The Carrier Strike Group
Imagine the Possibilities

To Protect American Interests Overseas
You Want to Get There With

Speed, Agility, and Power

Did You Know?

- Contains 4 Million Gallons of Jet Fuel
- Carries 3,000 Tons of Ordnance
- Represents 4.5 Acres of Sovereign U.S. Territory
- Produces 500,000 Gallons of Water per Day
- Operates Unmanned Aircraft

- Deployed U.S. Army forces During OEF
- Does Not Need Host Nation Approval to Operate
- Is the CSGs Information Hub
- Deploys Special Forces
- Conducts Strike Planning
The CSG in Naval Power 21

Netted Forces / Mobility / Connectivity

- **GIG**
  - Global Info Grid
- **CID**
  - Combat Identification
- **CAS**
  - Close Air Support Strike CAP
- **TGT SET**
  - Mobile, HDBT, Relocatable

Sea Shield | Sea Strike | Sea Basing
---|---|---
CVW ISR / EARLY WARNING PLATFORMS | CVW EMBEDDED COMBAT POWER | THE TACAIR SEABASE

COMBAT POWER EARLY
The Future Carrier is the Information Hub at Sea

Mission Planning Cells
Local Sensors

Humanitarian Ops

Strike Ops

Undersea Warfare

Self-Defense

Logistics

Land Force Support

The City

Mini JOC

Intel
Logistics
NCA

Adapt to Future Missions
1991

- **MISSION PLANNING**
  - Paper-based, text-based
  - Manually intensive
  - Although the product starts and ends life visually, all the immediate steps are not
  - Plans based on Sorties per target

**DYNAMIC MISSION REPLANNING**
- Mission plans seldom change
- Voice communication to communicate changing requirements to pilot

2001

- **ELECTRONIC & TEXT BASED**
  - More automated
  - Product still starts and ends life, but immediate steps are essentially text-based
  - Reduce Sorties per TARGET

2021

- **FORCEnet enabled!**
  - Interactive video!
  - Data sharing!
  - Electronic charts!

- Plan is developed in collaborative, real-time, visual environment
- Operators can plan and execute more like we think!
- Quicker reaction times, and shorter planning cycles
- Measured in Targets per sortie

- Voice communication and digital transmission of targeting information

- Data links directly to aircraft mission system & reprograms weapons
- Video, voice and data transmissions to PILOT
Running the City

Increased Capability / Reduced Manning

Training

Sea Warrior

Schools

Detailing

Distance Support

Sea Enterprise

Engineering

Logistics

Logistics/Admin

Voice Systems

Machinery Control
A Challenge for FORCEnet Acquisition

NCW Objectives
- Remove Bandwidth as a Capability Limit
- Multi-path Transport & Redundant Paths
- Capability on Demand
- Distributed Operations
- Customized Applications
- Multi-User Access
- Customized Delivery
- Assured Sharing
- Information Provided to Operator is Relevant, Timely,
  Accurate, and Usable

Tailorable Mission Packages
True Plug-n-Play Capabilities
One Watchstation, Multiple Domains
Physical Reconfigurability

Design for Human Systems Integration
CVN 21 Concept Ship
Flight Deck

CVN 77

CVN 21 Current

- Enlarged Flight Deck
- Redesigned and Re-positioned Island
- 3 vice 4 Aircraft Elevators
- Re-positioned Weapons Elevators
- Full Size Jet Blast Deflector
- Unrestricted CAT #4
- Utility Elevator Added
CVN 21 Concept Ship
Flight Deck

CVN 21
Design Integration in Progress

Aircraft Spotting, Weapons Movement, and Fuel Rates Being Modeled

Applying DRM to Flight Deck Configuration

Island Line of Sight and "Shadow Zone" Assessment

Sortie Generation Rate KPP Evaluation Underway

Pit Stop Location Optimization Studies
Improved Weapons Handling

Human Amplification Technology
- Improved Weapons Throughput/Sortie Generation Rate
- Reduced Manpower

Advanced Weapons Elevators
- Improved Weapons Throughput/Sortie Generation Rate
- 70% Greater Weight Capacity
- 25% More Cycles Per Hour
- 20% Larger Platform
- Reduced Manpower & Maintenance

Dedicated Weapons Handling Area
- Improved Weapons Throughput/Sortie Generation Rate
- Reduced Manpower

New Weapons Transporters & Omni-Directional Vehicles
- Reduced Manning
- Increased Maneuverability in Tight Spaces
- Improved Weapons Throughput

Upper Stage Elevator
To Flight Deck

Lower Stage Elevator from Magazines

Ordnance Magazines

Upper Stage “Express” Elevator
Weapons Handling Area

PEO Aircraft Carriers
Take Aways

- CVN 21 Design is a series of Systems Engineering trade-offs.

- Moving CVN 21 island started Flight Deck chain.

- Cascading Warfare Centers for FORCEnet started C4I chain.

- CVN 21 Mission Systems with FORCEnet will Drive a entire Navy Architecture

- In-Service Fleet Must Leverage CVN 21 Mission Capability