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Lean Paperless Operations & Maintenance at a Start-up Low Cost Carrier

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- Skybus and AMT background
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- Process mapping workshop
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Skybus

- Start-up low cost airline based in Columbus, Ohio
- Customer proposition:
  - Really low fares
  - Nonstop service to major destinations
  - New 150-seat jet aircraft
  - On-time arrivals
  - Luggage that arrives when you do
  - A smile
- Operational Vision:
  - Lean principles implemented across all functional areas
  - Paperless processes
  - World-leading cost base and efficiency

AMT

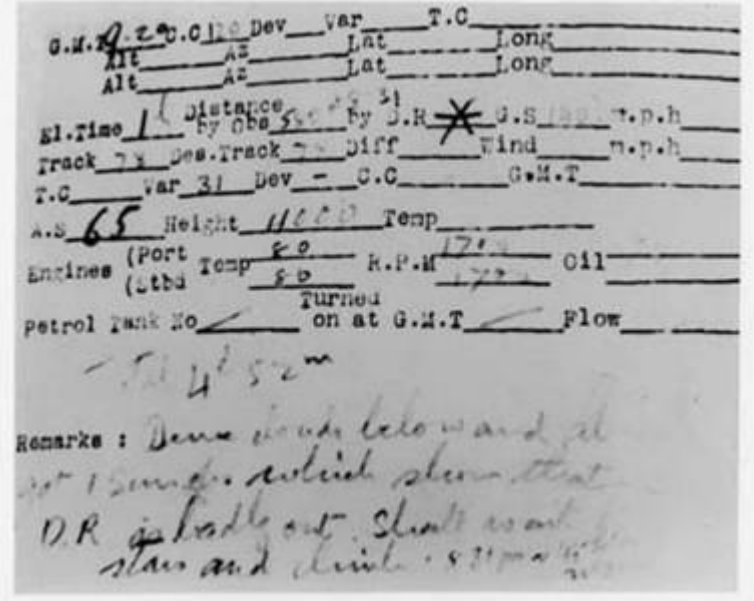
- **A Dublin-based software company that is a leading provider of Electronic Flight Bag solutions**
- **Patented, award-winning software**
  - A broad family of technically superior products that enables dramatic savings and operational improvement at an airline
    - Reduced costs
    - Faster turnaround times
    - Improved on-time performance
- **Airline lean process consulting**
  - 21 Workshops conducted with 17 airlines
  - >500 airline processes mapped and modelled
- **Co-Founder of the Lean Flight Initiative**

Airline Operational Efficiency

- **The passenger-facing side of airlines has been transformed in recent years**
  - IT-empowered passengers
    - Use of internet for booking (directly and via portal sites)
    - Elimination of the travel agent “middleman”
    - E-tickets, kiosks, on-line seat selection &, check-in
- **Airline operations has *not* caught up**
  - Paper-based, manual processes
  - Time-late management information
  - Re-active, inefficient problem solving (“firefighting”)

What technologies are used to manage aircraft?

