



NEW as a Forcing Function to Rethink System Engineering Process

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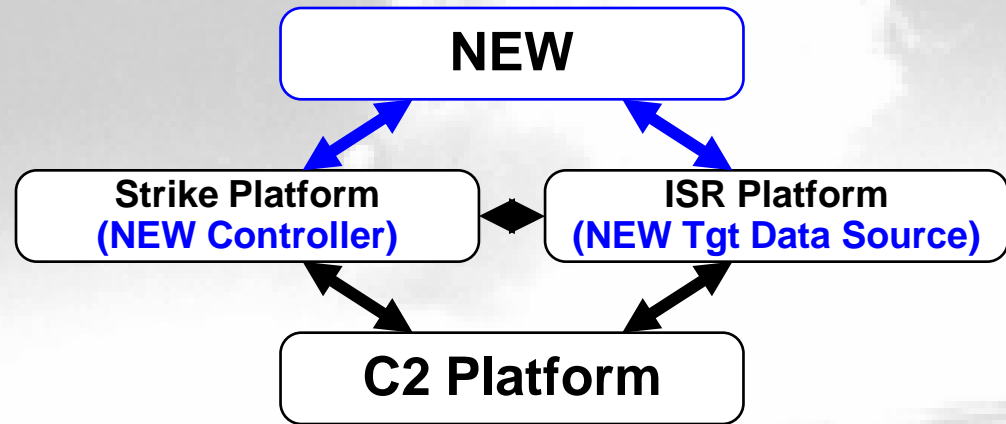
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28 Oct. 2009



Net Enabled Weapons (NEW)

- Weapons with a data link integrated and interoperable with shooters, sensors, and C2 throughout the kill chain to enhance weapon effectiveness and target selectivity

