

Test Planning for AOC/FOC Interface for Data Comm Production System

To: DCIT 26

From: Data Comm Production Sub-Team

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Federal Aviation
Administration

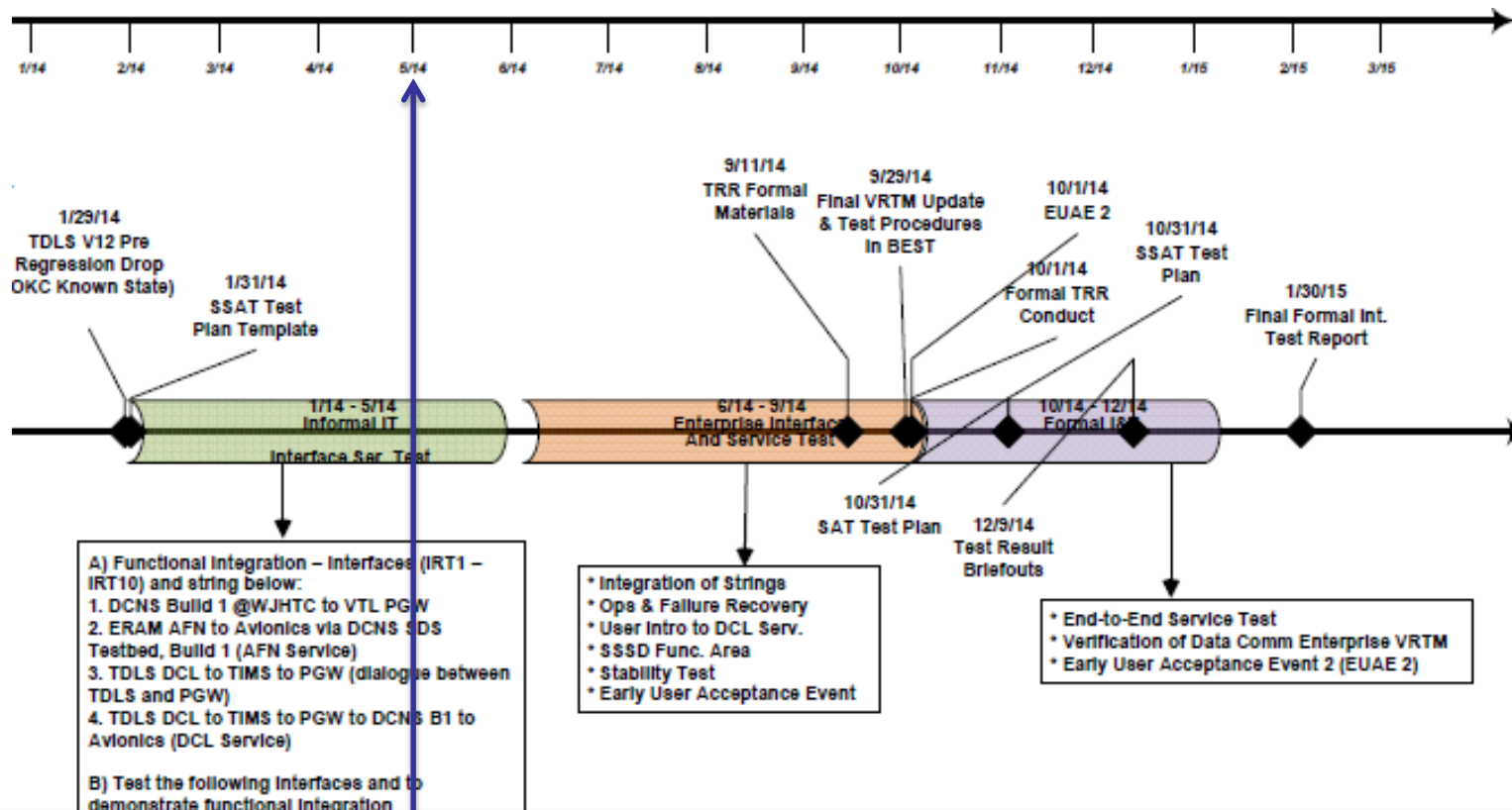


Introduction

- **In preparation for integration testing activities planned in 2014, FAA would like to discuss establishing a test interface between TDLS and AOC/FOC systems**
- **This testing will ensure all necessary changes made for DCL operations within the production system are working appropriately prior to operational and field tests**
- **FAA will provide information to the aircraft operators for their feedback for planning of this activity**



