Headquarters U.S. Air Force

Integrity - Service - Excellence

JBMC2 Convergence

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Warfighting Integration

U.S. AIR FORCE

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U.S. AIR FORCE

Commitment

The Air Force is fully engaged in co-developing integrated capabilities to deliver Joint effects by significant investment in time, resources, and people to advance Joint Net-Centric Capability

Requires:

- Air, Terrestrial & Space Integration
- Proactive, Sequential Steps to Field Capabilities
- Adapting our Culture, Organization, Training, and Doctrine

JBMC2 CONVERGENCE REQUIRES JOINT NETWORK-CENTRIC CAPABILITY

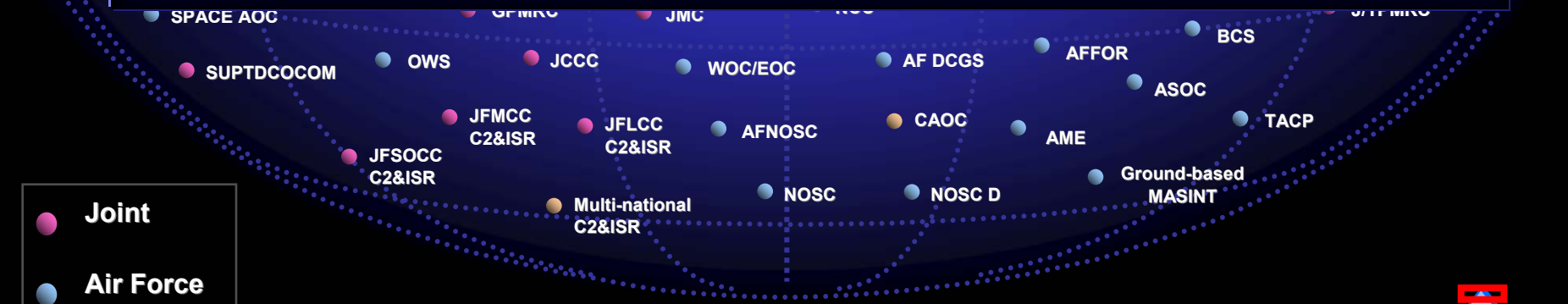
Development Example				
	OSD or Service	Vision	Level 1	Inexpensive
	Requirements	CONOPS	2	
Service Coordination		Service Plan	3	Seed study money
		ARCHITECTURES		
		Joint Network Design	4	10's of Millions
	Industry, NSA	Waveform Development	5	WF's 50 Mil @
	AFFMA	Global Frequency Plan	6	
	JTRS program	Build Terminals	7	$2 B
ACC, AMC, AFSOC, ASC		Integrate onto Platforms with Applications	8	8-40 B
DT, OT, Joint		Test, Evaluation and Certification	9	100 Mils
Capability		Field with TTP Manuals	10	

The C2 Constellation

- Peer-based Net-Centric Infostructure
- Shared combat information environment to C2 Centers
- Seamless, information dissemination grid
- Through C2ISR Nodes, achieving connectivity standards

In 3 stages:

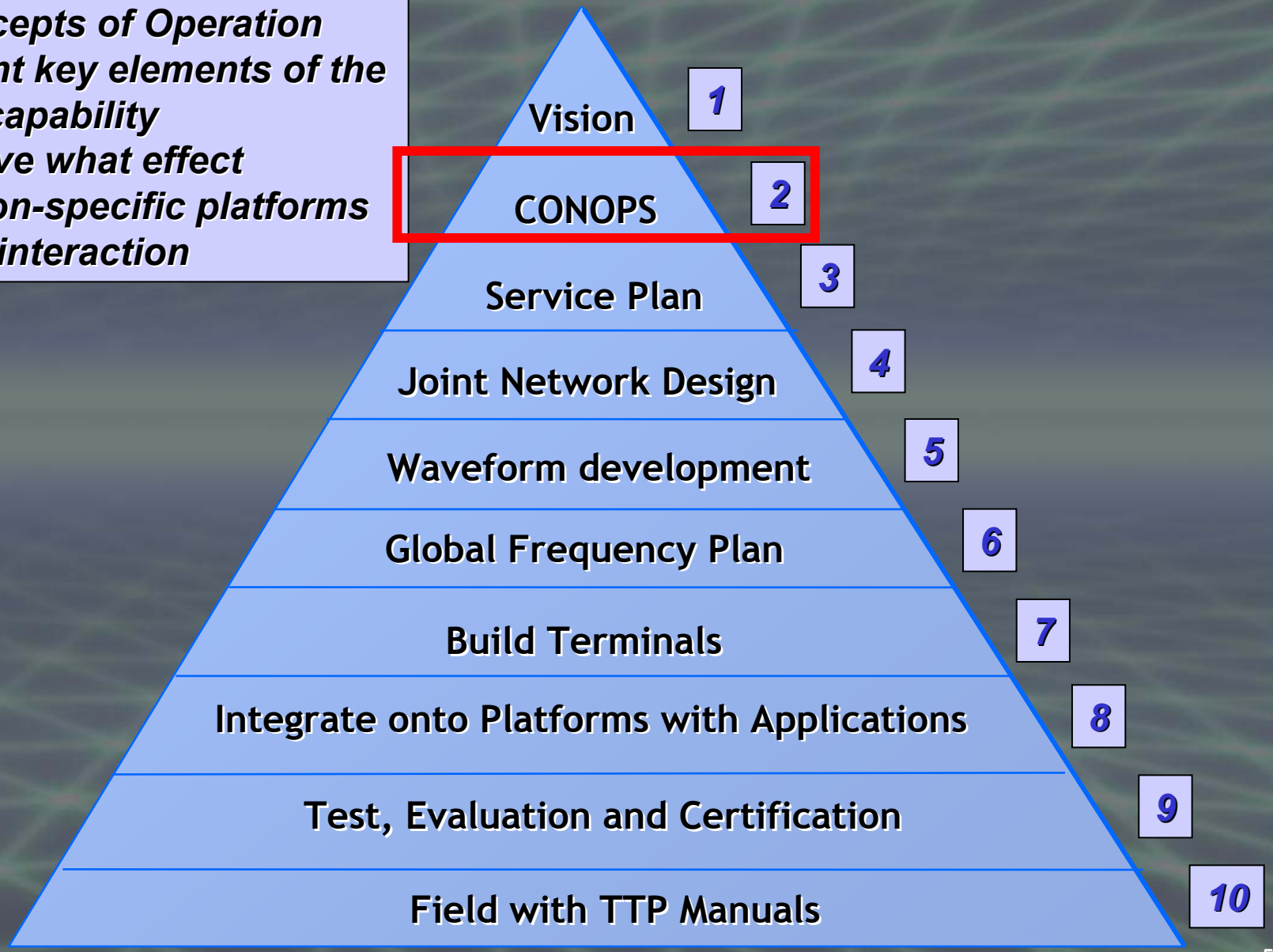
Architecture for standards / protocols
Bringing legacy systems to constellation configuration protocols
Fielding Next Generation Advanced C2 Sensors



