

MMSOC GSA: Standards and Architecture Enabling Multi-Mission Interoperability

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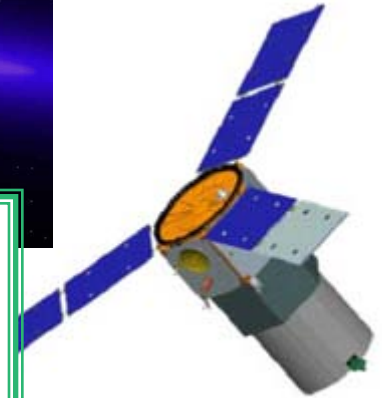
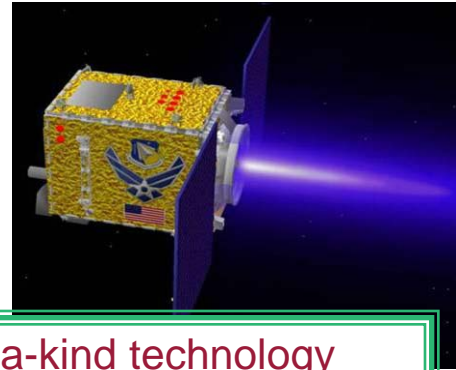
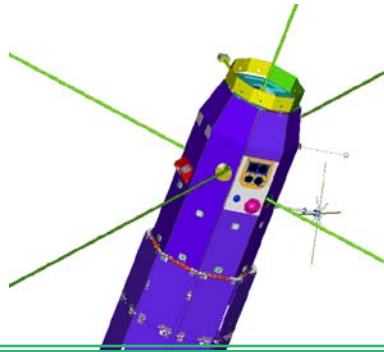
SMC/Space Development & Test Wing/Responsive Space Command & Control

24 March 2009



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Introduction



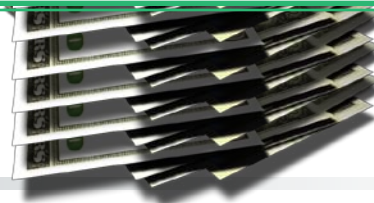
Mandate: To fly various one-of-a-kind technology demonstrations and other space-based mission for Research, Development, Test and Evaluation and responsive space operational communities.

Challenge: Execute the mandate using limited personnel while lowering development and sustainment costs and reducing schedule without increasing technical risk.

