



ISR Data Convergence

Compressing The Kill Chain to the Left of Boom

Creating one ISR data fabric of Title 10, title 50 and other intelligence entities is a mandatory first step to building a multidomain C2 environment

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Red Hat



Agenda

Historical overview: Lessons from The Battle of Britain

- Infusion of SIGINT into C2 planning and execution
- Impact on OODA decision process
- Outcome

Review of Modern, Domain Centric ISR Lines of Effort

- Title 10
- Title 50

JOPPA Planning Cycle

- Integrated ISR as Center of Gravity
- Definition of Desired Global Integration

DoD Cloud mapped to JWCC and Outsourced Cloud Service

- Issues of COOP, PACE, and Federation
- Migration Questions
- Federation Questions
- Edge Node Capability

The Operational Impact of a Hybrid Cloud Strategy

Discussion and Conclusion



Lessons of World War 2



Source: Holocaust Encyclopedia



Lessons of World War 2



Source: Holocaust Encyclopedia

Long Range Kill Chains approximately 400 Radial Miles



Lessons of World War 2



Nazi Force Strength 1940:

1300 Fighters and 1250 Bombers

(Source: Britannica)



Lessons of World War 2



British Force Strength 1940:

1950 Total Aircraft, roughly 900 of which were fighters.

(Source: RAF Museum and Archives)



Lessons of World War 2

Battle of Britain



1,940 Platforms



2,550 Platforms

Lessons of World War 2

Battle of Britain



1,940 Platforms



Axis enjoyed a numerical
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Axis enjoyed a qualitative advantage in offensive airpower over the Hawker Hurricane



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Axis enjoyed a numerical advantage of 600 aircraft and supporting crews

Axis enjoyed a qualitative advantage in offensive airpower over the Hawker Hurricane

Axis enjoyed the advantage of surprise and choice of engagement (relatively)

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Great Britain Wins



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Great Britain Wins

Even though:

Numerically disadvantaged

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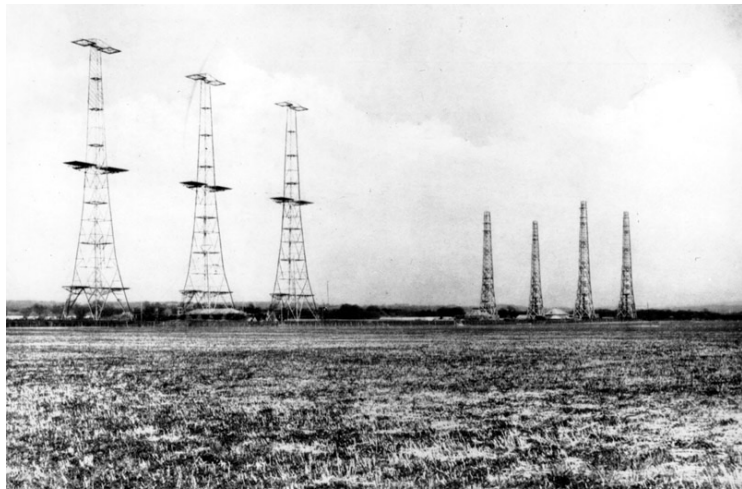
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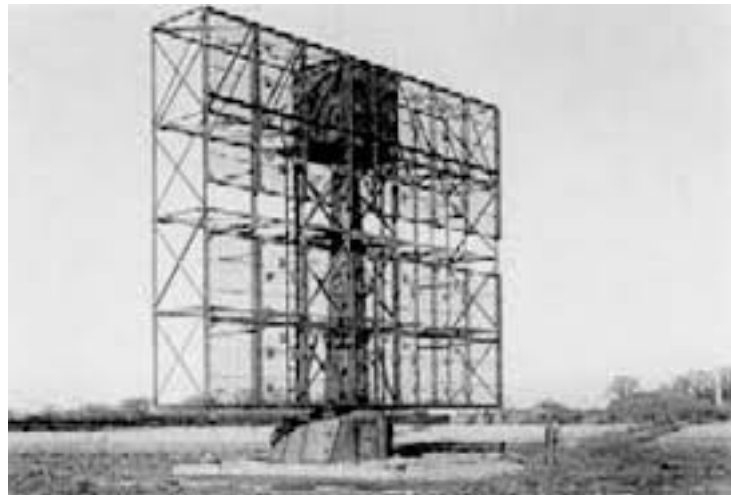
HOW?????

Lessons of World War 2

Emergence and application of modern ISR



Bawdsea Radar



Wartling Radar

Source: RAF Historical Society



Lessons of World War 2

Emergence and application of modern ISR



RAF Wartling CRC
Early Control & Reporting Center
(Source: RAF Historical Society)



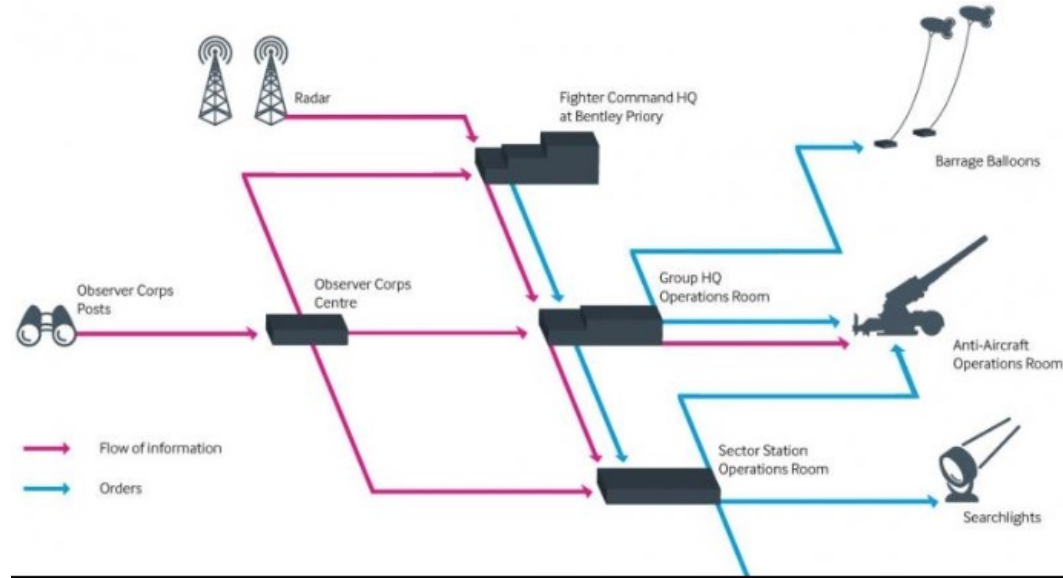
RAF Air Operations Center
(Source: Public Domain)