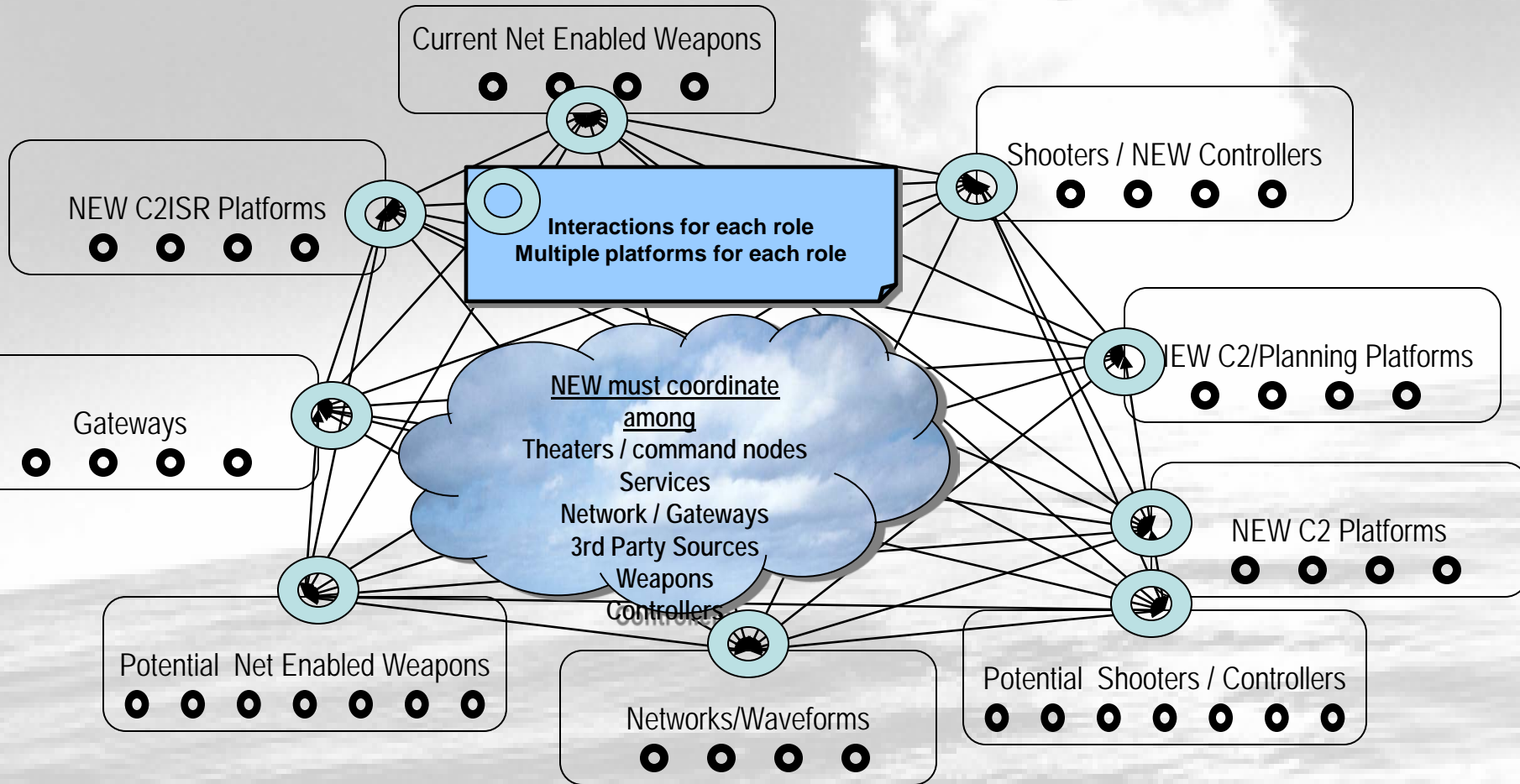


- Key players
 - Weapon
 - Shooter / Controller
 - 3rd Party Source
- Key challenges
 - NEW digital communication must be complete and deterministic
 - First data link node without a human or voice backup
- Key digital messages
 - In Flight Target Update (IFTU)
 - Re-target
 - Abort
 - Weapon in Flight Track (WIFT)
 - Bomb Hit Indicator (BHI)



NEW Roles and Complexity

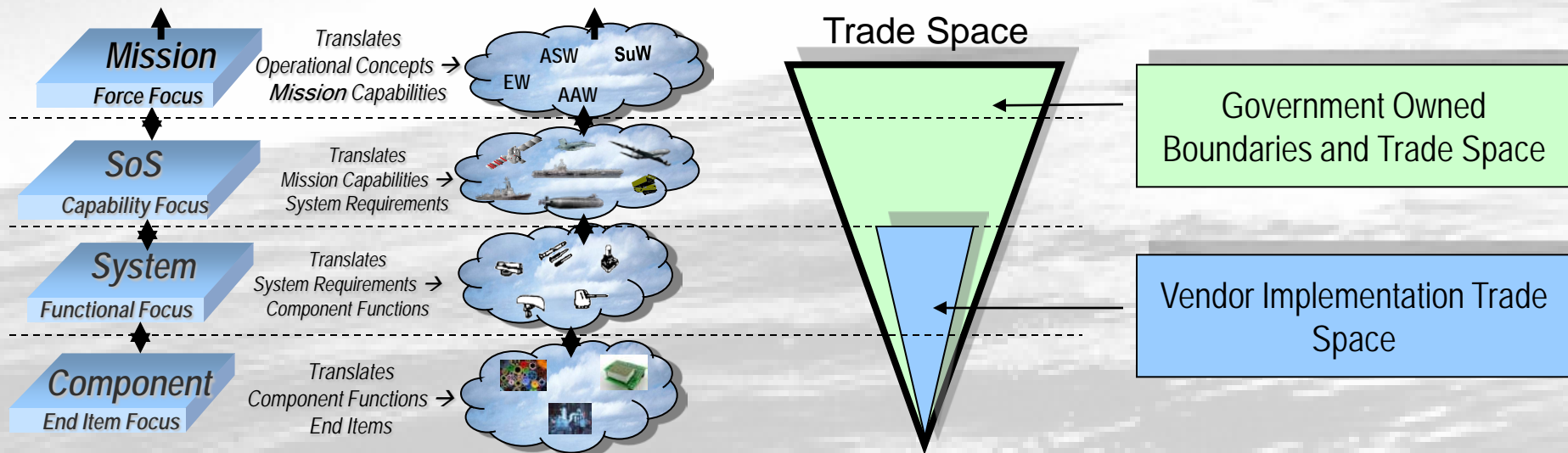
Combination of currently funding programs, existing platform capabilities, and upgrade requirements