RDT&E: Supports all aspects of the RDT&E mission

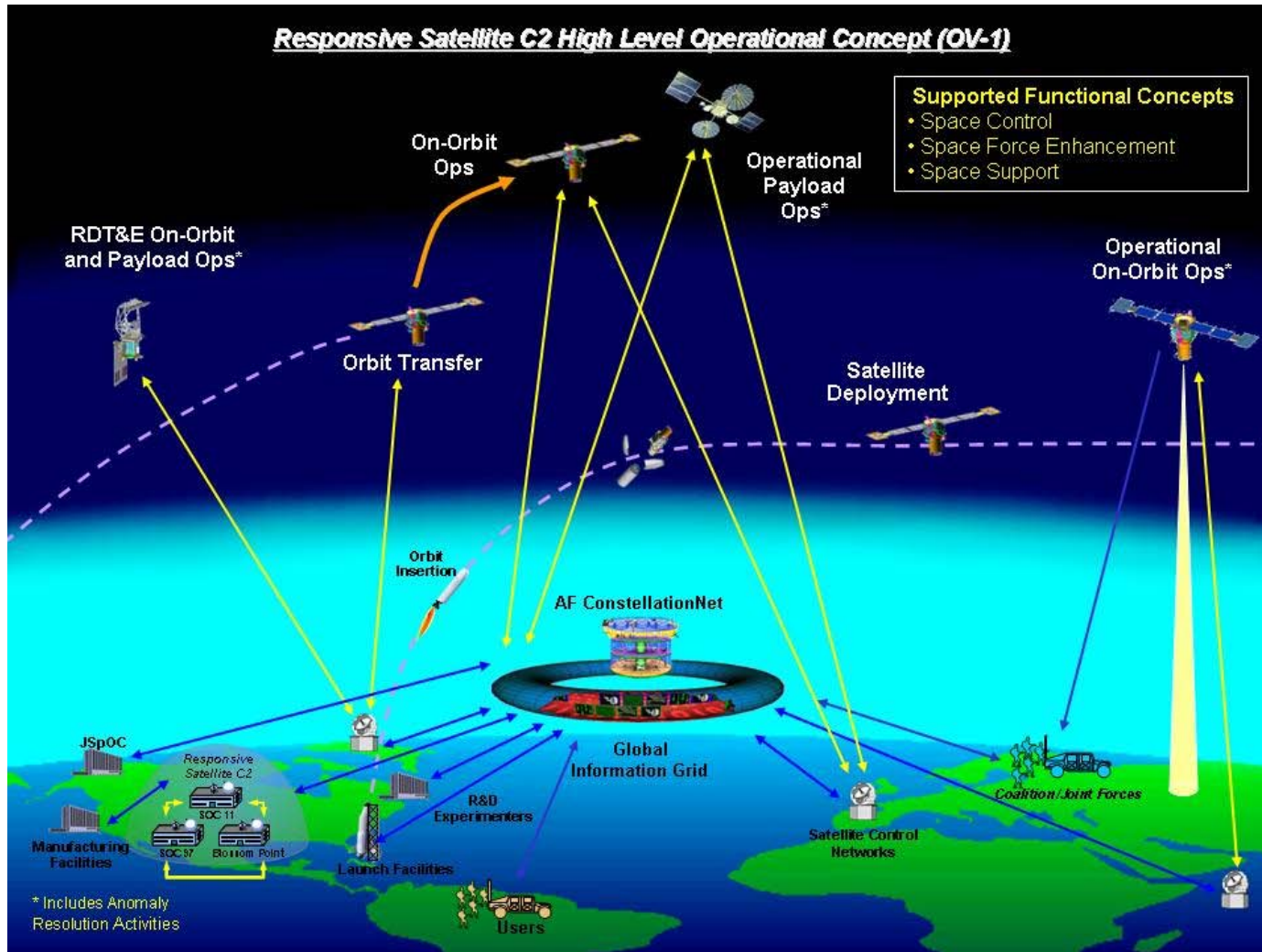
COCOM: Facilitates transfer of RDT&E satellites

ORS: Pathfinder; AF's primary ORS satellite C2 capability



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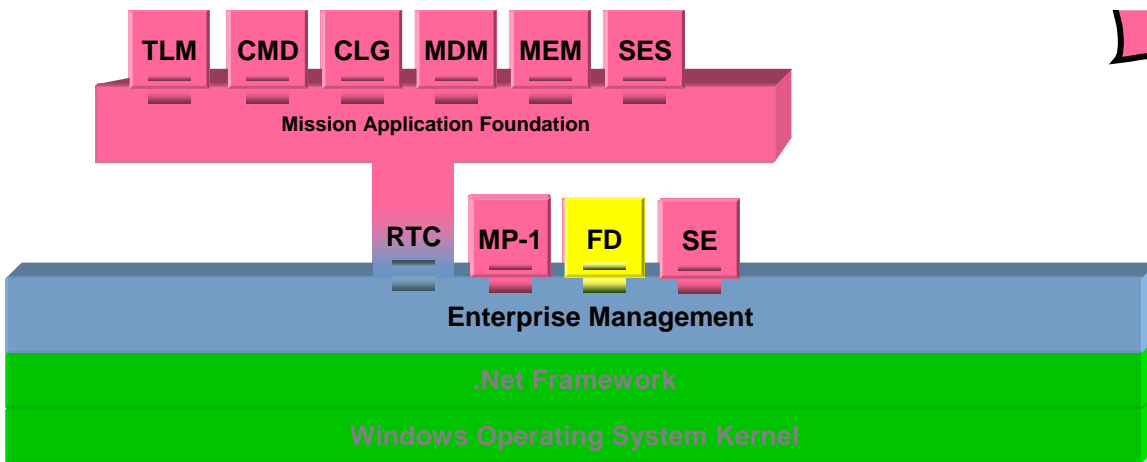
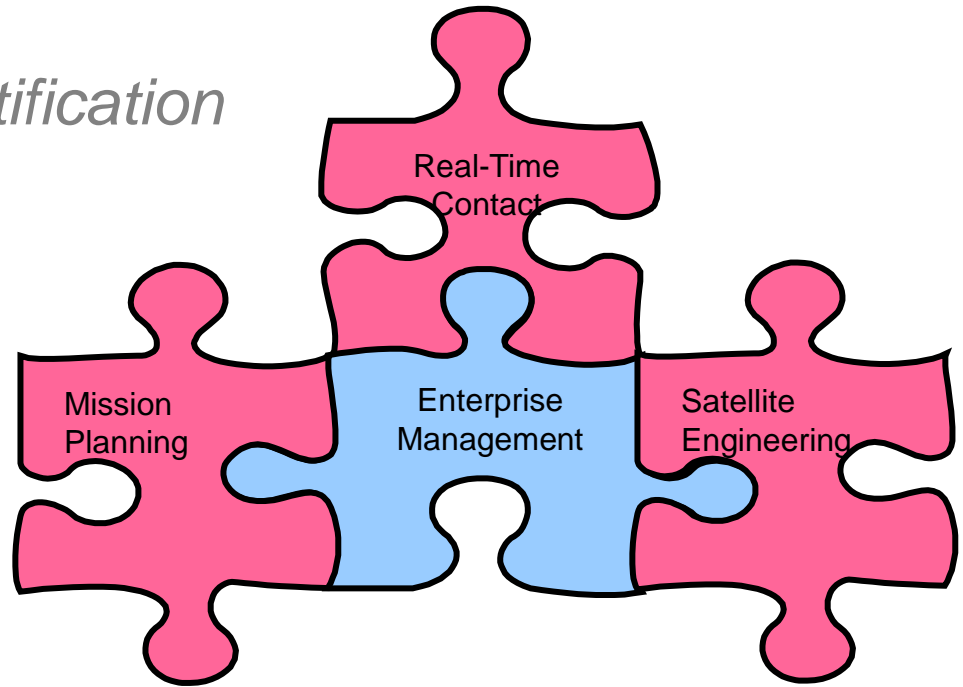
Approach → Architecture Development