Integration Test Timeline



- *FAA will coordinate with each AOC/FOC participant to establish connectivity*
- *The goal is to plan on integration testing in the May 2014 & beyond timeframe*
- *Need to plan on 6-9 month lead time to establish connectivity and achieve test configuration*

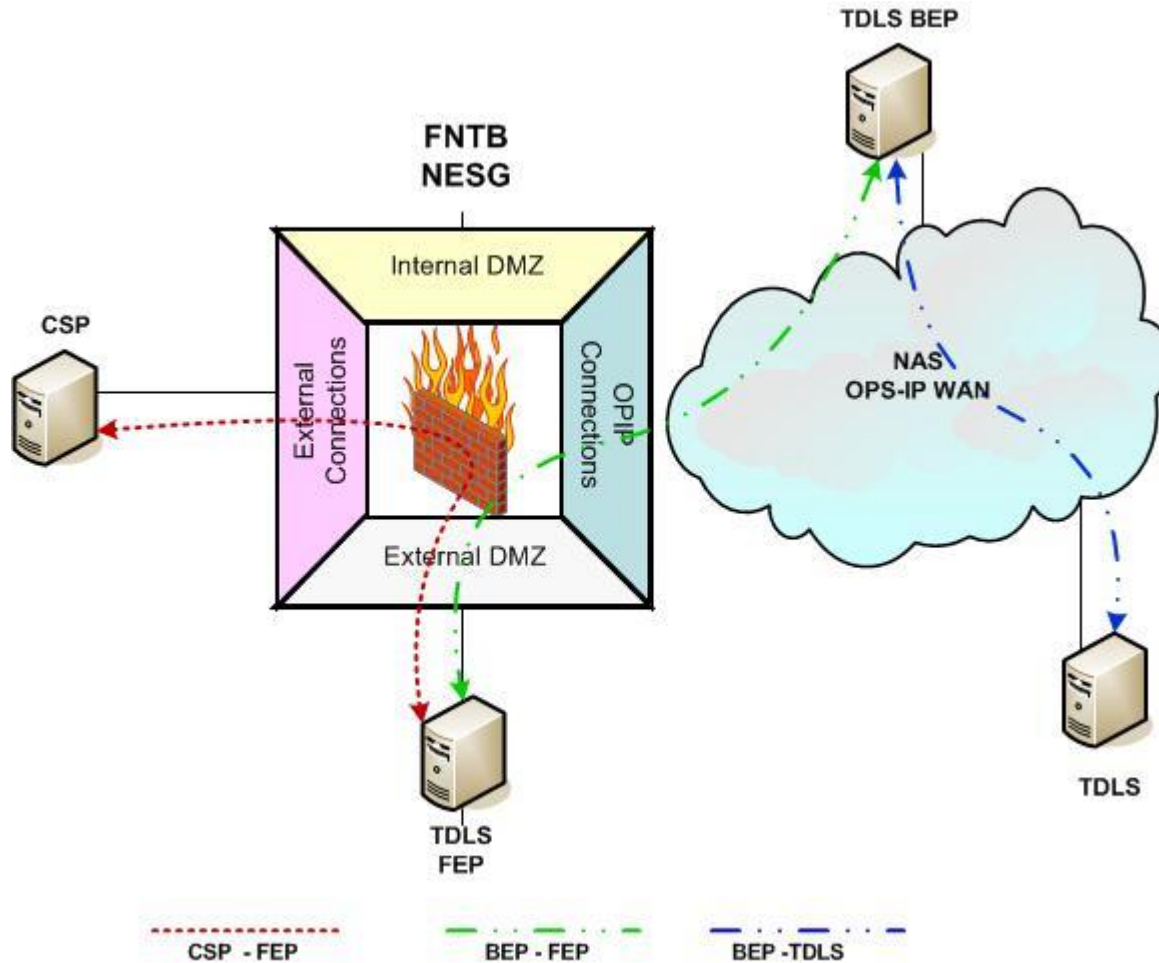
Connectivity Establishment

- **FAA will provide IRDs and ICDs, which includes messages exchanged with AOCs, to be used for AOC system updates for the interface**
 - The TDLS-CSP interface is the legacy PDC interface that is being enhanced with new messages
 - The TIMS SDB-CSP interface is the new web-based interface to support the Subscriber Data Base and user preferences
- **Airline(s) who choose to participate and FAA's IFCET (Interfacility Communications Engineering Team) will coordinate to configure a VPN connection to FAA's Front End Processors within the FTI National Test Bed (FNTB) located at WHJTC**
