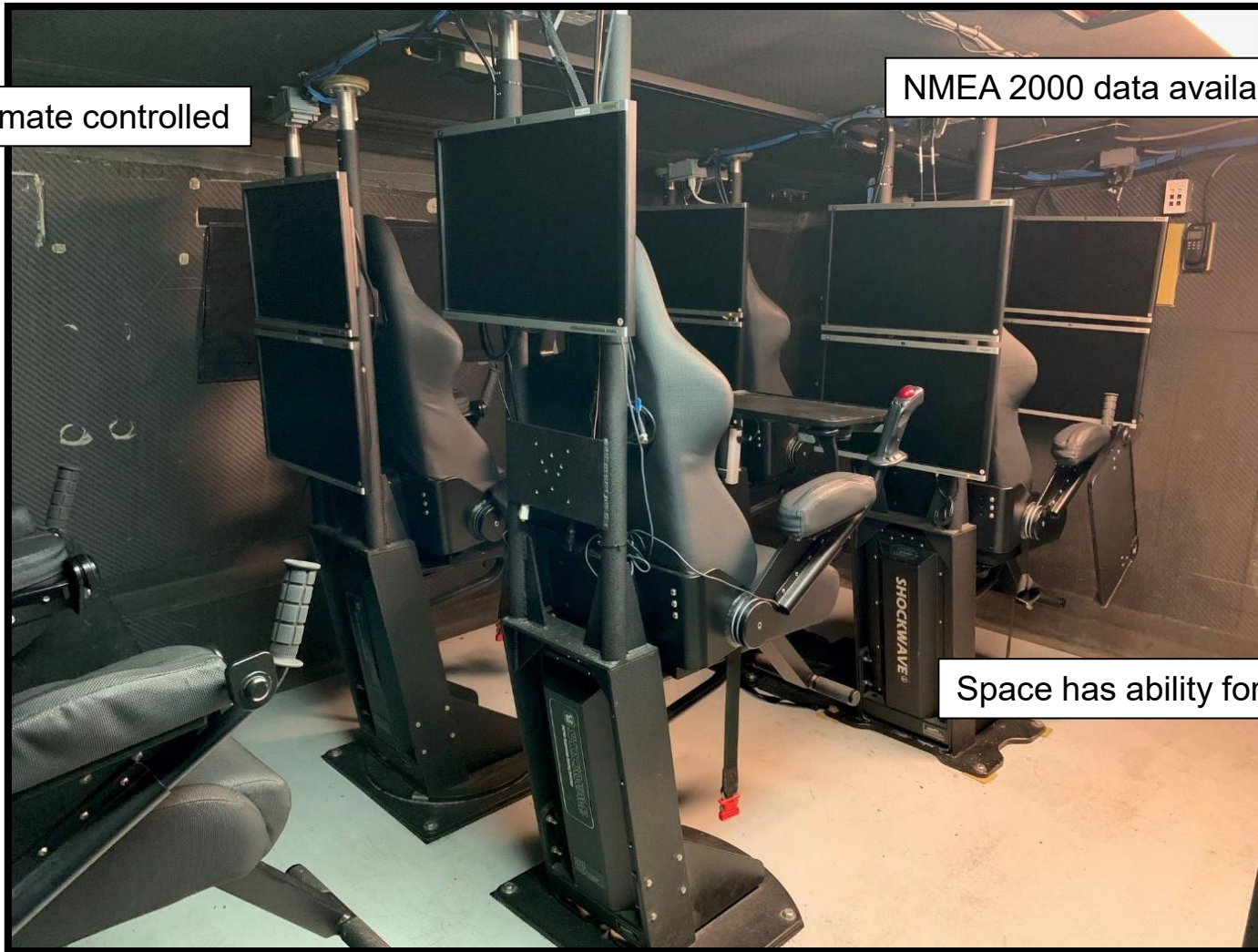Stabilized mount for integration of weapon systems and/or antennas