<https://wwwd.my.af.mil/afknprod/ASPs/docman/DOCMain.asp?Tab=0&FolderID=OO-EA-AF-SP-18-2-21-9&Filter=OO-EA-AF-SP>

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Approach → Solution Identification

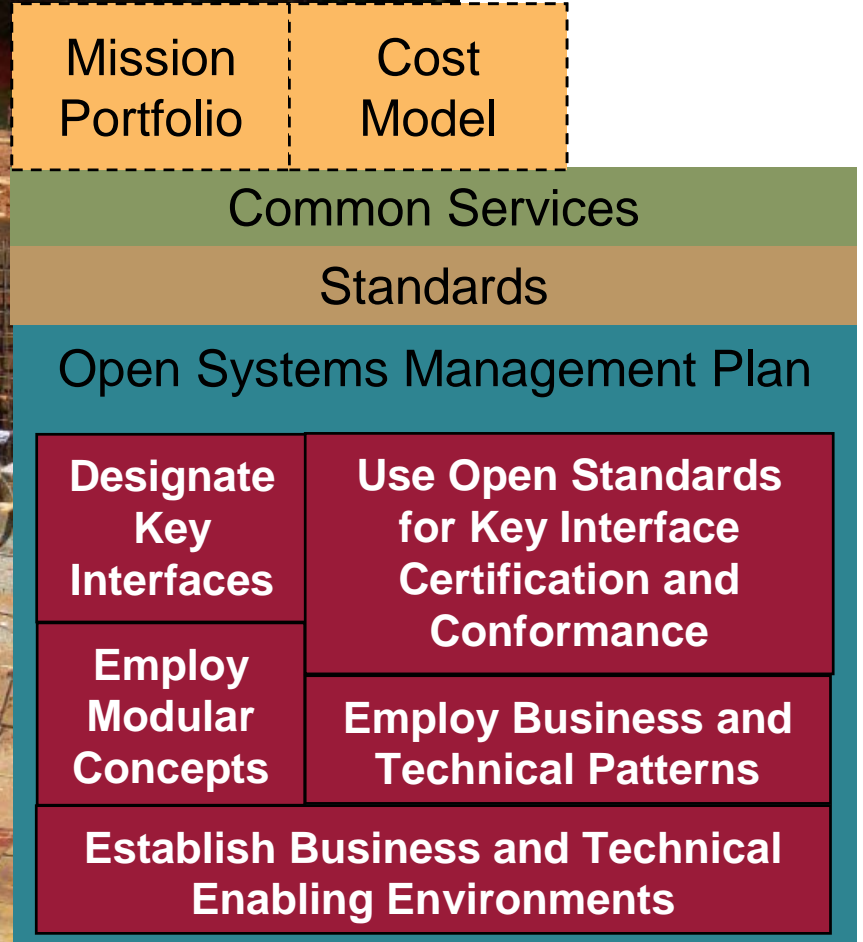


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Approach → Foundational Document Development



