Collaborative Decision Making

CDM – Philosophies and Benefits

Presented to: The Third Meeting of ICAO Asia/Pacific Air Traffic Flow Management Steering Group

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What is Collaborative Decision Making?

Why was CDM created?

Who is involved in CDM?

Discuss CDM Structure

Identify CDM Goals

What is Collaborative Decision Making?

- Collaborative Decision Making (CDM) is a joint government/industry initiative to improve the Air Traffic Management (ATM) system through increased information exchange among all stakeholders

- The Success of CDM is directly related to the participation and commitment of all participating stakeholders and their ability to provide real time quality data.

What is Collaborative Decision Making?

Philosophy

Embraces partnership, combines the talents and experiences of all individuals, and facilitates the harmonization and globalization of the world's airspace system

Process

Sharing data to create a common view of the ATFM system from which to base decisions, and including stakeholders in the decision-making process This allows for better predictability and better decision making within ATFM.

Economic Impact of Civil Aviation

- Contributes $1.3 trillion annually to the national economy
- Constitutes 5.6 percent of the gross domestic product
- Generates more than 11.5 million jobs, with earnings of $396 billion

Why was CDM created?

Achieve system goals

no single stakeholder has all the information, no two stakeholders have the same values, and all stakeholders interpret information through different experiences

Why was CDM created?

Achieve system goals by sharing information, values and preferences, stakeholders learn from each other and build a common pool of knowledge, resulting in ATM decisions and actions that are most valuable to the system

CDM in the Beginning

- 1993 – FAA/Airline Date exchange (FADE) experiments with AAL, UAL, USA.
- 1994 – ATCSCC exercises the CDM concept in preparation for operational exercises. The exercise results in a total reduction of 10-40% of assigned airline delay.
- 1995 – “Roles and Responsibilities” document, the cornerstone of the CDM program, crafted by the airlines and signed by the FAA. CDM becomes official.

CDM in the Beginning

- 1996 – Communications and Collaborative Routing Groups are established. Operational exercises involving major airlines to test the CDM concept and applications by using FSM are run using “what if” scenarios. The birth of CDM Subgroups.
- 1998 – Prototype Operations begin. CDM uses San Francisco and Newark airports as test sites. Initial results yield significant delay and cost savings. LaGuardia and St. Louis Airports are added to the Prototype Operations.

Stakeholders Goals

- Safe flight
- On-time arrivals
- Minimal delay
- Passenger connections
- Crew connections
- Aircraft connections
- Minimize turn times
- Fuel savings

ATC Goals

- Safe separation
- Maximum throughput
- Efficient use of capacity
- Controller workload managed
- Equitable service
- Reduce greenhouse gases

CDM improves ATFM

- Procedural improvements
- Tool development
- Common situational awareness

CDM Collaborative Tools

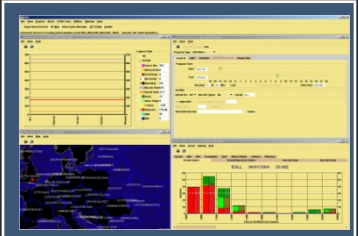
-Integrates Data to Enhance Decisions-

Common Situational Awareness between Stakeholders and ATC allows for integration of data from all sources to make a more informed, "**Better**" decision

- Integration of ATC and Airline Data to provide a "Big Picture"
- Improved Situational Awareness, Enroute & Airport Flow Tools, Real time information & Uniform Reaction to system impacts, Analysis –lessons learned

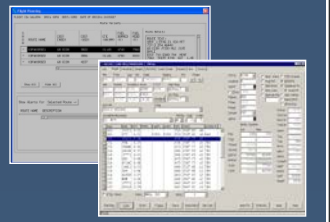
Flight Following, Weather, & Decision Support Tools

Proactive Flight & Weather data Common understanding



Enroute & Airport Flow Tools for flow management

Monitor flows, predict delays, optimize response to impacts



Flight Planning changes, OIS & NTML Mgmt. Tools

Optimized plans

Shared info & responses to System impacts

Event Analysis Tools for Real-time & historical performance

Data & Analysis

CDM Achievements

- 1996 Flight Schedule Monitor (FSM)
- 1998 Common Constraint Situation Display (CCSD)
- 2004 Flow Evaluation Area (FEA)/Flow Constraint Area (FCA) Tool/Procedure
- 2005 Popup Management, GAAP, EDCT Change Tool
- 2005 Assisted in DRVSM Implementation
- 2006 Airspace Flow Program (AFP)
- 2006 Playbook/CDR Improvements
- 2007 Adaptive Compression
- 2007 eSTMP Reservation/Confirmation CAPTCHA System

