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Net-Ready Key Performance Parameter (KPP) Application to JSF

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Interoperability IPT, Joint Strike Fighter Program Office



VISION

**DELIVER AND SUSTAIN
THE MOST ADVANCED, **AFFORDABLE**
STRIKE FIGHTER AIRCRAFT
TO PROTECT
FUTURE GENERATIONS WORLDWIDE.**



Overview

- **What is the JSF?**
- **Application of the Net-Ready KPP**



What Is JSF?

The next generation “family” of strike fighters

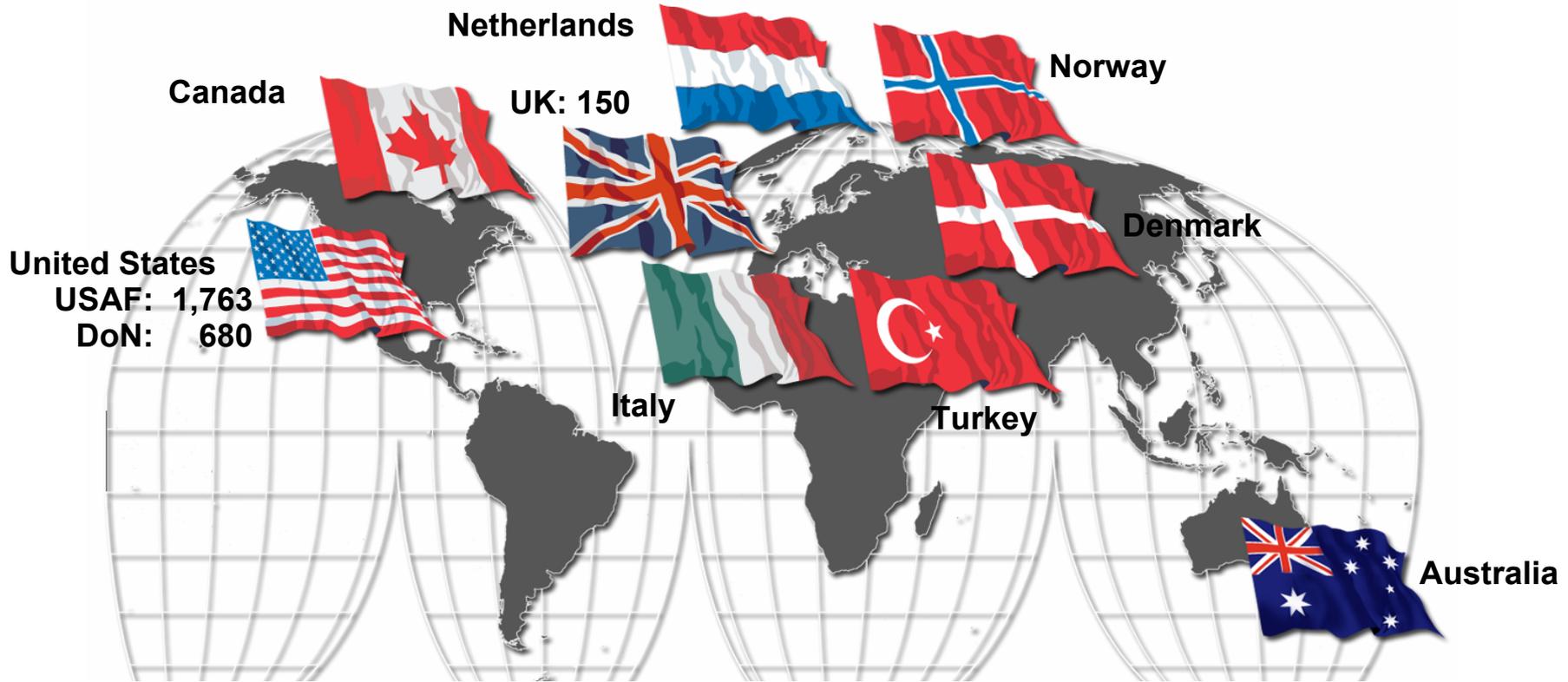
- Stealth signature and advanced countermeasures
- Advanced avionics, data links and adverse weather precision targeting
- Increased range with internal fuel and weapons
- Highly supportable, state of the art prognostics and health management



Lethal Survivable Supportable Affordable



Service & International Needs



- **USAF:** Multi-role (primary air-to-ground) fighter to replace F-16 & A-10 & to complement F/A-22
- **USMC:** Multi-role, short takeoff, vertical landing strike fighter to replace AV-8B & F/A-18C/D
- **USN:** Multi-role strike fighter to complement the F/A-18E/F
- **UK (RN and RAF):** Supersonic replacement for Sea Harrier and GR-7

2,593 US/UK JSFs

> 2,000 International JSFs



Joint Requirements

PERFORMANCE
BALANCED

SURVIVABILITY:

