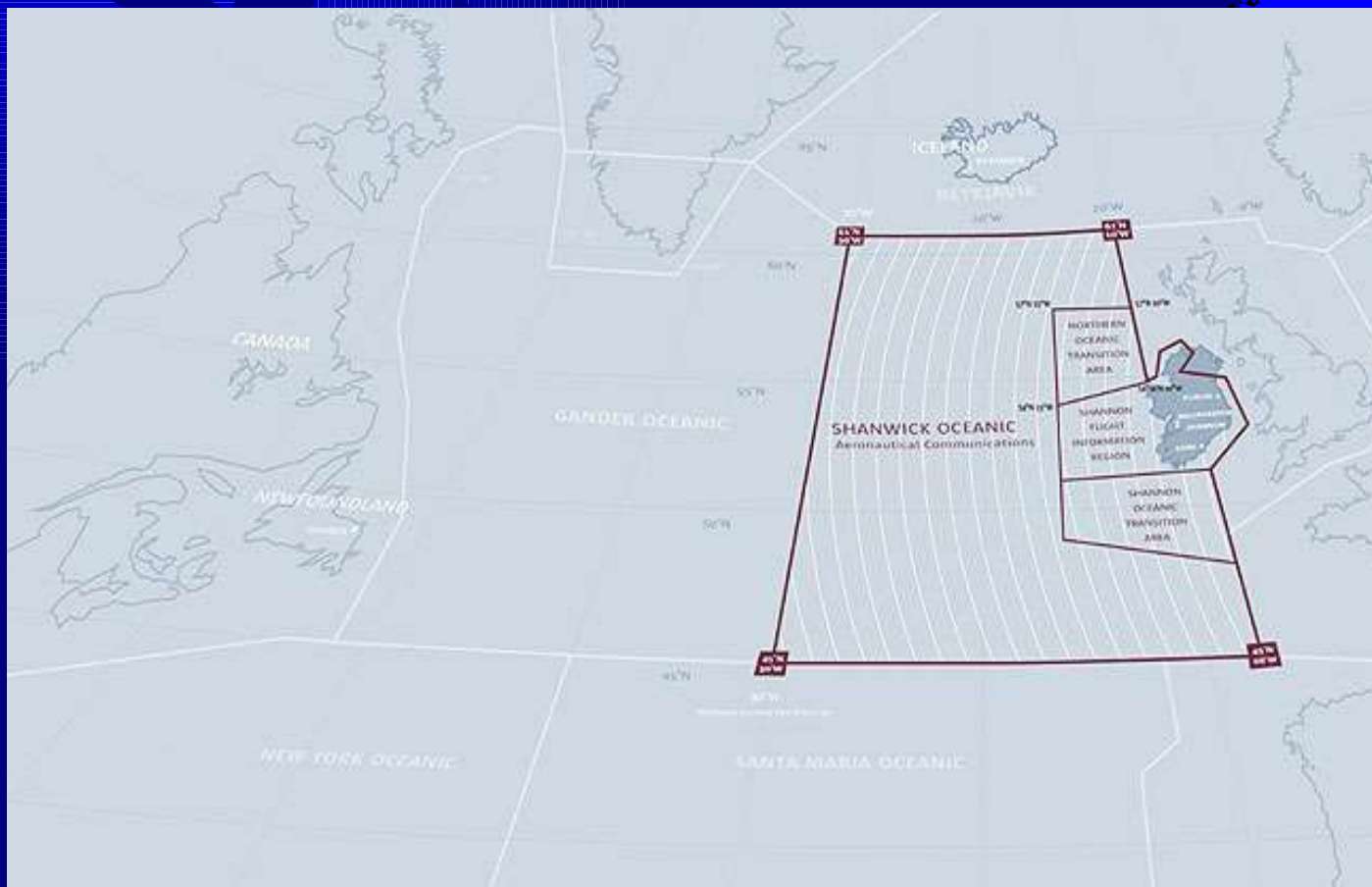


# The Irish Aviation Authority's use of Datalink, the story so far....

ATN 2005 - 20<sup>th</sup> September '05

Presenter: Malcolm Campbell  
General Manager Dublin ATCC

# The Known World





- ❖ Problem: Left inside tyre almost needs replacement
- ❖ Response: Almost replaced left inside tyre

# Outline

- ❖ Example of the current situation
- ❖ Benefits of data linking
- ❖ Equipment required
- ❖ Dublin Trial
- ❖ The Shannon experience
- ❖ Future plans



- ❖ Problem: Test flight OK, except autoland very rough
- ❖ Response: Autoland not installed on this aircraft





- ❖ Problem: Something loose in cockpit
- ❖ Response: Something tightened in cockpit

# Operational Expectations and Benefits

- ❖ Safety!
- ❖ Reduction in errors
- ❖ Stuck microphones
- ❖ Blocked transmissions
- ❖ A reduction in workload
- ❖ A reduction in RT congestion – codes, frequencies and clearances
- ❖ Provides for huge increase in traffic without extra voice channels or staffing
- ❖ Crew can process the clearance when convenient
- ❖ No requirement for perfect english





- ❖ Problem: Evidence of leak on right hand main landing gear
- ❖ Response: Evidence removed

# Current Equipment



LEANING TOWER OF PISA.