Elements to Develop Joint NCW Capability

USAF Concepts of Operation

- ***Document key elements of the desired capability***
- ***To achieve what effect***
- ***Which non-specific platforms***
- ***Do what interaction***

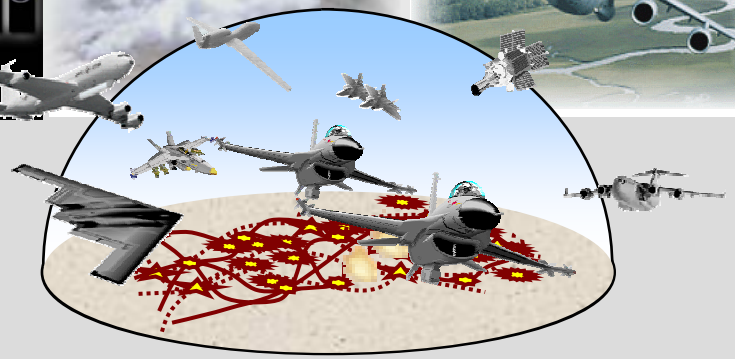


Capabilities-Based CONOPS

Global Power

Global Reach

Global Vigilance



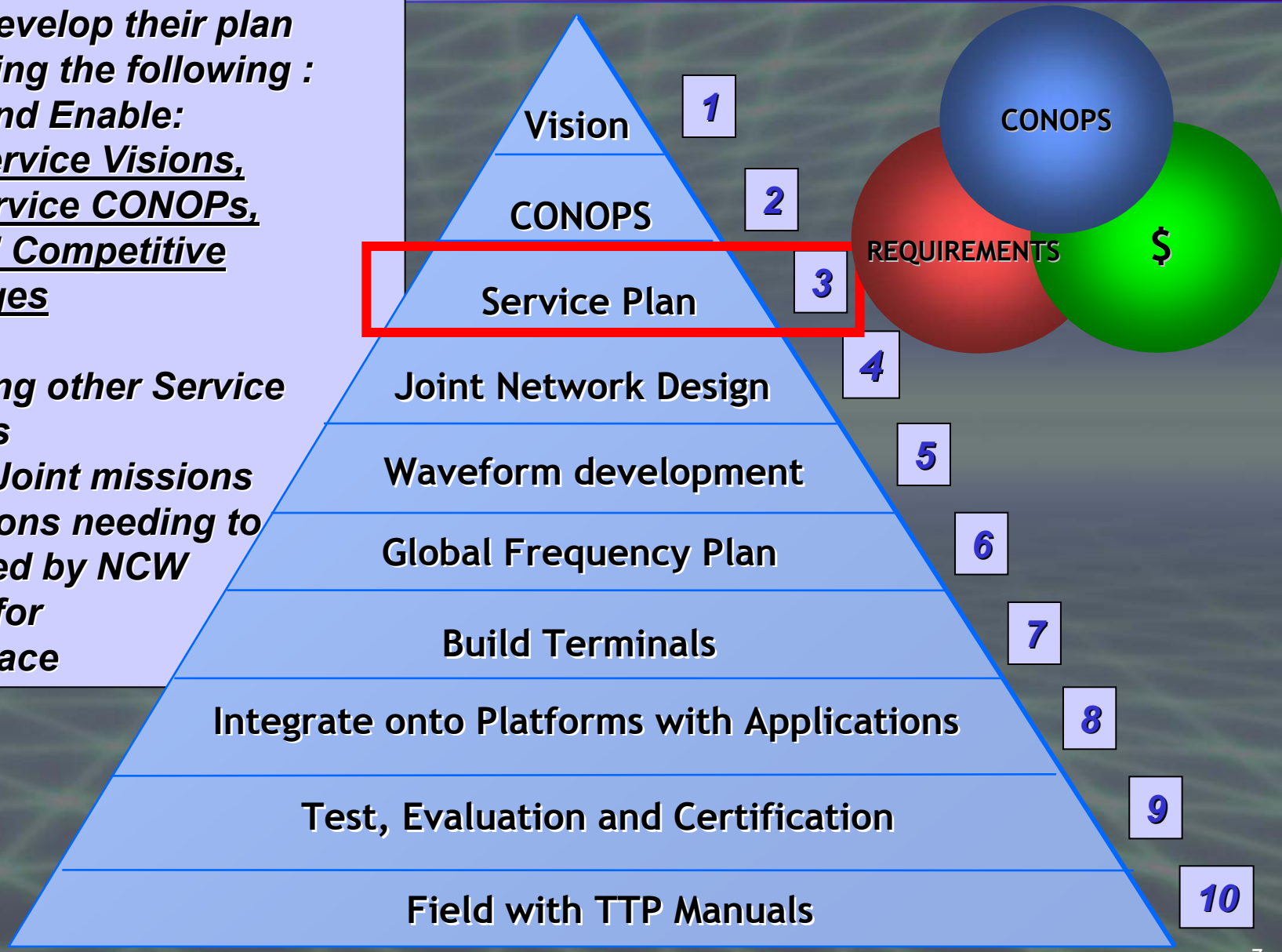
CONOPS

- Global Strike CONOPS
- Homeland Security CONOPS
- Global Mobility CONOPS
- Global Persistent Attack CONOPS
- Nuclear Response CONOPS
- Space & C4ISR CONOPS