Chain Home CRC
Early Control & Reporting Center
(Source: RAF Historical Society)

Lessons of World War 2

C2 of ISR Informing RAF/AAMDC Air Tasking



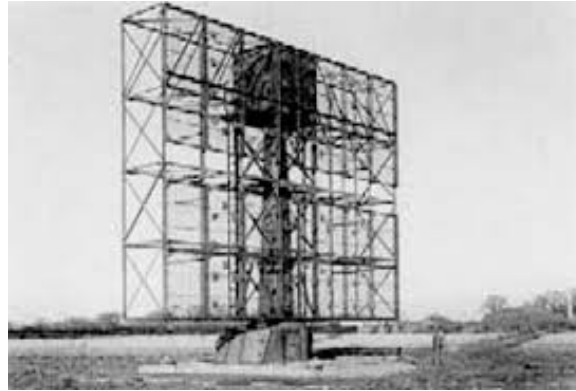
Concept of Operations, ISR and Operations

(Source: Imperial War Museum)



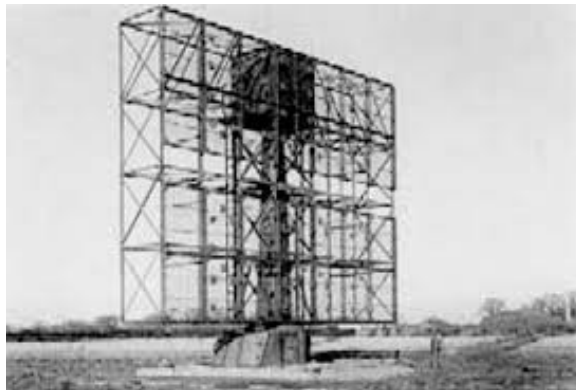
Lessons of World War 2

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C2 of ISR Informing RAF/AAMDC Air Tasking



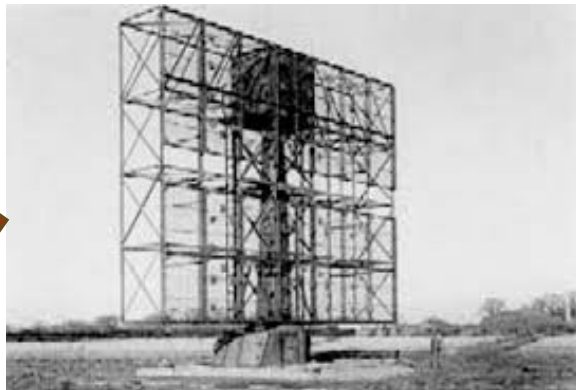
Luftwaffe had a 20 min Time
On Target after RADAR track
identification



Lessons of World War 2

C2 of ISR Informing RAF/AAMDC Air Tasking

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**THE FUSION OF SIGINT AND
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The Battle of Britain was won in
large part through an
aggregation of 4 minute DT
decision blocks over a course
of three and a half months

Source: Royal Air Force Museum



Mapping The Lessons Of World War 2 To Today



Tyranny Of Distance: 400 radial Miles



Tyranny Of Distance: 4000 radial Miles

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Multiple SIGINT data environments, Title 10 and Title 50



Domain-Centric ISR Lines Of Effort



\$24 Billion FY 2022 Military
Intelligence Program Budget



Multiple SIGINT data environments, Title 10 and Title 50
Source, Congressional Record



Domain-Centric ISR Lines Of Effort



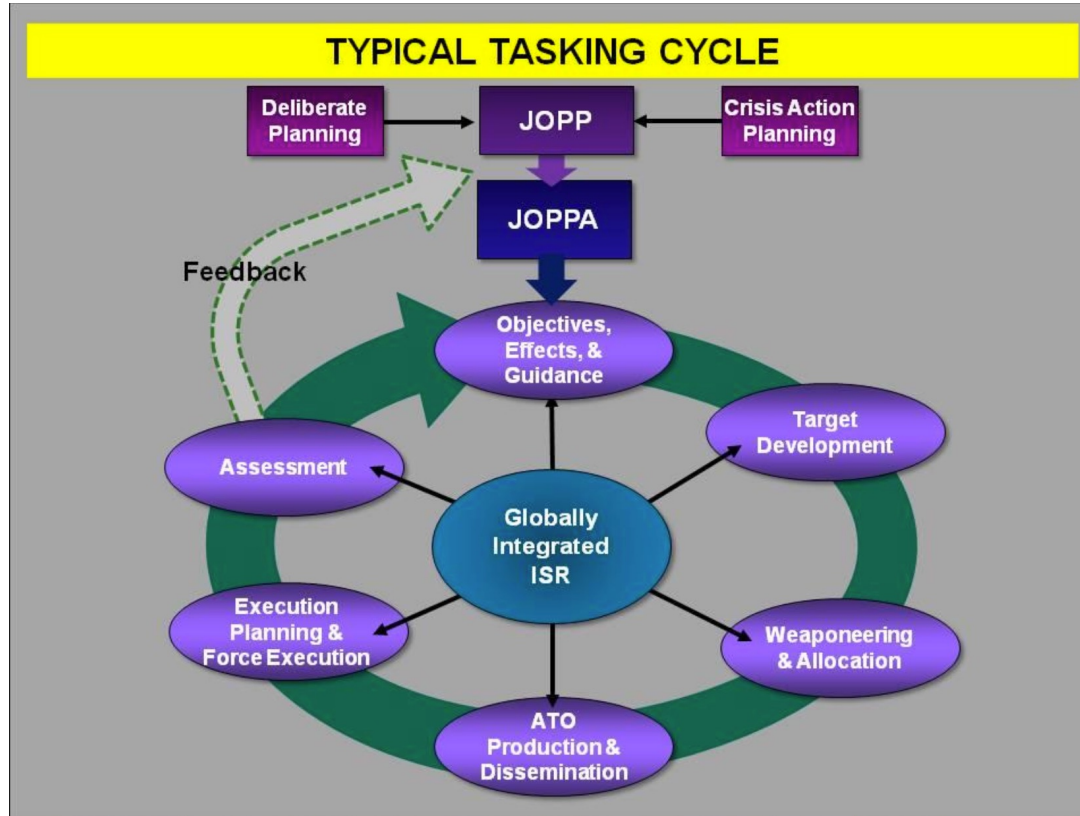
\$40 Billion FY 2022 National Intelligence Program Budget Allocation (estimated, from \$63B total non-DoD IC Budget)