CDM Achievements

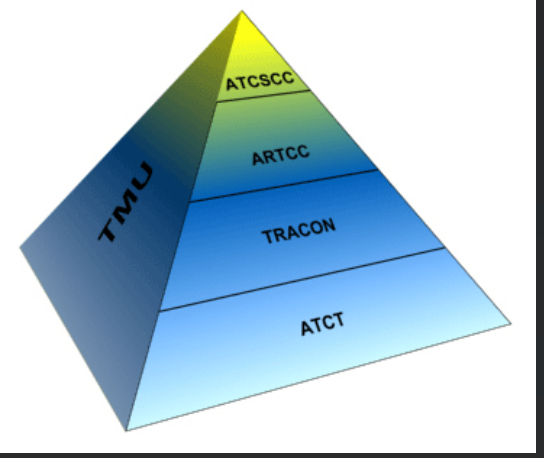
- 2008 ASDI Feed Conversion to XML
- 2008 Input to TFM Modernization – Release 2
- 2008 Departure Flow Management
- 2008 Integrated Collaborative Rerouting
- 2009 CCFP/Lamp Prototype
- 2009 Integrated Program Modeling (IPM)
- 2010 Reroute Impact Assessment Tool (RRIA)
- 2011 Unified Delay Program (UDP)
- 2011 Execution of Flow Strategies (XFS)
- 2014 Collaborative Trajectory Options Program (CTOP)

Why CDM?

- More effective communications
- Maximizes operational safety and efficiency.
- Shared technologies and procedures
- Enable ANSPs and stakeholders to identify and work toward common goals
- Increased information exchange
- Enhanced decision making
- Better solutions to ATFM problems