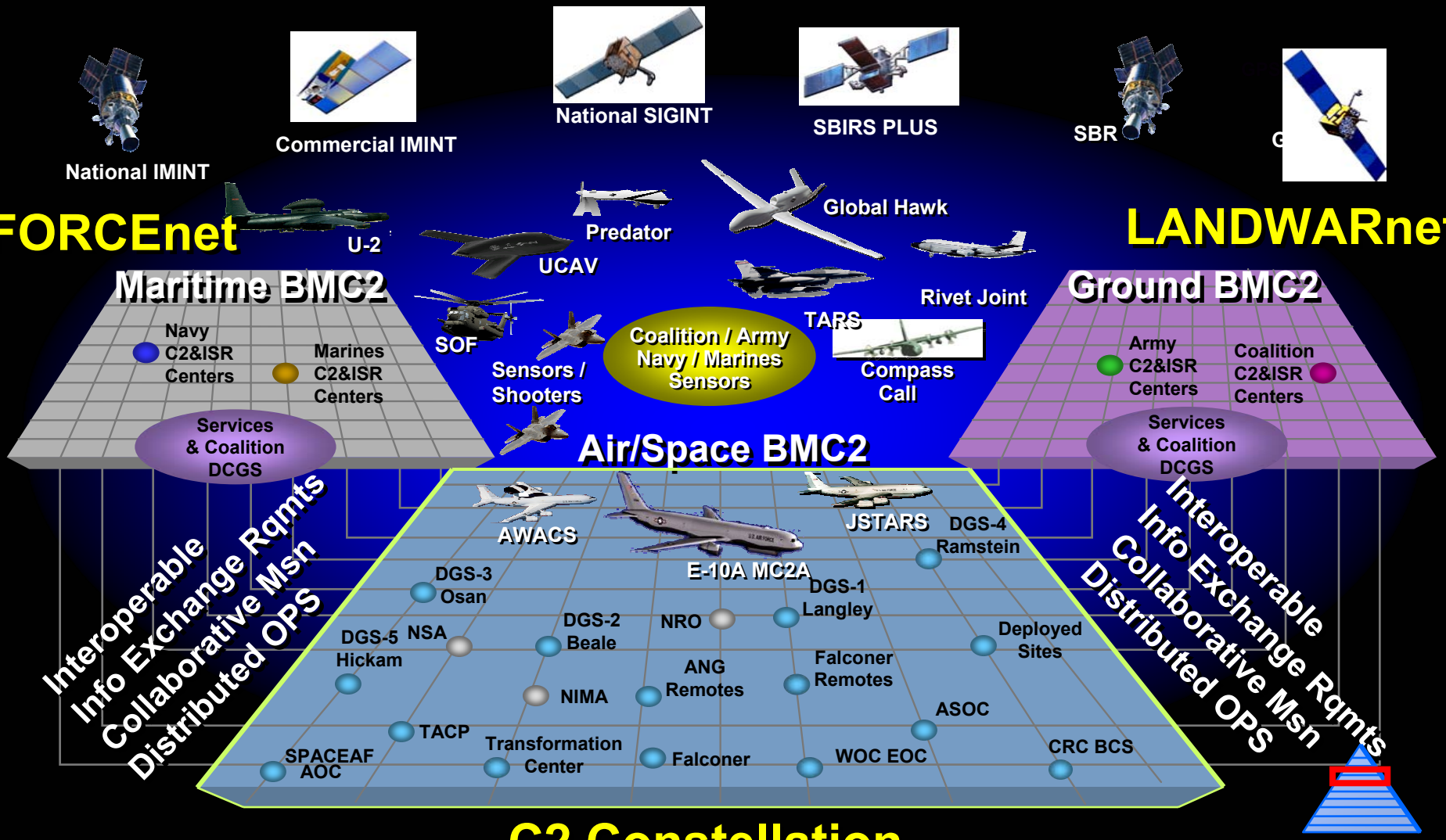
Elements to Develop Joint NCW Capability

Services develop their plan considering the following :

- ***Accent and Enable: <u>Other Service Visions, Other Service CONOPs, Services' Competitive Advantages</u>***
- ***Key on :***
- ***Leveraging other Service Strengths***
- ***Specific Joint missions***
- ***Applications needing to be enabled by NCW***
- ***Looking for Trade Space***

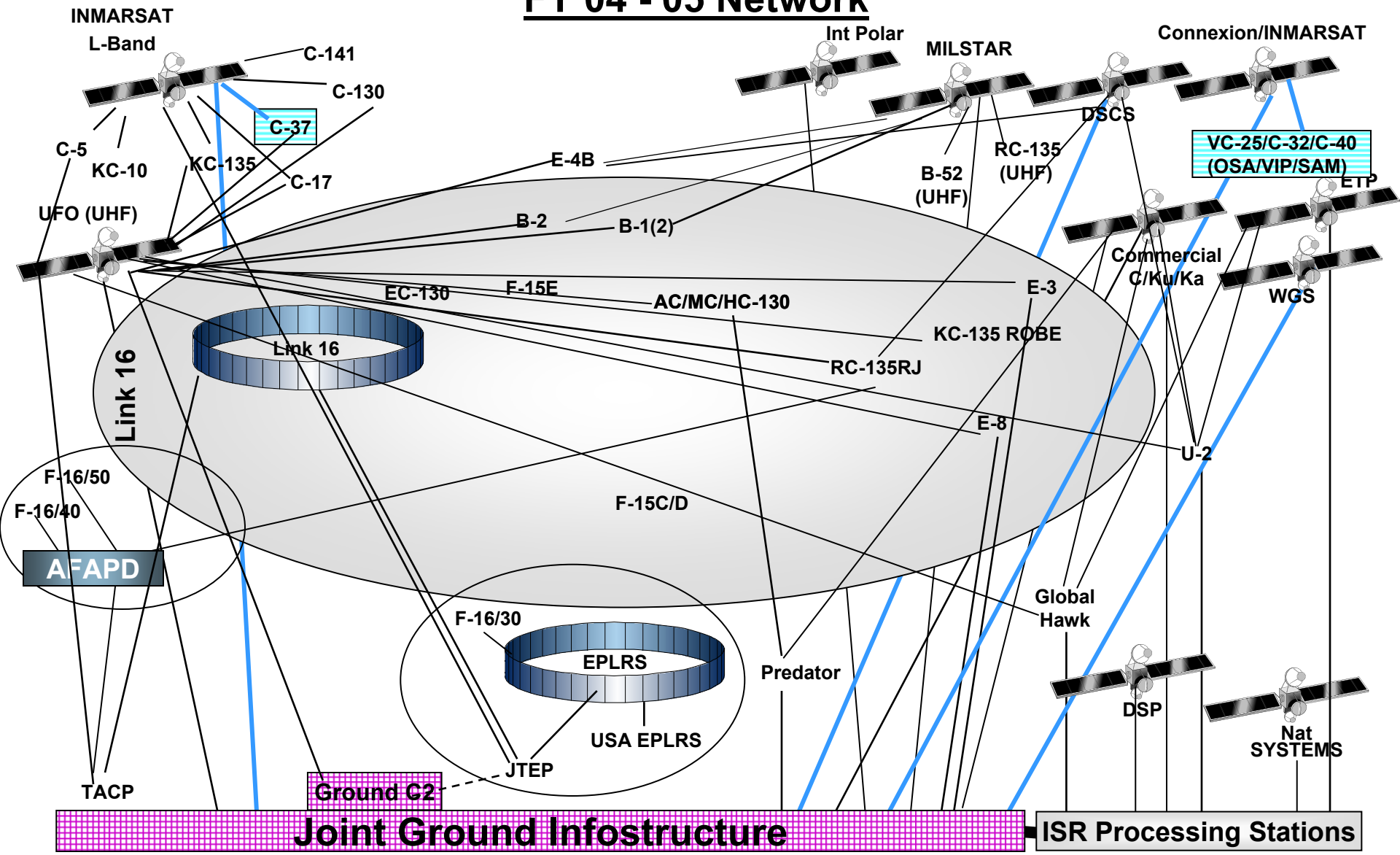


Constellation Interoperates with Maritime & Ground BMC2 Systems to Provide Joint BMC2



C2 Constellation

FY 04 - 05 Network



No IP/Data Link Capability:			
F-117	B52	A/OA-10	RC-135S
RC-135U	C-130E/H/J	C-9	KC-135
KC-10	B-1(58)	E-4B	HH-60