- **FAA's FTI User's Guide for Non-NAS Users will provide details**
- **Once the operator's VPN is configured, IFCET will provide a certificate with the appropriate private/public keys**
- **FAA will configure the FNTB to ensure a proper flow from the airline system to TDLS**

Documentation

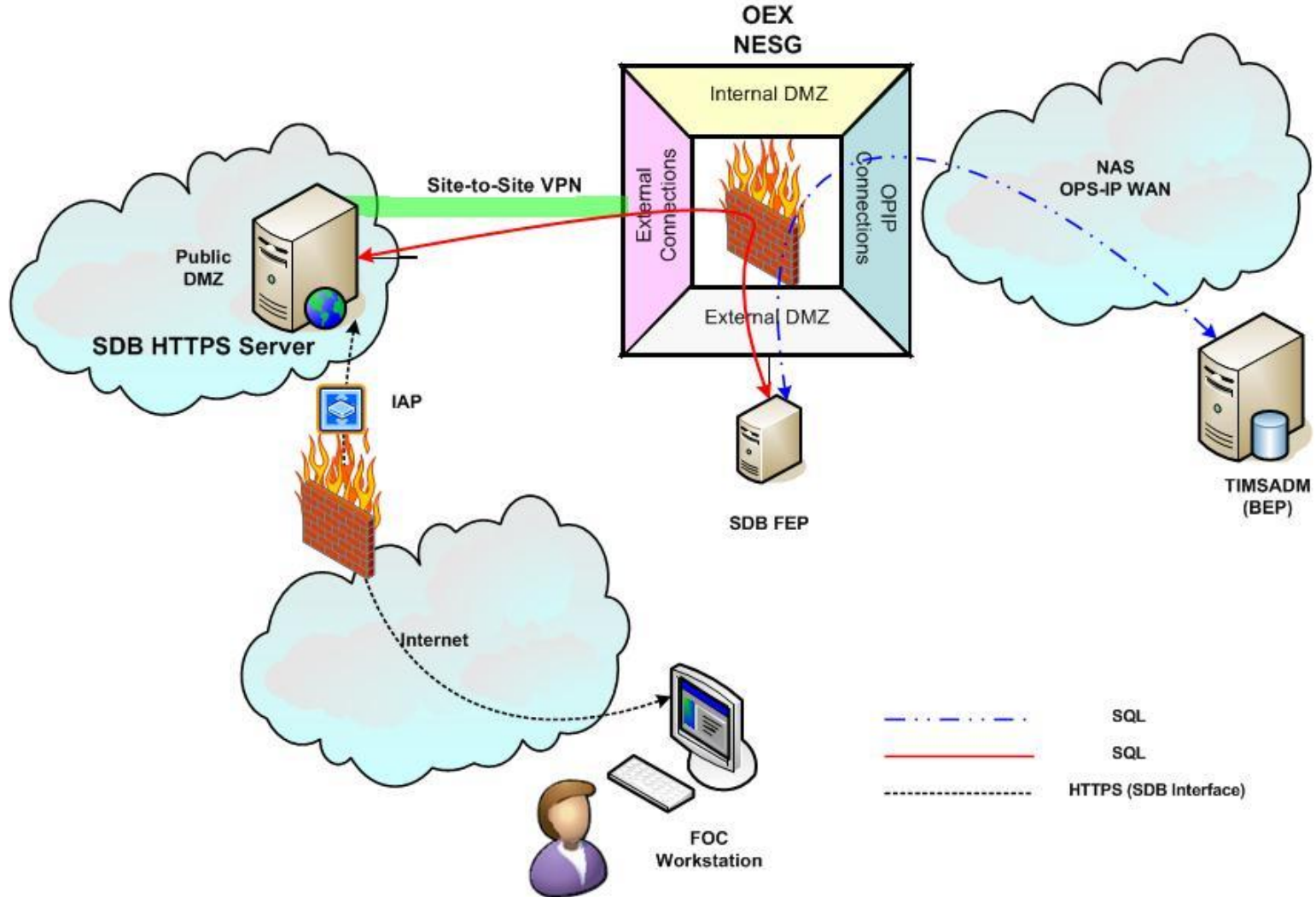
- **TDLS - CSP IRD dated April 26, 2013**
 - This IRD was provided to DCIT AOC WG in May
 - Includes legacy PDC, new Dispatch message (Courtesy Copy) and new Gate Request (GREQ) message
 - Currently updates being made to address comments
- **TIMS SDB - CSP IRD dated April 26, 2013**
 - This IRD was provided to DCIT AOC WG in May
 - Describes the web-based interface to the Master Subscriber Database
 - Currently updates being made to address comments
- **Corresponding ICDs**
 - TDLS - CSP ICD dated June 21, 2013
 - TIMS SDB - CSP ICD dated May 29, 2013
 - Currently updates being made to address comments
- **FTI User's Guide for Non-NAS Users**

