



ACAST Workshop – 16-17 August 2005



## ACAST Workshop 2005

*Space-Based Technologies Project*

# Surface and Terminal Subproject Review

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## Surface and Terminal Subproject Review

- Subproject Overview – Rafael Apaza  
Surface ICNS Network  
Terminal Area Communications
- MLS Band Channel Sounding Measurement Campaign  
I. Sen, Ohio University
- Laboratory and Ground Development Plan  
Rafael Apaza, FAA R&D
- Terminal Communications Requirements Study  
Chris Wargo, CNS Inc.



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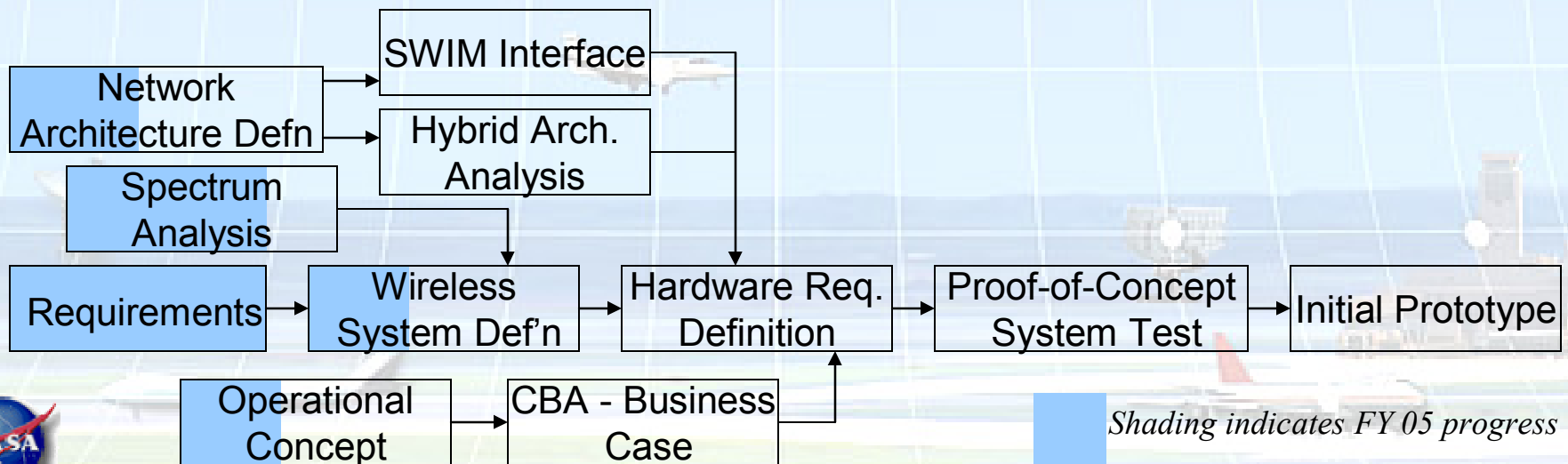
## Surface and Terminal Subproject Review

### Surface ICNS Network

**Goal:** A wireless surface communications network prototype that supports NAS transformation by initiating the implementation of network centric concepts while improving airport surface operations.

**Rationale:** Airport surface is the best place for initial migration of network centric operations into NAS. Very high motivation for improvement of airport surface communications capabilities.

**Final Product:** Successful demonstration of wireless communications network prototype in a relevant environment.



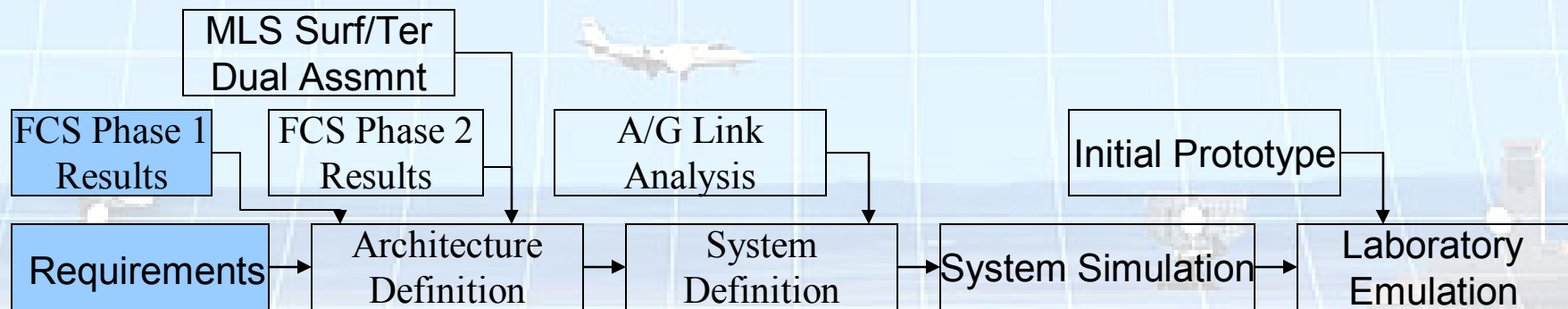
## Surface and Terminal Subproject Review

### Terminal Area Communications

**Goal:** Initiate research and development on robust, next-generation air-ground communication architectures and technologies.

**Rationale:** Increased demand for digital air-ground communications. Existing VHF systems impose limitations on airspace capacity.

**Final Product:** Next generation Terminal area communications system definition.



Shading indicates FY 05 progress



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## Surface and Terminal Subproject Review

### Surface ICNS Network – FY 2005 Results and Accomplishments

- Channel Sounding and Interference Characterization – Develop a measurement plan, perform sounding campaigns at three airports, and document findings (Presentation to follow)
- Laboratory and Ground Development Plan – Develop a laboratory and ground plan that enables demonstration of basic surface communications performance capabilities for air-ground and ground-ground user requirements (Presentation to follow)
- Network Architecture Definition – Analyze applications and define a surface network architecture.





