

# COLLINS AEROSPACE SATVOICE IMPLEMENTATION

*Prepared for ISPACG 8-11 April 2025*

# AVIATION VOICE SERVICES

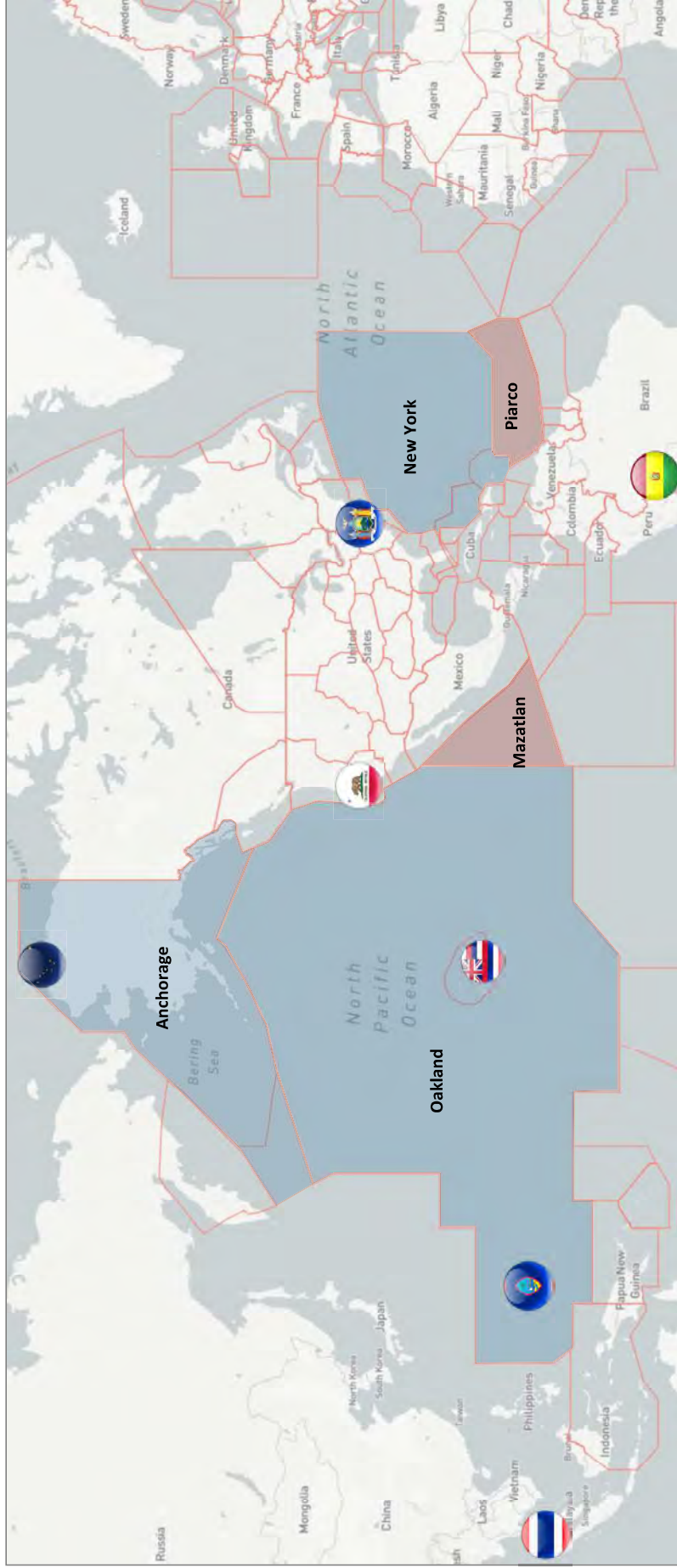
AMCS + AGIR + AGDR + ANSP SERVICES



Delivering communications services to the air transport industry across all media to support Air Traffic Control and Aeronautical Operational Control  
Ensuring aircraft safety through the reliable delivery of over 1,750,000 messages per year.

# AIR GROUND INTERNATIONAL RADIO

AIR TRAFFIC CONTROL COMMUNICATIONS



# TWO-STAGE SATVOICE DIALING



## Two-Stage dialing over PSTN

- PSTN access to Inmarsat and Iridium aircraft terminals
- International number dialed by person or PBX/Voice Switch speed dial using DTMF tones
- Ground-to-Air (GtA) calling can take 20+ seconds even with programmed speed-dials
- Air-to-Ground (AtG) Caller Line Identifier (CLI - Caller ID) is unreliable particularly across international boundaries
- Without reliable CLI, cannot process Emergency calls

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International phone number

- # # # # # # # - # # # # # # # - # # # # # # # # # # # # # #  
User ID and PIN  
Aircraft ID and Priority