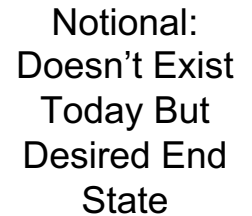
Multiple SIGINT data environments, Title 10 and Title 50
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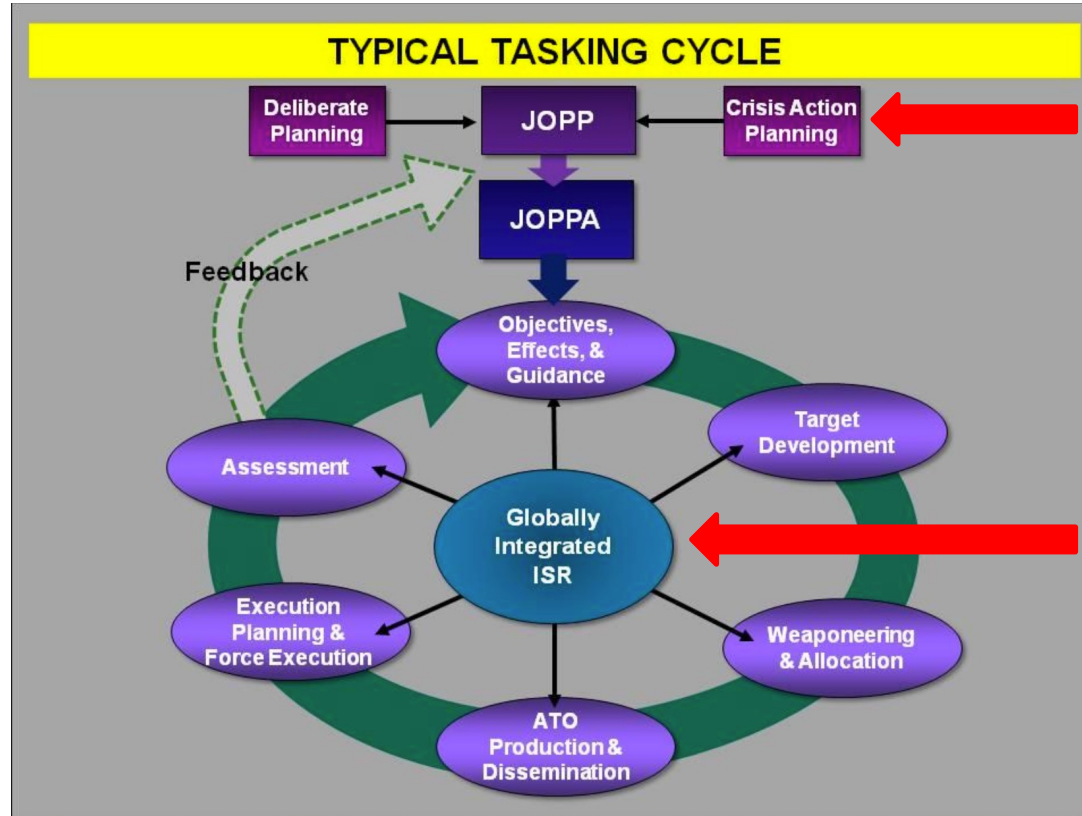
JOPPA Planning Cycle



