

THE FUTURE OF CONNECTIVITY >



Our Invitation Had These Requests

1. Views on real-time monitoring
2. In-flight streaming of FDR data
3. Related activities and studies
4. Requirements identified
5. Challenges and obstacles
6. Need for standards
7. Next steps and outlook

Views On Real-Time Monitoring

- Customers have requested since 2005
- Commercially implemented since 2006
- Real-time FOQA reporting
- Not an additional cost

In-flight Streaming of FDR Data

- All the time for every aircraft is impractical
- Triggered is the only logical solution
- BEA study of FDR data proved triggers are viable and practical
- Current customers using real-time triggered streaming

Related Activities and Studies

- BEA working groups
- Industry groups
- FAA
- Transport Canada

Requirements Identified

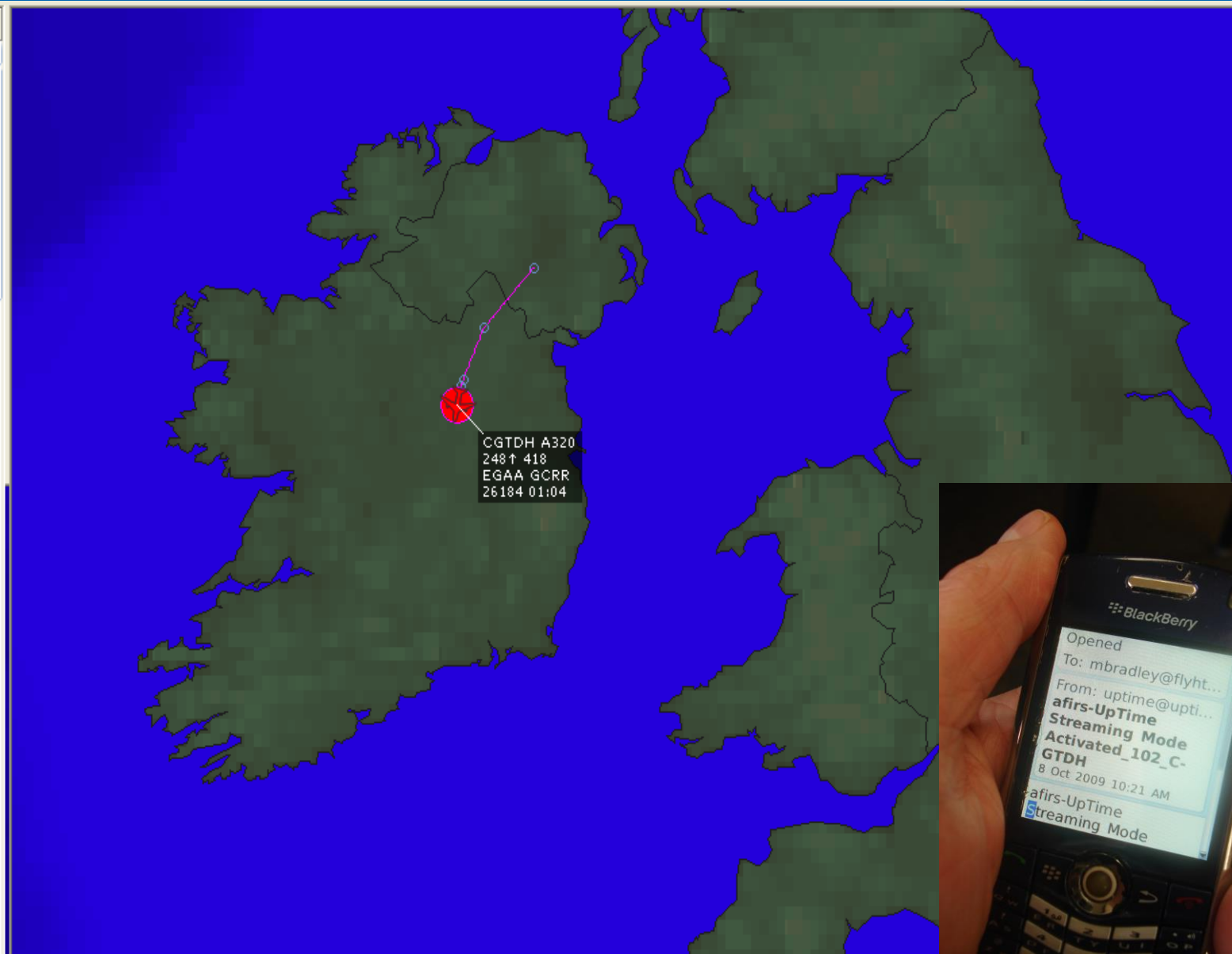
- Alerting
- Streaming
- Analysis

This Is Tracking



This is Alerting

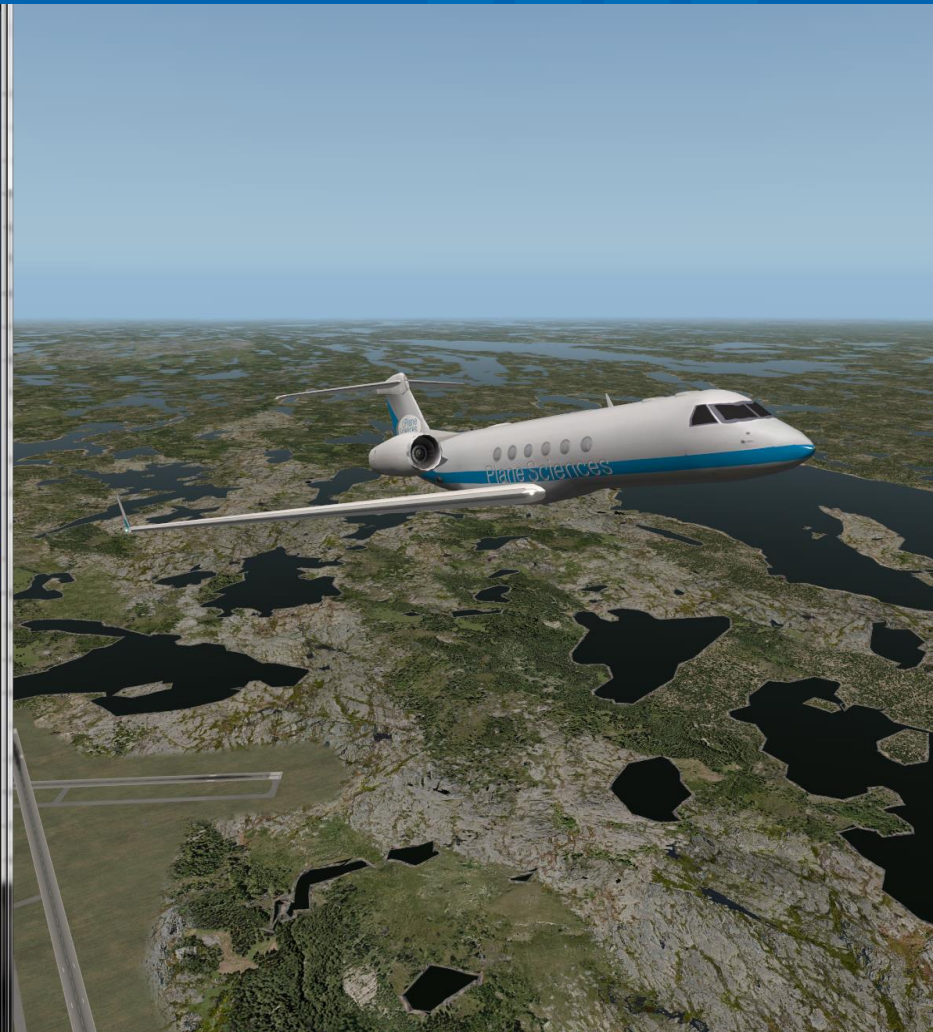
Event list	Options
CGTDH UpTime Emerge... EGAA/GCRR ??:??/00:00 10/08/2009 13:56:15	x
CGTDH UpTime Emerge... EGAA/GCRR ??:??/00:00 10/08/2009 13:55:55	x
CGTDH UpTime Emerge... EGAA/GCRR ??:??/00:00 10/08/2009 13:55:45	x
CGTDH UpTime Emerge... EGAA/GCRR ??:??/00:00 10/08/2009 13:55:15	x
CGTDH UpTime Emerge... EGAA/GCRR ??:??/00:00 10/08/2009 13:55:05	x
CGTDH ETA changed from 00:00 to 00:00 10/08/2009 13:46:46	
CGTDH departed EGAA/GCRR ??:??/00:00 10/08/2009 13:46:46	