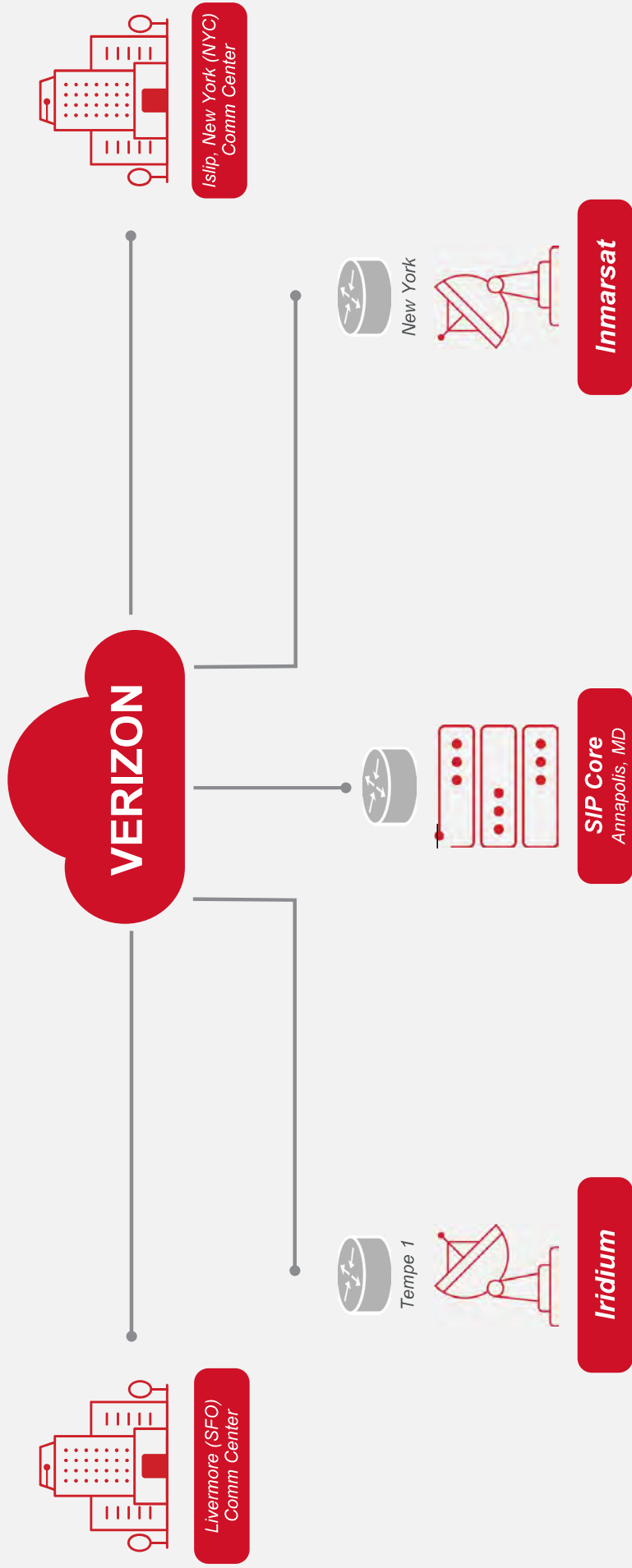
# ONE-STAGE SATVOICE

## Private VoIP WAN dedicated to SatVoice enables

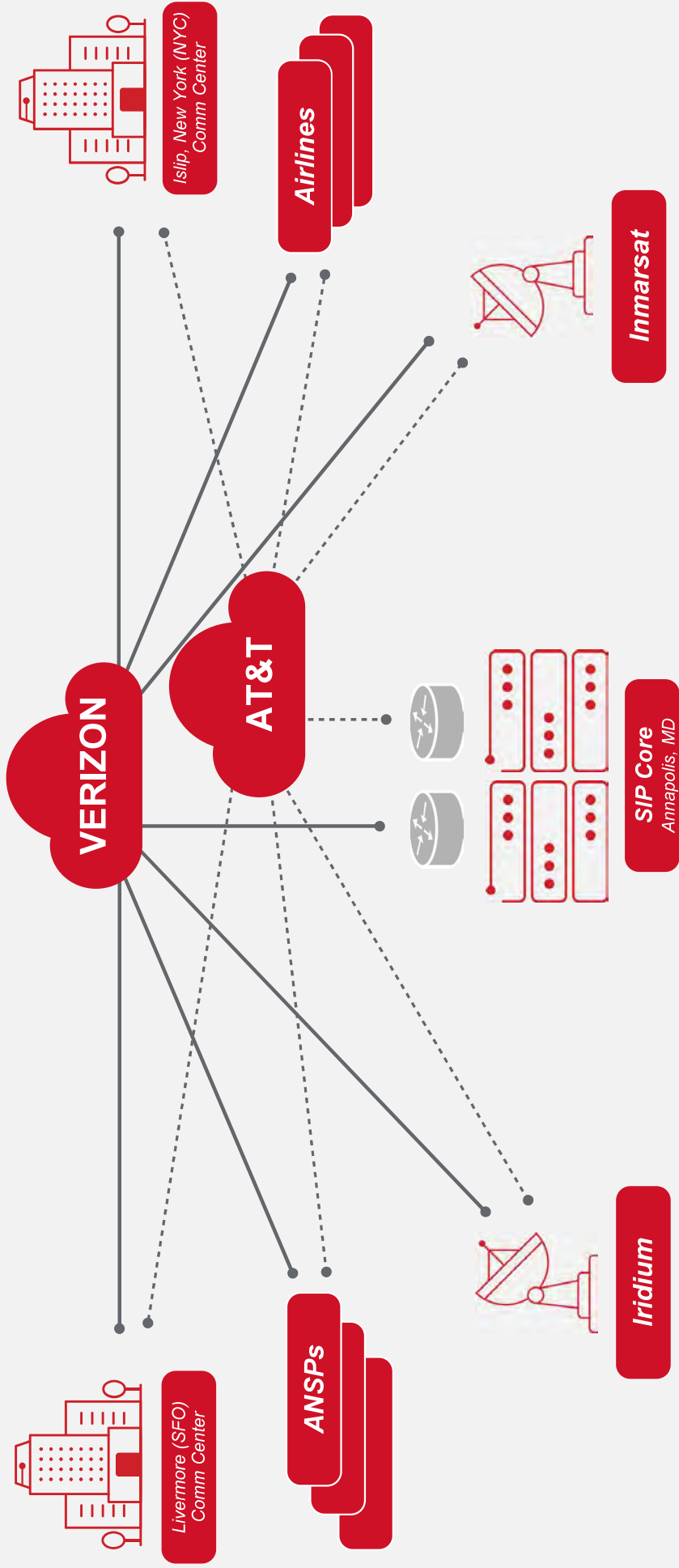
- Replaces PSTN dialing with a closed loop VoIP network dedicated to SatVoice call management
- Call setup (ground segment) with the transmission of an IP message in less than 1 sec
- Structured data elements that include aircraft octal and call priority
- Allows special routing for Emergency calls
- Call routing based on aircraft octal



# ONE STAGE DIALING - CURRENT STATE



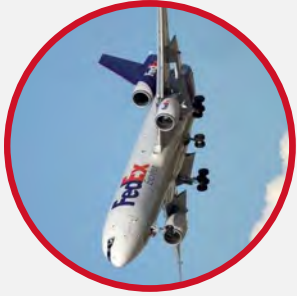
# ONE STAGE DIALING - FUTURE STATE



# SATVOICE TEST/IMPLEMENTATION ROADMAP



Engineering Test



2023: Inmarsat-Viasat  
Callback Checks

670 calls



2024: Iridium  
Callback Checks

Over 1000 calls



Air Traffic Control Trial  
Feb-Jun 2025

Share results with FAA, PARC/CWG, DCIWG,  
OPDLWG, other regulators and stakeholders

# FAA SATVOICE TRIAL

## Began on 10 Feb, will run through Jun 2025

- Collins reliability improvements are underway and will run concurrently with trial execution
- Exercise SatVoice without impacting CPDLC
- Measure the time delivery of controller-generated messages
- Utilize SatVoice for AtG comms where possible – Ride Reports
- Measure SatVoice performance against requirements in ICAO SARPs

As of 27 Feb 2025, 2980 communication attempts were made



# FAA SATVOICE TRIAL OBJECTIVES

Characteristic	Objective
Ground to Air Call Setup Time	<ul style="list-style-type: none"> <li>95% &lt; 25 sec with a recommendation for &lt; 12 sec</li> <li>99% &lt; 30 sec with a recommendation for &lt; 15 sec</li> </ul>