30



JOPPA Planning Cycle



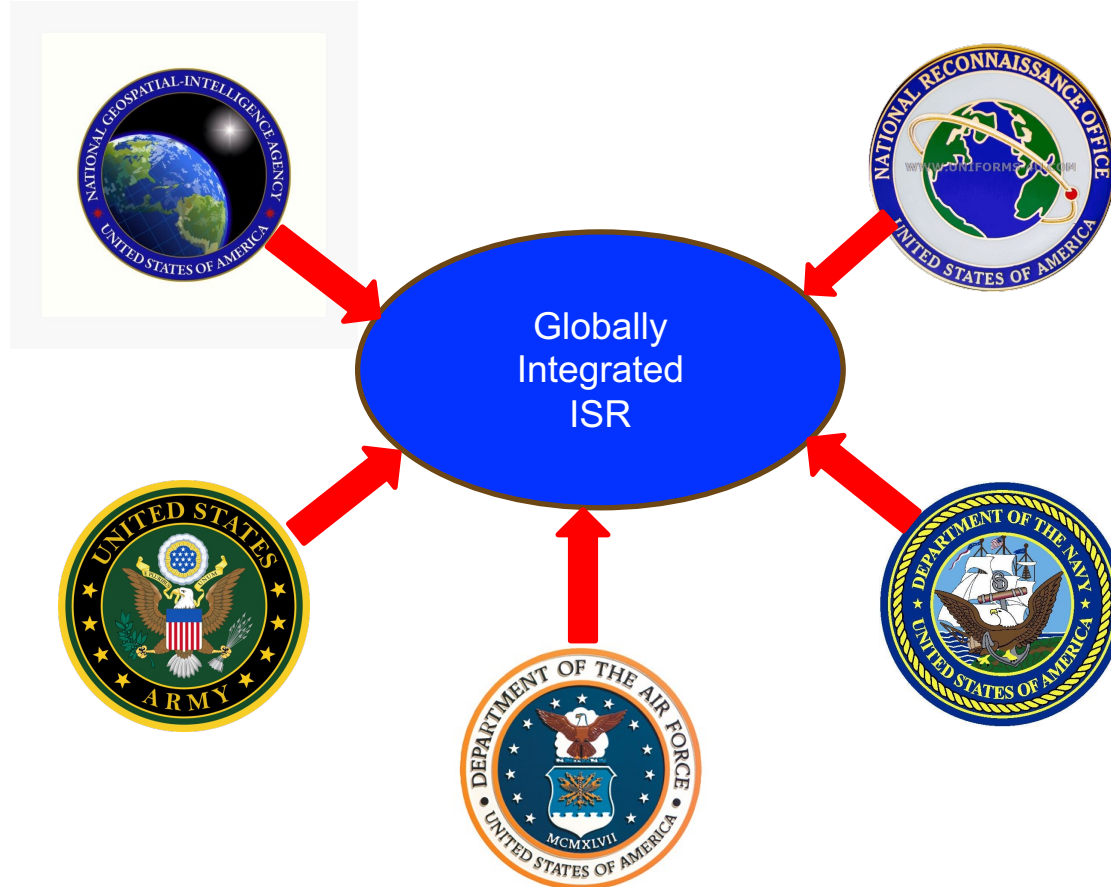
Dynamic Targeting:
Command Entry
Point

Notional:
Doesn't Exist
Today But
Desired End
State



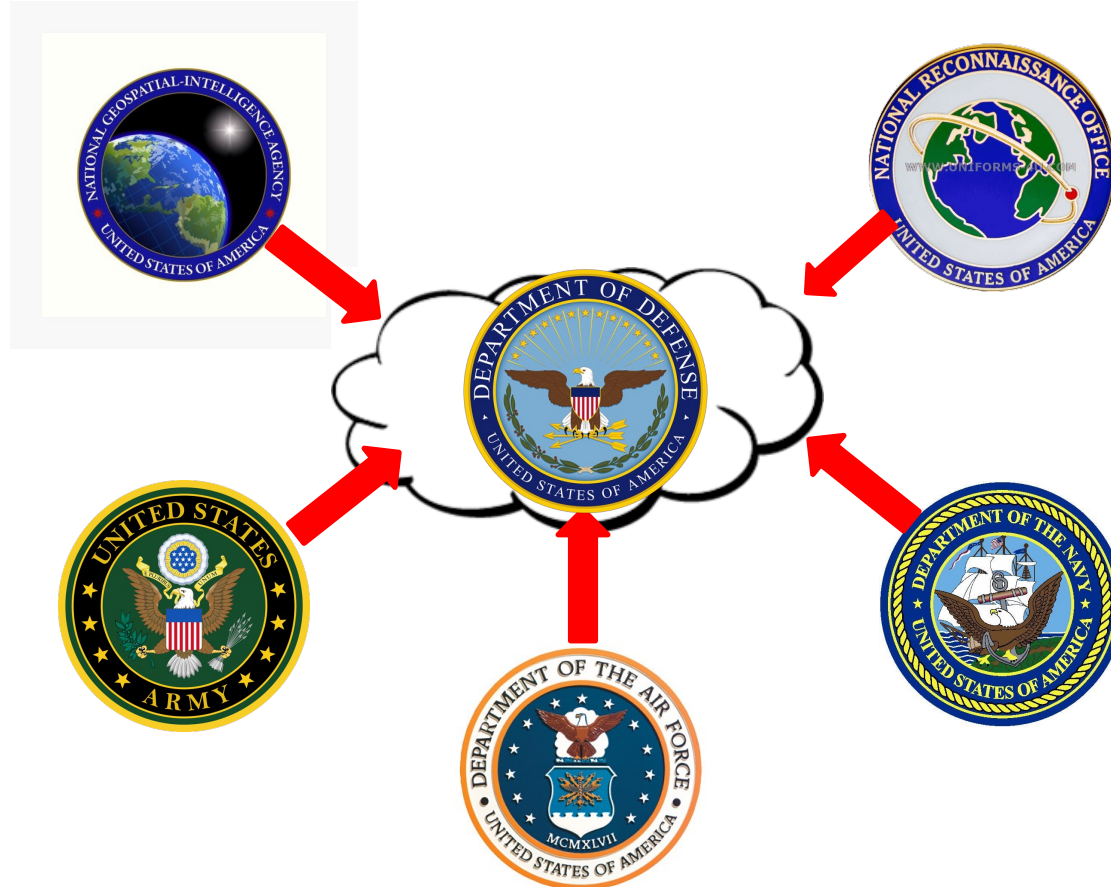
JOPPA Planning Cycle

Globally Integrated ISR At the Nexus of Deliberate and Dynamic Mission

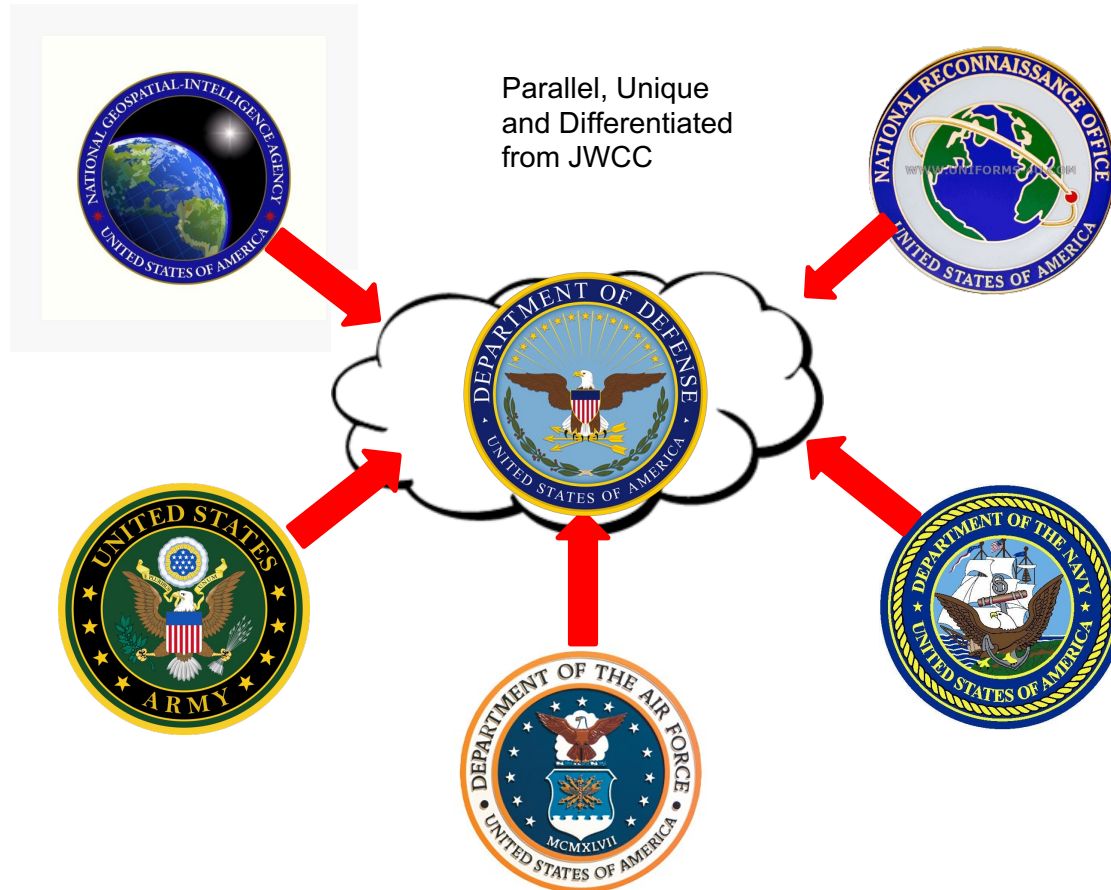


JOPPA Planning Cycle

Globally Integrated ISR At the Nexus of Deliberate and Dynamic Mission



DoD ISR Cloud Of Federated Data



COOP and PACE of ISR Data



1. Outsourced clouds: Single Points of Failure?
2. Outsourced clouds: Add'l attack surface?
