C/AFT Minutes
Operations Analysis Focus Group and Integrated Solutions Focus Group
October 24-26, 2000
Seattle, WA

Attendees
Rose Hsu, American
Steve Hayes, Continental
Jady Handal, FAA
John Staples, FAA
Karla Michnovicz, FAA
Nigel Makins, Eurocontrol
Arek Shakarian, Boeing
David Perez, Boeing
Dave Jones, United
Randy Kelley, United
Kathleen Pirotte, Boeing
Joe Sinnott, MITRE
Brent Blackwell, American
Brian Harkness, Air Canada
Dick Wurdack, Boeing
Bruce Ware, FAA (via phone)

Next Meetings
ISFG Telecon. October 31st. 10:00 AM Seattle time.
OAFG Telecon. November 1st. 9:00 AM Seattle time.
ISFG Meeting. November 14th. United Airlines, Chicago.

Summary
American, Continental, and United presented their delay data for the dates selected.

- Good weather
  - 9/29, 10/2, 10/9
- Bad ORD weather days
  - Rose recommends 9/20, 9/21, 10/8.
- Bad LGA weather days
  - 9/28, 9/15, 9/26
- Bad weather on both sides
  - 9/10, 9/24, 10/5

We reviewed the airline data to agree on one day to analyze for each condition. In the process of doing this we identified another scenario: good terminal-area weather, but high en-route delays (September 28th). The agreed-upon dates are shown in the table below.

Now that we have identified the days to analyze, and the delays experienced by the airlines on those days, the next step is to determine the case of delay. We will start with analyzing the good day (10/9).

Delay data sources:

- Jady has provided outage data.
- Bruce will get ETMS, OpsNet (airport-oriented, facility-oriented, or both) and flight logs;
- Joe will look at CODAS; Outage log;
- Boeing will correlate airline data with FAA data.
- Brent will ask what kind of SOC data exists. (e.g. general weather, etc for those 5 days in our market.)
- Airlines will provide ACARS delay code en-route.
- Airlines will provide OOOI data. Airlines will supply info on en-route and taxi-out delay codes (ACARS source).
- Each airline will provide the following data in a spreadsheet to Boeing (time and dates Zulu):
    - Airline, Flight #, Departure airport, Arrival airport, Date, Actual OOOI, Schedule Out, Schedule In, Flight Plan air time, Delay Codes (ATC-related only), prepush & postpush, ATC-related cancellations.

The ISFG reviewed the Operational Enhancment Integration Analysis paper written by Boeing (on C/AFT web site at http://www.boeing.com/caft/ "A Proposed Methodology for Operational Enhancement Integration Analysis"), and reviewed the database of operational enhancement alternatives. We did a very high level assessment of each alternative by phase of flight for the ORD/EWR market. Our assessments are found in the accompanying excel spreadsheet.

Day Type	AAL	CAL	UAL	Final Recommendation
Good Day	10/9 • Long taxi-out delays • Large flight plan air times (LGA-ORD, ORD-LGA)	10/9 • Eastbound problem		10/9
Bad LGA	9/15 • high taxi-	9/26 • Bad air		9/15 • Taxi delays

	out delays	delay into EWR • Huge pre-push delays out of EWR starting at 1500		• Air delays •
Bad ORD	9/20 or 9/21 • 9/20 high taxi delay • 9/21 high air delay	9/21 or 10/8 • 9/21. High air delay. EWR-ORD 9 flights over flight plan, average 5 minutes • 10/8 taxi out issue in ORD		9/20
Bad Both	10/5 • high air and taxi delays	9/10 or 10/5 • 10/5 high air delay • 9/10 high taxi delay		10/5
Block Time Pad	9/28	9/28 • Good on-time performanc e • High en-route delay • Low taxi delay		9/28

Discussion:
Need to lok into . On westbound most of delays happen on ground. On eastbound delays are taken both in the air and on the ground. Why is this?

Rose says that they don't attribute taxi-in delays to ATC delay, she considers that an airline issue. Steve says that if there is a weather event it may be due to ATC delay. This is a gray area. Sometimes an early arrival can result in a long taxi-in.

Outage data will shed light on causes of delay for days that we pick. Jady presented a spreadsheet with outage data. Full outage data in the spreadsheet is valid, but it does not

include reduced services. Karla can help us to understand what actions may have resulted from outages.

OpsNet will have attribution from TMAs. Is it airport-oriented or is it facility oriented?

Bruce, would look at OpsNet (air side) and CODAS, although 10/9 might not be in there.

What kind of info in ETMS will help us identify cause. Bruce – won't see context information in the database because there is no easy way to get it. ETMS is designed for tactical decisions, isn't designed for this kind of analysis, so difficult.

Do you have access to facility logs? Bruce says that we do have them and there is a project to develop database of them, bieng done by Tim Grovak, but not sure where it's at now.

If we have single dates, can we get facility information? Bruce says yes, but not sure in what format we could get it.

Rose, if there is MIT implemented on a given day, does ETMS show how the MIT impacts operations? Bruce, if you look at flight plan schedule spreadsheets, in message source column, there is a "controlled" message source, which is a flight plan that is created based on ground delay constraints. How that would translate into MIT constraint is an art by the individual facilities. You can't get the detailed info for analytical purposes directly out of the database. Can we assume that if we see "controlled" in message source we can assume that there is some kind of ground delay program in effect? Yes, but can't identify where MIT's are happening. Bruce has a call into Ellen King to find out what kind of data they have.

CODAS generally has 35-40 day aging. If we had near real-time OOOI data it would be easy to run a query to see between schedules and poistion reports to see how things progressed during the day.

What's in CODAS on an individual flight basis?
Ground delay taxi times, dpeartue queue, arrival queue.

In OpsNet you could then find out what delay was attributed to. OpsNet is delay greater than 15 minutes.

Bruce recommends that we look at OpsNet, CODAS, ETMS, facility logs.

How far back do they keep facility logs – 15 days. May not be able to go back to 9/15.

Bruce has sent us only the scheduled flight plan data, there is still a wealth of info on actual position data, but that's major data extraction effort.

If we are looking at 10/9, what details can you provide from ETMS

Every radar position report on every flight, mileage in center, mileage in sector, time in center, time in sector, actual vs. planned.

If we give you the day and the flight numbers, does it make the problem easier? Can you get us all the data for one day? October 9th. Looks like about 110 flights. Looks slow to them.

ASPM is an enhancement of CODAS that has real-time OOOI times from ARINC. There should be no 45 day constraints.

POET Post Operation Evaluation Tool command center. Could be used to look at possible solutions. When we start speculating on ways to fix things, it has what-if capability. Contact metron for more info. Steve Albania. Get info from Rose on contact. United will talk to the appropriate person to get data for the days that we need.

For the 5 scenarios that we have picked we are going to need to determine the frequency of occurrence to be able to prioritize which of the problems that we want to focus on. Monica gave us a presentation on determining delays by weather condition (including frequency) at the top 25 airports.

Note that we don't have en-route weather as one of our problems. For now we are assuming that the en-route delays on Sept 28th are due to weather, but that remains to be proven.

Kathleen to ask Monica for technical description (runway separations, how do they operate, etc) of ORD, LGA, and EWR.