Surface Operations Office

ADF Symposium

"Surface CDM" -

Connecting the Dots

From the Gate to the NAS

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Topics for Discussion

- Surface Operations Today
- Surface Flow Management Changes Driven by Industry
- Collaborative Decision Making (CDM) Role
- Surface Office
- ‘Connecting the Dots’ from the Gate to the NAS
- Benefits

Surface Operations Today

"First Come, First Served" Often Fails to Meet the Needs of NAS Stakeholders…and Predicting Flight Departure Time Becomes a Guessing Game for the Dispatcher and Crew

Do Any of These Scenarios Sound Familiar ?

- You plan your flight based on all of the most up-to-date information, but get a call from your crew telling you that they called for taxi and they're being told by ATC that they have a 'wheels up' time 40 minutes from now?

- A flight calls for pushback clearance for an on-time departure only but ATC tells them the departure route is 'closed' and no routes are available?

- Your crew leaves the gate during a SWAP event and you are watching the taxi out 'clock' mindful of the DOT Tarmac Rule. You call the local Tower and ask for help at the 90 minute mark, but ATC advises that they only show 60 minutes of taxi time for the flight.

'Surface CDM' is intended to improve predictability and shared situational awareness around flights for which you are providing operational control….

Today's Surface Environment

Demand Predications

- Real demand, as opposed to "planned demand", is often inaccurate as it is based solely airline schedule data and flight plan 'P-time'
- Limited ability for operators to promptly update changes in their operational plan

In the future, sharing of 'Earliest Off Block' (EOBT) data will enable Stakeholders to more efficiently predict and plan for 'real demand' and operators will have the ability to better adjust plans based on their operational and business needs

Industry Initiative Leads to 'Surface CDM'

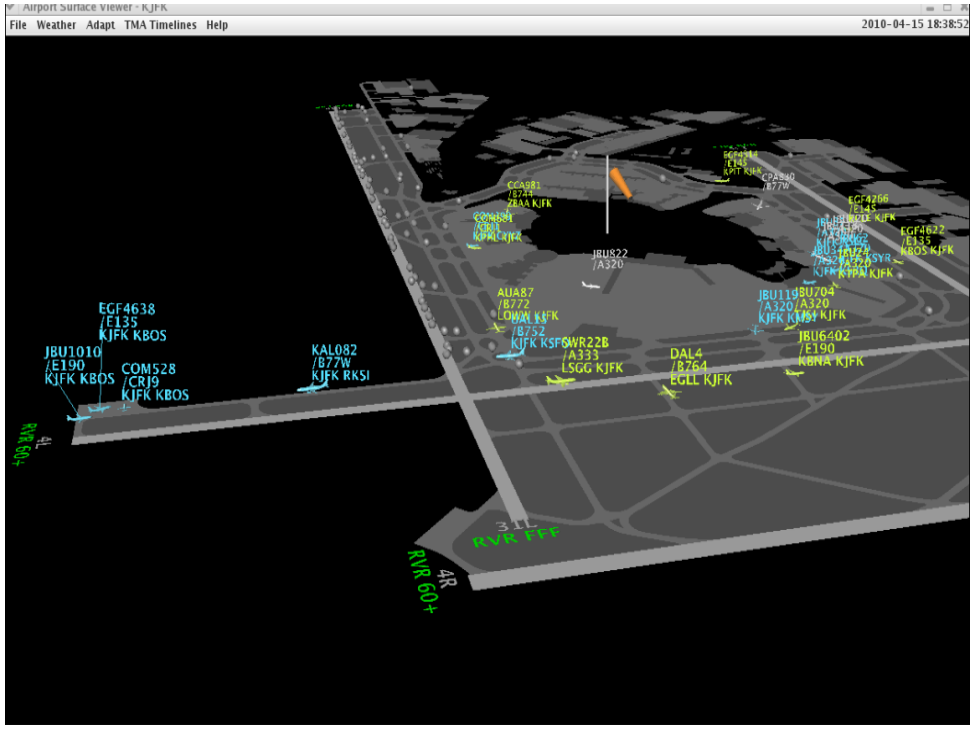
- **CDM is a goal oriented FAA/Industry forum which seeks to provide transparency and more efficient utilization of available capacity**
- **The Surface CDM Team (SCT) wrote the Surface CDM Concept of Operations and delivered it to the FAA in September, 2010**
- **Industry asked the FAA to include the SCT as full participants in validating the concept and conducting Human-in-the-Loop exercises**

