

Data Communications

Status Update

Presented to: ICNS

By: Sandy Anderson

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Federal Aviation
Administration



Mission

Improve ATO efficiency

Enhancing productivity of controllers

Increase NAS capacity

BY

Enabling advanced operations to reduce resource needs

Enhance air traffic safety

Reducing communications errors related to voice

- **Data Communications provides:**

- Two-way data between controllers, automation and flight crews
- Safety-of-flight air traffic control clearances, instructions, traffic flow management, flight crew requests and reports
- Automation enhancements for ATC message generation and exchange
- Communications link carrying data between aircraft and air traffic managers

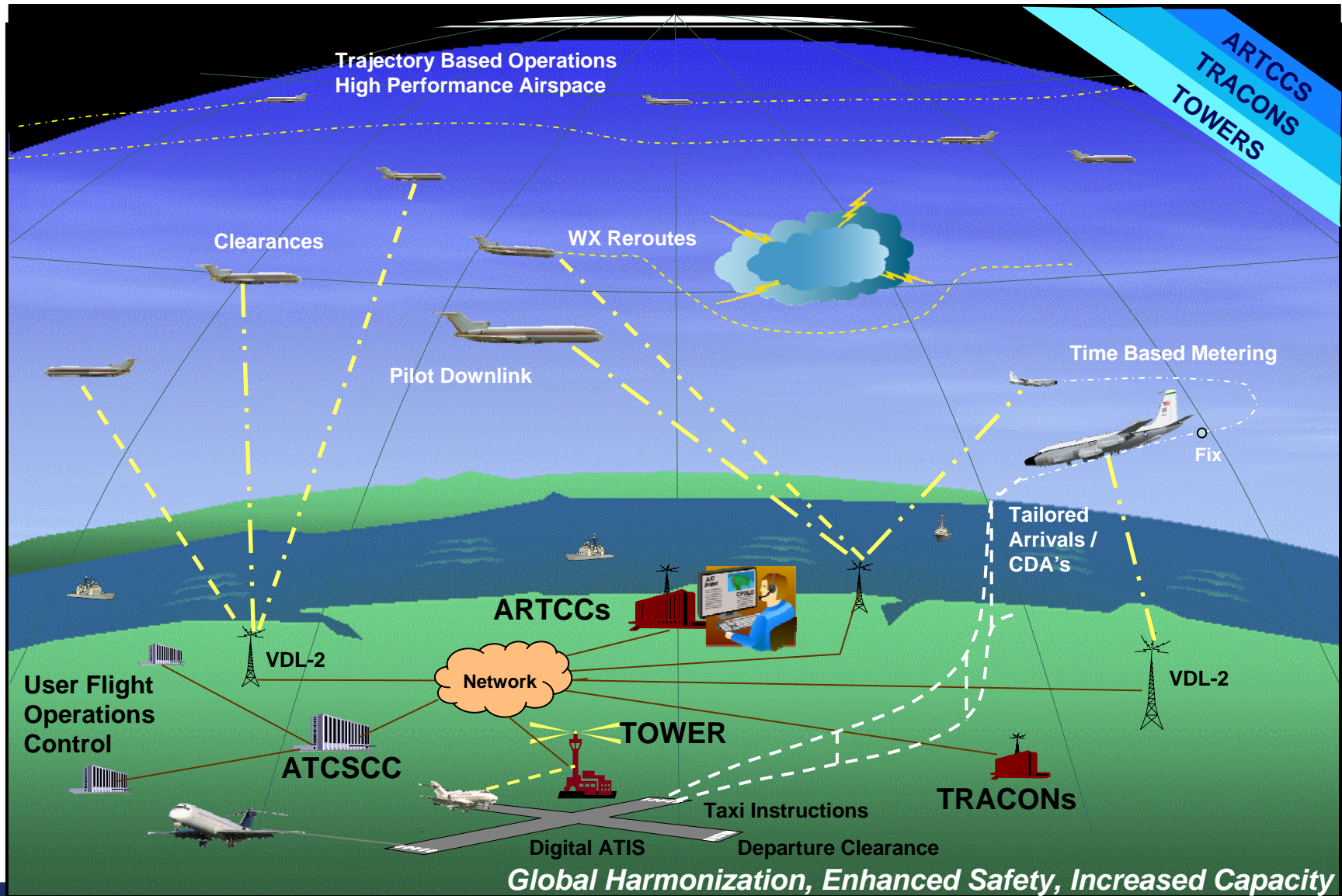
Contributions to NextGen

Air Traffic Operations

Trajectory Based Operations	<ul style="list-style-type: none"> • <i>Trajectory Based Airspace</i> • <i>Conflict Resolution</i> 	<ul style="list-style-type: none"> • <i>Automated Clearance Messaging</i>
High Density Arr/Dep Terminals and Airports	<ul style="list-style-type: none"> • <i>Initial Surface Traffic Management</i> 	
Flexible Terminals and Airports	<ul style="list-style-type: none"> • <i>Use Continuous Descent Arrivals to Support User Efficiency and Noise Reduction</i> • <i>Enhanced Tower Data Link System</i> 	
Collaborative ATM	<ul style="list-style-type: none"> • <i>Execution of Flow Strategies</i> 	<ul style="list-style-type: none"> • <i>On-Demand NAS Information</i>
Reduce Weather Impacts	<ul style="list-style-type: none"> • <i>Weather avoiding trajectories and rapid resumption of post-weather traffic flows</i> 	