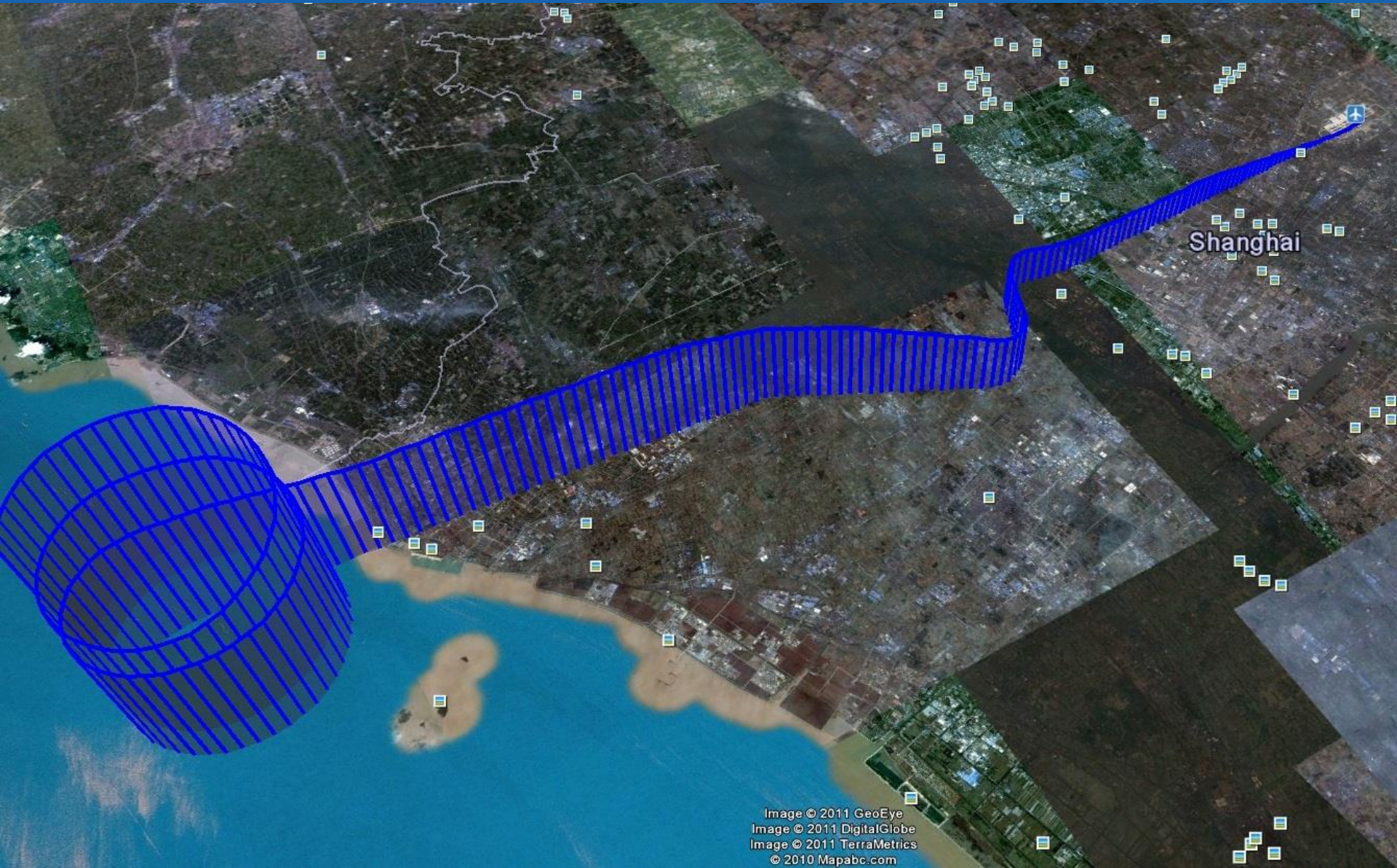
Streaming

- Automated triggers
 - BEA algorithms
 - User defined
 - Industry mandated
- Iridium provides true global coverage
- ARINC 717 data (FDR)
- Quarantine procedures
- Cost effective

Analysis – Are We Still Flying



Where Is It



Challenges and Obstacles

- Industry consensus
- Perceived cost
- Data security
- Perceived bandwidth issues
- Speed that industry adopts change

Need for Standards

- Agreed and supported
- Can evolve after implementation
- Not a reason to delay implementation

Next Steps and Outlook

- Industry must do something
- Analysis done – time for action

AFIRS Airworthiness Approvals

FLYHT Airworthiness Approvals

Aircraft Type/Series	TCCA (Canada)	FAA	EASA	CAAC (China)	ECAA (Egypt)
Airbus A319-A320-A321 [ACJ319- ACJ320-ACJ321]	220(A), 228(A)	220(A)	220(A)	220(A), 228(IP)	220(A)
Airbus A330-200/300	220(P)				
ATR 42 / 72	228(A)		228(A)		
Bombardier CRJ-100/200/440 [CRJ-100SE]	220(A)	220(A)	220(A)		
Bombardier CRJ-700/900 [Challenger 870/890]	228(A)			228(A)	
Boeing 737-200/300/400/500	220(A), 228(IP)	220(A)	220(A)	220(A)	
Boeing 737-700/800 [BBJ1/BBJ2]	220(A), 228(A)	220(A), 228(IP)	220(A)	220(A), 228(IP)	
Boeing 747-200	228(A)				
Boeing 757-200	220(A)	220(A)	220(A)	220(A)	
Boeing 767-200/300	220(A), 228(A)	220(A), 228(IP)	220(A)	220(A)	
Boeing 777-200/300	228(A)	228(A)			
DeHavilland DHC-7	220(A)				
DeHavilland DHC-8-100/200/300	220(A)	220(A)	220(A)		
DeHavilland DHC-8-400	220(A)				
Embraer EMB 135/145 [Legacy 600]		220(A)			
Fokker F.28 Mk0100	220(A)				
Hawker 750/800XP/850XP/900XP	220(A), 228(A)	220(A), 228(IP)	220(A), 228(A)		
McDonnell Douglas DC-10-10/30/30F	220(A)	220(A)			
McDonnell Douglas MD-83	228(P)				

220(A) = Active AFIRS 220 220(P) = Provisioned AFIRS 220 with Activation Approval Pending

228(A) = Active AFIRS 228 228(P) = Provisioned AFIRS 228 with Activation Approval Pending

IP = In Progress – Design 80% (min.) Complete or Submitted to Foreign Authority for Validation

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