

A large, light blue, semi-transparent world map is centered in the background of the slide.

Net Enabled C2 Capability Development

Distribution Statement A

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Joint Capability Development

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C2 Support for Decision-Making

Elements of the C2 Vision, DoD C2 Strategic and Implementation Plan

Strengthened Partnerships	Policy	Joint / Coalition Integration	Training & Education
<ul style="list-style-type: none">• Collaborative• Coordinated	<ul style="list-style-type: none">• Coherent• Unambiguous	<ul style="list-style-type: none">• Net-Enabled Ops• Technical Integration	<ul style="list-style-type: none">• J/CFC & J/CTF HQ• Emphasize Human Dimension

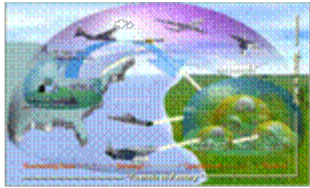
What this is about...

- Command and Control - fundamentally a human endeavor
- Operational art – beyond the science
- Assured information that builds knowledge and speeds decision-making
- Reliable systems and tested processes
- Distributed information; relevant knowledge – allowing decentralized execution
- Decision cycles inside the enemy's ability to adapt

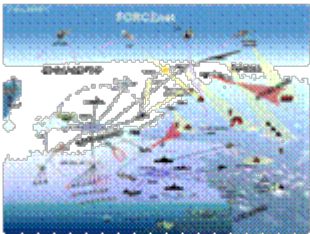
Leader-Centric, Network-Enabled



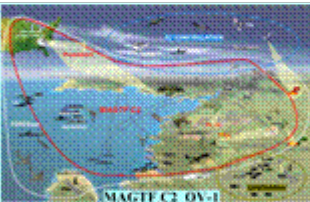
Creating Coherence in C2



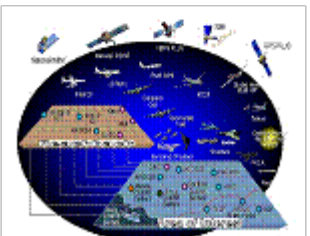
LandWarNet



ForceNet



MAGTF C2



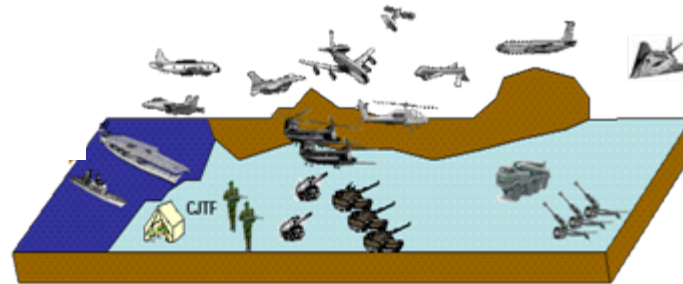
C2 Constellation

C2 Vision
7 May 08



Coordinate, Integrate & Synchronize

- POM 10 Collaboration
- DoD C2 Strategic Plan
- DoD C2 Implementation Plan (Combined Strategic and Implementation Plans satisfy DoDD 5100.30 DoD C2 Roadmap requirement)
- C2 Optimum Capability Mix
- POM 12 Mission Analysis