Future platforms:	
E-10	ABL
F/A-22	F-35 (JSF)
UCAV	KC-767A

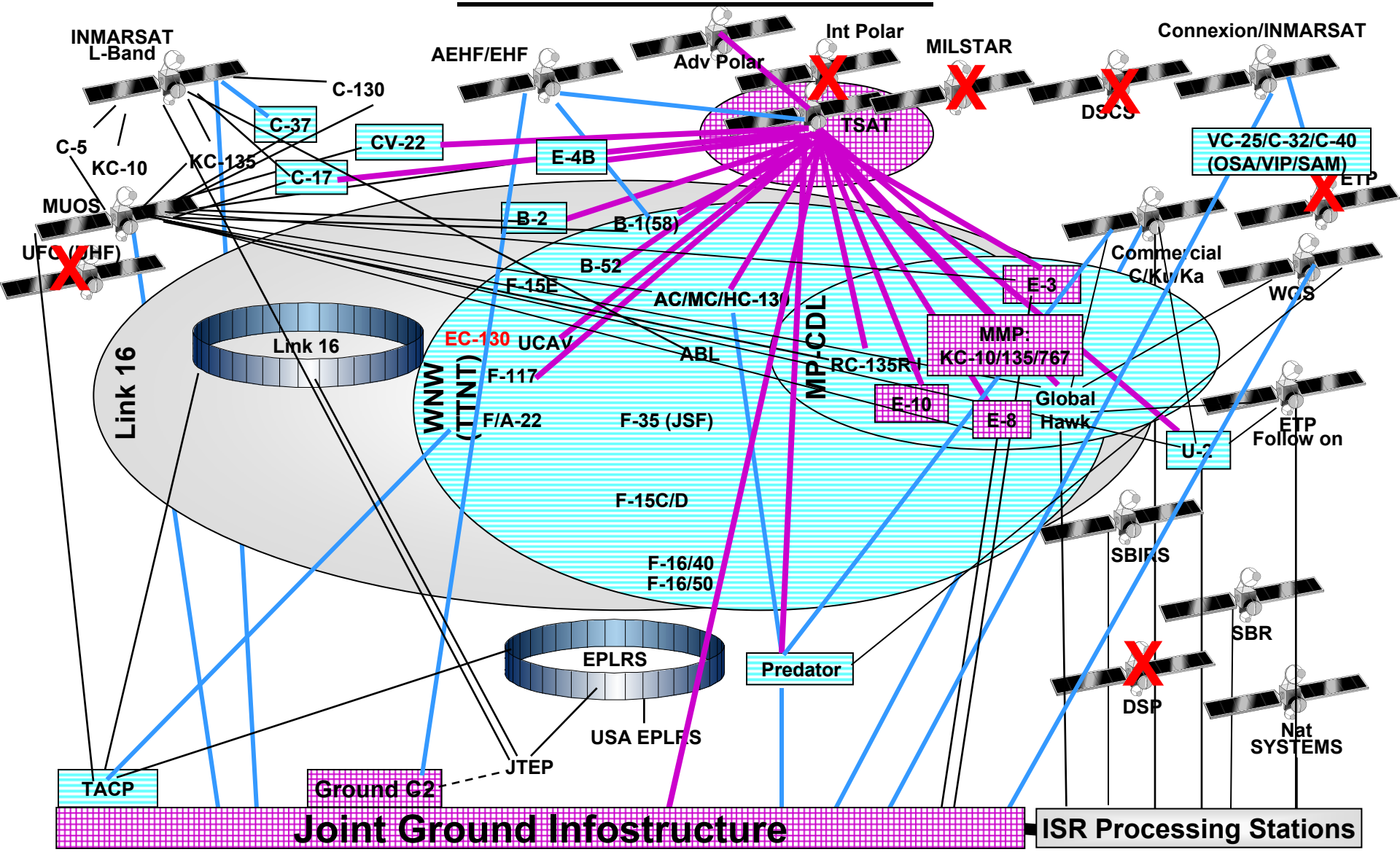
Joint IP Dynamic Routing

IP Addressable

X Decommissioned

RED TEXT = Added Platform

Envisioned FY18 Network



No IP/Data Link Capability:

RC-135S	RC-135U
C-130E/H/J	C-9
KC-135 (445)	

Benefits:

Individual Messaging Vice Broadcast
Self-forming Network (Net-Centric)

- Joint IP Dynamic Routing
- IP Addressable
- X Decommissioned
- RED TEXT = Added Platform

Joint Engagement Forums

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Senior Level

Continuous Service-to-Service Warfighter Talks

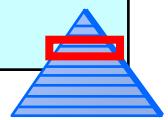
CONOPs Driven into the Tank & Joint World

Policy Level

Working Level

Technical Level

JFCOM / AT&L Co-lead	JFCOM Lead	Service Staff Lead
JBMC2 Roadmap Summit	JBMC2 BoD	Multi-Service C4ISR Integration Talks
JBMC2 Roadmap Working Group	JBMC2 Mini-BoD	C4ISR Integration Steering Group
Cross-Service Architecture Group	JBMC2 AO Working Group	C4ISR Integration Working Group