**Government Must define system information transaction requirements for each role.
Too Complex with Too Many Players for stove piped solutions**

Early Systems Engineering

- Systems Engineering early in the acquisition phase
 - Well defined system trade space that accurately takes into account the mission and SoS trade space prior to system development
- Government defined / declared information transactions
 - Any Platform-to-Platform interaction





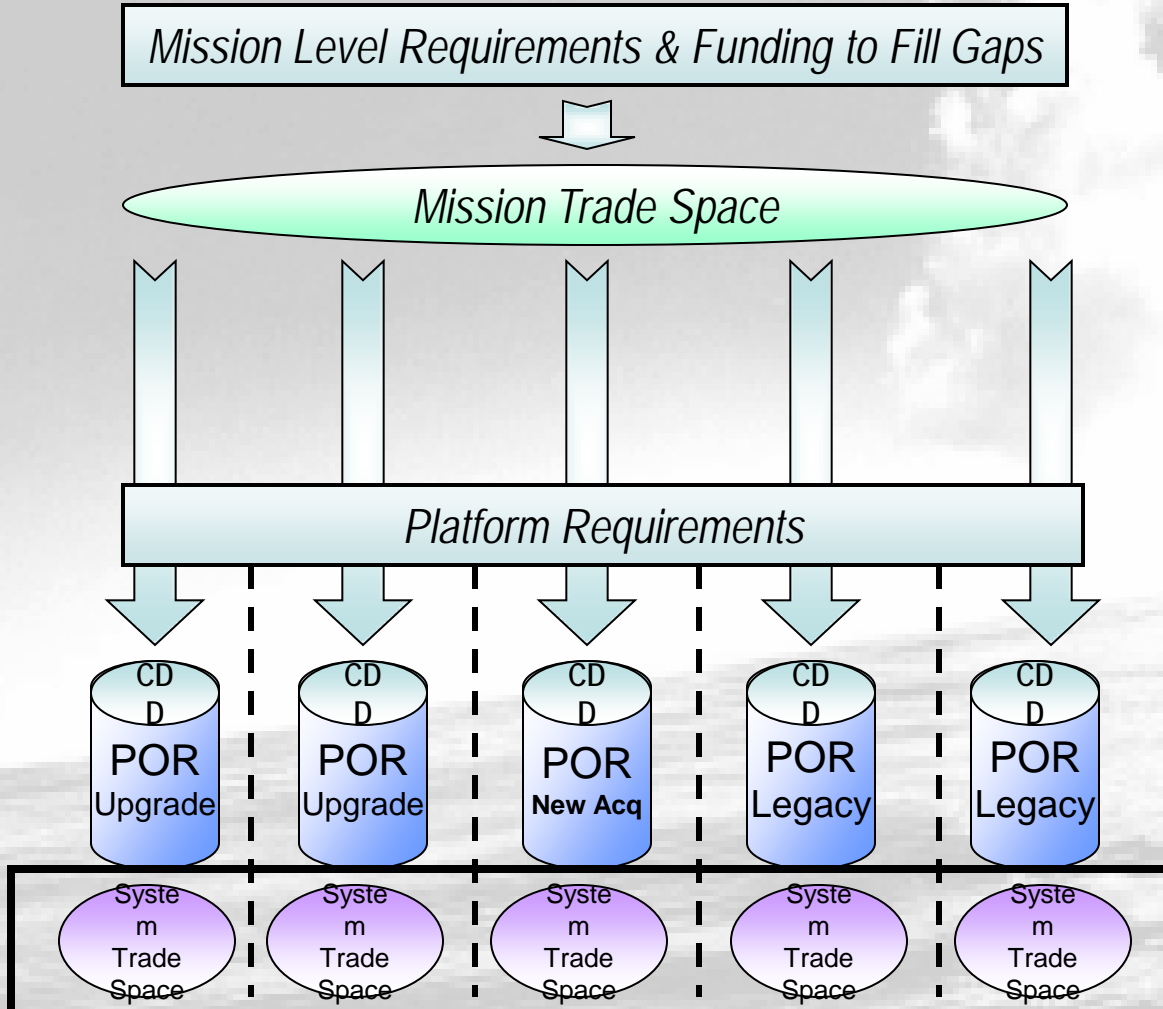
Government Declared / Designed Information Transactions