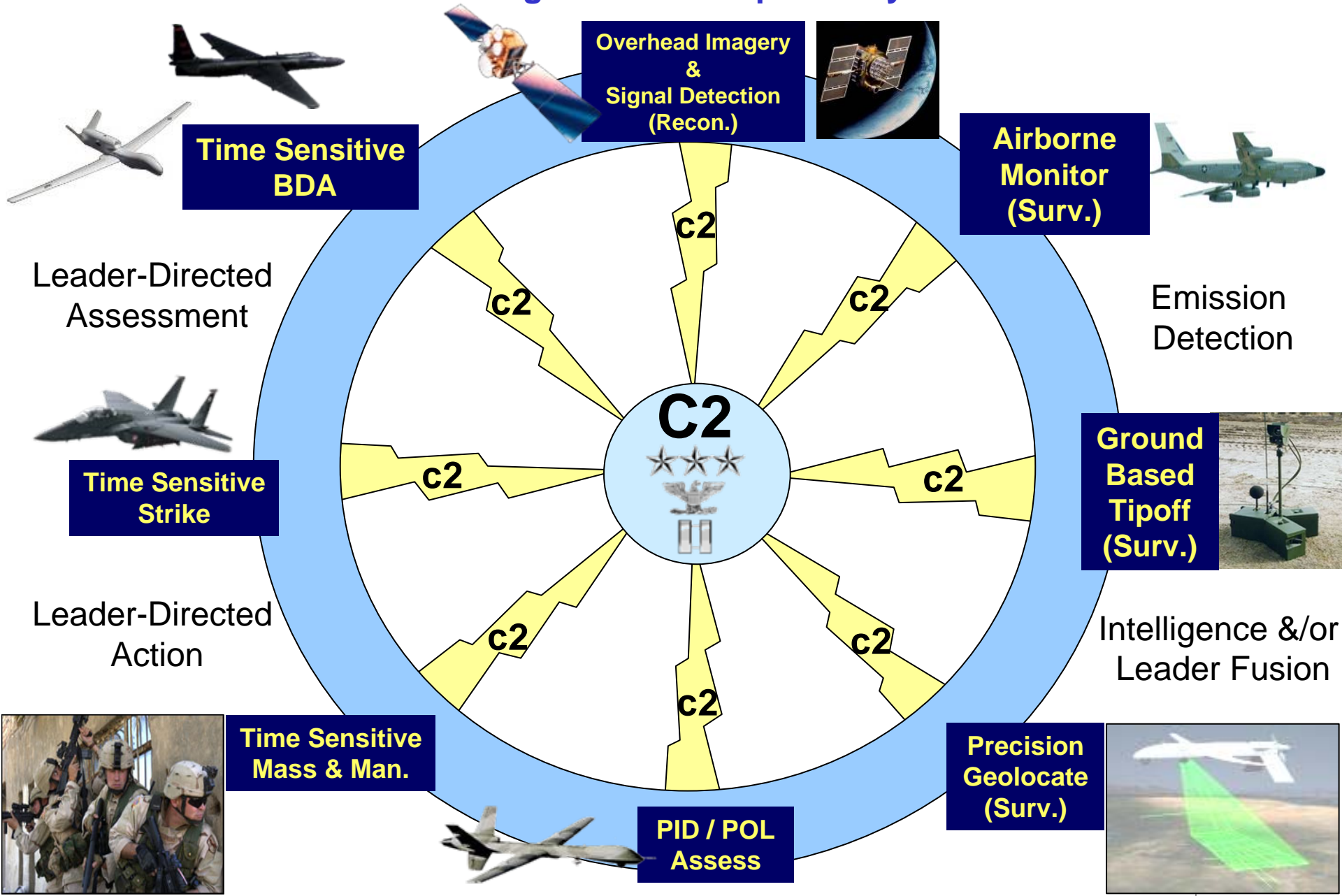


Supported COCOM

The Combined/Joint Force Commander must integrate strategic-to-tactical Service C2 Capabilities while trying to simultaneously organize the force and perform the mission