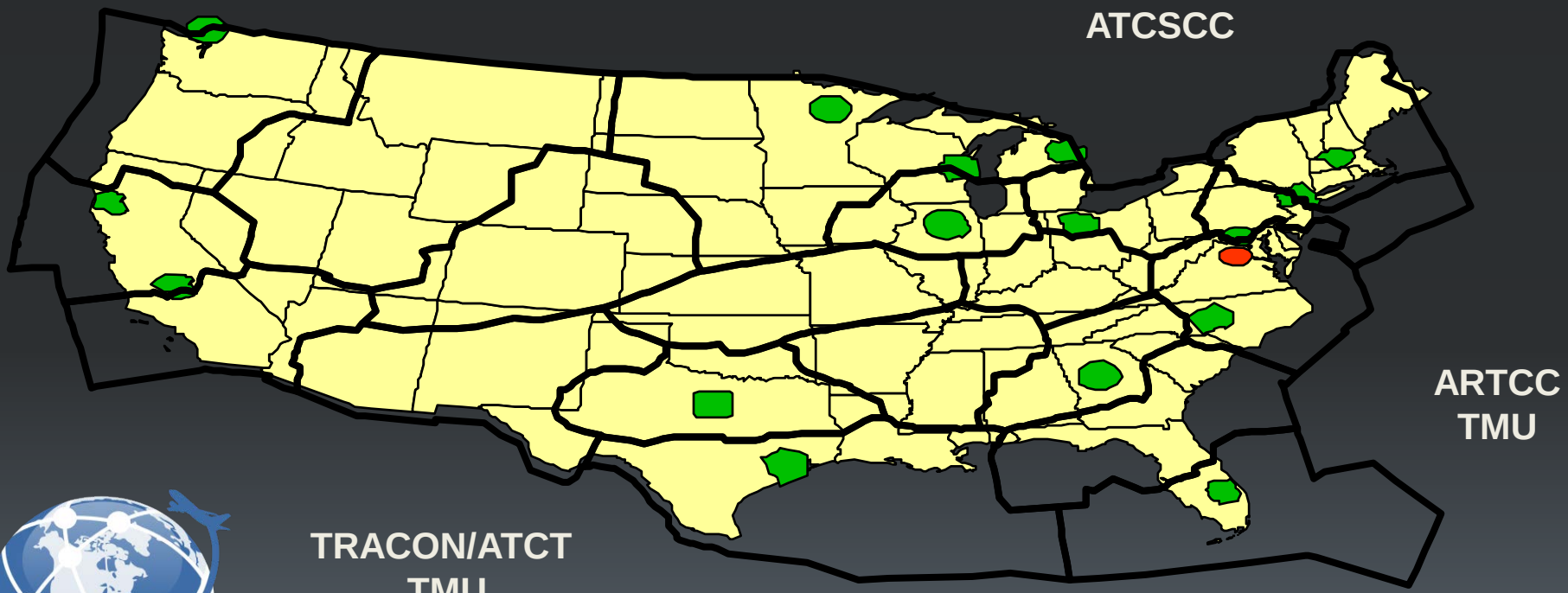
CDM Enables

- More flexible and dynamic planning
- Facilitates complete pictures at a local, regional, national, and global level
- Aircraft operators to respond more effectively



TFM Management Structure

Traffic Management Units (TMUs) - TRACON ATCTS & ARTCC



Who is involved in CDM?

CDM Membership Benefits

- A clear step toward greater collaboration and information exchange.
- Access to ATM tools used by Traffic Managers to make real time traffic management decisions
  - Flight Schedule Monitor (FSM)
  - Flight Schedule Analyzer (FSA)
  - Route Management Tool (RMT)
  - Collaborative Convective Forecast Product (CCFP)

Environmental Benefits of CDM

- Improving efficiency of entire routes, rather than just segments, decreases fuel burn throughout the whole flight reducing CO2 emissions.
- Become more tactical in route creation based on changing winds and enroute constraints.
- Increase awareness of global best practices.

CDM Structure

Work Groups

- Directed by FAA and Industry Leads
- Provide recommendations for technology, communication tools, etc.

Six current working groups

- Flow Evaluation Team (FET)
- Future Concept Team (FCT)
- Weather Evaluation Team (WET)
- Surface CDM Team (SCT)
- CDM Training Team (CTT)
- CDM Automation Team (CAT)

Flow Evaluation Team

Current Recommendations and Working Papers

FET

- Concept of Operations (ConOps) for Capacity Estimation
- Required Time of Arrival (RTA)
- Examining Reroutes and the current process.
- CTOP Scenario Review

Future Concept Team

Current Recommendations and Working Papers **FCT**

- Future Mid-Term, NextGen Projects
- Flight Object
- Capability Aware TFM
  - AKA Best Equipped Best Served
- Airborne Execution of Flow Strategies (AEFS)
- Aircraft Access to SWIM

Weather Evaluation Team

Current Recommendations And Working Papers

WET

- Operational Bridging (OB) – Aviation Weather Statement (AWS)
- INSITE – Integrated Support for Impacted air Traffic Environments.
- Aviation Winter Weather Dashboard – Operational for the 18Z model run on Monday November 25

Surface CDM Team

Current Recommendations and Working Papers

SCT

- Developed a Concept for Operations document for a Surface CDM environment
- Collaborated with EuroControl to harmonize (where possible) Surface CDM Procedures
- Surface Information Data Exchange

CDM Training Team

Current Recommendations and Working papers

- Joint Training for all new CDM Tools and Procedures to include CTOP training.
- FAA field facilities and Industry SOC's
- 2014 spring training is now available on TFM Learning Center: http://tfmlearning.fly.faa.gov