1919

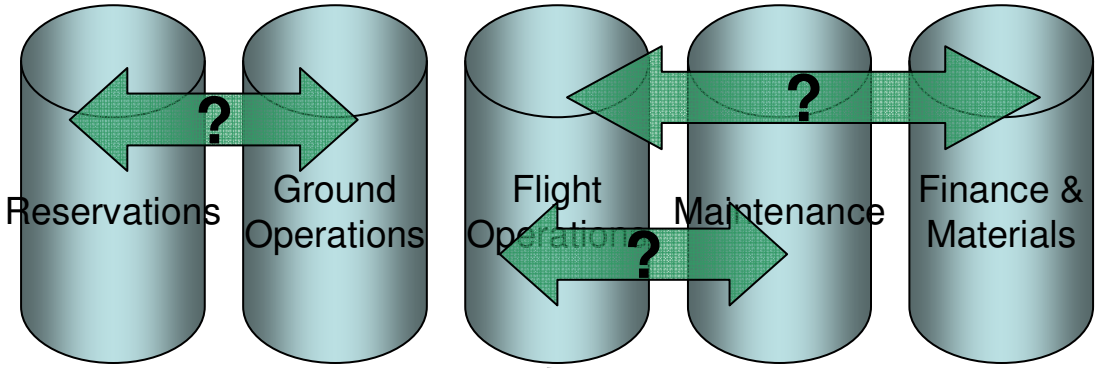


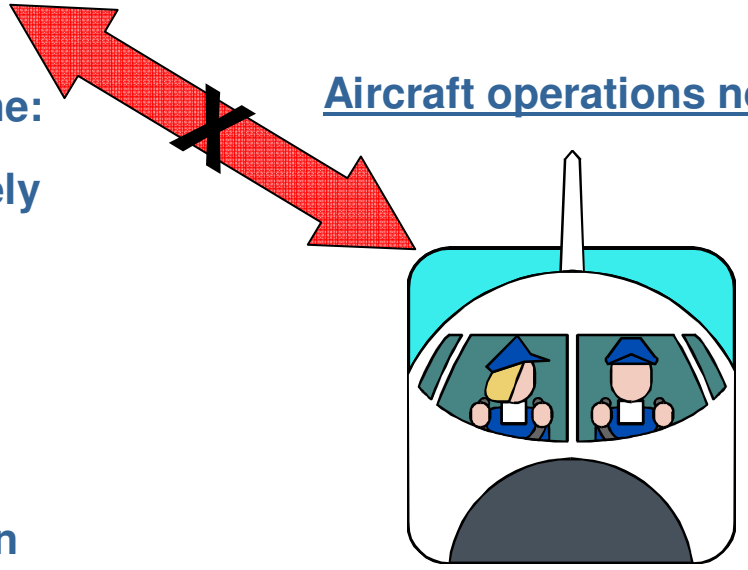
Alcock & Brown's log from first trans-Atlantic flight

2007

Commercial Aircraft Log

The Missing Links!