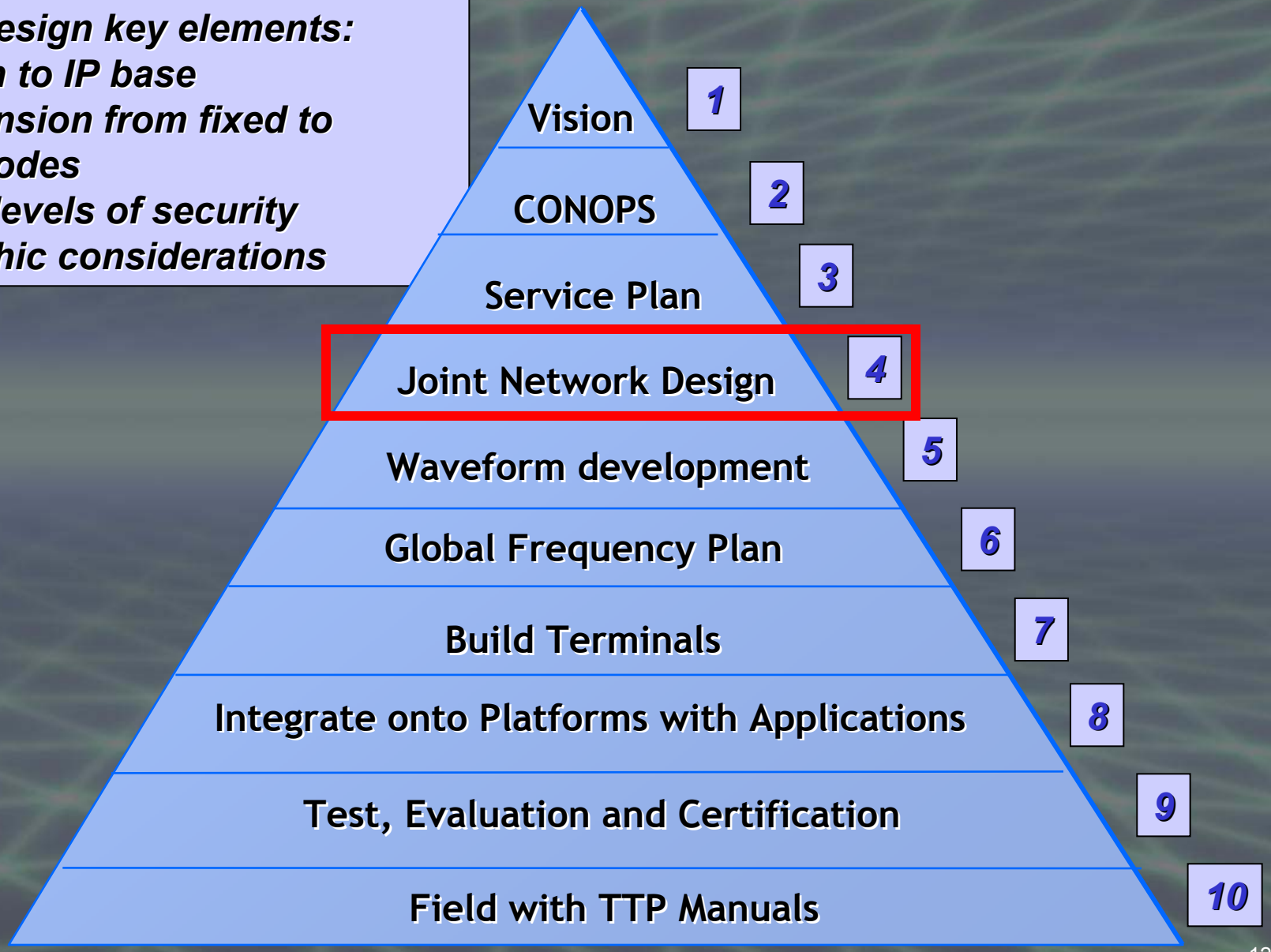
Joint Activities Inform Service Efforts

AFC2ISR CENTER — JFCOM COLLABORATION

Elements to Develop Joint NCW Capability

Network Design key elements:

- ***Migration to IP base***
- ***GIG extension from fixed to mobile nodes***
- ***Multiple levels of security***
- ***Geographic considerations***