AOC-TDLS Connectivity



The external user referred to as the Communications Service Provider (CSP) is also the Airline Operations Center (AOC) in the context of the IRDs

Subscriber Database TIMS Connectivity



DRAFT Data Comm Proposed S1P1 Tower Waterfall

Key Sites (3 Towers)			
Site Name	Site ID	ARTCC ID	IOC
KS 1: Salt Lake City	SLC	ZLC	Q3 2015
KS 2: Houston Intcl	IAH	ZHU	Q3 2015
KS 3: Houston Hbby	HOU	ZHU	Q3 2015
NAP – NAP Compl	NA	ZLC/ZTL	Q4 2015
IOA Compl			Q4 2015
In-Service Decision			Q4 2015

Group A (19 Towers)			
Site Name	Site ID	ARTCC ID	IOC
New Orleans	MSY	ZHU	Q1 2016
Austin	AUS	ZHU	Q1 2016
San Antonio	SAT	ZHU	Q1 2016
Los Angeles	LAX	ZLA	Q1 2016
Las Vegas	LAS	ZLA	Q1 2016
San Diego	SAN	ZLA	Q2 2016
John Wayne	SNA	ZLA	Q2 2016
Bob Hope	BUR	ZLA	Q2 2016
Ontario	ONT	ZLA	Q2 2016
San Francisco	SFO	ZOA	Q2 2016
Oakland	OAK	ZOA	Q2 2016
San Jose	SJC	ZOA	Q3 2016
Sacramento	SMF	ZOA	Q3 2016
Phoenix	PHX	ZAB	Q3 2016
Albuquerque	ABQ	ZAB	Q3 2016
Seattle	SEA	ZSE	Q3 2016
Dallas Love	DAL	ZFW	Q4 2016
Dallas FTW	DFW	ZFW	Q4 2016

Group B (17 Towers)			
Site Name	Site ID	ARTCC ID	IOC
Louisville	SDF	ZID	Q1 2016
Indianapolis	IND	ZID	Q1 2016
Cincinnati	CVG	ZID	Q1 2016
Memphis	MEM	ZME	Q2 2016
Nashville	BNA	ZME	Q2 2016
Denver	DEN	ZDV	Q2 2016
Atlanta	ATL	ZTL	Q2 2016
Charlotte	CLT	ZTL	Q2 2016
Jacksonville	JAX	ZJX	Q2 2016
Orlando	MCO	ZJX	Q3 2016
Miami	MIA	ZMA	Q3 2016
Fort Lauderdale	FLL	ZMA	Q3 2016
Tampa	TPA	ZMA	Q3 2016
Palm Beach	PBI	ZMA	Q3 2016
St Louis	STL	ZKC	Q4 2016
Kansas City	MCI	ZKC	Q4 2016
Minn-St Paul	MSP	ZMP	Q4 2016

