

DoD Transition to IPv6

An Overview

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How Will We Enable Force Transformation?

Net-Centric Operations

The Global Information Grid



“... adopt ‘post before process’ intelligence and information concepts, achieve data level Interoperability; and deployment of “net-ready” nodes of platforms, weapons and forces.”

- IP convergence layer
- Exploding sources of data

- A new generation of applications
- Increased use of reachback and virtual presence



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DoD Goal: Complete Transition To IPv6 By FY 2008*

Why is this transition to IPv6 important to DoD?

- *IP is foundation of interoperability across DoD's Global Information Grid (GIG)*
- *IPv6 facilitates achieving net-centric operations—interconnecting an increasingly mobile, wireless set of sensors, platforms, facilities, people and information on an end-to-end basis*
- *Major new DoD capabilities being built today for fielding in 2005-2010+ must be built to operate in IPv6 world.*
- **Avoiding technological obsolescence:**
 - ✓ *Global/technological pressures for Internet transition to IPv6*
 - ✓ *Major industry SW and HW vendors are committed*



*9 June 2003 DoD CIO Memorandum, SUBJECT: Internet Protocol Version 6 (IPv6)

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DOD IPv6 Transition Direction*

Minimize later transition costs by beginning to buy IPv6 capabilities now

Address Enterprise issues early via large scale pilot implementations

Execute an aggressive but thoughtful end to end transition

Protect interoperability and security during transition

Complete transition by FY 2008

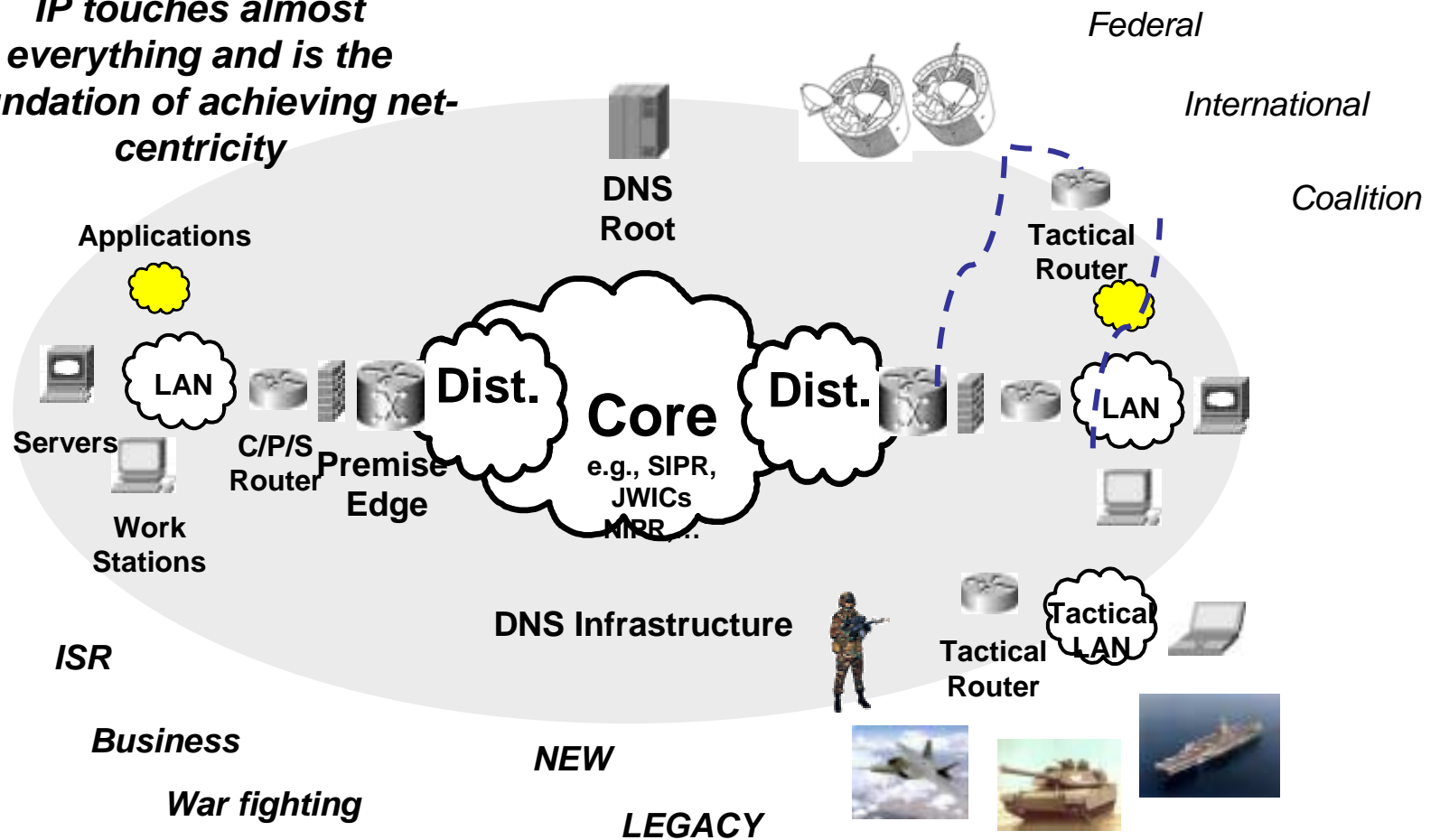
*9 June 2003 DoD(CIO) Memorandum, SUBJECT: Internet Protocol Version 6 (IPv6)