Air to Ground Call Setup Time	<ul style="list-style-type: none"> <li>95% &lt; 10 sec</li> <li>99% &lt; 15 sec</li> </ul>
Audio Intelligibility	Diagnostic Rhyme Test score of 85 or better *
Voice Latency (round trip time divided by two)	1.5 sec or better *
Dropped Call Rate	1% or less during a 120 sec call
Grade of Service (blocked or delayed connections)	1% or less
Failover from VoIP network to PSTN	Automatic failover in the event of a VoIP network fault
Emergency Call routing to Emergency line	Calls with Priority 1 should bypass call directors and be routed to an EMERGENCY line
Clearance, Request, Delivery Time over SatVoice	In accordance with current HF Radio objectives

\* Will require a test participant in the aircraft cockpit

# FAA SATVOICE TRIAL

## Preliminary Observations

- **Results are positive, call setup is fast**
- Priority routing of Emergency calls is working as designed
- Some aircraft not set up to use SFO RADIO and NY RADIO Short Codes (<5%)
- About 4% of the Ground-to-Air calls don't get answered
- **Minor Technical/configuration issues exist**
- Collins using an analog dialing mechanism to set up GtA call, will go full IP in a VCS upgrade 2025-2027
- We're tracking <5% of calls having substandard intelligibility and working with the constellation partners to determine root cause

We're off to a good start, working to get to a GREAT finish



We're currently accepting contact info from interested airlines (and ANSPs!) to participate!



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## QUESTIONS?