- ❖ Interface to ACARs network (ARINC/SITA)
- ❖ Integrated Datalink server (IDLS)
- ❖ Interface to CAIRDE (Eurocat) system
- ❖ HMI via Controller Working Position



- ❖ Problem: DME volume unbelievably loud
- ❖ Response: Volume set to more believable level

# Additional equipment/Work Required

- ❖ Enhancement to IDLS server
- ❖ Enhancement to HMI/CWP
- ❖ Additional server for ATN

# Trial conclusions

- ❖ Poor response from the airlines - 25% participation required
- ❖ High cost of the service – approx 20 cents per message and there has to be a definite benefit to airlines to encourage use of the system
- ❖ Cost of equipment/lack of equipment
- ❖ Changes are needed to our system to facilitate full and effective data linking
- ❖ Pilot's patience is a limiting factor!

# Requirements for a CDS



- ◆ In the CDS position clear display of all pending intended flights
- ◆ Clearance transmitted automatically on receipt of request or manual 'send' by ATCO?
- ◆ Pre-defined text messages to pilots –de-icing, flow restrictions etc
- ◆ Minimum of ATCO inputs
- ◆ Minimum delay in transmitting clearance to pilot
- ◆ Receipt of the clearance should be regarded as permission to start-up?



- ❖ Problem: Autopilot in altitude hold mode produces a 200fpm descent
- ❖ Response: Cannot reproduce fault on the ground

# What changes do we feel are needed?

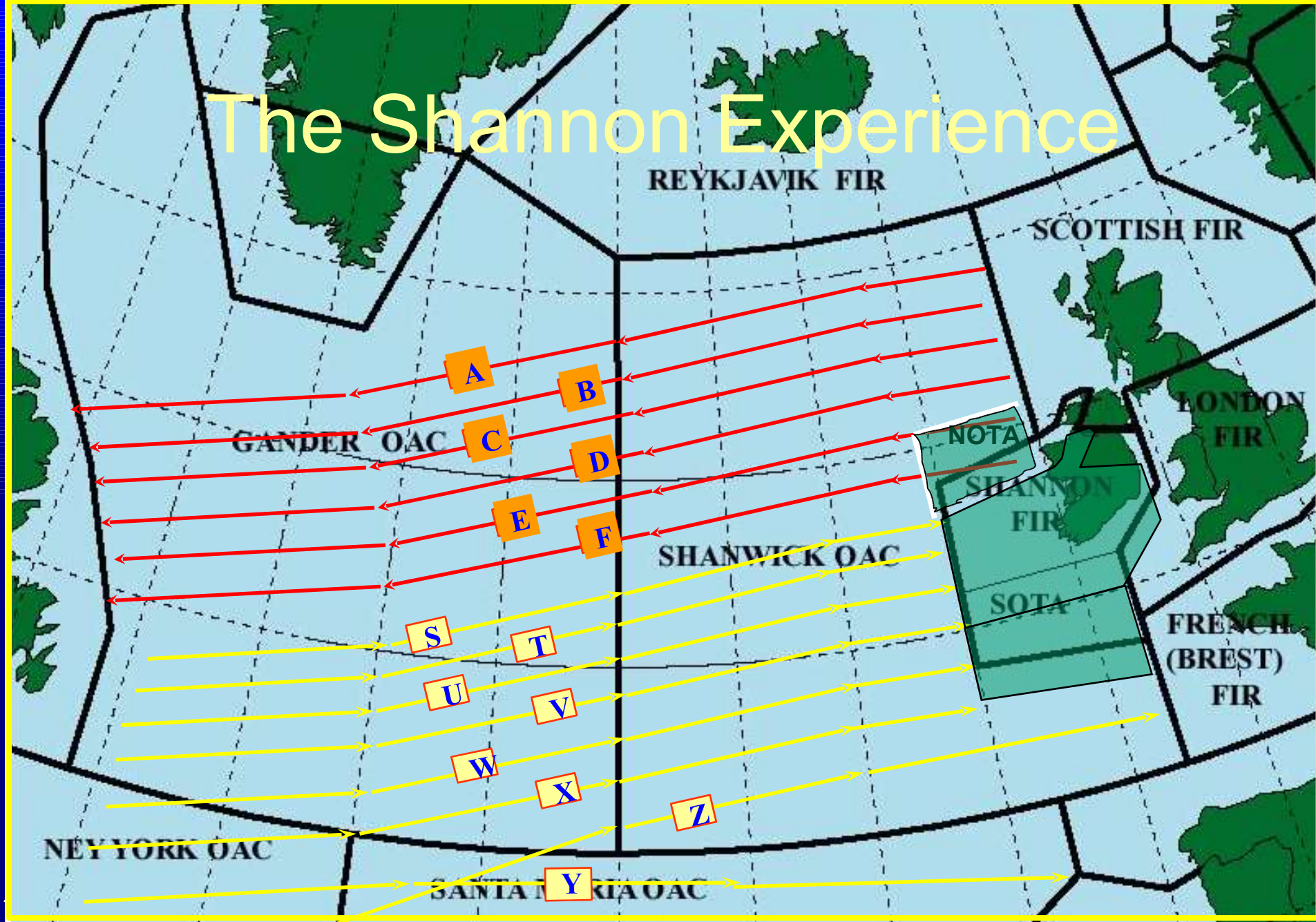
- ❖ Audio and colour indication to the ATCO of a received clearance message – essential as ATCO is primarily using RT to issue clearances
- ❖ Departure list must be resizable to allow the maximum number of flights to be displayed – no scrolling to see a flight hidden further down the list
- ❖ Some form of status sort list to ensure that DCL equipped aircraft appear near the top of the departure list – advantage to using the system
- ❖ CDS to become a 24 hour service available at all positions
- ❖ Well designed working position (screen and interface) taking into account how the service will be used





