



# **Naval Network Environment 2016 - Connecting the Naval Warfighting Team**

**Microsoft  
Navy/Marine Corps Symposium**

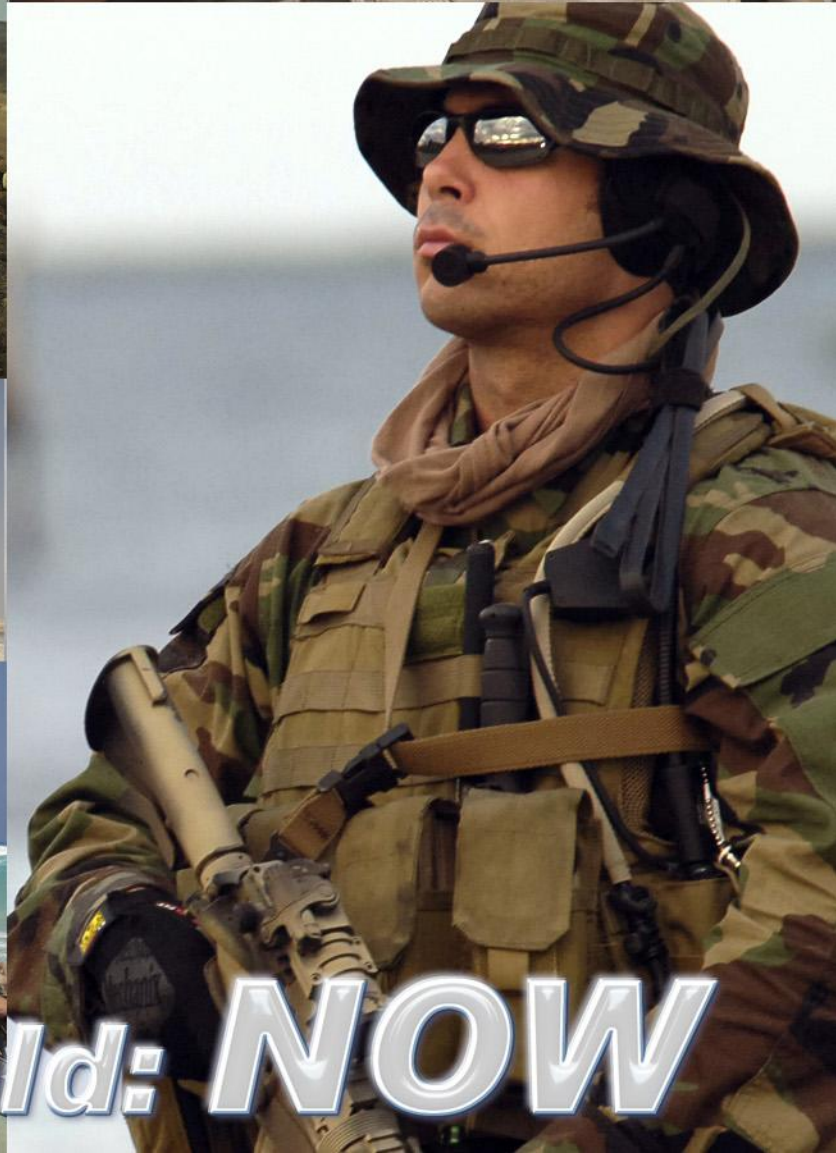
Presented by **Mr. Robert J. Carey**  
**Department of the Navy Chief Information Officer**





On the Battlefield: *THEN*





*On the Battlefield: NOW*





# Did You Know?

- Mobile ad network JiWire just released the stats from its latest public Wi-Fi study and found that 56% of connections are from mobile devices like the iPhone, the iPod touch, Android smartphones and Sony's PSP handheld gaming console.
- JiWire serves ads through public Wi-Fi spots in places like airports, coffee shops and hotels. Last year it published another interesting stat: Just shy of 98% of mobile devices that connect to public Wi-Fi are made by Apple. The iPod touch and iPhone took 55.95% and 41.7%, respectively.
- Those numbers have slipped slightly since then, with Google Android devices passing Sony's PSP to take the third-place spot on the list.
- Public Wi-Fi hotspots grew in ubiquity by 21.9% in 2009, and about half of public Wi-Fi spots are free. JiWire also found that 49% of mobile Wi-Fi users make online purchases on the go.
- Amazon.com and eBay were unsurprisingly named two of the most popular online shopping destinations for the folks who were surveyed.
- The insight we're taking away from these numbers is that the world is changing very quickly; it was only a few years ago that most cellphones and other mobile devices didn't have Wi-Fi capability.