- LO RCS & IR Signature with Combat loads
- Fused Multi-Spectral Situational Awareness
- Real Time Mission Planning to Support Threat Avoidance
- F-16 and F/A-18C “Like” Combat Maneuverability
- Vulnerable Area Reduction

LETHALITY:

- Extended Combat Radius
- Advanced Multi-Spectral Target Detection Capability
- Adverse Weather Capability
- Combat ID at Tactically Significant Ranges
- Suppression of Enemy Air Defenses Capability
- Autonomous Near Precision GPS Targeting Capability
- First-Look - First-Shoot Air-to-Air Capability

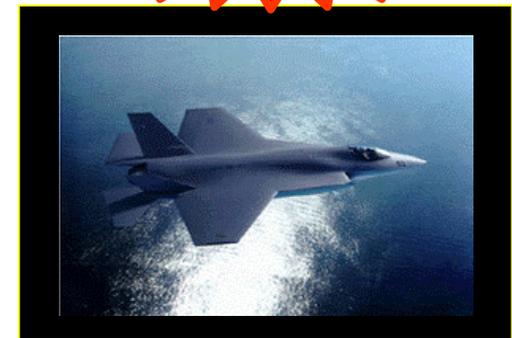
SUPPORTABILITY:

- Higher Surge and Sustained Sortie-Generation Rates (SGR)
- Significantly Reduced Logistics Footprint
- Very High Reliability—Reduced Maintenance

Highly Maintainable



Combat Efficiency
and Effectiveness



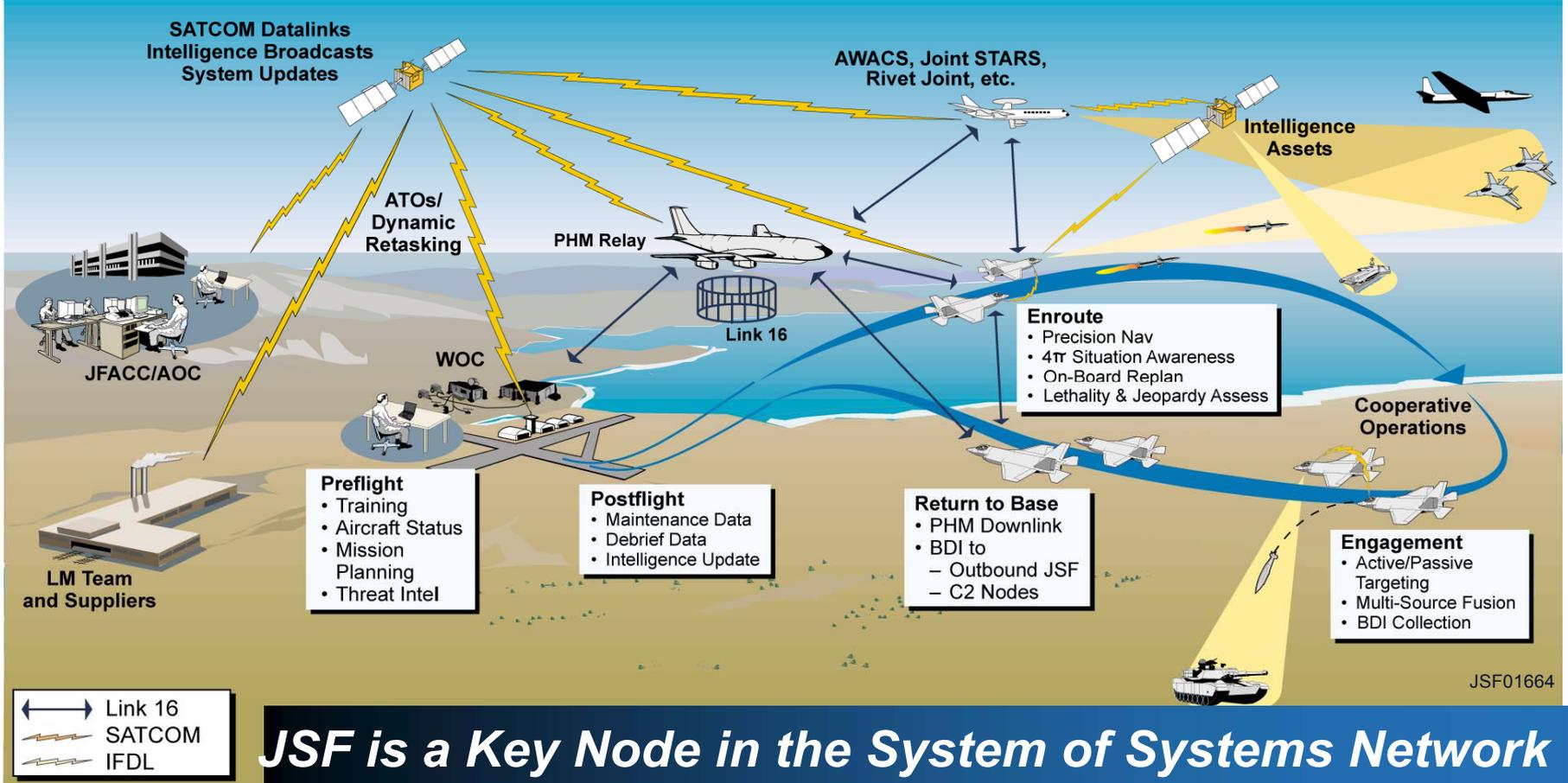
JSF is a supportable, stealthy strike fighter designed to effectively and affordably counter existing and emerging threats