- NOT just a standards document
- Technical design effort to provide engineering solutions
- Products
 - Validation of interface control document (ICD) prior to POR software development
 - Minimum implementation requirements for programs across mission areas and SoS
 - Provide a software implementation of information transactions / standards
 - Removes ambiguity
 - Reduce software development time by ability to continually test during software development

Process has been developed, implemented, and demonstrated for NEW



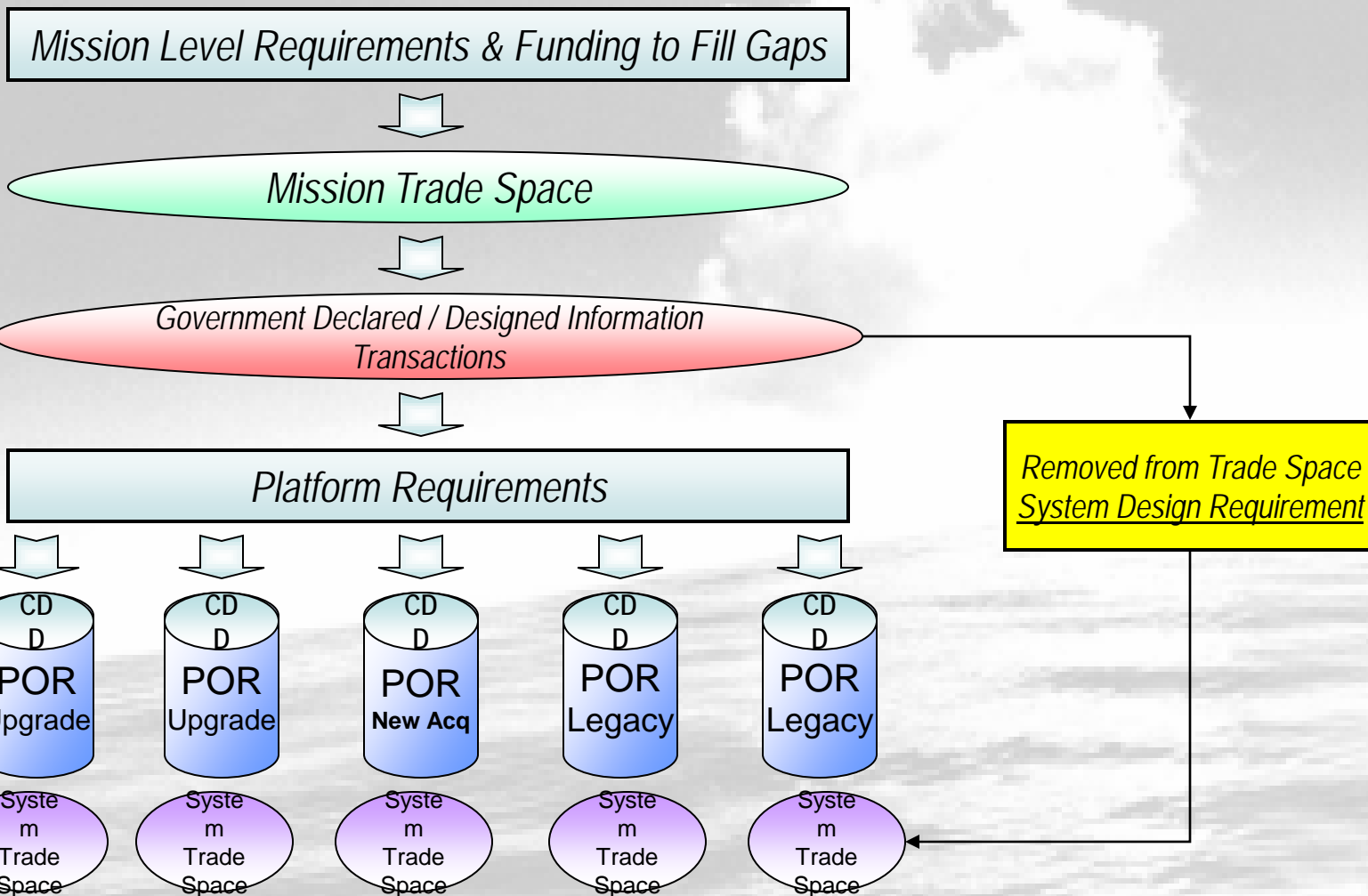
Current Requirements Flows



System Trade Space Includes Information Transactions → Creating Unique, “Stove Piped” Solutions