56% of the on-the-go audience connect to Wi-Fi with thier mobile device (source: Jwire 12/2009)



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5

## **Quadrennial Defense Review Report**

***In the 21st Century, modern armed forces simply cannot conduct high-tempo, effective operations without resilient, reliable information and communication networks and assured access to cyberspace.***

***DoD currently operates more than 15,000 different computer networks across 4,000 military installations around the world. On any given day, there are as many as seven million DoD computers and telecommunications tools in use in 88 countries using thousands of warfighting and support applications.***

***Quadrennial Defense Review Report  
February 2010***



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6

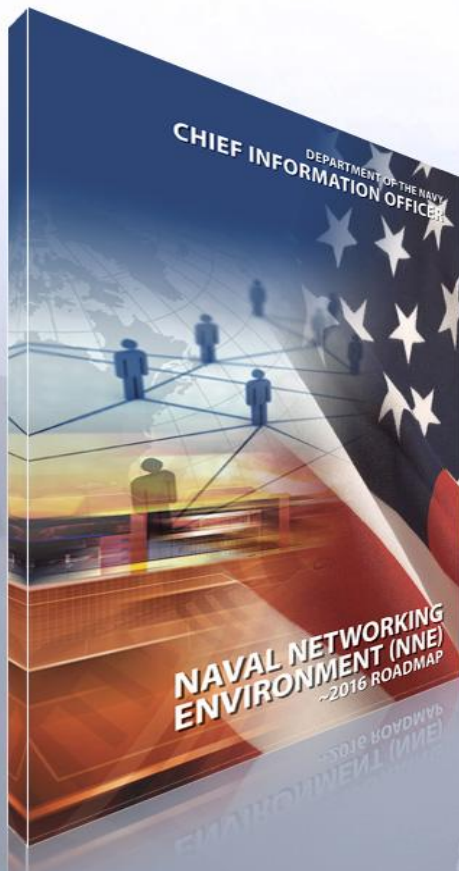
# What is Department of the Navy Doing?





# Looking to the Future: NNE~2016 via NGEN

- Definition: A Department of the Navy **net-centric environment** that securely leverages the full range of information and cyber resources **enabling rapid, on-demand, ubiquitous access to any content for authenticated users** and systems in support of the Joint enterprise environment and all Navy and Marine Corps strategic, operational, and tactical missions.



## Goals:

- Rapid and Seamless Access for all Navy and Marine Corps authorized users and systems
- Aligns to VCJCS Enterprise User Concept
- Governance and Stewardship – Agile decision making
- Information Services – use the power of Net-Centricity
- Assured information to warfighters - Cybersecurity
- Network Operations / C2
- Infrastructure Optimization – Green IT

...any content, anywhere, anytime to any device



# Naval Network Environment ~2016



✓  
**Governance Oversight**



✓  
**Policy Alignment**



**Timely Relevant Focused**



**"Warfighter" Requirements**



**Interoperability**

**DON 2.0**

## IMPERATIVES:

- Fight Upon Arrival
- Achieve Holistic C4ISR Approach
- Drive Information Culture Change
- Informed decision making
- Identity Management