C2 Experimentation

Space is climate controlled
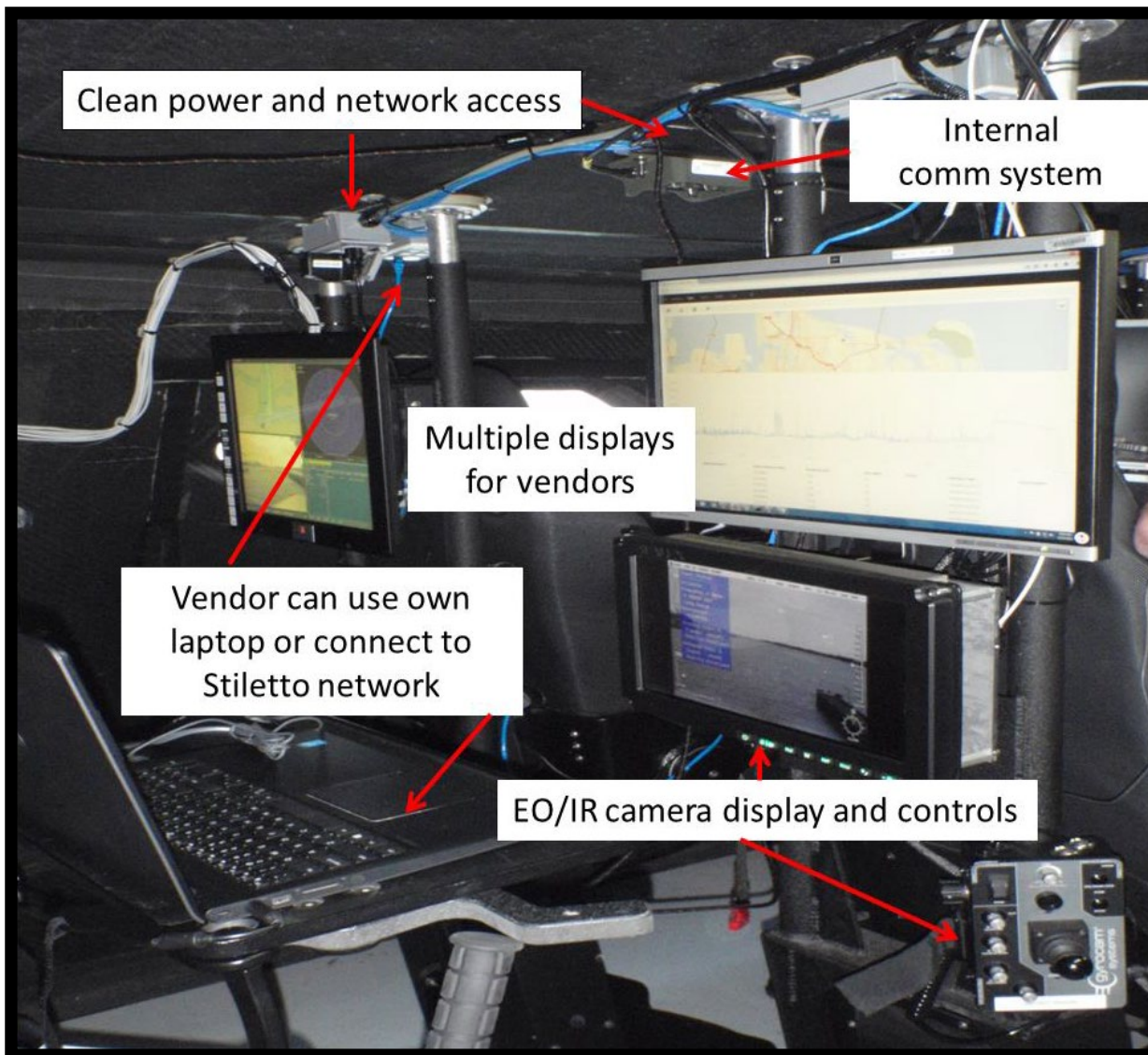
NMEA 2000 data available