Photo courtesy of: www.cv.nrao.edu/photos/First_Floor_Foundation



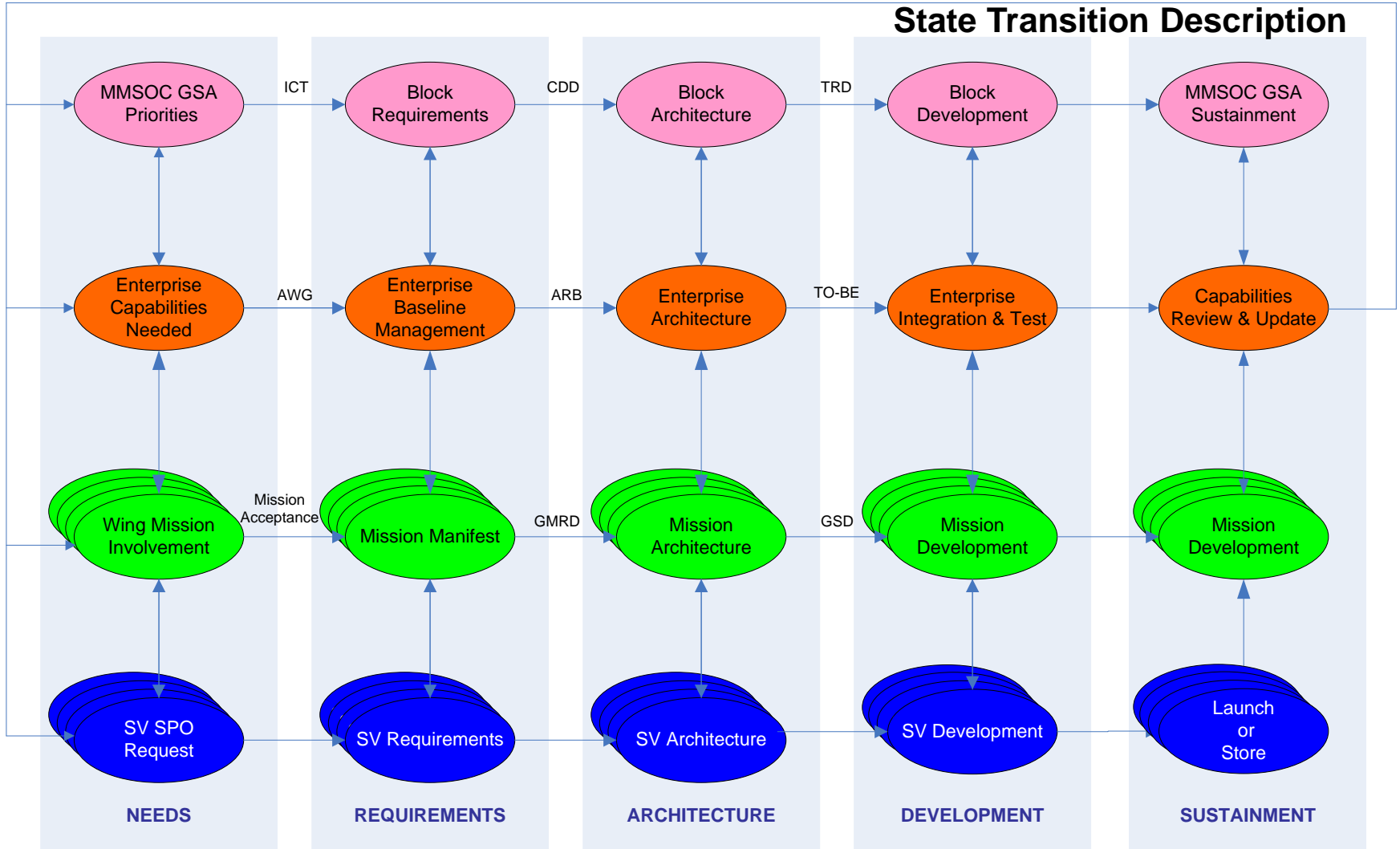
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Approach → Upgrade/Improvement Cycle