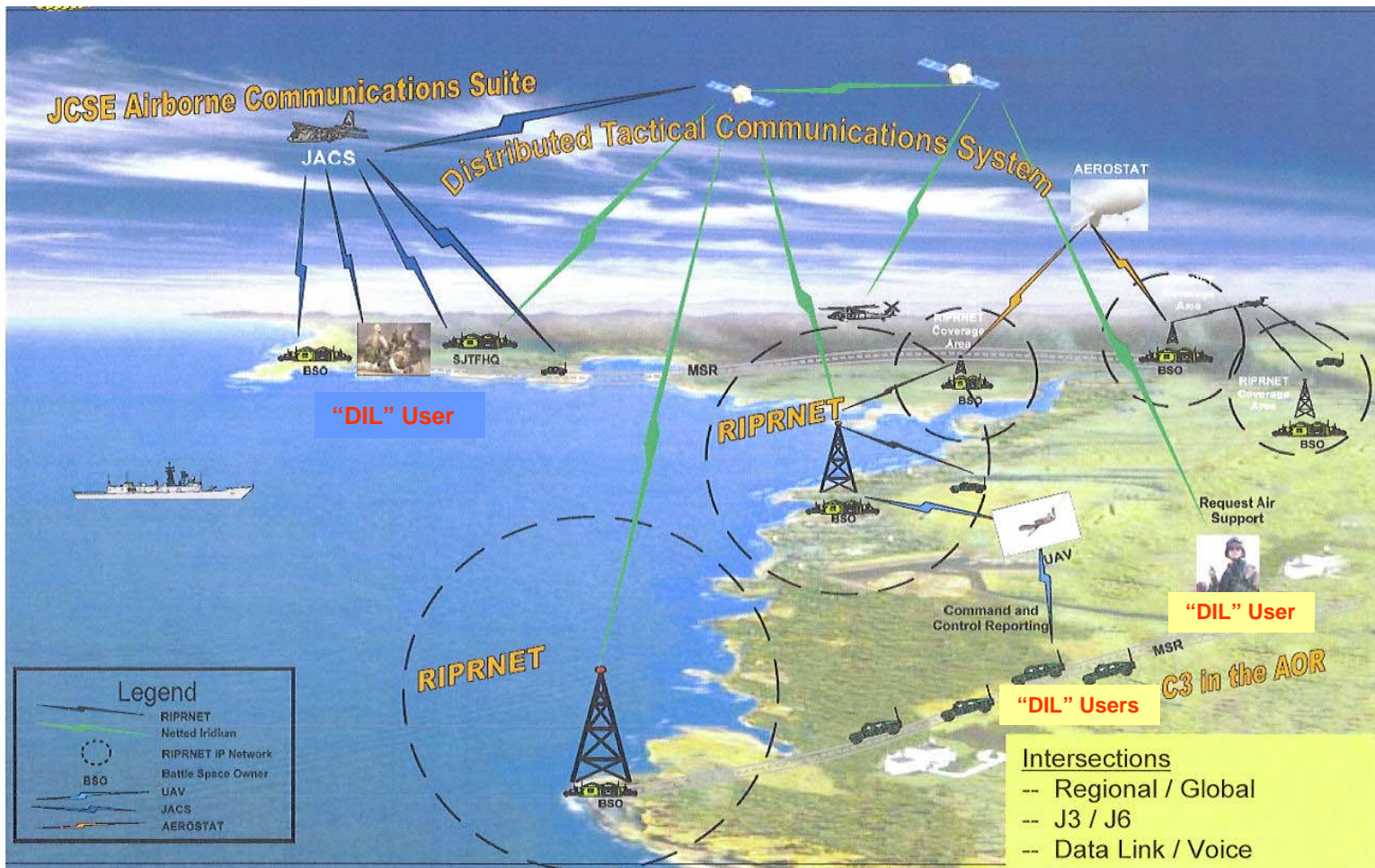


Leader-Centric, Net-Enabled C2+c2+... through Joint Interoperability



C2 Network: Space, Aerial and Surface Layers

Integration of Services, Interoperability of Systems



