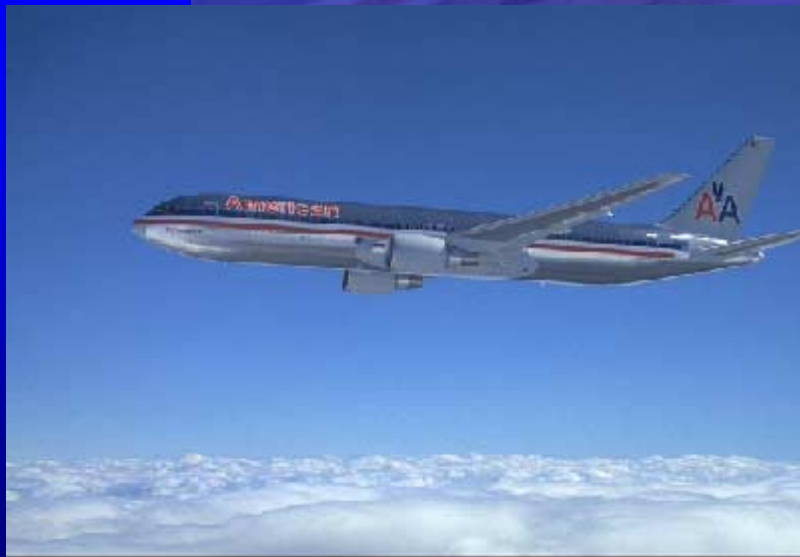




Moveable Duty Free Period DSS



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Outline

- Reserve Bidline Generation (RBG)
- Current Reassignment Methodology
- Bid Month Reassignment Opportunities
- Proposed Objective Functions
- Proposed Reassignment Methodology
- Decision Support Advantages
- Questions & Answers

Reserve Bidline Generation

- 4-part bid status
 - ⚙ base
 - ⚙ aircraft
 - ⚙ seat
 - ⚙ division (domestic/international)
- Manpower Planning \Rightarrow reserve requirements
 - ⚙ number reserves
 - ⚙ daily % on duty
 - ⚙ block structure

Reserve Bidline Generation

- Reserve bidline generation
 - ⚙ number reserves = number bidlines
 - ⚙ daily % on duty = % times number reserves
 - ⚙ blocks = % of 1-6 days specified
 - ⚙ days off = golden (G), moveable (M), fixed (X)
 - ↳ G = minimum 3 consecutive/inviolable
 - ↳ M = 2 (2-30 day mo.), 3 (31 day mo.)
 - ↳ X 2-7, strict reassignment rules
 - ⚙ assignment rules
 - ⚙ distribution rules

Example

Bid	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1821	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	X	X	*	*	*	
1822	*	*	*	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	M	X	X	*	*	*	*	*	*	G	G	G	
1823	*	*	*	M	X	X	*	*	*	*	*	X	M	*	*	*	G	G	G	*	*	*	*	X	X	X	X	*	*	*	
1824	*	*	*	M	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	G	G	G	
1825	*	*	*	*	X	X	*	*	*	*	*	X	X	X	*	*	*	*	M	X	X	M	*	*	*	*	*	G	G	G	
1826	*	*	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X
1827	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	X	X	*	*	*	*	*	*	
1828	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	*	*	X	X	X	X	*	*	*	*	
1829	*	*	*	*	*	M	X	X	X	*	*	*	*	X	X	*	*	*	*	M	X	X	*	*	*	*	*	G	G	G	
1830	*	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	*	*	X	X
1831	X	X	*	*	*	*	M	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	X	*	*	*	*	
1832	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	M	G	G	G	*	*	*	*	*	*	*	X	X	*	*	*
1833	X	X	*	*	*	*	*	G	G	G	G	*	*	*	*	*	M	X	X	X	*	*	*	*	*	M	X	*	*	*	
1834	X	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	G	G	G	*	*	*	*	*	M	X	*	*	*	
1835	X	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	*	M	X	*	*	*	*	*	