- ❖ Problem: IFF inoperative
- ❖ Response: IFF always inoperative in OFF mode

# The Shannon Experience





- ❖ Problem: Friction locks cause throttle levers to stick
- ❖ Response: That's what they are there for

# PHASED IMPLEMENTATION

- ❖ Phase 1: Q1 2006 Put technology in place
- ❖ Q3 2006
  - Code assignment for Eastbound traffic exiting ocean.
  - Frequency assignment for East and Westbound traffic.
- ❖ Phase 2: to be decided
  - Airways Clearances.



- ❖ Problem: Number three engine missing
- ❖ Response: Engine found on right wing after brief search

**Sunday 11th July 2004**

<b>Airspace/ Point</b>	<b>Busy Hour</b>	<b>Traffic Numbers</b>	<b>Time to Transmit SSR Code</b>	<b>Time to Transmit Freq. change</b>	<b>Total Time spent transmitting SSR codes and Freq Changes</b>	<b>% Of Controller time on these Transmissions</b>
<b>EISN ALL</b>	0300 To 0400	88 Aircraft	15 Seconds	15 Seconds	44 Minutes	N/A (depends on No of Sectors)
<b>One Track through Point LIMRI</b>	0300 To 0400	32 Aircraft	15 Seconds	15 Seconds	16 Minutes	27%



- ❖ Problem: Aircraft handles funny
- ❖ Response: Aircraft warned to straighten up, fly right and be serious

# HMI FEATURES

- ❖ Off the Shelf – IAA philosophy.
- ❖ Learn from Maastricht experience.
- ❖ Dedicated Datalink window (Similar to Dublin requirement).





- ❖ Problem: Target radar hums
- ❖ Response: Target radar reprogrammed with lyrics

# HMI Features

- ❖ Radar Label to indicate aircraft equipage.
- ❖ Datalink updates to display and highlight in Radar Label.
- ❖ Access to message dialogue window via Radar Label.
- ❖ Alert for failure of message acknowledgment to display in Radar Label.



- ❖ Problem: Dead insects on windshield
- ❖ Response: Live insects on order

# System Architecture

- ❖ IAA geographical location requires system design to accommodate both datalink technologies.
- ❖ Dual stack Integrated Data Link Servers.
- ❖ Connected to both SITA and ARINC.

# Current Situation

## ❖ D-ATIS

April '04 commenced trial. Operational in both Shannon & Dublin Sept 2004.

## ❖ DATA LINK

Departure Clearance tested successfully at Dublin.

# Possible Upgrade Path

**Step 1: ACARS Stack(s) Architecture with DLIC, ACM and limited ACL Services**

**Step 2a: ATN/ACARS Stacks Architecture with the same services as in step 1**

**Step 2b: “Full” Link2000+ Services with “full” ACL and addition of AMC**

**Step 3: ATN Baseline 1 Services with the addition of:  
DCL and DSC CPDLC Services,  
ADS Service,  
D-FIS Service.**

# Any Questions?

