FAA Data Comm Program Update

ASRI AFC February 2014

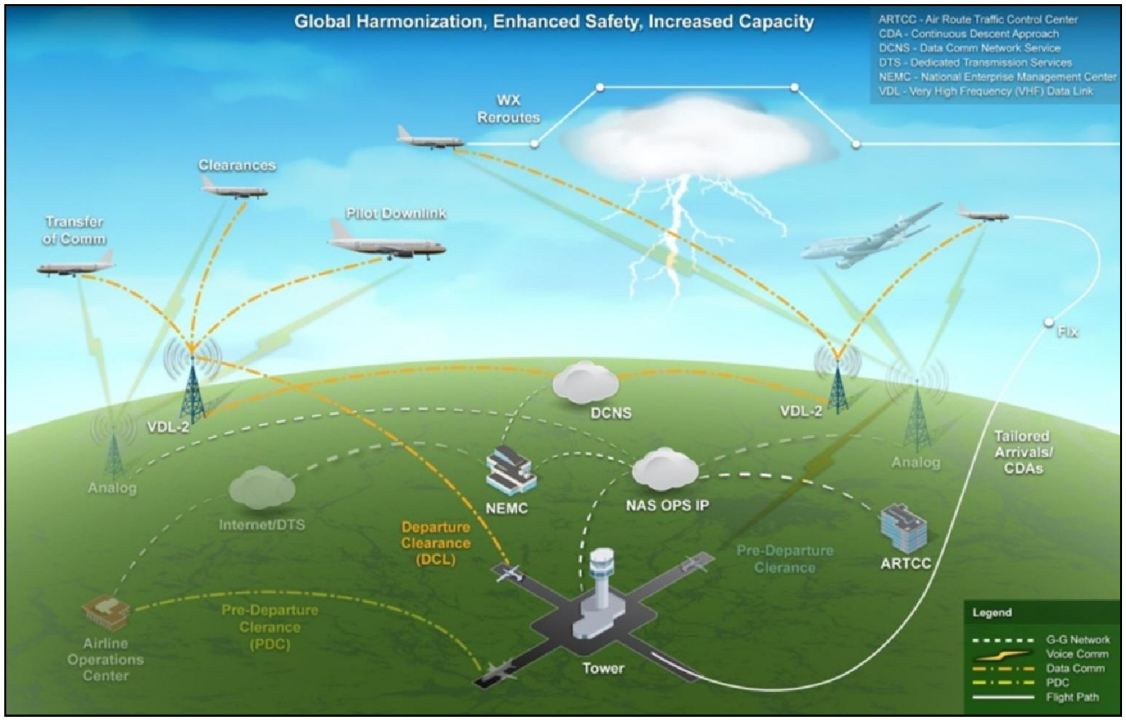
Chris Collings

DCIS System Implementation Manager

HARRIS®

Data Comm Overview

- **Provides data communications between the cockpit and controllers to replace some current voice communications**
  - Safety-of-flight air traffic control (ATC) clearances, instructions, traffic flow management, flight crew requests and reports
  - Provides direct link between ground automation and flight deck avionics
- **Transformational program critical to the success of NextGen operations**
  - Provides infrastructure supporting other NextGen programs and operational improvements
  - Enables efficiencies not possible using current voice system



Operational Benefits

- Increased controller productivity leading to increased capacity
- Enables NextGen services (e.g., enhanced re-routes, trajectory operations)
- Reduced communication errors
- Improves controller and pilot efficiency thru automated information exchange
- Reduced impact of ground delay programs, airport reconfigurations, convective weather, congestion, and other causes