Current Reassignment Methodology

- Pilots bid reserve lines
- Reactive 3 days prior - planners
- Reactive DOPS - SOC schedulers
- Manual selection and processing
- First feasible solution
- Keystroke intensive upload
- Suboptimal decisions can risk future coverage



Reassignment Opportunities - Reactive

Bid	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
P1	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	X	X	*	*	*	
P2	*	*	*	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	M	X	X	*	*	*	*	*	*	G	G	G	
P3	*	*	*	M	X	X	*	*	*	*	*	X	M	*	*	*	G	G	G	*	*	*	*	X	X	X	X	*	*	*	
P4	*	*	*	M	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	*	G	G	G
P5	*	*	*	*	X	X	*	*	*	*	*	X	X	X	*	*	*	*	M	X	X	M	*	*	*	*	*	*	G	G	G
P6	*	*	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X
P7	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	X	X	*	*	*	*	*	*	
P8	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	*	*	X	X	X	X	*	*	*	*	
.																															
P15	X	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	M	X	*	*	*	*	*	*	

Bid	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
P1	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	X	X	*	*	*	
P2	*	*	*	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	M	X	X	*	*	*	*	*	*	G	G	G	
P3	*	*	*	M	X	X	*	*	*	*	*	X	*	*	*	*	G	G	G	*	*	*	X	X	X	X	X	*	*	*	
P4	*	*	*	M	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	*	G	G	G
P5	*	*	*	*	X	X	*	*	*	*	*	X	X	X	*	*	*	*	M	X	X	M	*	*	*	*	*	*	G	G	G
P6	*	*	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X
P7	*	*	*	*	M	X	X	X	*	*	*	*	*	G	G	G	*	*	*	*	X	X	X	X	X	*	*	*	*	*	
P8	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	*	*	X	X	X	X	*	*	*	*	
.																															
P15	X	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	M	X	*	*	*	*	*	*	



Reassignment Opportunities - Proactive

Bid	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
P1	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	X	X	*	*	*	
P2	*	*	*	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	M	X	X	*	*	*	*	*	*	G	G	G	
P3	*	*	*	M	X	X	*	*	*	*	*	X	M	*	*	*	G	G	G	*	*	*	*	X	X	X	X	*	*	*	
P4	*	*	*	M	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	*	G	G	G
P5	*	*	*	*	X	X	*	*	*	*	*	X	X	X	*	*	*	*	M	X	X	M	*	*	*	*	*	*	G	G	G
P6	*	*	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X
P7	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	X	X	*	*	*	*	*	*	
P8	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	*	*	X	X	X	X	*	*	*	*	
.																															
P15	X	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	M	X	*	*	*	*	*	*	

Bid	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
P1	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	X	X	*	*	*	
P2	*	*	*	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	M	X	X	*	*	*	*	*	*	G	G	G	
P3	*	*	*	M	X	X	*	*	*	*	*	X	M	*	*	*	G	G	G	*	*	*	*	X	X	X	X	*	*	*	
P4	*	*	*	M	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	*	G	G	G
P5	*	*	*	*	X	X	*	*	*	*	X	X	X	*	*	*	*	*	*	X	X	M	*	*	*	*	*	*	G	G	G
P6	*	*	*	*	M	X	X	*	*	*	X	G	G	G	G	*	*	*	*	*	*	X	X	*	*	*	*	*	*	X	X
P7	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	X	X	*	*	*	*	*	*	
P8	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	*	*	X	X	X	X	*	*	*	*	
.																															
P15	X	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	M	X	*	*	*	*	*	*	