A1

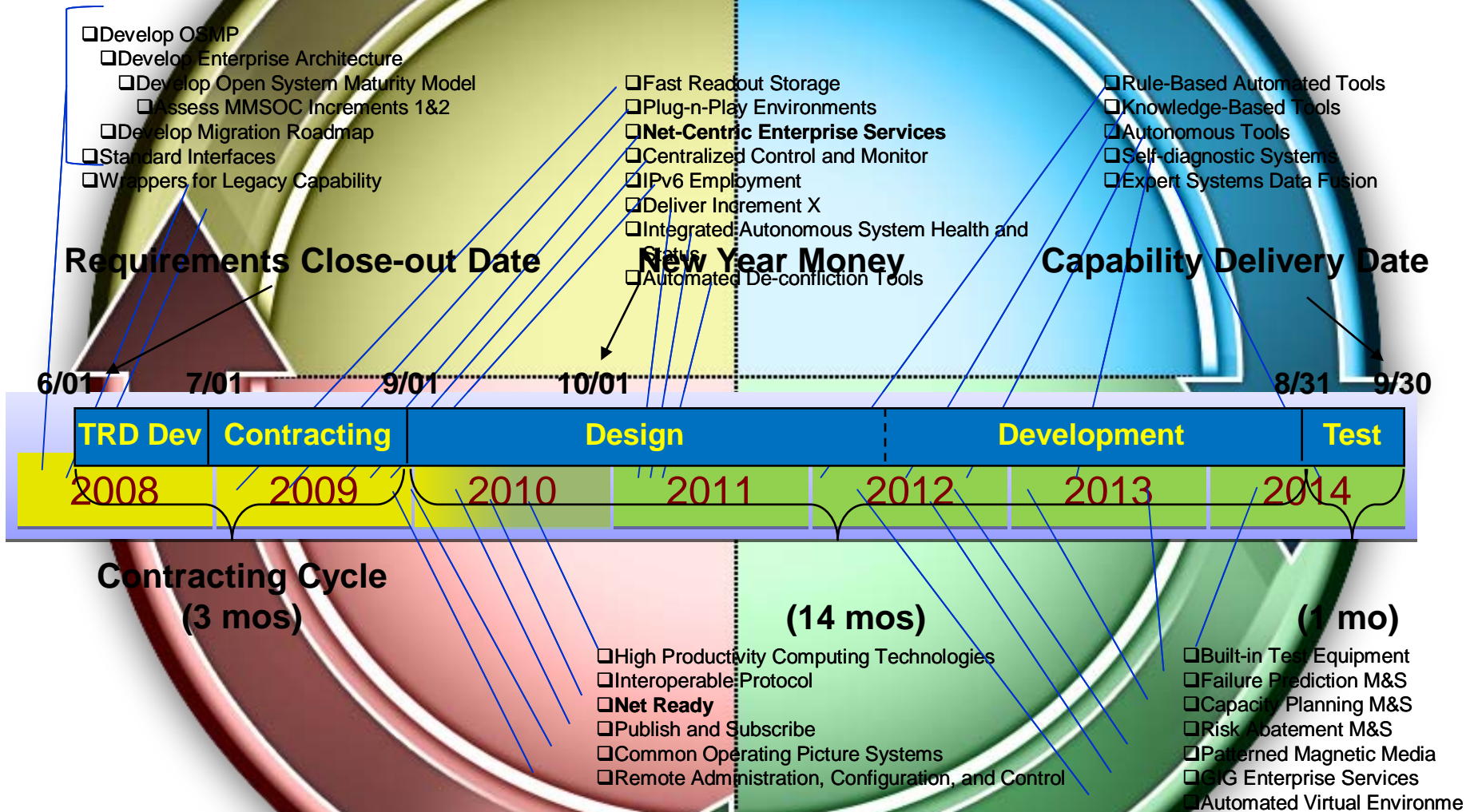
Acquire RSO Capabilities State Transition Description