Surface CDM ConOps

- **Capabilities**
  - Information sharing using CDM data
  - Improved airport demand and capacity predictions
  - Queue management when an imbalance is predicted
  - Metering times provided *before pushback*

- **Surface CDM will allow operators, Traffic Managers, and ATC to manage planned delay in a more cost effective manner by holding aircraft at the gate to avoid excessive departure queues at the runway**

Surface CDM ConOps Validation



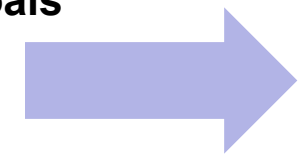
- **SCT members and other Stakeholders supported Phase 1 of ConOps Validation July 2011- April 2012**
- **SCT members include FAA, JBU, AAL, AWE, DAL, FDX, SWA, UAL, UPS plus NBAA, PANYNJ, DIA, and ATL DOA**
- ***Human-in-the-Loop* exercises began in June 2012**

Stakeholder support and active participation is critical to success

Initial Operating Experience (IOE) Airports

Airport Selection Criteria

- **Traffic Volume / Delay Rank**
- **Airspace & Airfield Constraints**
- **OAPM Airport**
- **Driven by ATO 'Destination 2025' Goals**
- **Dominant Carrier(s)**
- **Traffic Management Unit (TMU)**
- **Actively Involved Airport Authority**
- **Ramp Management Availability**
- **Business Aviation & International Operations**



Airports Meeting Selection Criteria

1. *JFK*
2. *EWR*
3. *LGA*
4. *IAH*
5. *ORD*
6. *PHL*
7. *ATL*
8. *DEN*
9. *DFW*
10. *LAX*
11. *CLT*
12. *PHX*
13. *DTW*
14. *BOS*
15. *DCA*
16. *MIA*
17. *IAD*
18. *SEA*
19. *LAS*
20. *MSP*
21. *BWI*

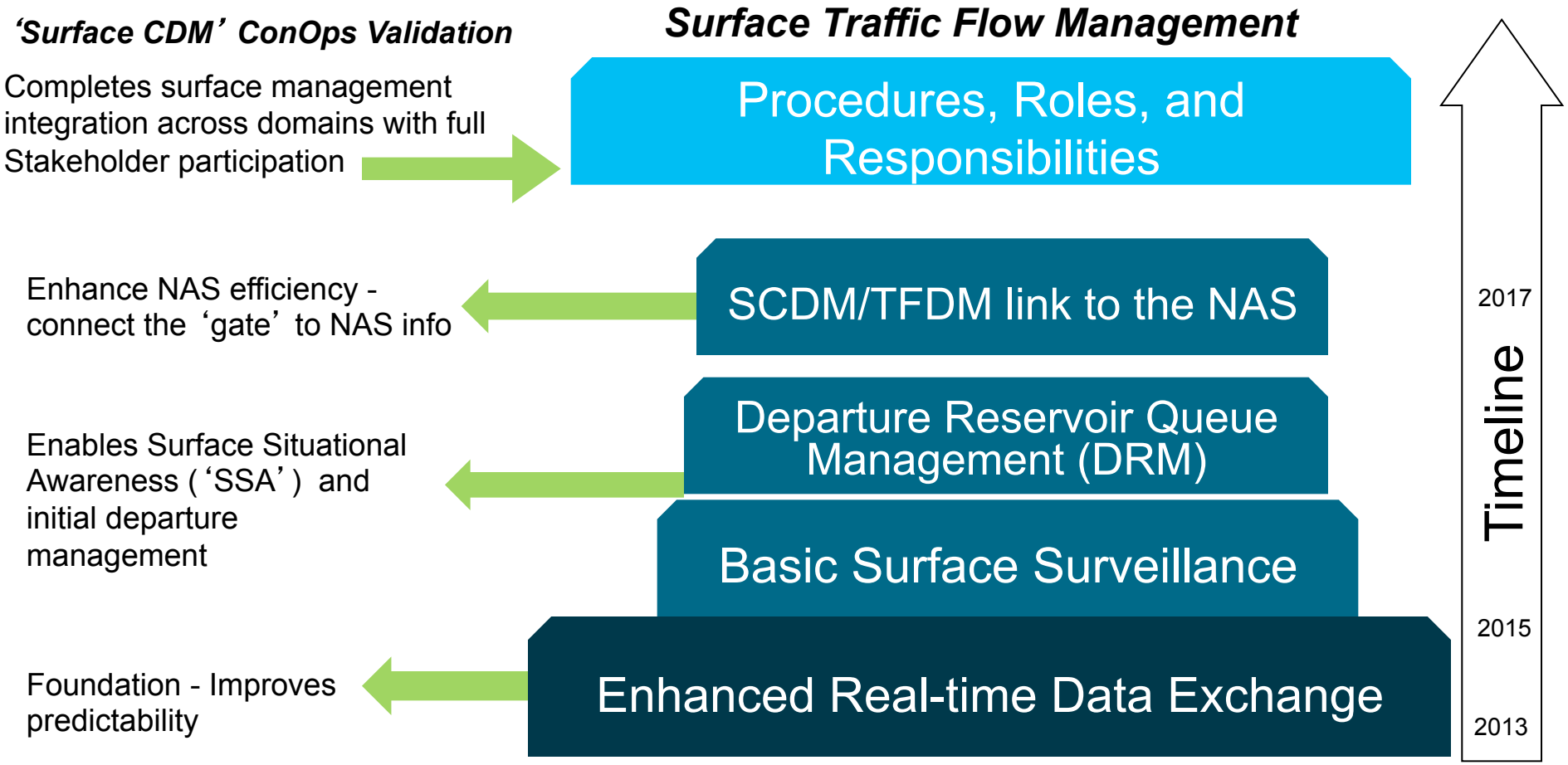
****MEM/SDF: continue ongoing surface research***