Safety, Security and Environments	<ul style="list-style-type: none"> • <i>Data Comm provides clearer, enduring communications which will increase the level of safety in the NAS.</i> • <i>Tailored Arrival Procedures / Idle descents that reduce emissions</i> 	
Transform Facilities	<ul style="list-style-type: none"> • <i>Enabling flexible facilities</i> 	
Aircraft & Operator Requirements	<ul style="list-style-type: none"> • <i>Communicates with the Aircraft</i> 	



Data Communications CONOPS



Evolution of the Air Traffic Clearance

TODAY: Voice Only

Controller: “Continental 2316 I have a revision to your routing due to weather advise when ready to copy.”

Pilot: “Continental 2316 Ready to copy.”

Controller: “ Continental 2316 Cleared to Raleigh Durham via when able proceed direct to Palm Beach, Vero Beach, Orlando J53 Jacksonville rest of route unchanged, maintain flight level 330.”

Pilot: [Reads back clearance.]



INITIAL DATA COMM

UM79:CLEARED TO (RDU) VIA (PBI..VRB..ORL.J53..JAX)

UM75: WHEN ABLE PROCEED DIRECT TO [PBI]

DM0: WILCO



Integrated Capabilities

FINAL Evolution of the Air Traffic Clearance New Language Composed by Automation

- Route: ESSAESMS10
- -----starts here-----
- 1,,N59397E017581.
- 1,R,113,N59401E018009,108,090122.
- C,,N59376E018019,500,090227.
- 0,R,557,N59359E017585,769,090300.
- 0,L,934,N59302E017443,1279,090456.
- 0,,N59070E017184,2511,090907.
- 0,R,1893,N59044E017155,2604,090932.
- B,,N58515E016548,3032,091149.
- 8,,N58380E016335,3500,091408.
- 0,,N58366E016312,3500,091423.
- 0,,N57592E015342,3500,092051.
- 0,,N57388E015041,3500,092420.
- 0,,N57024E014122,3500,093032.
- 0,,N56455E013489,3500,093323.
- 9,,N56354E013354,3500,093504.

Point Type
Fly-by waypoint

Turn Direction
Left

0,L,934,N59302E017443,1279,090456

Turn Radius
9.34 NM

Lat / Lon
N59°30.2'
E017°44.3'