AS-IS



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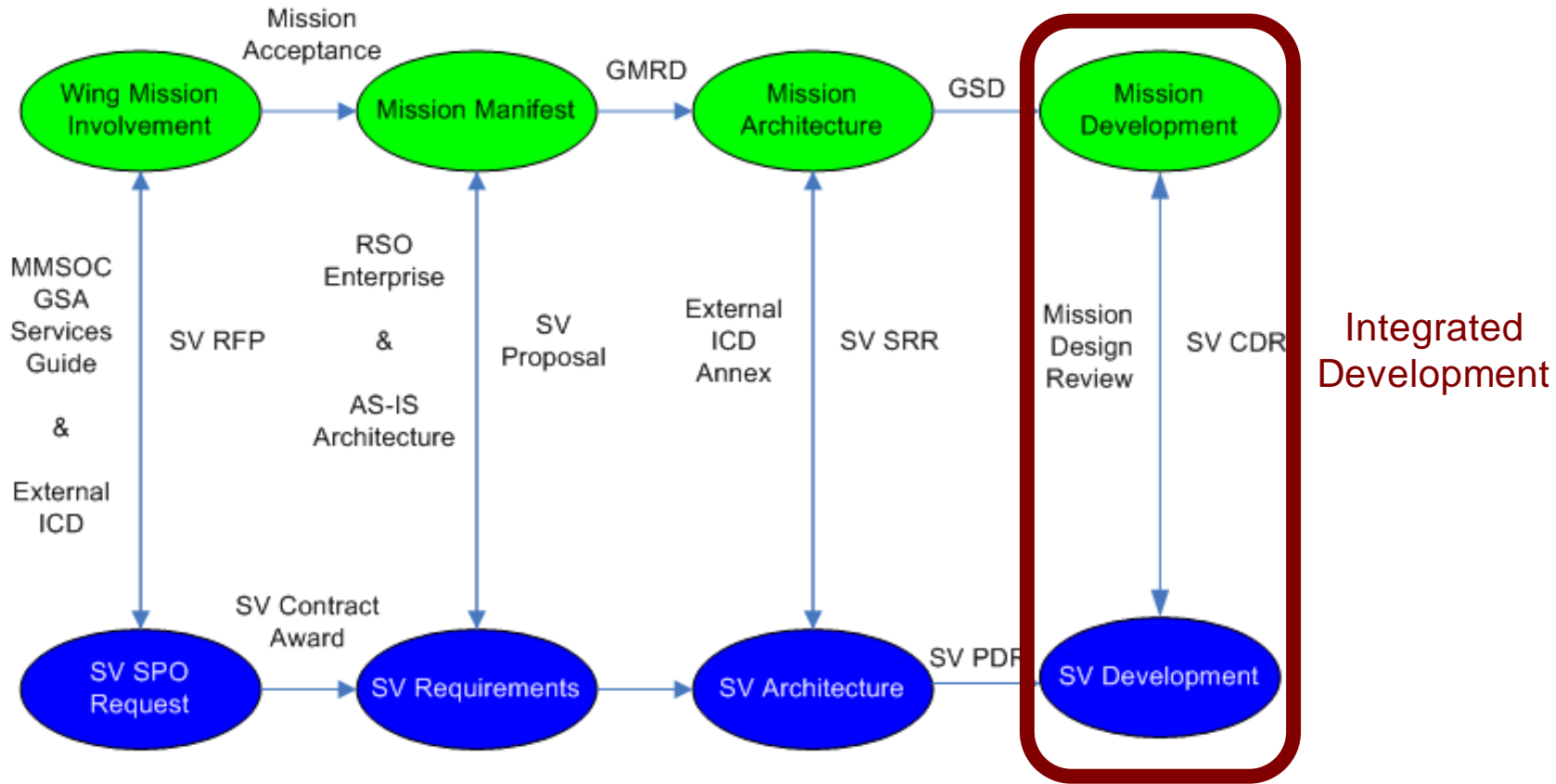
Approach → Upgrade/Improvement Cycle



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Approach → Upgrade/Improvement Cycle