Increased Safety – Reduced Operational Errors

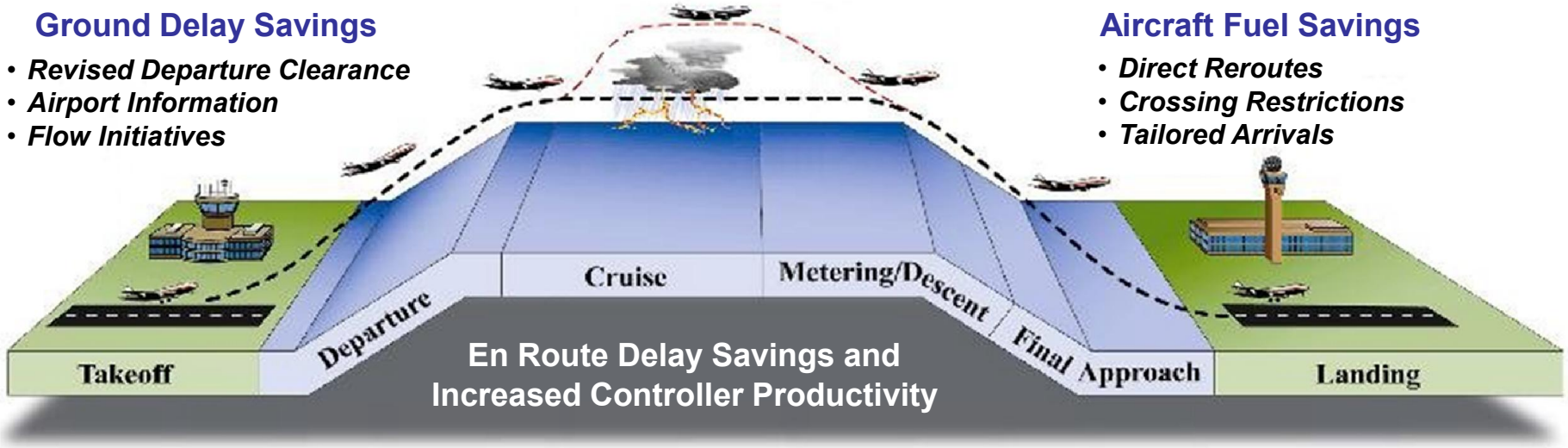
- *Clearer, enduring communications*

Ground Delay Savings

- *Revised Departure Clearance*
- *Airport Information*
- *Flow Initiatives*

Aircraft Fuel Savings

- *Direct Reroutes*
- *Crossing Restrictions*
- *Tailored Arrivals*



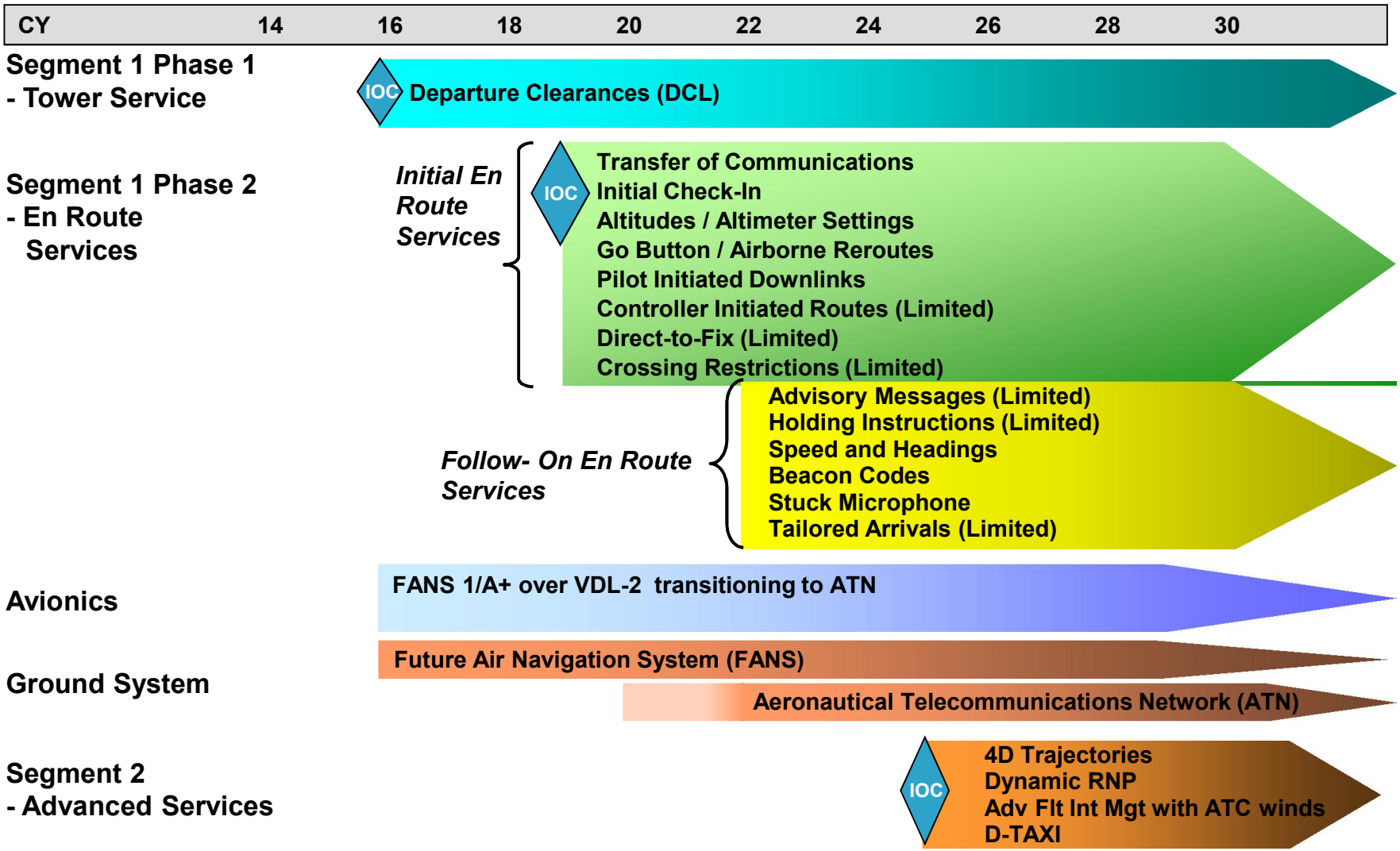
- *Seamless Uplink of Flow Initiatives / TFM Reroutes – "Go" Button*
- *Comm Transfer Workload Reduction*