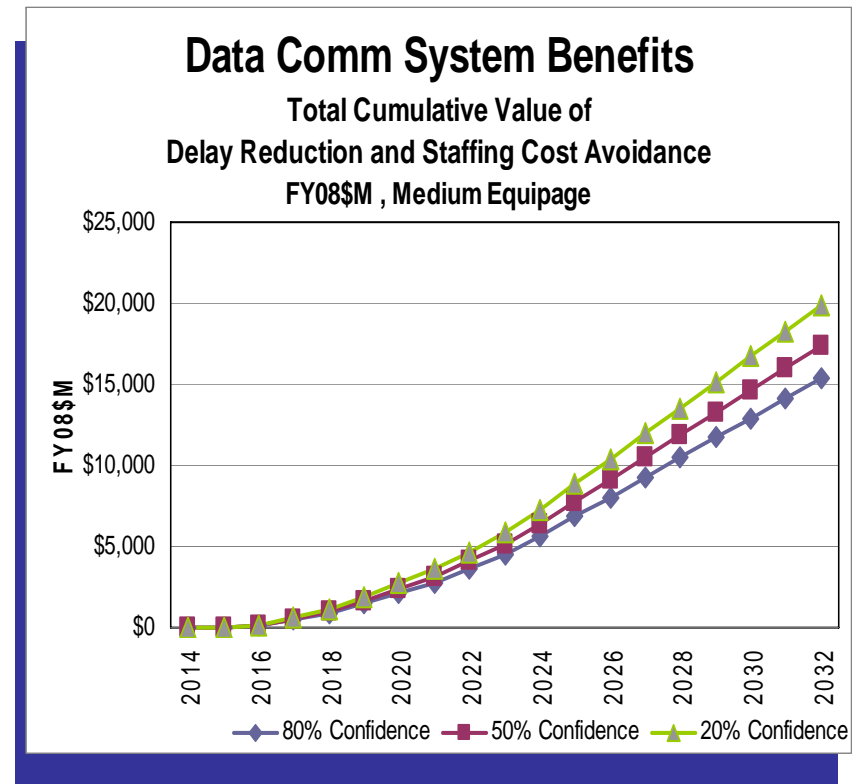
Altitude
12,790 feet

Time
09:04:56

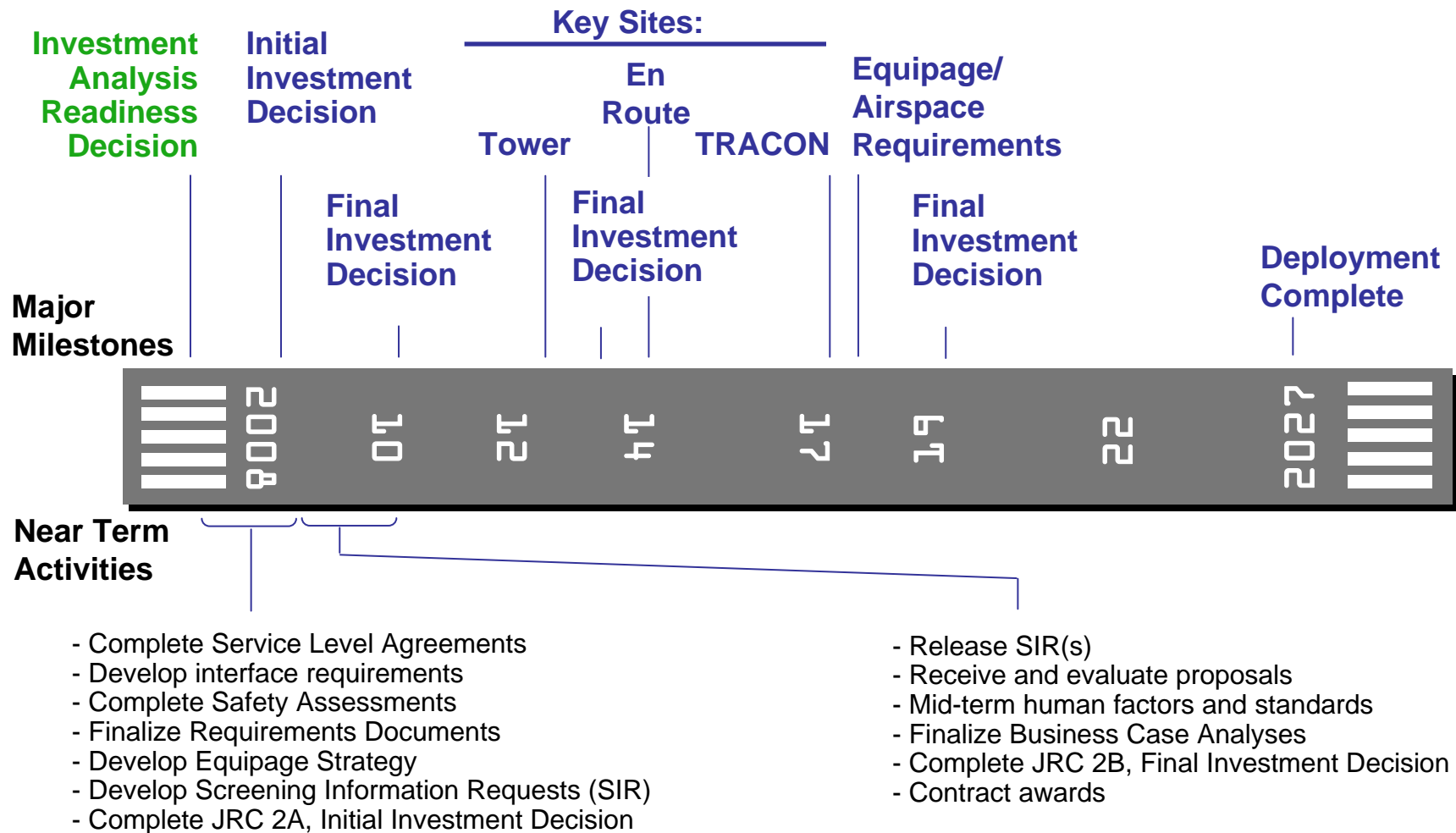


Data Communications Operational Effects

- Enables new operational concepts and services
- Significant NAS benefits, User \$15B
 - Delay reductions - reduced fuel costs
 - NAS wide traffic models utilized
 - Departure – arrival
 - Monetized in reduction of operating costs and passenger value of time



Data Communications Timeline



Future Events

- **Initial Investment Decision (July 2008)**
- **Release Screening Information Request (June 2009)**
- **Final Investment Decision (April 2010)**
- **Contract Awards (May 2010)**
- **Initial Operating Capability – Tower (FY 2013)**
- **Initial Operating Capability – En Route (FY 2014)**
- **Initial Operating Capability – TRACON (FY 2018)**