Group C (18 Towers)			
Site Name	Site ID	ARTCC ID	IOC
Boston	BOS	ZBW	Q1 2016
Providence	PVD	ZBW	Q1 2016
Bradley	BDL	ZBW	Q1 2016
Newark	EWR	ZNY	Q2 2016
J F Kennedy	JFK	ZNY	Q2 2016
La Guardia	LGA	ZNY	Q2 2016
Philadelphia	PHL	ZNY	Q2 2016
Teterboro	TEB	ZNY	Q2 2016
Westchester	HPN	ZNY	Q2 2016
Detroit	DTW	ZOB	Q3 2016
Cleveland	CLE	ZOB	Q3 2016
Pittsburgh	PIT	ZOB	Q3 2016
Balt/Wash	BWI	ZDC	Q3 2016
Dulles	IAD	ZDC	Q3 2016
Reagan	DCA	ZDC	Q3 2016
Raleigh/Durham	RDU	ZDC	Q4 2016
Chicago Midway	MDW	ZAU	Q4 2016
Chicago O'Hare	ORD	ZAU	Q4 2016

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In Service Decision

Milestone	Proposed Sites 3 TDLS Towers 2 Nat'l ERAMs 1 Non-National Parent ERAM (3 ERAMs Total)	Proposed Dates
Key Site 1 IOC	Salt Lake City (ZLC/SLC)	Q3 2015
Key Site 2 IOC	Houston Intercontinental (ZLC/ZHU/IAH)	Q3 2015
Key Site 3 IOC	Houston/Hobby (ZLC/ZHU/HOU)	Q3 2015
ERAM to NAP & NAP to NAP Integration	Salt Lake Center/Atlanta Center (ZLC/ZTL)	Q4 2015
Independent Operational Assessment (IOA)		Q4 2015
In Service Decisions (ISD)		Q4 2015

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QUESTIONS?



BACKUP CHARTS



Gate Request (FAA ->AOC): Summary

- **Content**

- Gate Request data exchange provides same functionality as AOC provides in current response to a PDC
- AOC to provide surface location *at sites that require it* operationally; initial implementation is Gate ID
- Format based on DTAP SIDD, v1.1; subsequent DCIT/DTAP changes will be evaluated as a requirements change request

- **Distribution/Timing**

- Gate Request is now a separate message from Dispatch message to accommodate timing requirements from both ATC and AOC
 - ATC needs gate info when controller approves DCL (same as for PDC today)
 - AOC wants Dispatch message when DCL is uplinked to pilot, not when approved by controller

Gate Request (FAA ->AOC): Summary (cont'd)

- Gate Request sent to AOC when controller/system first approves DCL, e.g., approx. 20-25 min prior to P-Time
 - No explicit controller involvement in actual message to AOC
 - One-time request message; any subsequent gate changes will be handled procedurally
- Ground system will send to all users;
 - When not operationally required, users can opt out of Gate Request via Subscriber Data Base (Discussion topic)

Gate Request Response (AOC->FAA): Summary

- **Content**

- {Flight ID *A} { Sequence Number} {Tail Number} { Airport Departure} {Gate Assignment}
- 5-8 char Gate ID, if known; “G” if gate is unknown
- Format based on DTAP SIDDD, v1.1; subsequent DCIT/DTAP tweaks will be evaluated as a requirements change request

- **Distribution/Timing**

- Sent by AOC to FAA in response to Gate Request Message
- Expect response from AOC within 2 min, similar to PDC response

Gate Request/Response: Questions (cont'd)