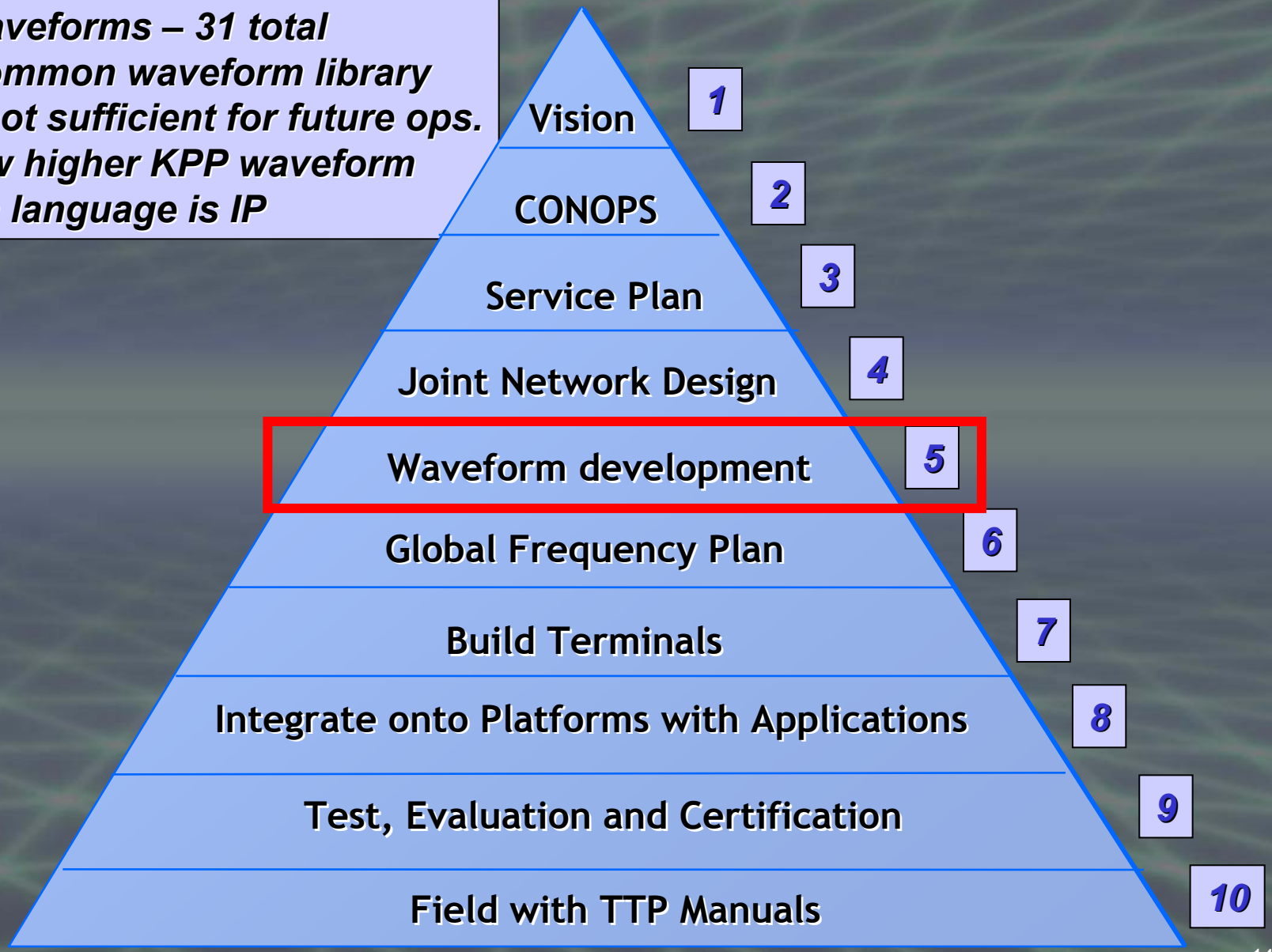


Long Term Plan

IP based Considerations for Joint Machine to Machine Network

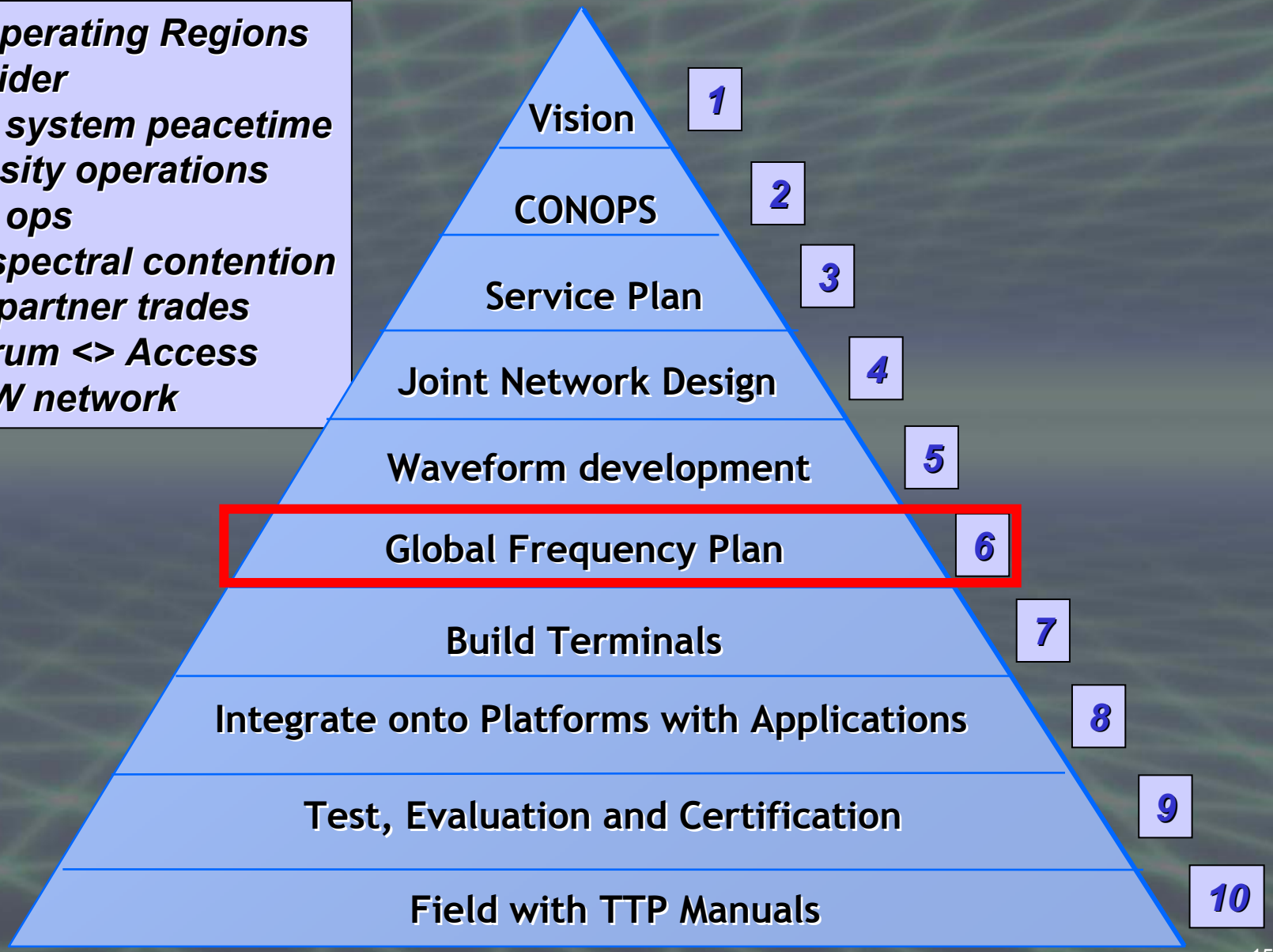
Elements to Develop Joint NCW Capability

Legacy waveforms – 31 total
JTRS – Common waveform library
- Legacy not sufficient for future ops.
- Need new higher KPP waveform
- Common language is IP



Elements to Develop Joint NCW Capability

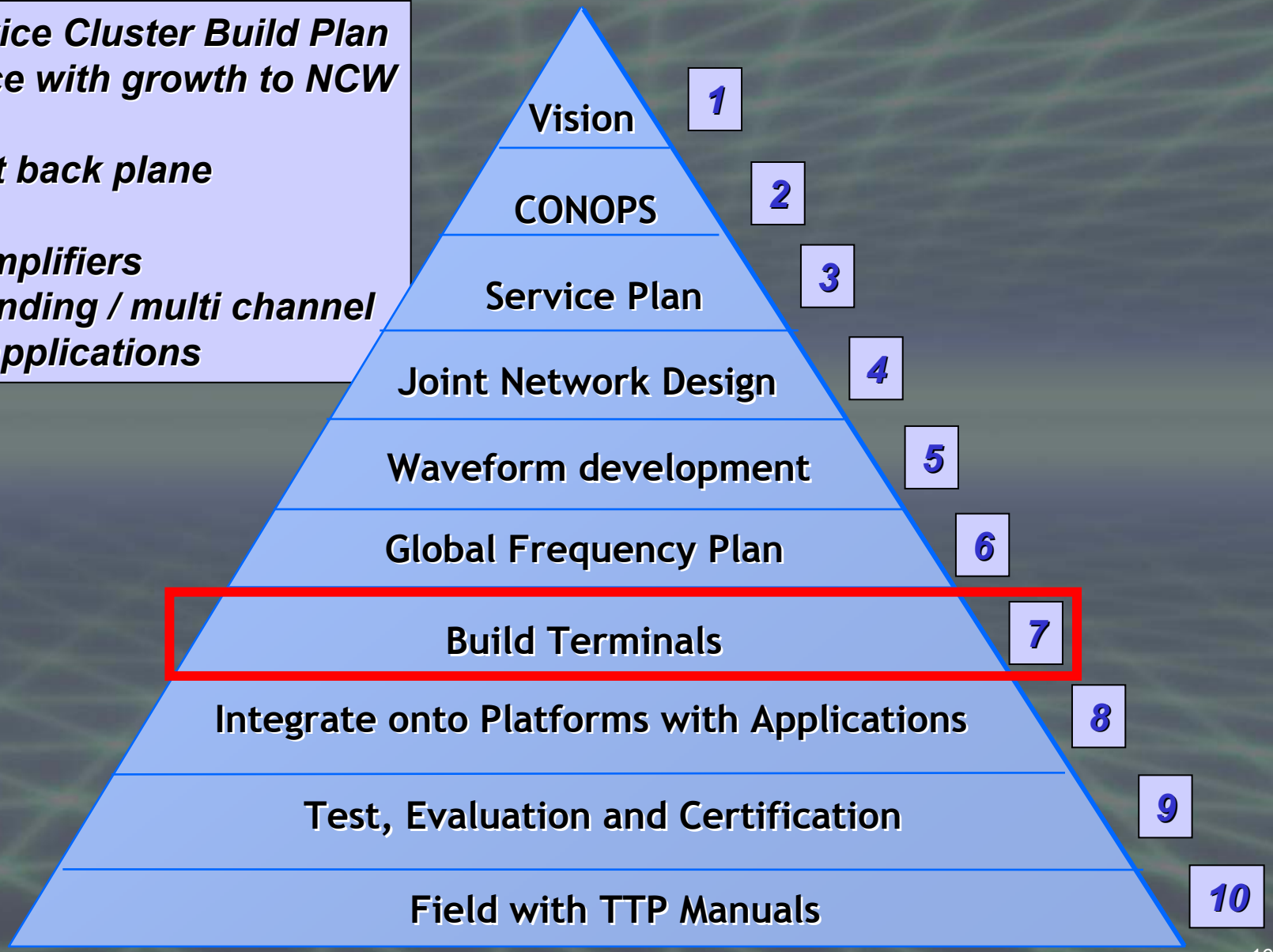
3 Global Operating Regions
Must consider
-Using the system peacetime
-Low intensity operations
-Full scale ops
-Growing spectral contention
-Coalition partner trades
Spectrum <> Access to NCW network