Reassignment Opportunities - Plotted

Bid	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
P1	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	X	X	*	*	*
P2	*	*	*	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	M	X	X	*	*	*	*	*	*	G	G	G
P3	*	*	*	M	X	X	*	*	*	*	*	X	M	*	*	*	G	G	G	*	*	*	*	X	X	X	X	*	*	*
P4	*	*	*	M	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	G	G	G
P5	*	*	*	*	X	X	*	*	*	*	*	X	X	X	*	*	*	*	M	X	X	M	*	*	*	*	*	G	G	G
P6	*	*	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	*	M	X	X	*	*	*	*	*	X	X
P7	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	X	X	*	*	*	*	*	*
P8	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	*	*	X	X	X	X	*	*	*	*
.																														
P15	X	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	M	X	*	*	*	*	*	*

Bid	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
P1	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	M	X	X	*	*	*	*	*	X	X	*	*	*
P2	*	*	*	X	X	*	*	*	*	M	X	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	X	G	G	G
P3	*	*	*	M	X	X	*	*	*	*	*	X	M	*	*	*	G	G	G	*	*	*	*	X	X	X	X	*	*	*
P4	*	*	*	M	X	X	X	*	*	*	*	M	X	X	*	*	*	*	*	*	X	X	*	*	*	*	*	G	G	G
P5	*	*	*	*	X	X	*	*	*	*	*	X	X	X	X	*	*	*	*	X	X	M	*	*	*	*	*	G	G	G
P6	*	*	*	*	M	X	X	*	*	*	*	G	G	G	G	*	*	*	*	*	M	X	X	*	*	*	*	*	X	X
P7	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	X	X	*	*	*	*	*	*
P8	*	*	*	*	M	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	*	*	X	X	X	X	*	*	*	*
.																														
P15	X	X	X	X	*	*	*	*	M	G	G	G	*	*	*	*	X	X	*	*	*	*	M	X	*	*	*	*	*	*



Proposed Objective Functions

- 1 Select candidate reserve lineholders based on combined scores of seniority and projected block hours to EOM.

Example

Bid	SDate	HrProj	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
P1	03/90	25:39	-	-	M	X	X	-	-	-	-	G	G	G	G	-	-	-	-	M	X	X	-	-	-	-	-	X	X	-	-
P2	02/92	65:46	-	-	-	X	X	-	-	-	-	M	X	X	X	-	-	-	-	-	M	X	X	-	-	-	-	-	-	G	G
P3	11/92	49:15	-	-	-	M	X	X	-	-	-	-	-	X	M	-	-	-	G	G	G	-	-	-	-	X	X	X	X	-	-
P4	06/93	50:26	-	-	-	M	X	X	X	-	-	-	-	M	X	X	-	-	-	-	-	-	X	X	-	-	-	-	-	G	G
P5	12/93	40:33	-	-	-	-	X	X	-	-	-	-	M	X	X	X	-	-	-	-	M	X	X	-	-	-	-	-	-	G	G
P6	04/94	27:20	-	-	-	-	M	X	X	-	-	-	-	G	G	G	G	-	-	-	-	-	M	X	X	-	-	-	-	-	X
P7	08/95	67:22	-	-	-	-	M	X	X	X	-	-	-	-	G	G	G	G	-	-	-	-	X	X	X	X	-	-	-	-	-
P8	06/96	56:29	-	-	-	-	M	X	X	X	-	-	-	-	G	G	G	G	-	-	-	-	-	-	X	X	X	X	-	-	-
P9	09/97	30:46	-	-	-	-	-	M	X	X	X	-	-	-	X	X	X	-	-	-	-	M	X	X	-	-	-	-	-	G	G
P10	10/98	70:55	-	-	-	-	-	M	X	X	X	-	-	-	M	G	G	G	G	-	-	-	-	X	X	-	-	-	-	-	X

Proposed Reassignment Methodology

- Re-/proactive 3 days prior - planners
- Reactive DOPS - SOC schedulers
- Phase I - heuristic DSS
- Phase II - optimization DSS
- DSS sensitivity analyses
- Automated solution deployment
- Upstream process refinement

Decision Support Advantages

- Increase reserve utilization
- Reduce/minimize reassignment of lineholders
- Reduce/minimize reassignment pay
- Better response to DOPS factors
- Greater optimization flexibility
- Synergy with RBG





Questions & Answers

