Session E Team

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ICNS on Airport Surface

- ***Develop wireless CNS airport network to distribute CNS information to all***

Objective/Scope/Need:

- Start by defining requirements– don't jump to technology first
- Not exclusively wireless – use copper and fiber as well
  - Security and bandwidth trade-offs
- Be sure effort is coordinated with Terminal System Architecture
- Emphasize open systems and commercial standards
- Must be a scalable solution – various sophistication

Surface ICNS

Other Relevant Work

- SMS at AMES
- NEXCOM role on Airport Surface
- Commercial and military products – Gatelink, etc
- Development of secure wireless networks (e.g. DOD, Banking)
- ADS-B on surface
- DROMS (Dynamic Runway Occupancy Monitoring Systems)

Surface ICNS

Possible/Required Collaboration

- FAA
- Airlines and users
- Airports
- Industry
- Avionics
- Academia
- Standards Bodies (ICAO, RTCA)
- Other NASA centers
- Government Agencies (DoD, TSA, DHS, etc.)
- EuroControl and other CAA's

Surface ICNS Breakout

Test and Demonstration

- Demonstrate overall objectives and abilities to transfer mission-critical and non critical information
- Establish Progressive Testing Methodology – Incremental demonstration of capabilities (perhaps start with simulation)
- Should be conducted at a real airport without compromising the safety of operations
    - EMI Compatibility
- All stake holders should be involved
- Demonstrate robustness and EMI resistance
- Demonstrate under varying environmental conditions

Surface ICNS Breakout

<u>Other issues, technologies, products, needs</u>

- Address the business model/cost benefits analysis
  - Who will pay, operate, own etc. ?
- Transition Strategy from today's systems
- Failure modes and robustness
- Security and information access control
- Scalability, different service levels (user classes) and different airports
- Technologies might include Ultra Wide Band, 802.11g, ASDE-X
- The output is a "Standard" supported by Proof-of-Concept

Success Metrics

- Surface ICNS
  - Acceptance of Surface ICNS by user community
  - Successful demonstration of test bed capabilities/meets all original objectives
  - Spectrum availability for Surface ICNS
  - Development of Standards for Surface ICNS
- NExTNAS
  - Implementation of at least 2 out of 10 products

In achieving success NASA needs to think beyond FAA.