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Transition Is A Complex Issue

IP touches almost everything and is the foundation of achieving net-centricity



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Transition Challenges For DoD

- **Managing/Resourcing the Transition**
- **Maintaining Interoperability and Security During Transition (and after)**
- **IPv6 in the low-bandwidth/mobile environment**
- **Evolving IPv6 standards/products**
- **Residual Legacy (beyond 2008)**



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Transition Strategy

- Establish the transition foundation (plans, timelines, designs, architectures)
- Ensure that information technology built or bought today will operate in the IPv6 world of the future (*as well as today's IPv4 world*)
- Address transition issues and demonstrate transition readiness by pilot implementations, testbeds and demonstrations in 2004-2007
- Leverage ongoing commercial/industry IPv6 efforts
- Enable an integrated, timely IPv6 transition
 - Distributed responsibilities
 - DoD IPv6 Transition Office



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Reducing Transition Risks through Pilot Implementations and Testing

What Constitutes “Proof” that DoD is ready to Complete Transition to IPv6? For Example:

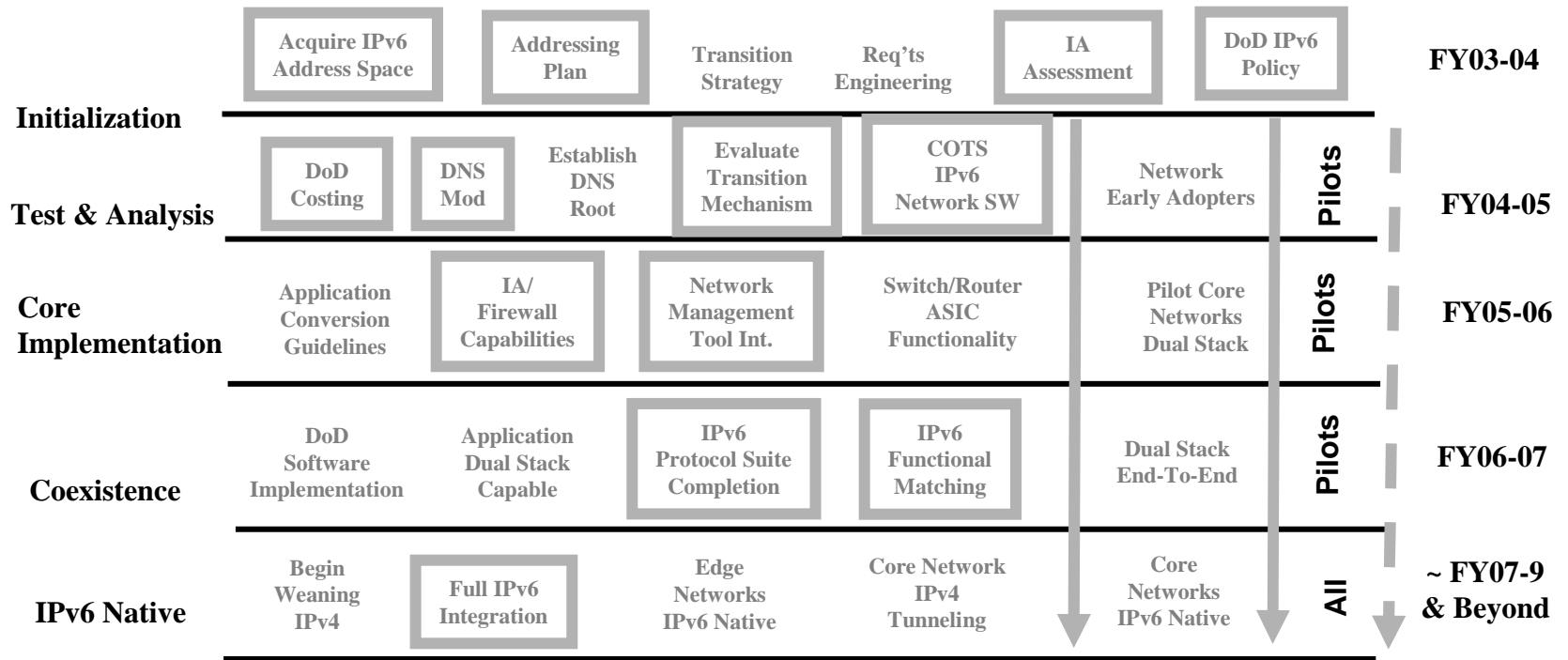
- *Demonstrate security of unclass networks ops, classified network ops,*
- *Demonstrate end-to-end interoperability in a mixed IPv4-IPv6 environment*
- *Verify equivalent or better performance than IPv4 based networks*
- *Demonstrate voice, video, data integration*
- *Demonstrate effective operation in low-bandwidth environments*
- *Demonstrate scalability of IPv6 networks*
- *Support mobile users (voice, data and video)*
- *Demonstrate transition techniques*
- *Demonstrate ability to provide netops of networks*