3. Outsourced clouds: One ring to rule them all?



COOP and PACE of ISR Data



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 3. Migration: Cost of exfiltration of data, to share or otherwise?



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 2. Federation: How do you fire a cloud provider?
 3. Federation: Are new cloud capes options limited?



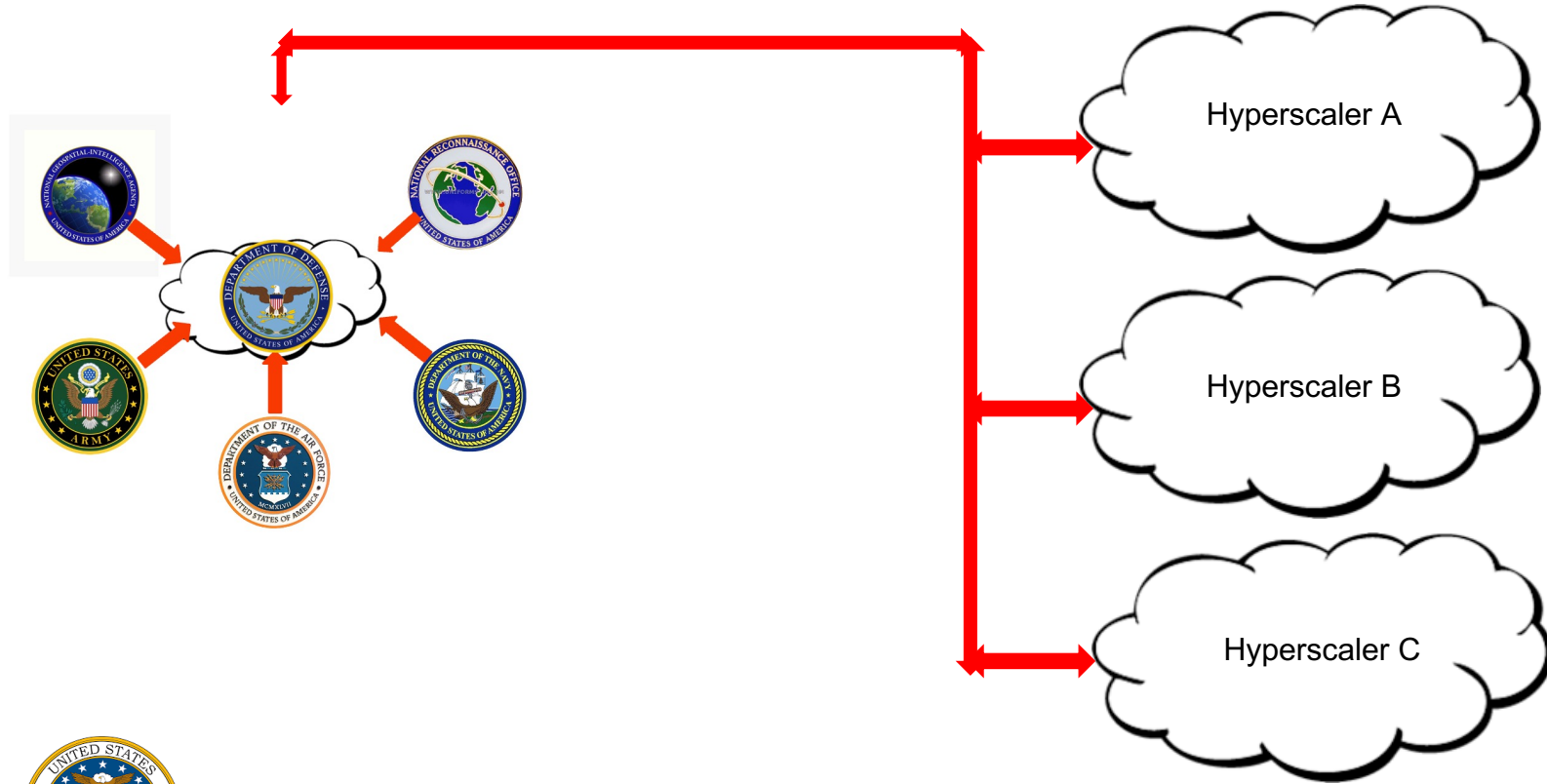
COOP and PACE of ISR Data



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1. Edge node: Interoperable with other providers?
 2. Edge node: Is the box proprietary?