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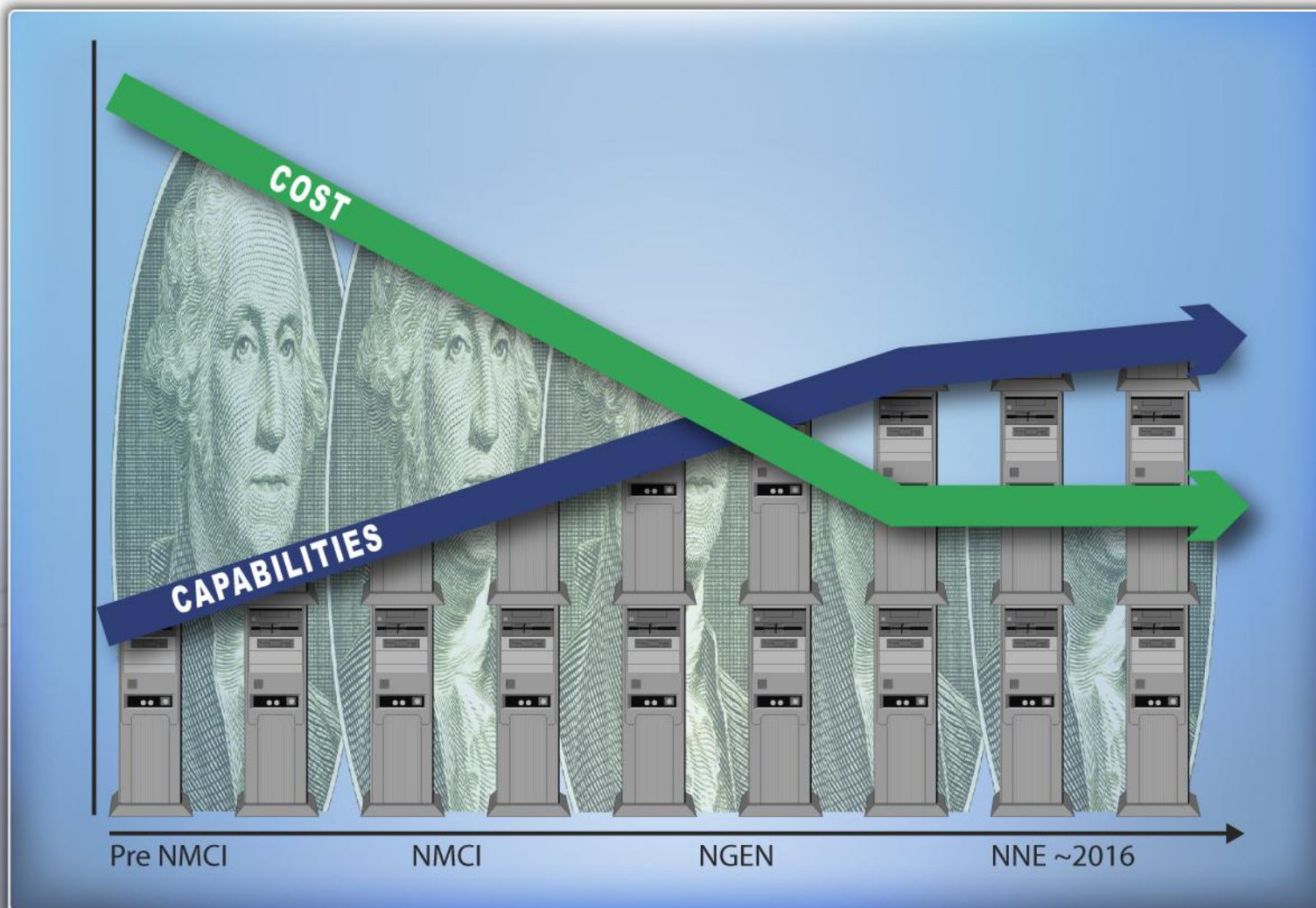


# KEY Enablers to Achieving NNE 2016

- **Decision Agility – Information Technology based opportunities will require “in-execution year” decisions.**
  - Unity of Command / Governance
- **Budget Process – inconsistent with Moore’s Law**
  - POM developed in 2 years cycles for five year stretch
- **Acquisition Process – processes that support the acquisition of aircraft and ships do not support information technology cycle times and realities of the cyber threats we face**