Elements to Develop Joint NCW Capability

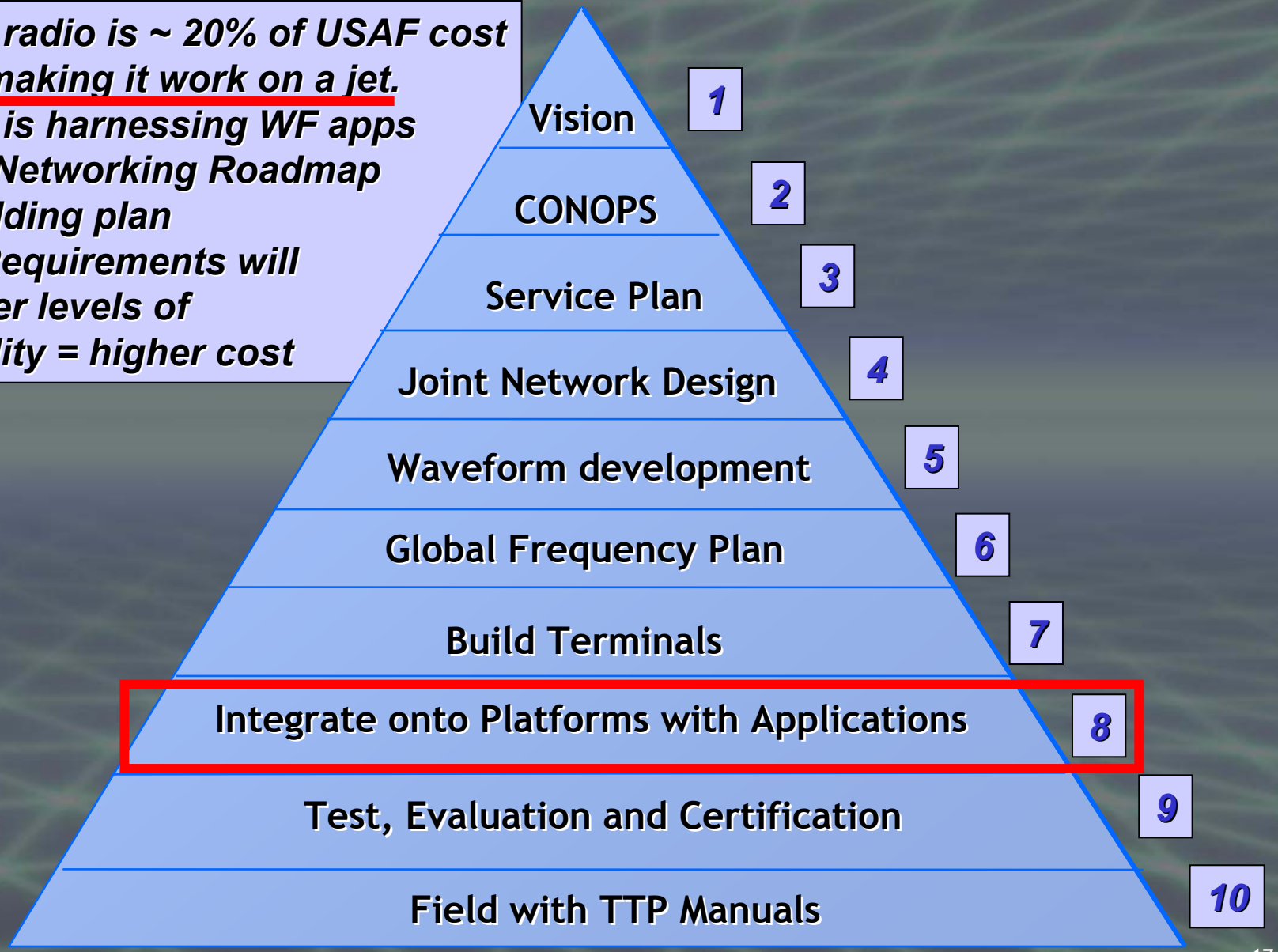
JTRS Service Cluster Build Plan Compliance with growth to NCW Key parts:

- ***Sufficient back plane***
- ***Crypto***
- ***Power Amplifiers***
- ***Cross banding / multi channel***
- ***In radio applications***



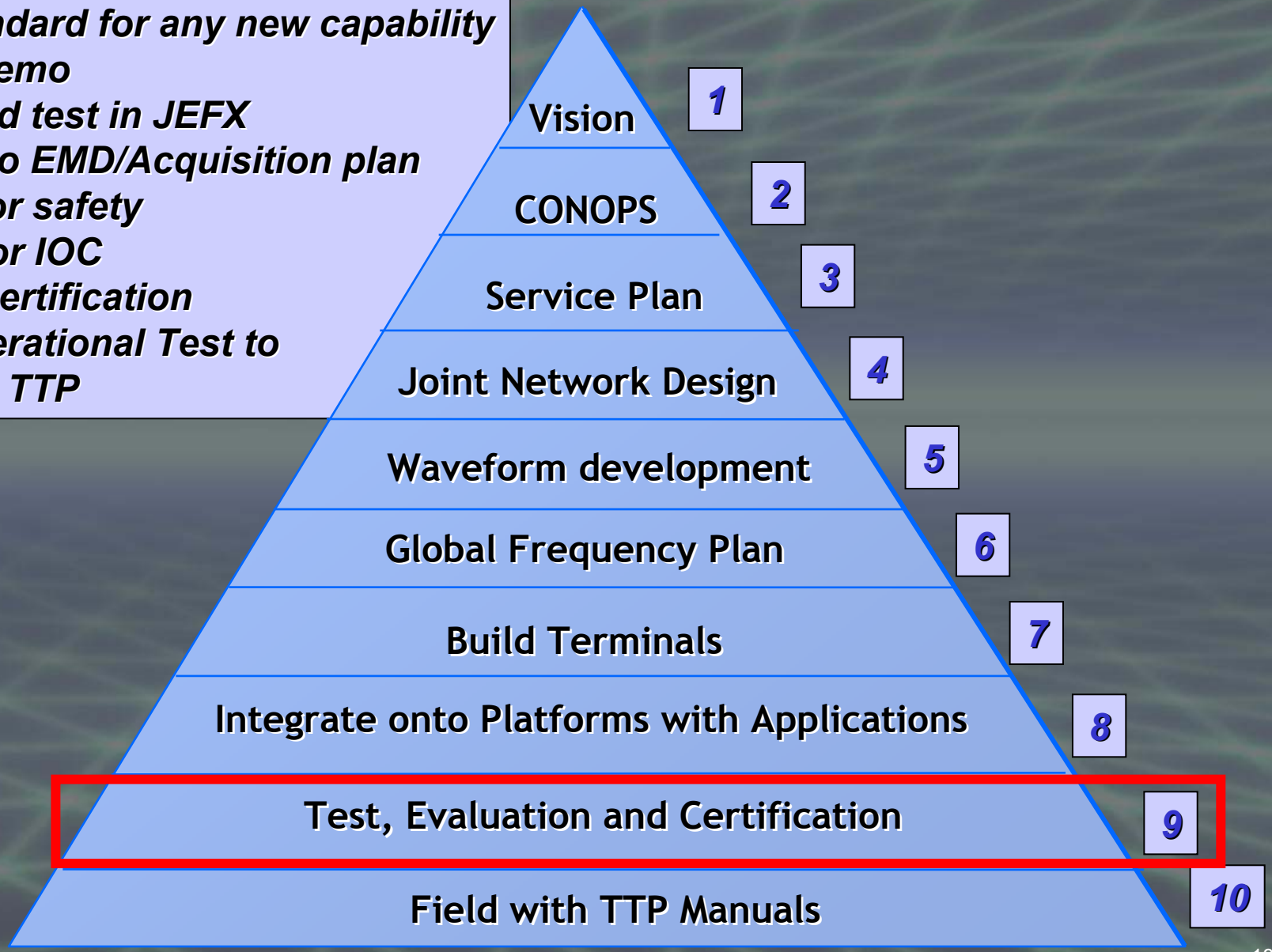
Elements to Develop Joint NCW Capability