Of Course This Is Controversial

COOP and PACE of ISR Data

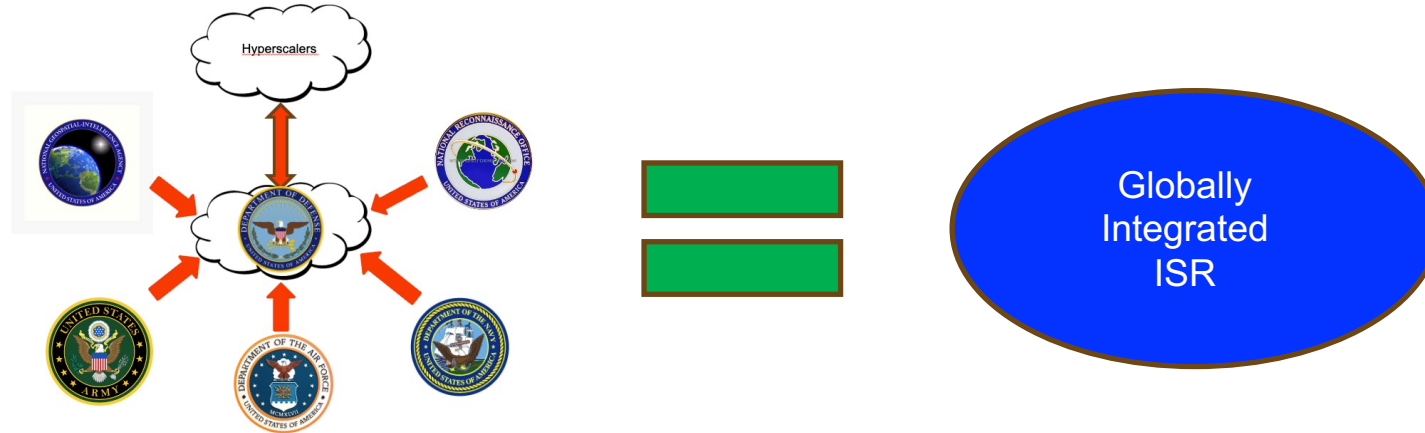


Hybrid Cloud Enhances COOP

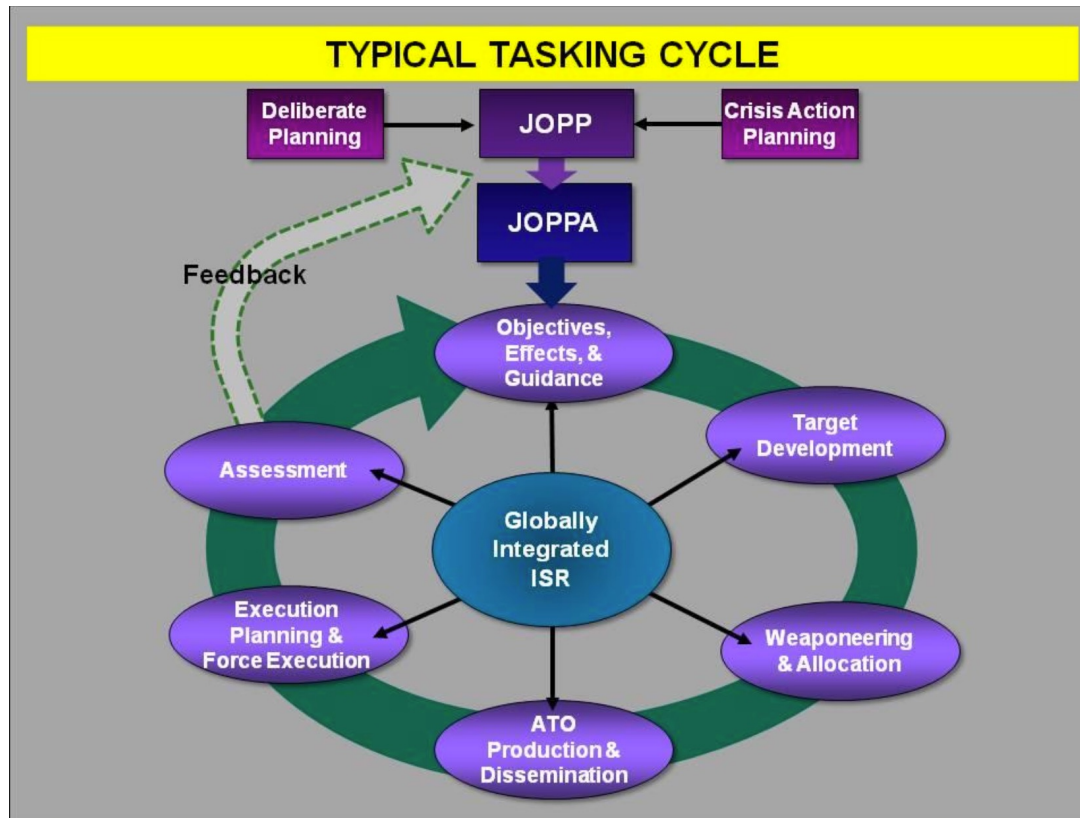


JOPPA Planning Cycle

Hybrid Cloud Environment Maps to Globally Integrated ISR

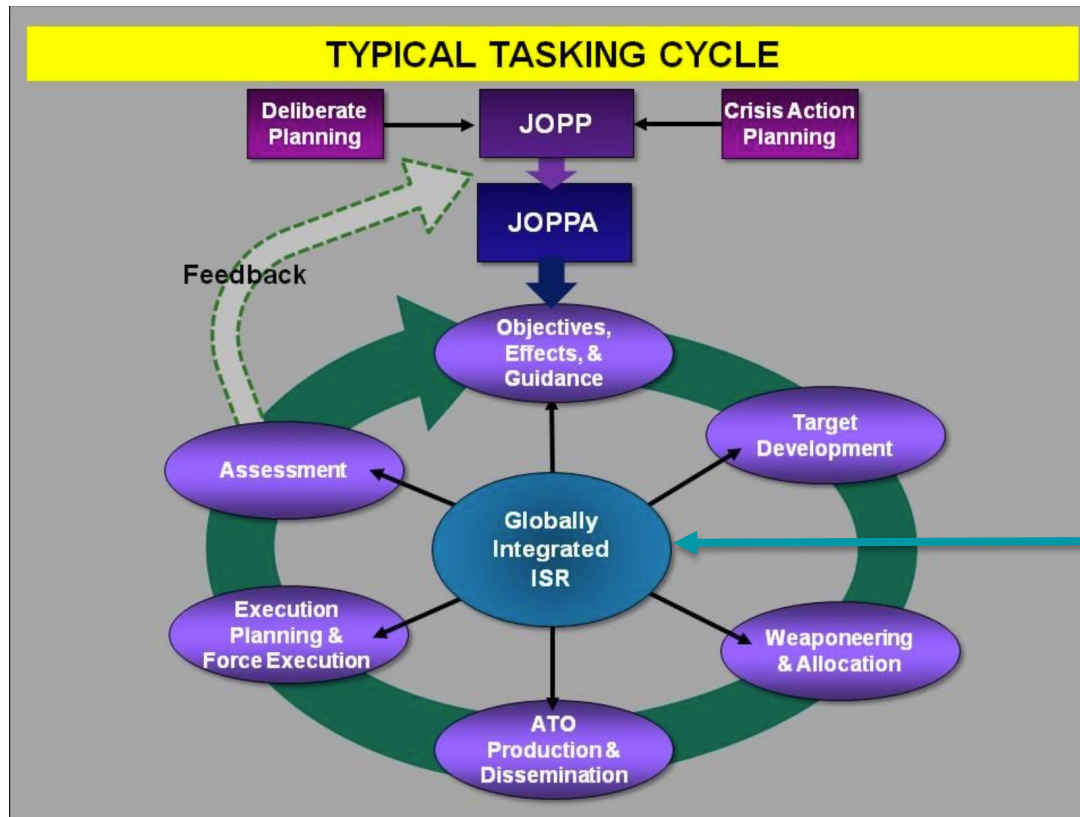


Hybrid Cloud Enhances JOPPA Planning Cycle