# DON IT Cost vs. Capabilities





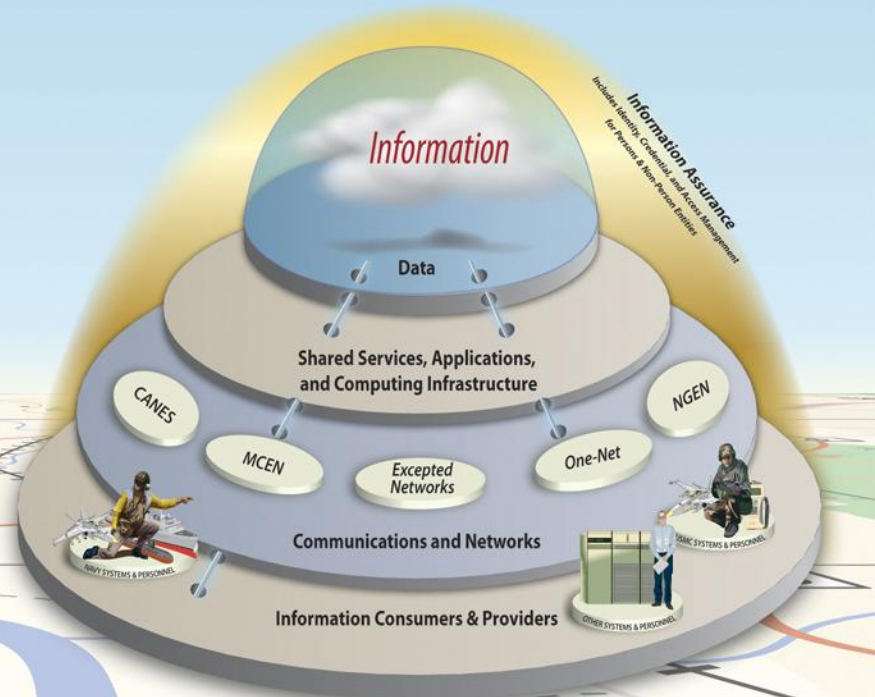


# Naval Networking Environment (NNE) ~2016

400+ Networks  
800,000+ Users  
425,000+ Workstations  
11,000+ Applications  
2,000+ Systems



**Current State**



**End State  
Phase I**

NIPRNet, SIPRNet, IC Thru NGEN, CANES, One-Net & MCEN | Reduced Networks | Reduced Systems | Reduced Applications  
Reduced Costs | Improved Shared Service Offerings | Improved Information Assurance | User Access Anywhere



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12

# **Major Facets of the NNE 2016 - Cybersecurity & Critical Infrastructure**

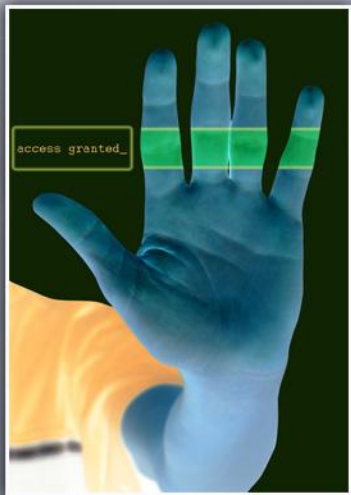
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# Looking to Secure the NNE 2016

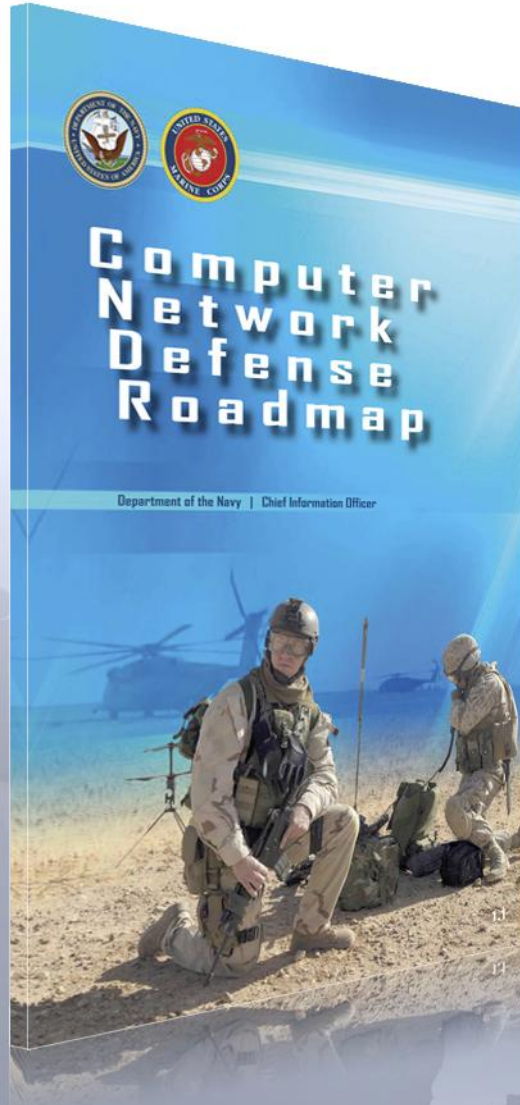
- **Computer Network Defense (CND) Roadmap (Published in May 09)**
  - Align architecture efforts to create layered defense
    - Defense in depth and breadth -- work at the Individual user level, at the network level, at the data level, at the GIG level
- **Cyber Security Investment Model 2QFY10**
  - Develop in collaboration with DoD a CMMI-like model to facilitate informed CND and IA investment decisions
  - Develop and implement metrics, investment priorities based on current and emerging threats
    - Investment across the FYDP to deliver comprehensive capability to achieve strategic end state
    - Manage risk try not to eliminate this
  - Must work within the PPBES budget process to accommodate in year (agile) investment requirements
    - Cyber Investment Plan