"DIL"=Disconnected, Intermittent or Low Bandwidth

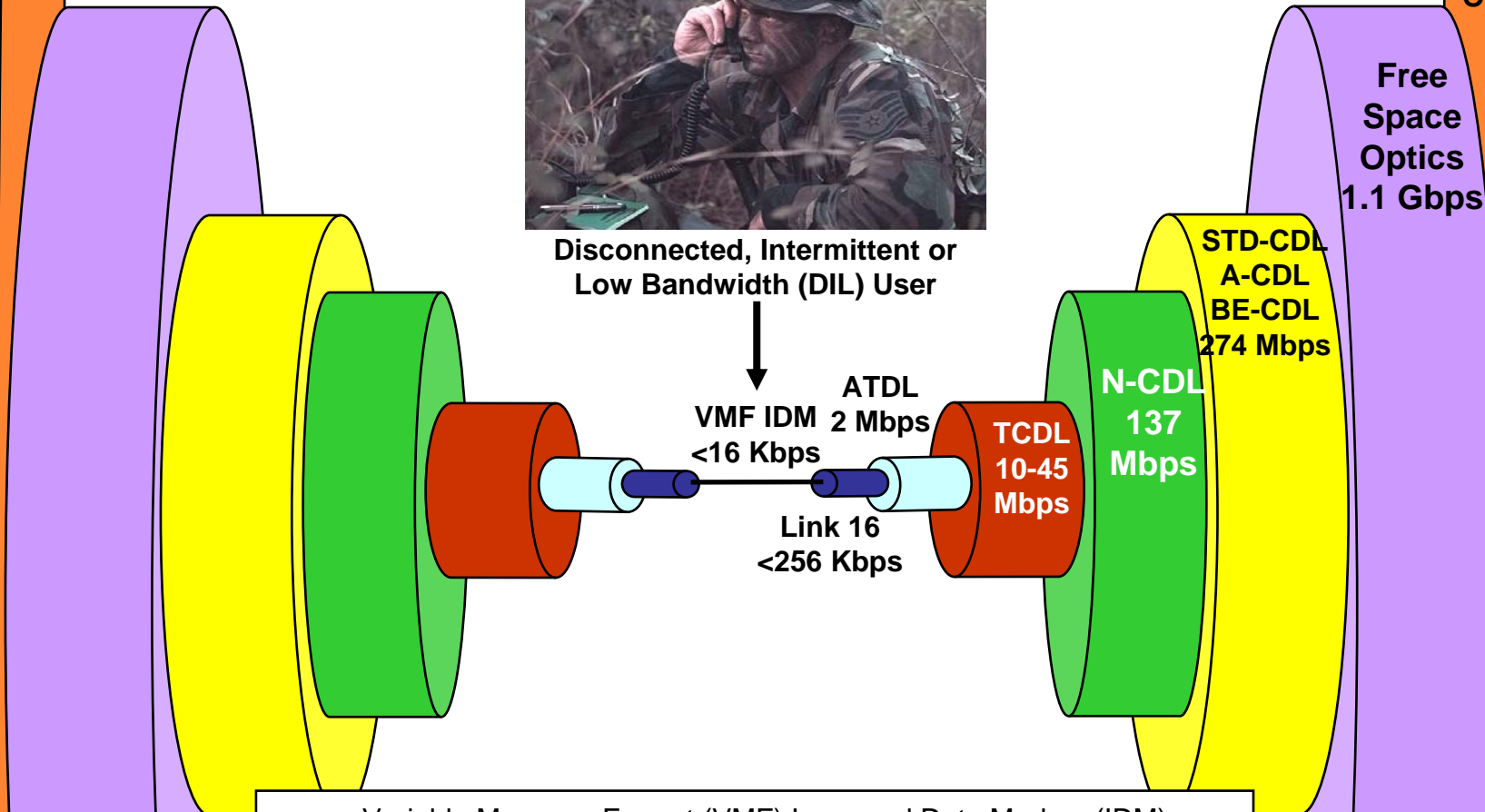
Joint Interoperability – Disparate Systems Seamlessly Interfacing...Net-Enabled
Joint Integration – Multiple Services Seamlessly Interfacing...Training & TTP

