

Agenda Item #3

Latency Monitor

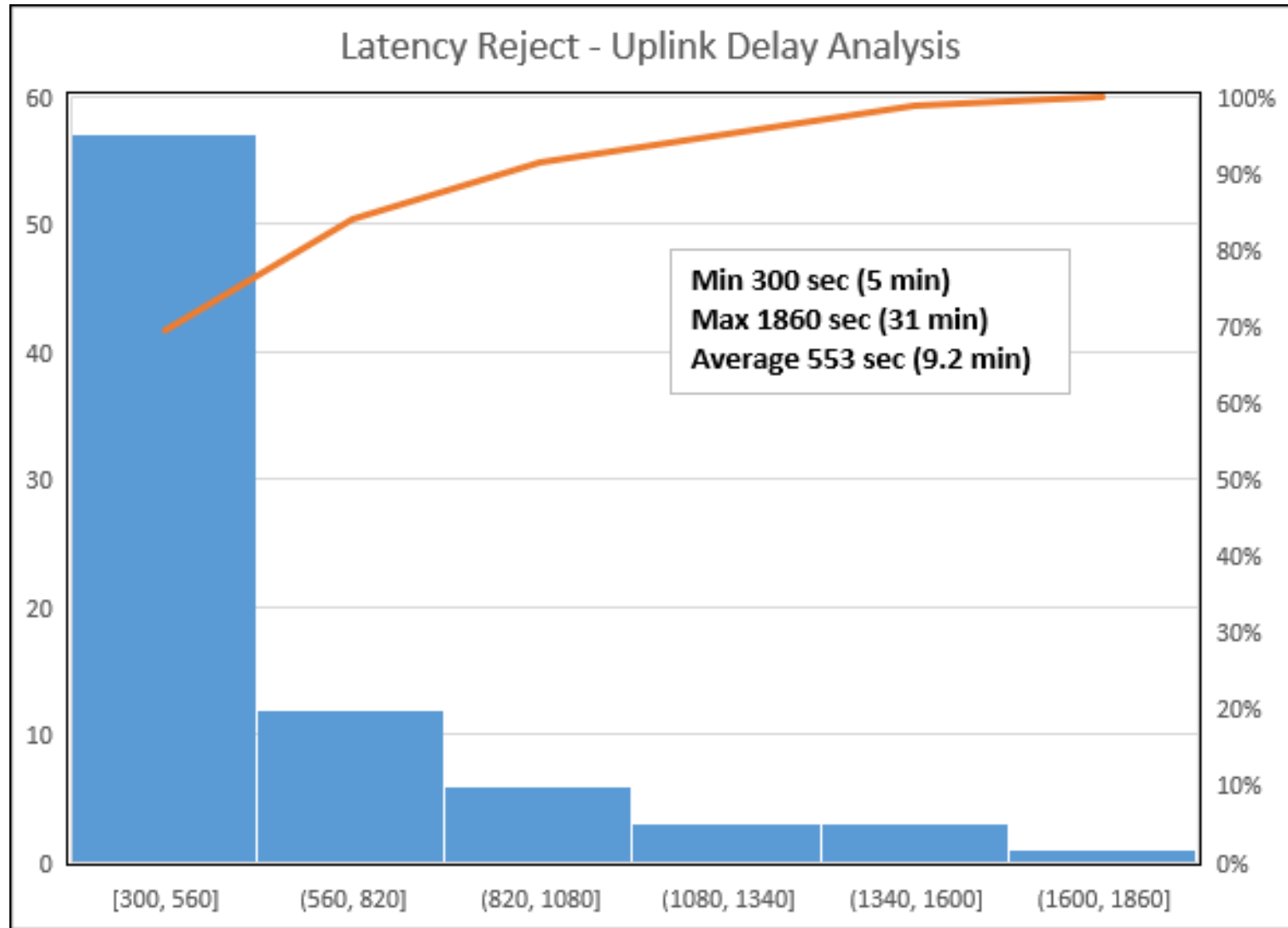
FIT Asia 10
Virtual meeting
03 -05 August 2020



Latency Monitor

- Implemented latency monitor uplink 21 June 2018.
 - Supports PBCS safety requirement #15 on aircraft - mitigating late message receipt.
 - Message is sent by CPDLC free text when NZZO is confirmed CDA requesting aircraft set 300”.
 - Implementation incorporates 2” delay in timestamp to mitigate timing issue in some Airbus fleets which has now been fixed.
 - NZZO was averaging 4627/month pre-pandemic, now 1115/month.
 - Latency reject messages from Airbus aircraft are running at 1 in 1152 uplinks or 0.09%.
 - Observing an average 7 rejects/month pre-pandemic but during reduced traffic levels since March 2020 have observed none.

Latency Monitor rejected uplink delay analysis



Latency Monitor rejects by month and classification

Month	# Rejects	Classification						
		Unknown	Time Source	Inmarsat	Iridium	HFDL no SATCOM	Inmarsat sent HFDL	Unable SATCOM via VDL
Jan-19	22	0	0	5	0	0	16	1
Feb-19	5	0	0	2	0	0	3	0
Mar-19	9	0	0	2	4	1	2	0
Apr-19	8	0	0	2	2	1	3	0
May-19	17	1	0	4	3	6	3	0
Jun-19	1	0	0	0	0	0	1	0
Jul-19	5	0	4	1	0	0	0	0
Aug-19	1	0	0	1	0	0	0	0
Sep-19	4	0	2	0	2	0	0	0
Oct-19	14	0	4	0	8	2	0	0
Nov-19	3	0	0	2	1	0	0	0
Dec-19	6	0	0	0	4	0	2	0
Jan-20	3	0	0	2	0	0	1	0
Feb-20	3	0	0	0	1	1	1	0
Mar-20	0	0	0	0	0	0	0	0
Apr-20	0	0	0	0	0	0	0	0
May-20	0	0	0	0	0	0	0	0
Jun-20	0	0	0	0	0	0	0	0
Totals	101	1	10	21	25	11	32	1

Latency Monitor

- During review period 345,049 CPDLC uplinks initiated
- 116,377 uplinks to Airbus aircraft
- 101 rejects – failure rate of 1 in 1152 or 0.09%
- Of the 101 rejected uplinks:
 - 43% sent by HF DL
 - 32% when operating Inmarsat
 - 11% when operating no satcom
 - 25% sent by Inmarsat satcom
 - 21% sent by Iridium satcom
 - 10% attributed to aircraft time source error



Latency Monitor – reject rates in NZZO by RGS type

Jan-19 to Jun-20		
CPDLC Uplink RGS Type	# and % CPDLC Uplink RGS Type	
Unknown	1,142	0.4%
VHF Datalink	42,364	14.8%
HF Datalink	1,577	0.5%
Iridium Satcom	37,118	All Satcom 299,966 84.4%
Inmarsat Satcom	205,964	
MTSAT Satcom	56,884	
total	345,049	

Latency reject message rate:

- Via HF DL = 4%
- Via Iridium = 0.07%
- Via Inmarsat = 0.03%

Latency Monitor

- A review of uplink rejects is now included in monthly PBCS monitoring.
- Please refer to the attachment to the IP for a summary of all rejects observed during the review period.



Thank you