- *Demonstrates tactical deployability and ad hoc networking*



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DoD IPv6 Transition Concept

At a first level:



Need to define next level of details and integrate in IA needs, low bandwidth environment, QOS, mobility, convergence



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DoD IPv6 Transition: Some Accomplishments

- ✓ Initial Transition Planning Activities
- ✓ Established initial criteria for acquisitions/developments being “IPv6 capable”
- ✓ Began process of acquiring needed DoD address space
- ✓ Began institutionalizing IPv6 direction in DoD processes
- ✓ Began to outreach with industry; increase participation in IPv6 standards work
- ✓ Creation of interim website for info dissemination (<http://ipv6.disa.mil/>)
- ✓ Strong DoD participation in Moonv6 testing
- ✓ Initial IPv6 pilot begun: DREN



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Some Key Next Steps

- The next level of transition planning and coordination
- Ensure IPv6 acquisition direction adequate, responsive and being followed
- Persuasively articulate the need for this transition...
- Establish an integrated program of pilots, distributed testbeds and demonstrations
 - Focused on IPv6 transition issues (e.g., information assurance, transition mechanisms)
 - Demonstrating the advanced capabilities possible
- Provide infrastructure to support IPv6 fielding within DoD
- Identify and work IPv6 products/standards “needs”
- Identify application development/porting guidelines & strategies
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In Summary....

- Progress on many fronts:
 - DoD Programs are beginning to recognize and plan for the requirement for IPv6
 - Vendors are interested in “understanding” and meeting DoD requirements
 - Transition Planning is underway
- But, much work lies ahead



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