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## Surface and Terminal Subproject Review

### Surface ICNS Network – FY 2005 Results and Accomplishments

- Network Architecture Definition Task:
  - Objective - Analyze applications and define a surface network architecture that meets current and future surface communication needs.
  - Accomplishments:
    - Completed requirements and application analysis.
    - Identified networking and protocol evaluation issues that will address network analysis, architecture and design/definition.
    - Started work on 802.16 OPNET models.





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### Terminal Area Communications – FY 2005 Results and Accomplishments

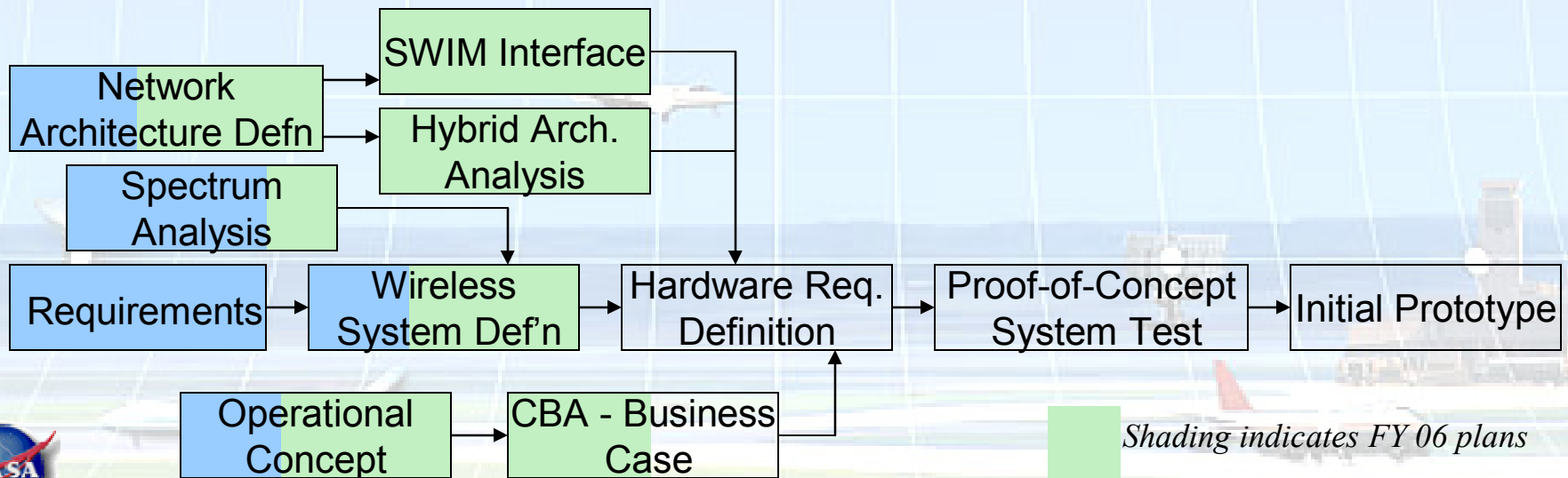
- Terminal Communication Requirements Study – Gather current and future user communications requirements at terminal flight domain Class B and Class C airspace.
- Future Communications Study Phase 1.



## Surface and Terminal Subproject Review

### Surface ICNS Network – FY 2006 Planned Tasks

- SWIM Interface Definition
- Hybrid Architecture Analysis
- Wireless System Definition
- Concept of Use Development
- Cost Benefit Analysis
- Laboratory Development

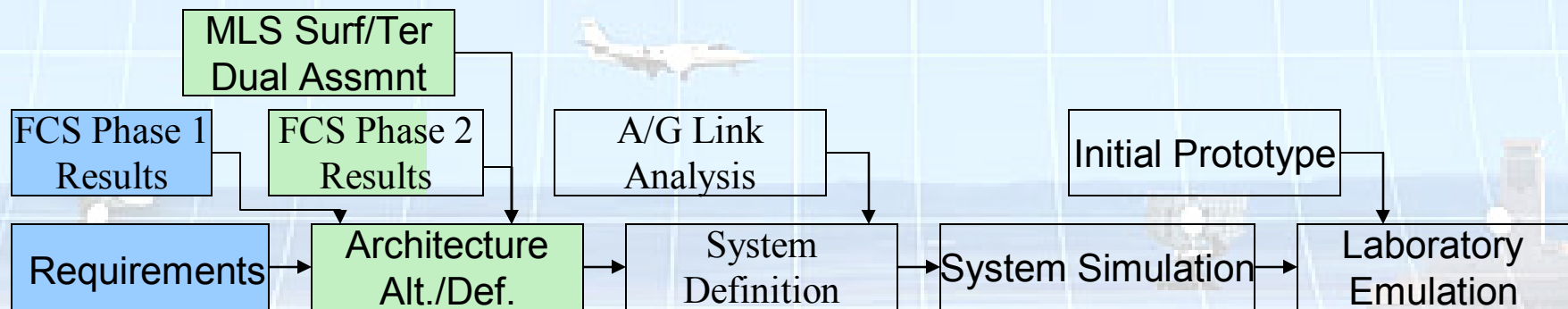




## Surface and Terminal Subproject Review

### Terminal Area Communications – FY 2006 Plans

- Terminal Area Architecture Alternatives
- MLS Surface/Terminal Dual Use assessment
- Terminal Area Architecture Definition
- Future Communications Study Phase 2



Shading indicates FY 06 plans