- **FDCC - Continue to align and reduce the operating system configurations**
  - Move toward WIN 7 standardization
  - SCAP



# Future of Computer Network Defense



- **DON CND must be more advanced and persistent than the threat; be as flexible and adaptable as possible to the changing threat**
- **Continue with comprehensive layered defense – the Defense-in-Depth Strategy**
- **Move forward aggressively protecting against known threats and proactively addressing emerging and unknown threats by moving to a more rational, well-integrated suite of capabilities, enabled through current, emerging, and future technologies**
- **Increasing popularity of collaborative Web applications such as blogs, social networks, podcasts, and wikis, and mobile end-user devices, has brought a new set of challenges to CND and with which enterprises must contend**





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15

# **Globalization has Forced Us to Look at the Information Technology Supply Chain Very Differently...**





# Supply Chain Exploit

- **Adversary has increased access and opportunity to infiltrate otherwise closed off technologies and services**
  - C2 of the supply chain essential in the information age
  - No longer is this just quality assurance
    - “Good Housekeeping Seal of Approval” for process control
    - Knowledge of the pedigree of the source code running on our networks
- **Technologies are integrated without regard to the criticality and risk levels of the parent system or network**
  - Vulnerabilities: All IT/NSS/Weapons (including systems, networks, applications)
    - Intentionally implanted malware/logic (e.g., back doors, logic bombs, spy-ware).
    - Personal uses vs. Government uses
    - Unintentional vulnerabilities maliciously exploited (e.g., poor quality or fragile code)
- **Consequences: Stolen critical data and technology; corruption, denial of critical warfighting functionality**
- **DoD Pilots Underway:**
  - SPAWAR Charleston/DON CIO testing Commodity buys (PCs/laptops)
  - Process in place





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17

# **Major Facets of the NNE 2016 – Information Sharing, Knowledge & Records Management**

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# Information Management Value Chain