- *More Efficient Delivery of Clearances*
- *Allows Uplink of More Complex Clearances*
- *En Route Notifications*

Evolution of Services

- Strategy is to deploy services incrementally
  - Implements basic services at airport towers initially
    - Leverages existing equipage – FANS 1/A+
    - Leverages existing air-ground networks – ARINC & SITA
    - Delivers ground system infrastructure for future services (i.e., En Route) with initial deployment
- Program Phases
  - Segment 1 Phase 1 (S1P1)
    - Initial Departure Clearance (DCL) Tower Service
  - Segment 1 Phase 2 (S1P2)
    - Initial En Route services
    - Follow-On En Route services
  - Segment 2 (S2) – Advanced trajectory services
- Services aligned with users' requested operations
  - Guidance from RTCA Task Force 5 Operational Improvements
  - Targets delay reductions and capacity/throughput increases

Services Strategy



S1P1 Baseline (APB) Milestones

	Milestone	Date
✓	ERAM Preliminary Design Review (PDR)	September 2011
✓	ERAM Critical Design Review (CDR)	March 2012
✓	FID: Final Investment Decision for ERAM & TDLS	May 2012
✓	DCIS Contract Award*	July 2012
✓	TDLS Preliminary Design Review (PDR)**	December 2012
✓	TDLS Critical Design Review (CDR)***	August 2013
	ERAM Initial Test Release (ITR)	June 2014
	Operational Test (OT&E)	November 2015
	First-Site Initial Operational Capability (IOC)	March 2016
	In-Service Decision (ISD)	December 2016
	Operational Readiness Decisions (ORD)	April 2017
	Last-Site IOC	May 2019

Key: Complete | On Track | May Be Missed | Missed

*The DCIS contract was awarded in September 2012. The award delay does not impact any of the program milestone dates

** TDLS PDR completed in October 2012

*** TDLS CDR completed in July 2013

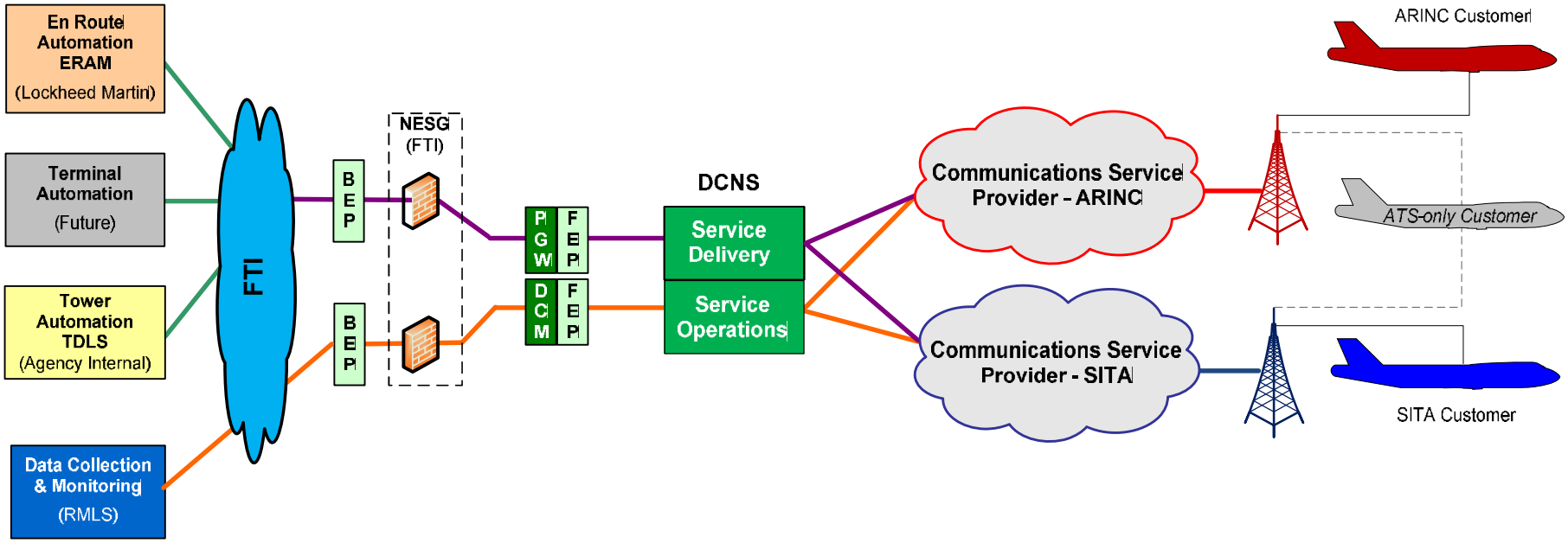
DCIS Overview

Harris led DCIS Team partners with the FAA to deliver:

- Data Comm Network Services
  - Air-Ground Network using ARINC & SITA
  - Service Delivery & System Monitoring
- Data Comm Integration & Test
  - Supports I&T activities at WJTHC and field sites
- Avionics Equipage
- Benefits, Metrics, & Outreach
- Engineering Services
  - DCL Trials Support
  - Avionics Interoperability Engineering
  - En Route Engineering

DCNS Overview

- Data Communications Network Services (DCNS)
  - Contract between Harris and FAA to provide air-ground network connectivity for the Data Comm program
  - Harris subcontracts with ARINC and SITA
- Utilizes shared air-ground VDL Mode 2 links
- DCNS provides air-ground Air Traffic Services connectivity to all airspace users



DCNS Update

- Service establishment progressing well with ARINC & SITA
- On schedule to deliver capability for integration & test
  - Installing Test Bed Capability to FAA WJHTC in New Jersey
- Site surveys and necessary upgrades progressing well
  - Key sites SLC, HOU, & IAH on track for 2015 IOC dates
  - Site surveys under way for all DCL Sites

DCNS Spectrum

- ARINC & SITA will continue to operate their VHF services just like today
- VHF spectrum will continue to be a shared resource between AOC and ATC
- VDL Mode 2 spectrum will continue to be allocated from the upper portion of the Aeronautical En Route Service (AES) allocated by ASRI
- Additional spectrum from the FAA portion of the upper band will be made available when
  - ASRI channel bandwidth capacity has been exhausted
  - A demonstrated need for additional capacity to justify the additional spectrum

Harris/SITA Outsourcing

- Harris is prime contractor with FAA on DCIS/DCNS
- DCIS/DCNS contract gave Harris flexibility to use multiple business models with ARINC & SITA
- Harris/ARINC agreement is a traditional service agreement
- Harris/SITA agreement outsources US VHF infrastructure operation to Harris
  - Harris provides network connectivity, monitoring, maintenance, and operation of all SITA US VHF assets – remote stations & central processing for VDL Mode 2
  - SITA provides service to airlines – same as today
    - Harris operated infrastructure tightly integrated with existing SITA systems
    - Strong emphasis on transition planning
  - Harris directly delivers ATC Data Comm Messages to FAA Data Comm
  - SITA is the owner of record for the VHF stations – Harris provides support

Avionics Equipage Update

- Achieved commitments for >80% of FAA's equipage objective
- Commitments from 6 Airlines
- First equipped aircraft under the program expected in March 2014

DCL Trials Update

HARRIS

Participants
FDX
UPS
UAL
BAW
DLH
SAS

- **Tower Departure Clearance (DCL) trials at Memphis and Newark using Data Comm Trials Automation Platform (DTAP)**
- **Validates requirements and operational training / procedures**
  - Reduces risk on production system technical characteristics and operational issues including avionics interoperability
- **Aligns stakeholders in support of program**
  - Industry involvement through Data Comm Implementation Team (DCIT)
- **Memphis (MEM) Trials**
  - Full fleet operations since September 2013
  - Regular daily operations by FDX (MD-11F & B777F)
- **Newark (EWR) Trials**
  - Daily operations by FDX (MD-11F & B777F), UAL (B777), and UPS (MD-11F, B767)
  - Other participants include BAW, DLH, SAS – awaiting FAA approval to resume operations

En Route CPDLC Update

- Working with FAA to solidify the En Route Data Comm service definition
- Participating and coordinating several risk reduction activities leading to Final Investment Decision this fall
- Developing concept for early Operational Risk Reduction Demo this summer

Air Carrier Outreach

- Preparing Airlines for FAA Integration & Test activities
  - Coordinated through DCIT AOC Working Group
- Working with aircraft operators to track readiness for IOC
  - Aircraft to support initial operations at key sites
  - Ensure program waterfall is aligned with aircraft using the service

Next Steps

- Progress on DCNS Deployment
- Continue Supporting FAA
  - Tower Services Integration & Test Effort
  - DCL Trials
  - En Route Capability Assessments
- Work with Aircraft Operators on DCL Readiness as we approach IOC
- Track and validate aircraft equipped with FANS 1/A(+) and VDL Mode 2 as part of Equipage Initiative