GSA-Common
GSE & GS Development



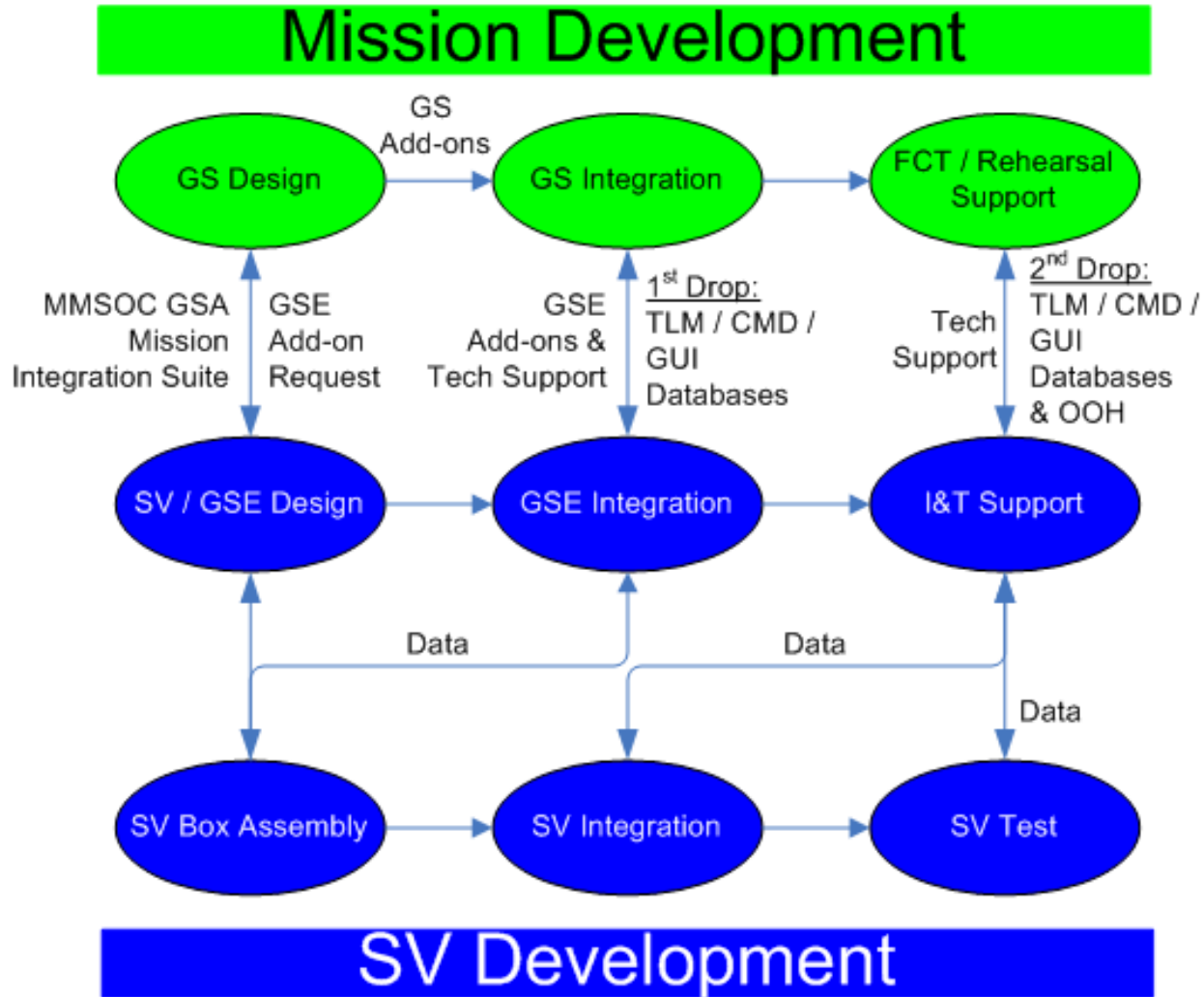
Spacecraft manufacturer and SDTW both use the GSA CMD/TLM system to support the vehicle AI&T and on-orbit operations

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Approach → Upgrade/Improvement Cycle