SI Pre Milestone A

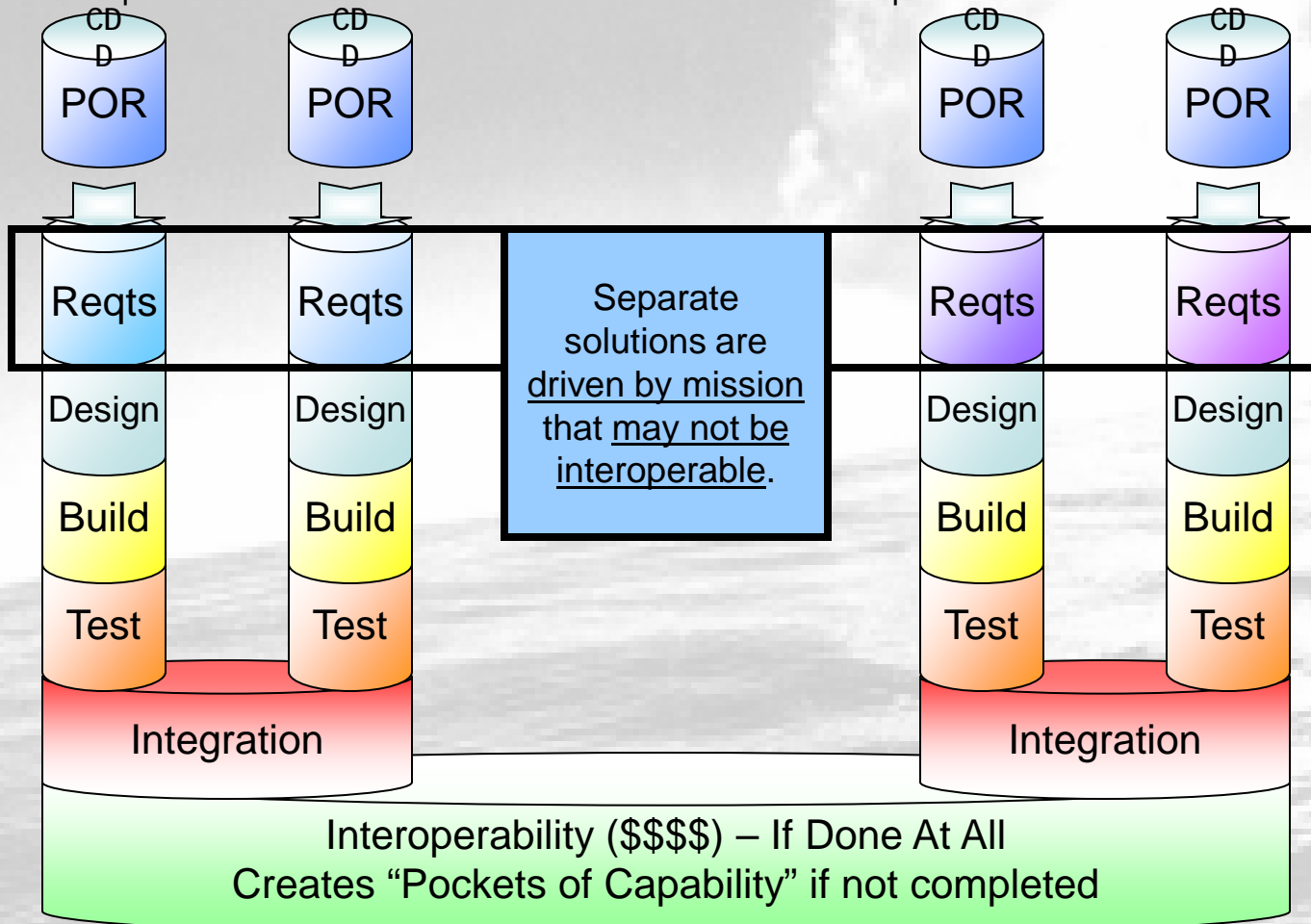


Government Driving Engineering Solutions to System Requirements for ALL Applicable Programs.
Driving Interoperable Systems