- **Implementation:**

- Previous DCIT proposed that Gate Request message will be sent only to those users who currently supply gate in PDC response
- Specific mechanism for determining which airports and which users require the Gate Request message was not defined

- **Current planned implementation**

- Ground system will send Gate Request Message for all DCL aircraft to all AOCs (No change to existing PDC)
- Users opt out via Web-based access to Subscriber Data Base (SDB), which is same mechanism as for providing ADNS addresses
- SDB Web Access allows other user default preferences
- If any issues with ATC for specific airport or users, adjust accordingly

DCL Dispatch Message: Summary

- **Content**

- Contains content of DCL that is sent to pilot for initial and any revised DCL
 - Caveat that this is not an ATC clearance, and does NOT include a beacon code
- For initial and revised DCLs, includes a separate full route string even if this was not sent to pilot
- Format based on DTAP Systems Integration Description Document (SIDD v1.1, Nov. 2012);
- Users have option to tailor Dispatch message preferences via Subscriber Data Base (not required)

- **Distribution/Timing**

- Sent to AOC only when a DCL clearance uplink is sent to flight deck
 - Initial DCL as response to request by flight deck via DM25
 - Revised DCL upon uplink (immediately after controller approval)

DCL Dispatch Message Response: Summary

- **Content**

- Format based on DTAP Systems Integration Description Document (SIDDD v1.1, Nov. 2012) except no gate assignment (handled by separate Gate Request message)
- Note that if gate is left in, will not be used
- {Flight ID *A} { Sequence Number} {Tail Number} {Departure time}
- Contains Departure time field from legacy PDC response to minimize software impact, per SIDDD

- **Distribution/Timing**

- Sent by AOC to FAA in response to DCL Dispatch Message
- Expect within 2 min, similar to PDC and DTAP

Web Access to the SDB

- **Web Access provides a new, secure method for accessing the SDB**
 - AOC/CSP can directly manipulate their subscriber data
 - Portal access is limited to their data
 - AOC/CSP may not need to access the SDB after initial set up
- **Concept of Operation**
 - CSP/AOC logs in to Web Access SDB
 - CSP/AOC creates/modifies a record to specify clearance type(s), Dispatch message options, Gate Request preference, and CSP/AOC address
 - CSP/AOC only accesses SDB when changes are required
- **The enhanced SDB will include various flight specific and AOC/user data elements**
 - Flight id (tail number, call sign, Airline ID, etc.)
 - ADNS address for PDCs and DCL Dispatch messages
 - Primary and secondary clearance preference types (PDC, DCL)
 - Other User Preferences, e.g., type of DCL Dispatch/Courtesy Copy(CC) airline will receive (initial, revision, all), Gate Request message
 - Other PDC and CPDLC management information, as applicable

DCL Service Fallback Concept: Summary

- **If CPDLC service for DCL is not available, FAA automation will “fall back” to PDC**
 - Flights tagged as getting DCL will be retagged as PDC if prior to 30 min before P-Time
 - AOC/User must tell FAA they want this fallback scheme applied
 - Can be done in ICAO FP preferences in Field 18/DAT, e.g., code for DCL as primary and PDC as secondary
 - An additional option is for AOC/user to provide this fallback preference via Web Access portal (Subscriber Data Base) for all flights (system-wide)
- **Notification**
 - Open question on notification of DCL service unavailability to AOC and/or flight deck
 - Current planned procedural implementation
 - If short-term outage, add to D-ATIS
 - If longer outage, issue NOTAM

DCL Service Fallback Concept: Summary (cont'd)

- **Fallback Implementation Approach**
 - Fallback only occurs if AOC/User has designated PDC as the secondary clearance type preference via ICAO flight plan codes or Web Access SDB
 - ICAO FP takes precedence
 - If flight has been “processed” as DCL, even if DCL not yet picked up by the pilot, no PDC will be sent
 - If DCL is already approved, flight will still get the pending clearance as a response to DM25 but nothing after
 - If DCL is not yet approved, controller will go to voice
 - If not yet processed, i.e., new flights or those earlier than “strip” time, will get PDCs if user has so indicated