MI-1

Integrated Development



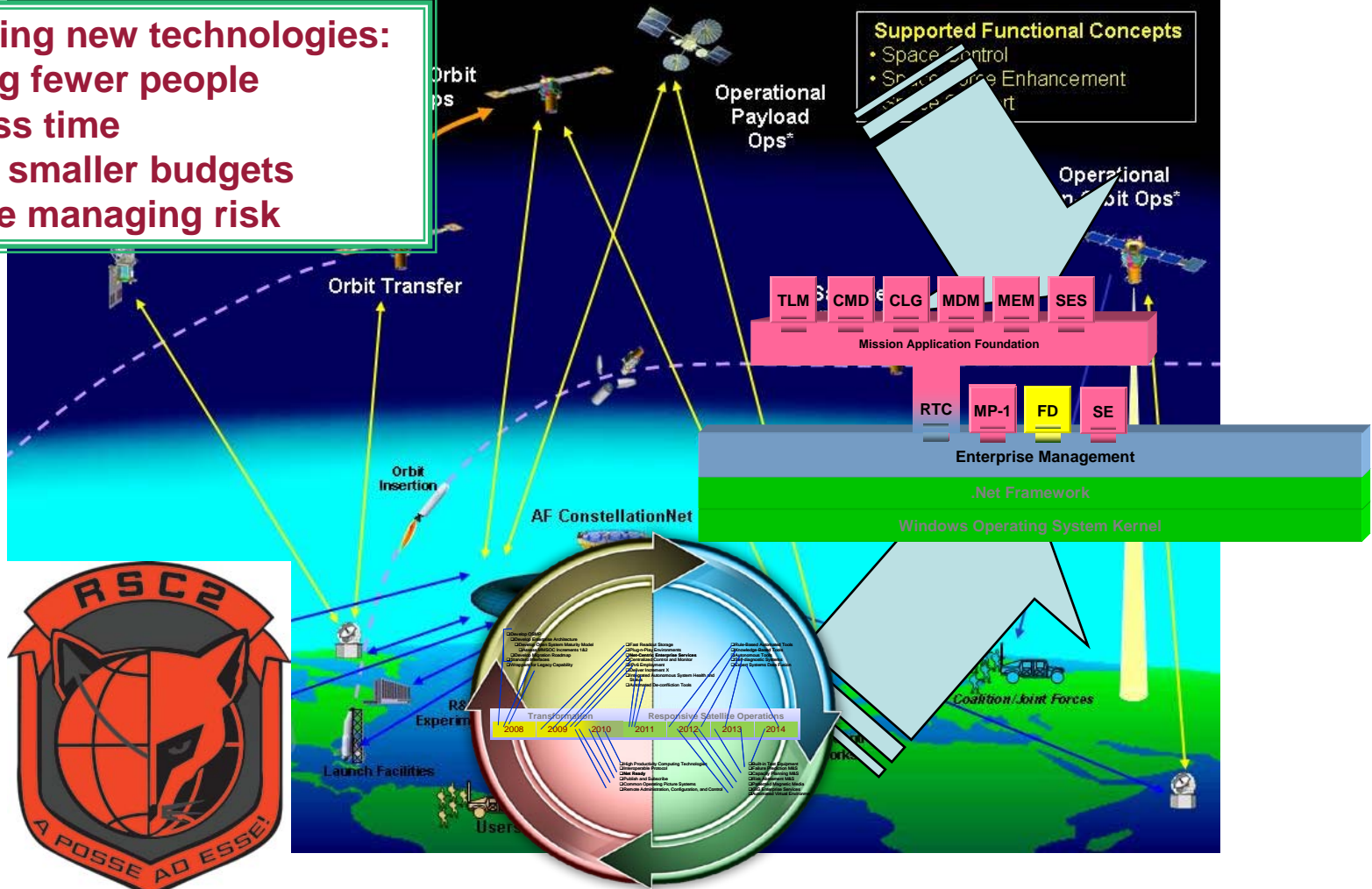
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Conclusion

Responsive Satellite C2 High Level Operational Concept (OV-1)

Exploiting new technologies:

- Using fewer people
- In less time
- With smaller budgets
- While managing risk



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Questions & Discussion



Authors

- **Ms. Gayla Walden** is the system engineer for the MMSOC GSA and the Mission Unique capabilities for its first mission. An employee of The Aerospace Corporation for over 21 years, she is Systems Director of Flight Operations and Ground System Engineering in Albuquerque.
- **Ms. Francesca Malzahn** is the Director for the RS C2 division and Program Manager for the MMSOC GSA development activity. She has 12 years of experience in space and missile operations and acquisition; specifically, space-based missile warning, ICBMs and Research & Development programs.
- **Mr. Charles Warrender** is the Chief Architect for MMSOC GSA and the RSC2 division. Continuing to serve beyond active duty, he is a civil servant with over 24 years of space operations experience.