Building a radio is ~ 20% of USAF cost
~ 80% is making it work on a jet.
-End state is harnessing WF apps
-Airborne Networking Roadmap
-5 level fielding plan
-Mission Requirements will drive higher levels of Functionality = higher cost



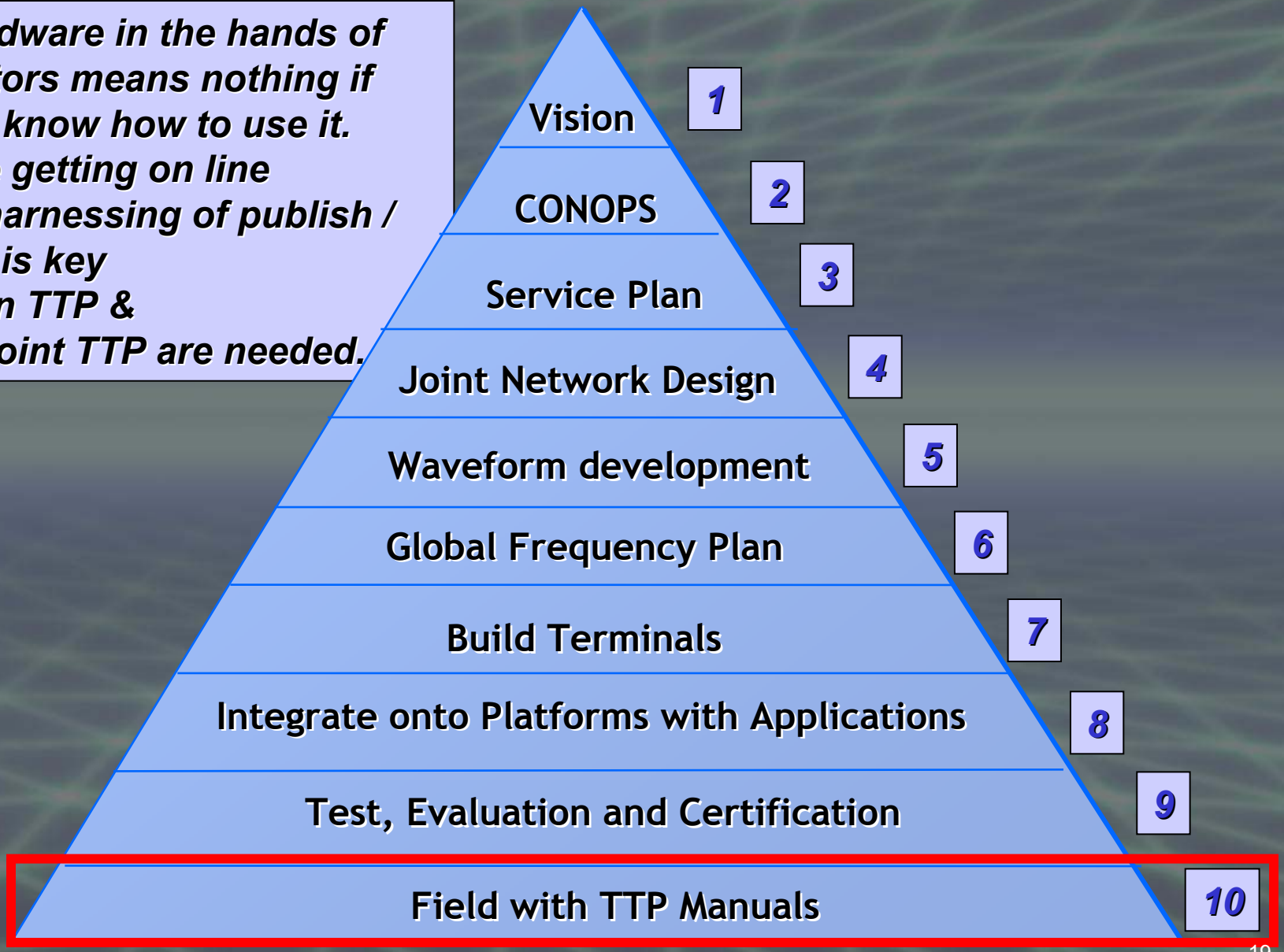
Elements to Develop Joint NCW Capability

USAF Standard for any new capability
- ***Build a demo***
- ***Initial field test in JEFX***
- ***Commit to EMD/Acquisition plan***
- ***DT test for safety***
- ***OT test for IOC***
- ***Parallel certification***
- ***Joint Operational Test to yield Joint TTP***



Elements to Develop Joint NCW Capability

Getting hardware in the hands of the Operators means nothing if they don't know how to use it.
- *Basics are getting on line*
- *Advance harnessing of publish / subscribe is key*
- *Changes in TTP & Codified Joint TTP are needed.*



In Summary

Air Force is fully committed to co-developing integrated capabilities delivering **Joint effects** by significant investment in time, resources, and people to advance **Joint Net-Centric Capability**

JBMC2

Sum of all Wisdom: Placing the Cursor over the Target, the Operator Doesn't Care Where the Info Came From