Space has ability for "night ops"
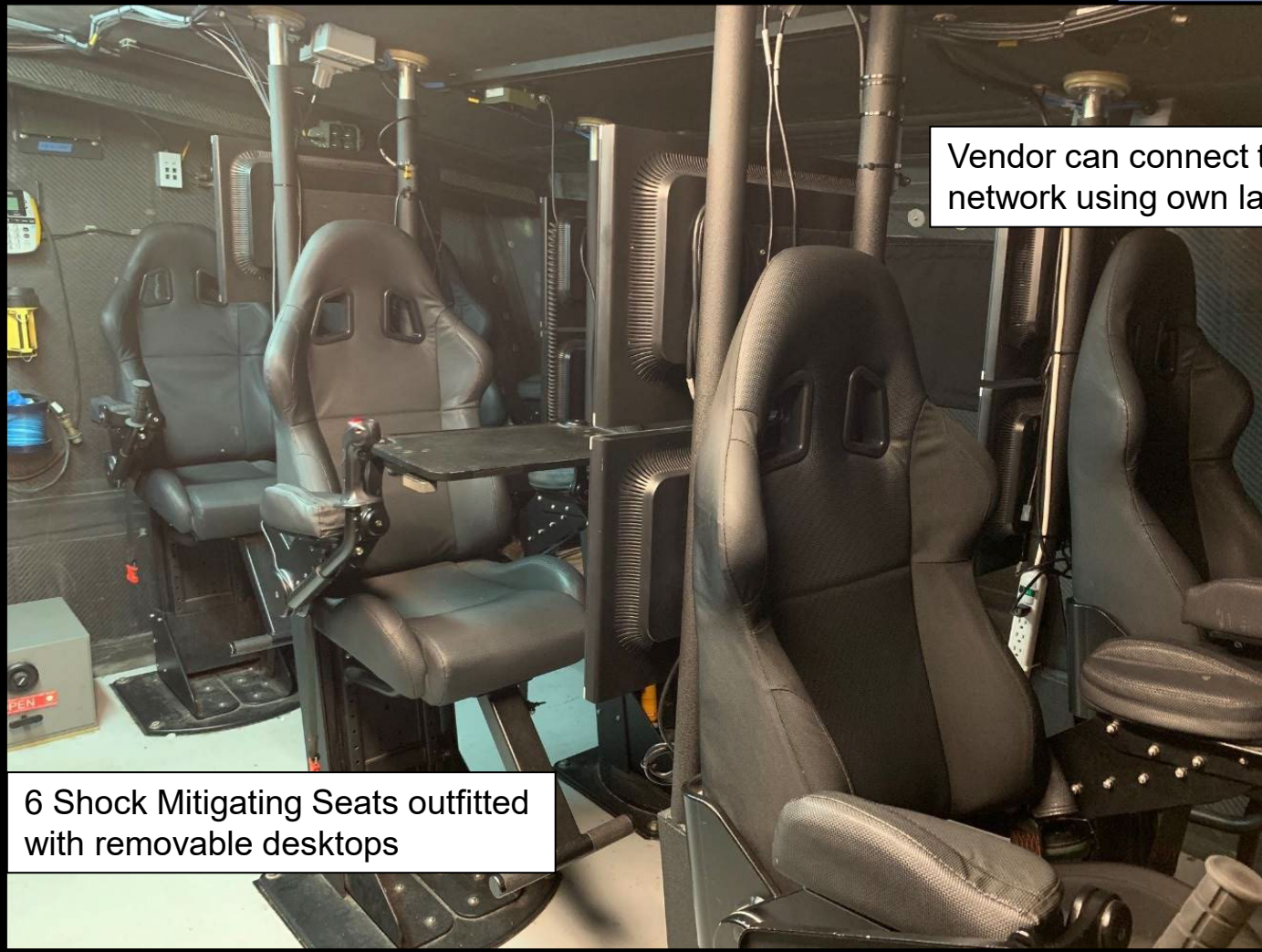
Standard Configuration of Space

Clean power and network access

Internal comm system

Multiple displays for vendors

Vendor can use own laptop or connect to Stiletto network

EO/IR camera display and controls

C2 Integration Space

Vendor can connect to network using own laptop

6 Shock Mitigating Seats outfitted with removable desktops

Launch and Recovery