Traditional Systems Integration

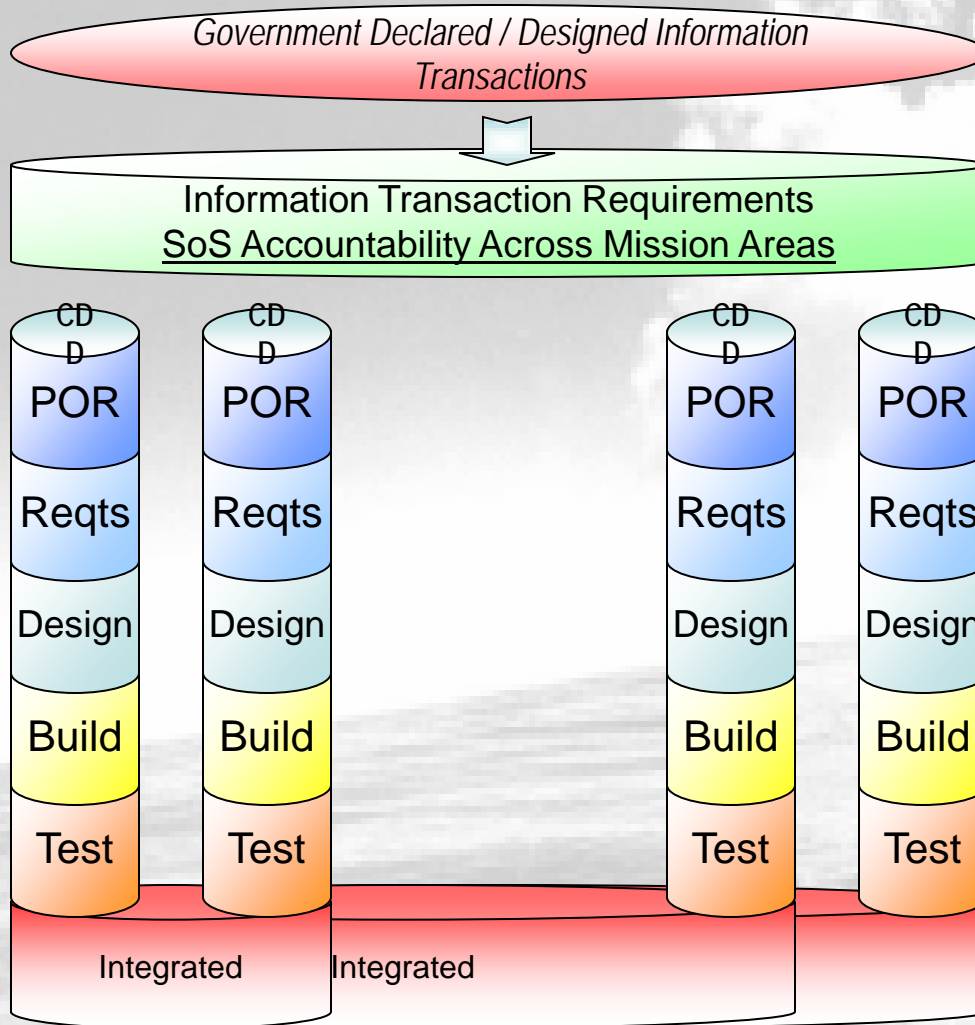
- PORs have requirement to integrate for Mission A
 - Potentially Similar starting requirements

- PORs have requirement to integrate for Mission B
 - Potentially Similar starting requirements





Horizontal Development



Upfront Government Declared / Defined Information Transaction Requirements Will Create Interoperable PORs with more predictable cost and schedule



Summary

- Can not afford to drive unique solutions
 - Increasing need due to financial constraints to the defense budget requires the need for programs to function across multiple mission areas
 - Increased need for interoperable capability and SoS requirements across missions
- Need to “Fund like we fight”

NAV  AIR