**Obtain Knowledge and Information Anytime, Anyplace from Any Network Device**

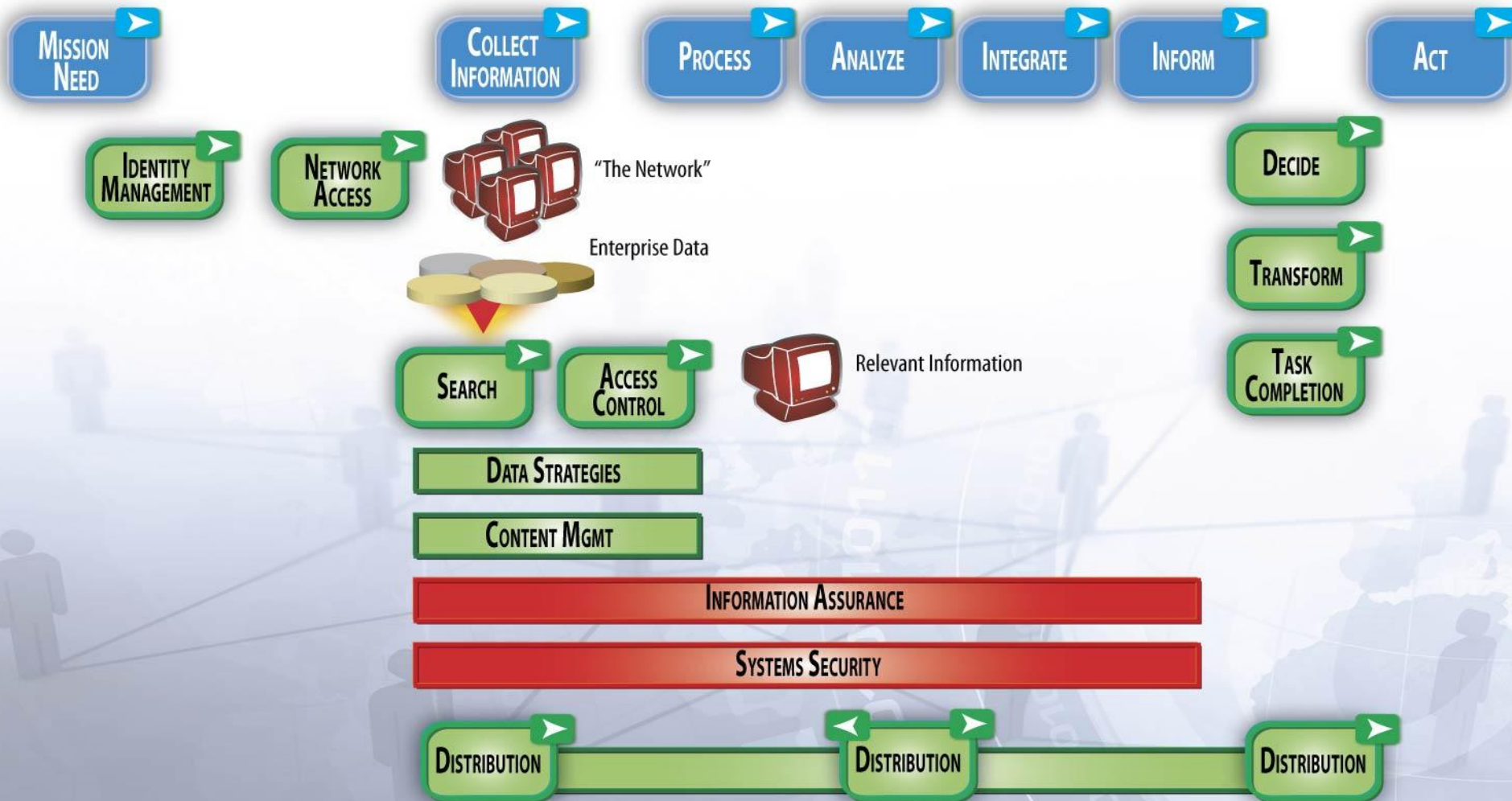
- **Enterprise Network**
  - User identity verified and network access granted from anywhere in the world
- **Access Control**
  - Attribute Based Access Control (ABAC)
  - Information exchange across multiple security domains
- **Individual Enterprise Views**
  - ABAC provides each user their view of the enterprise
  - View includes all of a user's files, information, and services
- **Content Management 2.0**
  - Enterprise-wide information discoverable given individual user attributes
  - Robust search capability
  - Support Navy Information Dominance – tactical information when and where needed
- **Move the culture from:**
  - “Need to Know” mindset to “Need to Share”
  - Agency-centric to enterprise-centric sharing
  - One that rewards retention of data and information to one that rewards effective knowledge stewardship

**Information Sharing Must Balance Access & Security**





# DON Information Value Chain Roadmap



**Making Information Visible, Accessible, Understandable & Promoting Trust are the Cornerstones of Information Sharing**



# Major Facets of the NNE 2016 – Enterprise Commercial IT Strategy





# Enterprise Solutions / Software

- **Reduce the resources required to provide world class information management to the Navy and Marine Corps via Enterprise Buying Strategies**
  - Enterprise Software Licensing
    - Working to identify additional DON-wide licenses in multiple areas
    - Leading Lean Six Sigma project to streamline and accelerate process to identify, develop, fund, acquire, deploy, and sustain licensing agreements
    - Expanding partnership with DoD and DNI to leverage common requirements and ensure interoperability
    - Developing DON IT Asset Management Implementation Plan as an integral part of the DON portfolio management process
  - Enterprise buying strategies
    - Harnessing the buying power of the DON or DoD results in greater efficiency
      - DASN(ASM) & PEO(EIS) main pocs for the ASN/RDA team
    - DoD Enterprise Software Initiative (ESI)
      - Total cumulative cost avoidance since inception of DoD ESI Project in 1998 is > \$3B
    - Net-Centric Licensing
      - Information sharing initiatives require we move in a direction that allows us to share National Security information with whomever requires access
    - Reduction of Microsoft operating systems can improve network security
  - DON CIO and ASN (RDA) - DON IM/IT Enterprise Computing Strategic Sourcing
    - Establish DON wide configuration and buying standards
    - Use common enterprise contract vehicles
    - Establish processes for coordinated and consolidated buying
  - Leverage the DON's IT investments as we migrate to new capability delivery models (i.e., the "cloud")