Initial Operating Experience (IOE) Airports

Selection Criteria Considerations

- Traffic Volume / Delay Rank
- Airspace & Airfield Constraints
- 'Metroplex' Airport
- Fits ATO 'Destination 2025' Goals
- Dominant Carrier(s)
- Traffic Management Unit (TMU)
- Actively Involved Airport Authority
- Ramp Management Availability
- Business Aviation & International Operations

'Connecting the Dots' - Begins at the Gate



Strategic Planning, Tactical Execution

Basic Surveillance

Surface CDM (SCDM)

Creates a s*trategic plan* for Surface flow management based on real-time Stakeholder (FOC) *data exchange*

Terminal Flight Data Manager (TFDM)

ATC Integrated Decision Support Tool enables *execution* of the SCDM plan integrating TFMS and TBFM data, adjusting as required to meet tactical needs

TFMS Data

NAS TBO

TBFM Data

Departure Reservoir Queue Management

Timeline **2015** **2017** **NextGen**

Basics Tenets of Surface CDM

- Know the Demand
- Notify Stakeholders of Predicted Imbalances
- Options Assessed Using ‘What If’ Modeling
- Collaborate as Necessary

Measurable Benefits

1. Less Uncertainty = Improved Operational Control = Better Traveler Experience

2. Reduced Taxi Time = Reduced Fuel Burn = Environmental Benefit

3. Improved Predictability Leads to Better Efficiency, Reducing Block Time

4. Common Situational Awareness Benefits All Stakeholders

- Improved response to flights involved in weather events including more efficient reroutes, more effective diversion recovery, return to gate scenarios (associated with the DOT Tarmac rule), and other off-nominal events, all which impact travelers
- Real time understanding of the impact of surface events (runway configuration changes, taxiway closures, snow removal, emergency response, etc.)

Next Steps

- Complete validation of *Surface CDM ConOps* HITL exercises with the Surface CDM Team
- Coordinate Surface activities across FAA lines of business; build on existing Surface activity, including STBO/CDQM, 'N-Control', and Safe Flight 21 initiatives; identify gaps and tradeoffs; avoid duplication of effort
- Continuous outreach and collaboration with *all* Surface Stakeholders
- Assess environmental baselines and potential Surface related benefits
- Revise policy and procedures to support improved Surface operations
- *Always be aware of the importance of the role of the Aircraft Dispatcher!*


Thank You!
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