Relative Comm Pipe Sizes

The Physics of "Net Enabling"



Disconnected, Intermittent or Low Bandwidth (DIL) User



Variable Message Format (VMF) Improved Data Modem (IDM)
 Advanced Tactical Data Link (ATDL)
 Tactical Common Data Link (TCDL) (terminal)
 Networked Common Data Link (N-CDL)
 Standard Common Data Link (STD-CDL)
 Advanced Common Data Link (A-CDL)
 Bandwidth Efficient Common Data Link (BE-CDL)

IP
 Internetwork
 Optical Fiber
 10 Gbps

Free
 Space
 Optics
 1.1 Gbps

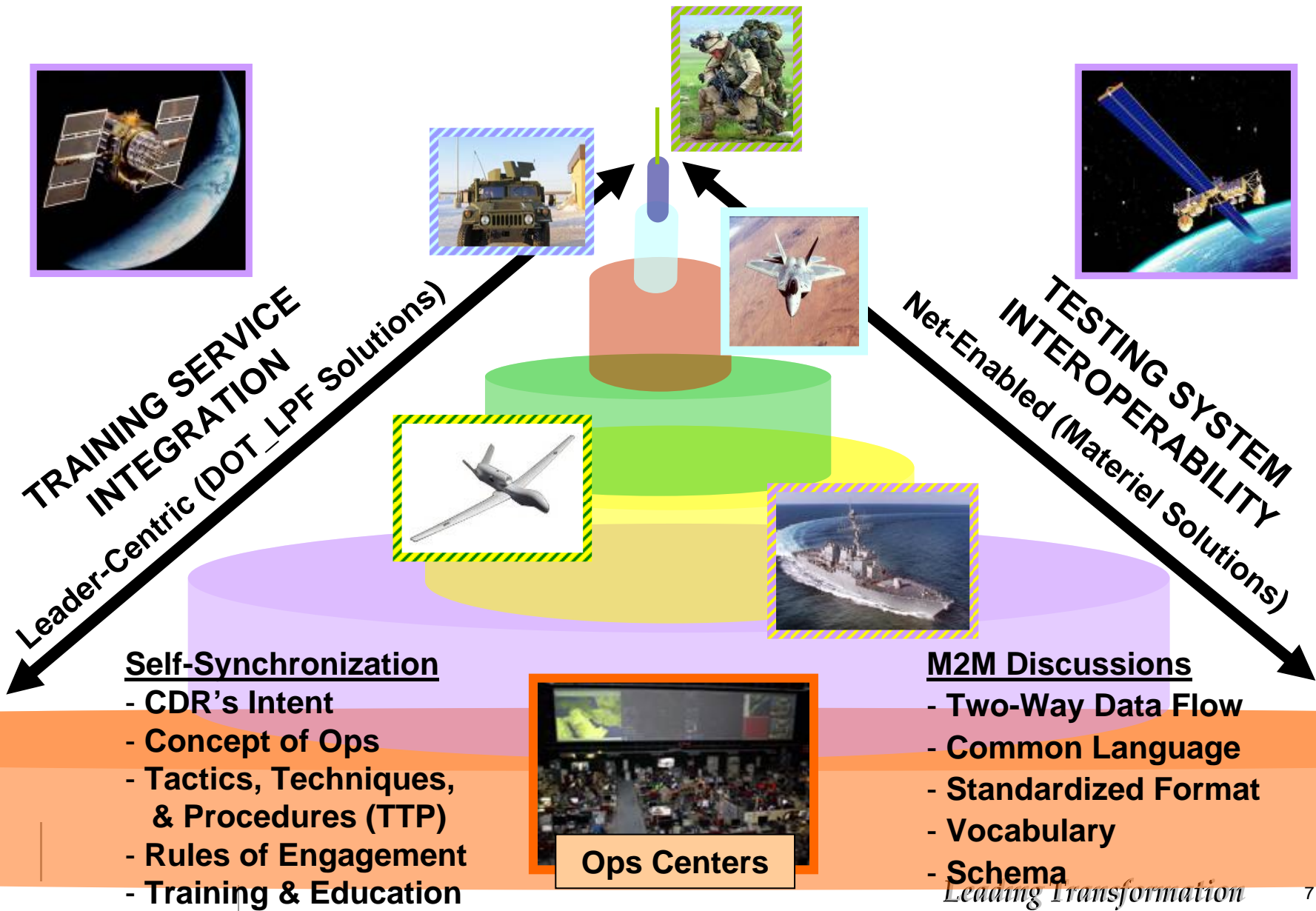
STD-CDL
 A-CDL
 BE-CDL
 274 Mbps

N-CDL
 137
 Mbps

TCDL
 10-45
 Mbps

ATDL
 2 Mbps
 VMF IDM
 <16 Kbps
 Link
 16
 <256 Kbps

Robust & Agile C2...the Physics: Self-Synchronization & Machine-to-Machine (M2M)



Leader-Centric, Net-Enabled C2 Networks

Four Distinct Challenges

<h3>LEADER-CENTRIC</h3> <p>(Training)</p>	<h3>NET-ENABLED</h3> <p>(Testing)</p>
<h4>TACTICAL “DIL” LEADER</h4> <ul style="list-style-type: none"> • <i>Disconnected, Intermittent, Low Bandwidth (DIL)</i> • <i>Intentionally “off the net” (Ex: SOF Cell)</i> • <i>Dismounted...out of the vehicle operations</i> • <i>Decentralized execution of commander’s intent</i> • <i>Tactic, techniques, and procedures to mitigate loss of capability</i> • <i>The “Rest of the Story”</i> 	<h4>TACTICAL EDGE</h4> <ul style="list-style-type: none"> • <i>Degraded network due to enemy actions</i> • <i>Small throughput/slow downloads</i> • <i>Weight/mobility restricted equipment</i> • <i>Geographic “line-of-sight” constraints</i> • <i>Limited power sources & duration</i>
<h4>“WIRED” LEADER</h4> <ul style="list-style-type: none"> • <i>Operational-level Commander – J/CFC</i> • <i>Tactical Operations Center – J/CFLCC</i> • <i>Maritime Operations Center – J/CFMCC</i> • <i>Combined Air Operations Center – J/CFACC</i> • <i>Air Support Operations Center – Battalion-level</i> • <i>The “Big Picture”</i> 	<h4>WIRED OPS CENTER</h4> <ul style="list-style-type: none"> • <i>Full Connectivity (normally 24/7)</i> • <i>Connected to national assets</i> • <i>Robust redundancy/back-up power sources</i> • <i>Satellite farm/capability on premises</i> • <i>Continuous software upgrades</i>



Summary

Net Enabled C2 Capability Means

• Improving the way DoD...

- Takes advantage of information and communications technology
- Shortens the development – delivery cycle
- Responds to the needs of the tactical user
- Develops, tests, and delivers synchronized C2
- Fields comprehensive, integrated C2 capability

Continuous Migration Toward Interoperability

★ Collaboration ★ Consensus Building ★ Compelling Logic ★





Questions and Discussion