Hybrid Cloud Enhances JOPPA Planning Cycle

Orchestrates legacy and new applications across disparate clouds (DCGS/NGA/NRO/Other)



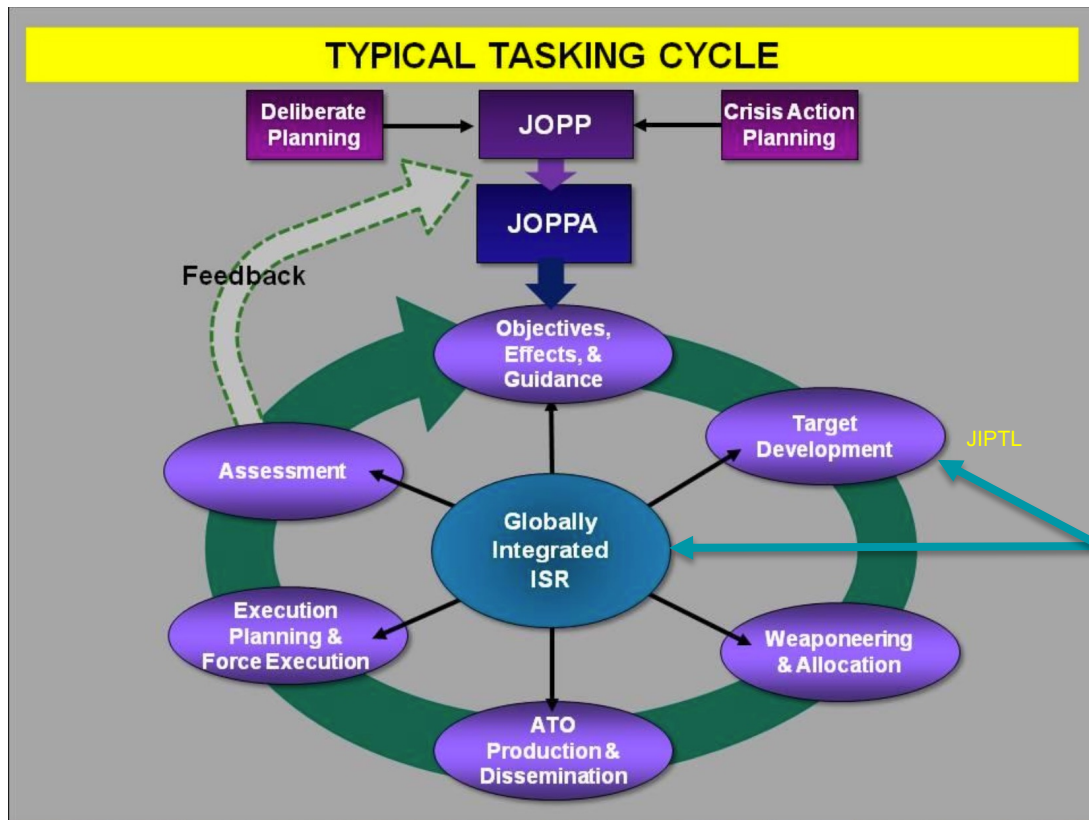
RED HAT
OPENSIFT
Container Platform



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Feeds Target Processes from curated ISR Data inside the AOC via ISRD