**Leveraging Government & Industry Best Practices to Deliver Quick, Affordable, Maintainable, Standards-Based Solutions**



# Microsoft – a DON standard

- **Microsoft Products in Use Throughout the DON**
  - Windows OS (for the client) – WIN 7.0
  - Office Professional – Office 2010
  - Core Client Access License (for rights to access Windows Server, Exchange Server, Sharepoint Server, Systems Center Configuration Manager)
  - Project
  - Visio
  - Windows Server
  - Exchange Server - move to a web/cloud based email capability
  - SQL Server
  - Sharepoint
- **Purchase as a component of the DoD**
  - Leverage the strengths of the technologies we already own to support information management of the Navy / Marine Corps warfighting team





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23

# **Major Facets of the NNE 2016 – Emerging Technology**

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# NNE 2016 Technology Focus Areas

- **Technology insertion to improve information management to the warfighter while reducing the cost of services**
  - Cloud computing
    - SaaS, IaaS, etc
  - Thin / Stateless Clients
  - 3G/4G Handhelds
    - Security
  - Process for inserting new technologies more rapidly
    - Criteria...
    - Decision agility, budget process, acquisition process
      - Reduce cost per seat while improving capabilities





# Wireless and 3G/4G Technologies on the Network

- **Be able to connect from anywhere, irrespective of device to necessary information. Expand use of wireless tools while protecting information**
- **WiMAX:**
  - Participating in DoD working group to forward requirements to WiMAX forum on a hardened WiMAX variant
  - DON use cases identified to date:
    - Ship-to-ship
    - Ship-to-shore
    - Counter-IED
    - Base/airfield comms
- **WiFi:**
  - Wireless VoIP strategy
    - Base/airfield comms
- **New devices have the bandwidth and processing power to deliver timely, mission-critical information to our Sailors and Marines**
- **But must also meet DoD/DON IA requirements to ensure that only authorized personnel access the device; they are strongly authenticated; data on device is protected; and sent messages are authentic:**
  - FIPS-certified encryption
  - PKI/CAC
  - WiFi disabled (no compliant solutions to date)
- **Enterprise Management platform**
  - Implement and enforce mobile device policies
  - Wipe/de-activate lost or stolen devices



# Social Networking

- **Put the Emerging media toolbox to work for the Department**
  - External Messaging
  - Trust Building
  - Internal collaboration
  
- **Balance information access / collaboration with necessary security**
  - User defined content...the wave of the future
  - NIPRNET / INTERNET boundary





## Responsible and Effective Use of Internet-based Capabilities

- **Directive-Type Memorandum (DTM) 09-026 – Responsible and Effective Use of Internet-based Capabilities was released on 25 February 2010**
  - Effective immediately, the DTM states that the default for the DoD non-classified network (the NIPRNET) is for open access so that all of DoD can use new media
  - Directs open and consistent access across the board
  - Commanders at all levels and heads of DoD components will continue to keep networks safe from malicious activity and take actions, as required, to safeguard missions
  - Service members and DoD employees are welcome and encouraged to use new media to communicate with family and friends — at home stations or deployed — but it's important to do it safely
- **DoD's Social Media Hub (<http://socialmedia.dod.gov>) is going to be a home to educational materials on this policy as they are developed – ensuring these new capabilities are used effectively and safely.**
- **Implementation guidance is in development**
  - SNS sites, web mail, etc





## Some Attributes of NNE...

- **Governance and Stewardship – Agile decision making**
- **Any content, anywhere, any time to any device**
- **Rapid and seamless access from Ship, Shore or Tactical environments to the network via any Cyber Domain**
- **Common Policies and Standards**
- **DoD-wide Directory Access**
- **Seamless Green/Blue and Blue/Green Interoperability**
- **Risk Managed Network Defense**
- **End-to-End Real and Near-Real Time NetOps**
- **Persistent C2**
- **Assured Network Availability and Security**
- **Minimize Seat and Usage Costs using Smart Technology**
- **Unified and Converged Voice/Video/Data Comms**



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# Navy Marine Corps Symposium 2010