CTT

CDM Automation Team

Current Recommendations and Working Papers

CAT

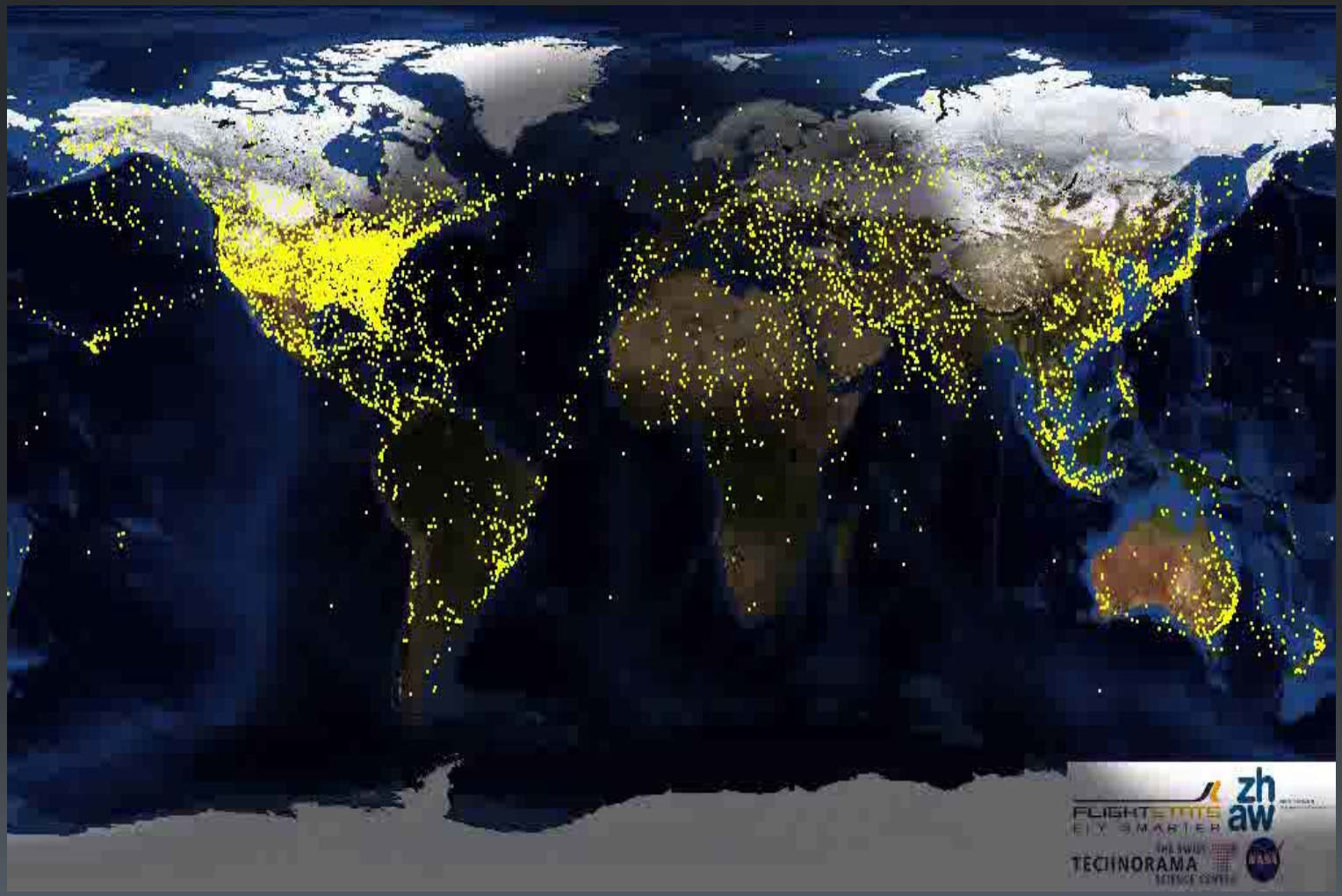
- AFP and DAS Delay Recontrol
- TBFM Metered Times of Departure in TFMS/FSM
- Delay Assignment Review

Collaborative Decision Making (CDM) provides the potential for true transformation and seamless ATFM around the globe.

Global CDM

- ATCSCC/EuroControl information exchange and joint learning opportunities
- Collaborating with ICAO on global CDM guidelines
- Working with ICAO, CANSO and various air navigation service providers to educate and foster the philosophy of CDM
- International Telcons; Planning, Hurricane, Volcanic Ash

Global Connection



CDM Goals

Provide all decision-makers with a common picture by allowing them to look at the same data.

Allow decisions to be made by the individuals in the best position to make it.

Make decisions in an open manner so that all know what is happening and can contribute as necessary or desired.

“Better Business Decisions”

By providing the right information to the right people at the right time.

At the core of ATFM principles exists a fundamental philosophy that embraces partnership, combines the talents and experiences of all individuals, and facilitates the harmonization and globalization of the world's airspace system:

CDM.

Thank You

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