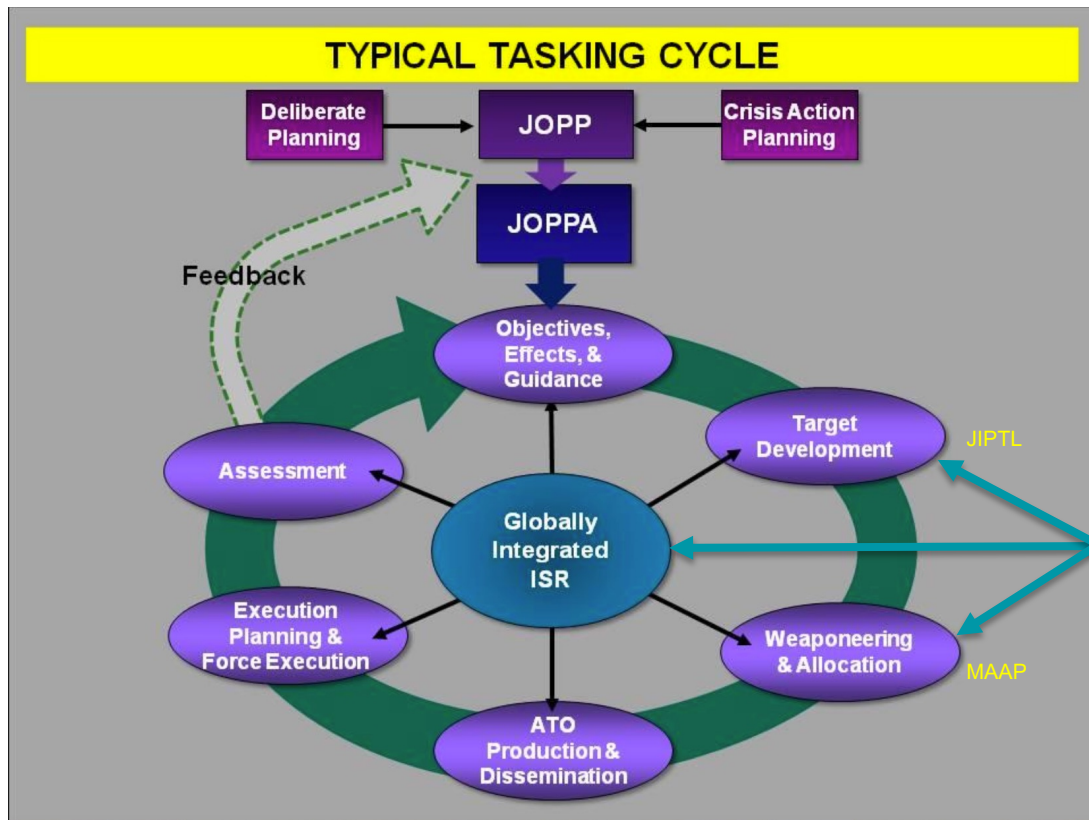


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RED HAT
OPENSIFT
Container Platform

Red Hat



Captures Dynamic Updates During Execution and Assessment



Shares Assessment Data Back To ISR Function And To Assess Success Of Commander's Intent for ATO



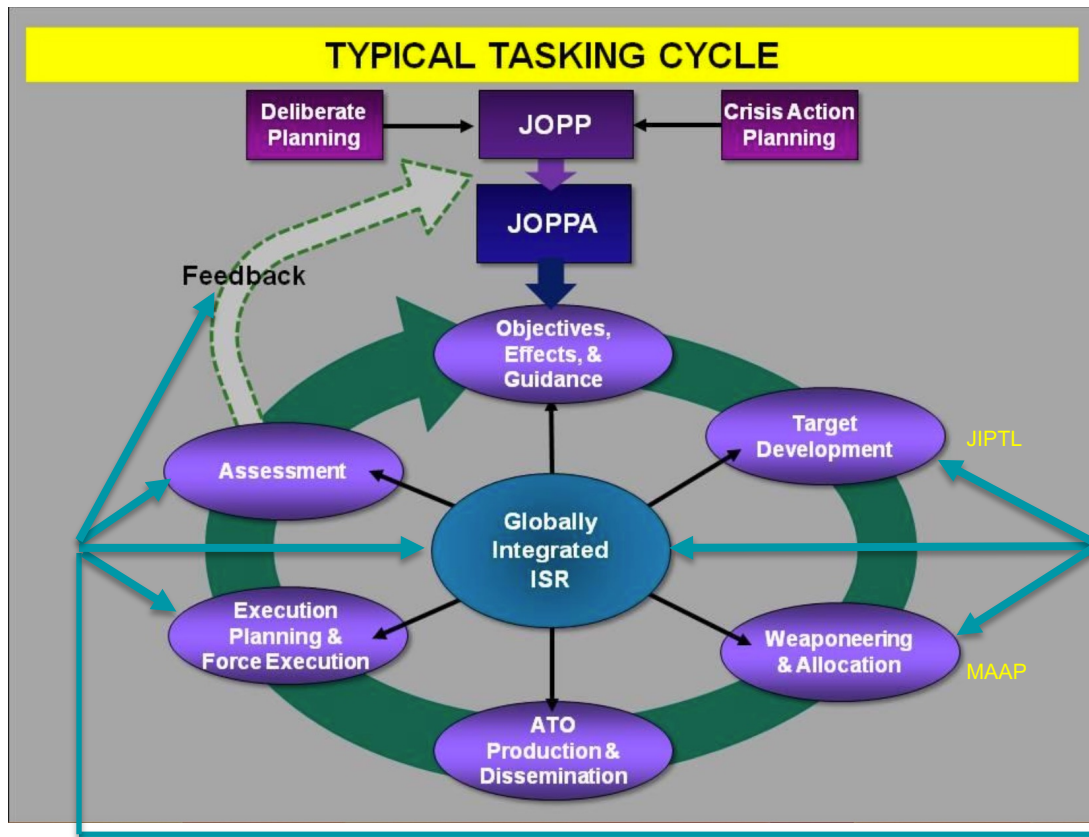
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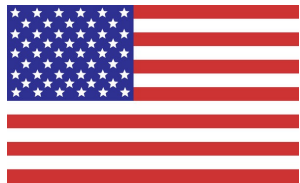
Platform Facilitates Global Joint and Coalition Fight With Mission Partners Via Multicloud Integration



Summary



The outcome of the Battle of Britain demonstrated that SIGINT (INT in general) fused with OPS C2 is Transformational.



The creation of a common DoD ISR domain is essential to accelerating the mean time to sense, make sense and act, with greater data fidelity. This data domain gains resilience by leveraging private and public cloud environments holistically. Dynamic Targeting is enhanced by ubiquitous access to ISR Data, access hardened by a hybrid cloud approach.



Questions and Discussion



Thank You!