JSF Designed For Interoperability

Fully Interoperable Line Of Sight/Beyond Line Of Sight Data-Paths for 2010 C4I

- UHF/VHF Voice/Data
- SATCOM 2 Way Voice/Data
- VMF
- Link 16
- LAN/WAN/Internet



JSF is a Key Node in the System of Systems Network

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Key Performance Parameters

USMC  USN  Joint 

<u>KPP</u>	<u>USMC</u>	<u>USAF</u>	<u>USN</u>
 Radio Frequency Signature	Low Observable		
 Combat Radius	450 nm USMC Profile	590 nm USAF Profile	600 nm USN Profile
 Sortie Generation	4 Surg / 3 Sust	3 Surg / 2 Sust	3 Surg / 2 Sust
 Logistics Footprint	< 8 C-17 equivalent loads (20 PAA)	< 8 C-17 equivalent loads (24 PAA)	< 46,000 cu ft 243 ST
 Mission Reliability	95%	93%	95%
 Interoperability	Meet 100% of critical, top-level Information Exchange Requirements Secure Voice and Data		
 STOVL Mission Performance		N/A	N/A
Short Take-Off Distance	550'		
Vertical Lift Bring Back	2 x 1K JDAM, 2 x AIM-120 With Reserve Fuel		
 Maximum Approach Speed	N/A	N/A	145 knots

Projected to meet or exceed KPPs



Overview

- What is the JSF?
- **Application of the Net-Ready KPP**



JSF Net Ready KPP Overview

- **During Flag-level coordination of Joint ORD Change Notice 2, JSF was tasked to develop a migration strategy by Dec 04 for transition from an Interoperability KPP to a Net Ready KPP**
- **Task and Options discussed at JSF Interoperability Advisory Council (IAC) – Second Meeting, 11 Aug 04**
 - IAC includes interoperability stakeholders (1&2 star) from US and all partners who provide advice on external interoperability
 - Joint Staff J6 briefed the new DoD policy that drives change but supporting standards/metrics are still in development
 - Policy is US focused with uncertain impact on cooperative partners
 - Decisions:
 - Define issues in transition plan and target transition for 2006
 - Task contractors for assessment and complete draft plan in Dec 04
 - Results will be briefed to IAC in Jan 05 – multiple decision points
- **Maintain current path while new approach is defined**

Changes must provide same or better assurance of interoperability

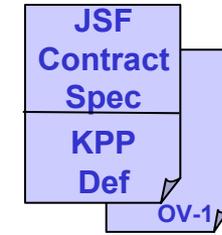
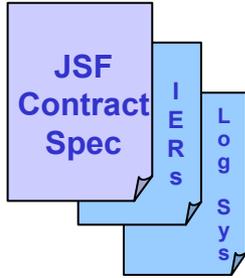


Net Ready KPP Impacts

ORD



CONTRACT



KPP



IERs	
NetCentric Operation Warfare Reference Model (NCOW-RM)	Supporting Integrated Architectures (DoDAF)
Information Assurance	GIG Key Interface Profiles (KIPs)

Interoperability KPP

Net Ready KPP



JSF Net Ready Transition Summary

- **DoD Is Astride a Major Transition From Point-to-Point and “Old Network Designs” to a Network-Centric Approach**
- **JSF Is Implementing**
 - Information Exchange Requirements To Meet the ORD
 - A Flexible Architecture To Adapt To the Changing External Environment
 - A Standards-Based Design To Maximize Interoperability
- **JSF completing transition study with Ground Rules and Assumptions coordinated with Joint Staff J6 and OSD/NII IAC members**
 - Baselined Net Ready KPP requirements
 - Performance-based requirements against IERs are maintained in order to provide same assurance of interoperability, especially during Net Ready transition
 - JSF can transition to NR-KPP without changing performance-based requirements
 - Currently contracted requirements for compatibility with 2010 C4I environment, an open scalable architecture, and information assurance capability are sufficient
 - Add work for additional products to support annual/milestone NR-KPP assessments
- **After study is completed, draft transition plan will be provided to Services and Partners for requirements update and JCIDS coordination**
 - Results will be briefed to IAC/Decision Boards – Multiple decision points
- **Current path will be maintained until requirements and program baseline are updated**



WORKING TO AFFORDABLY MEET THE REQUIREMENTS OF THE WARFIGHTER

