Impact of the IT Revolution on the Airspace System

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The Challenge

Significantly increase Airspace System capacity

- Maintain safety during all operational phases
- Address changing security concerns, issues
- Stakeholder requirements
- Aircraft equipage issues
- Ground side constraints
- The Human Factor
- Confidence in technological and other solutions

What do we have to work with?
How NASA is building on these technologies
NASA ATMSDI Program

Bridging the gap between research and application
Key elements of Raytheon VAMS Terminal Area Concept:

• Accurate 4D Trajectory Calculation
• Aircraft execution of required trajectories
• Highly reliable and secure data link
• Reduced (precision) separation
• Improved surveillance
  • WAAS enhanced GPS
  • Multi-sensor surface surveillance fusion
  • Mode S MSSR
• Airborne self separation
• Complex finals - curvilinear, multi-aircraft formation landings
• Optimized taxi routing
• Integrated Terminal Area information network (all stakeholders)
Terminal Area Enhancement Concept

- Operational Algorithms
  - Surveillance Data
  - Local Weather
  - All 4-D Traj's
  - A/C Performance
  - Environmentals
  - Surface Status
  - Gate Status

Terminal Area

Maximize Terminal Area Throughput

Turning Goals Into Reality 2020