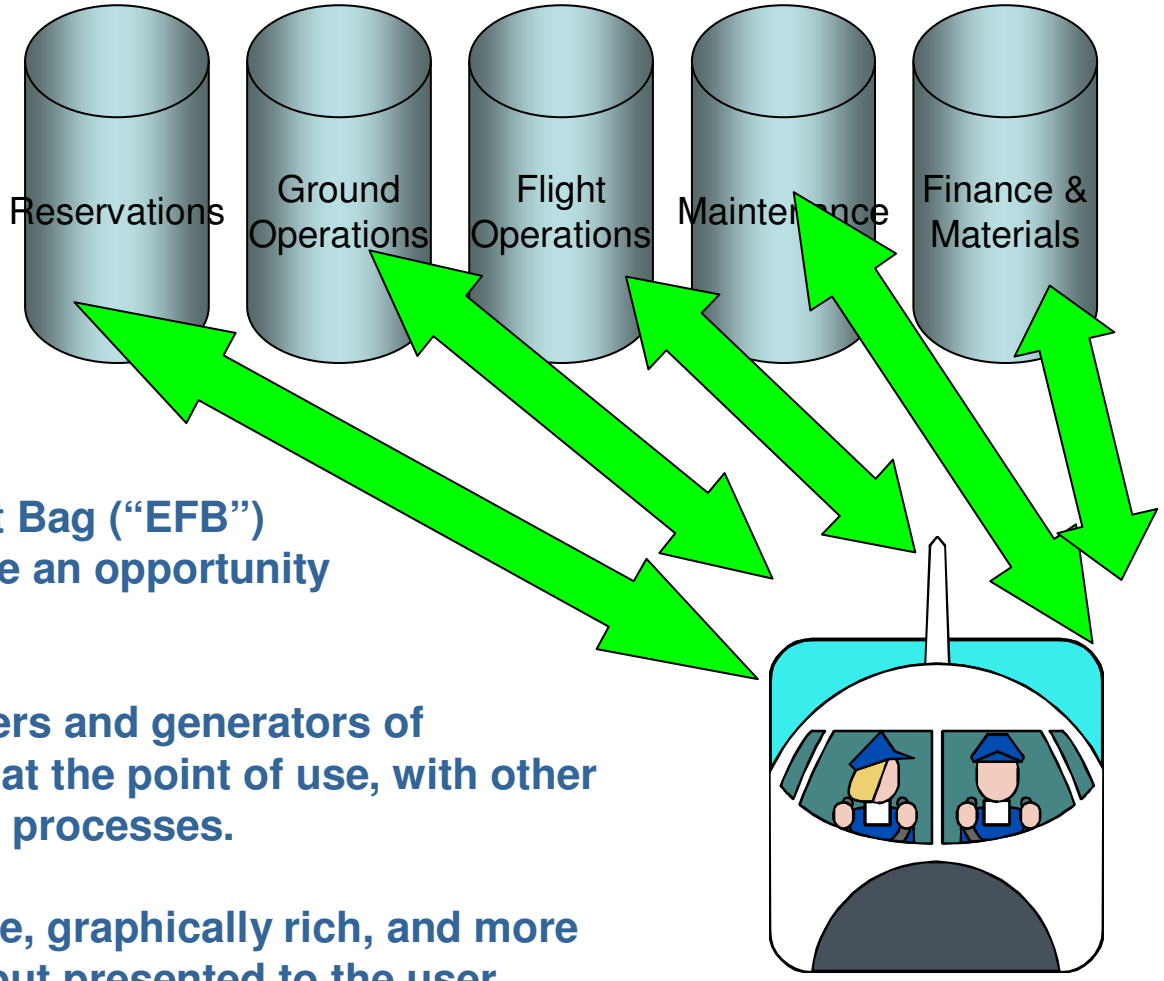


Information exchange within a typical airline:

- **Large number of IT systems, only loosely coupled (if at all!)**
- **Interface to and from end users (pilots, mechanics, flight attendants) is paper-based, work-intensive, and non-user friendly**
- **User and management decisions rely on time-late, unreliable, inconsistent and incomplete information**

Aircraft operations not included!

The Missing Links!



Electronic Flight Bag (“EFB”) Technologies are an opportunity to change this!

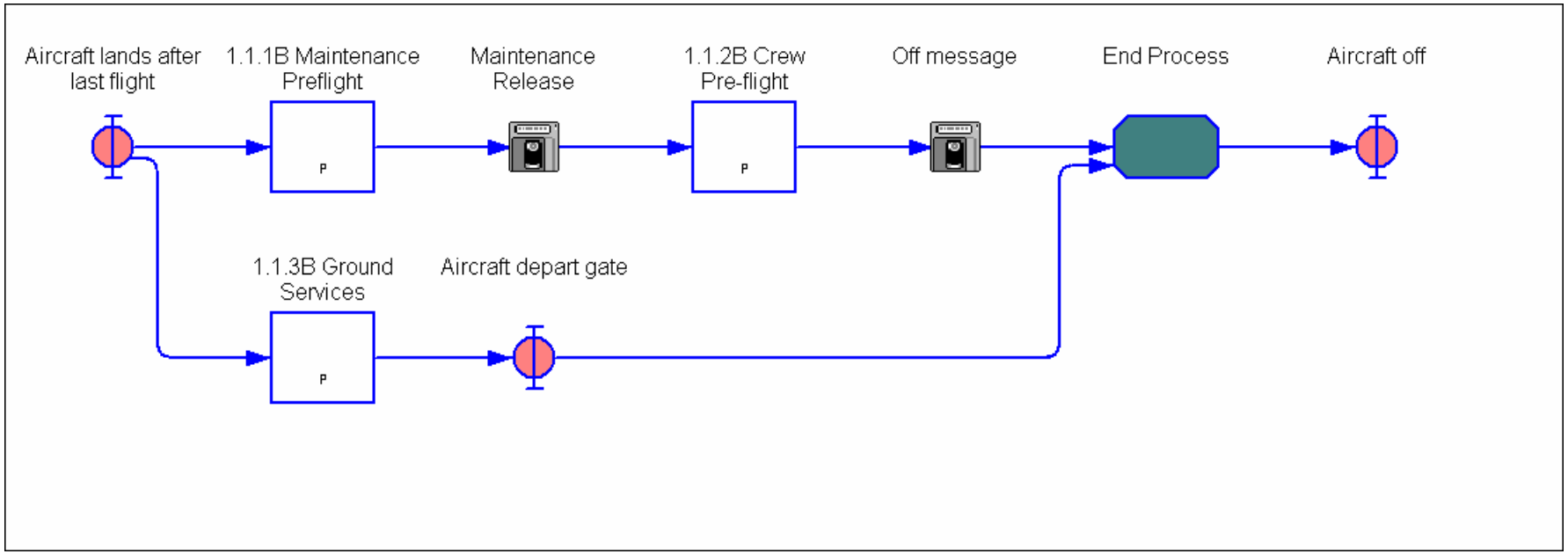
Integrate the users and generators of information, at the point of use, with other systems and processes.

Context sensitive, graphically rich, and more intuitive output presented to the user.

The Workshop Process

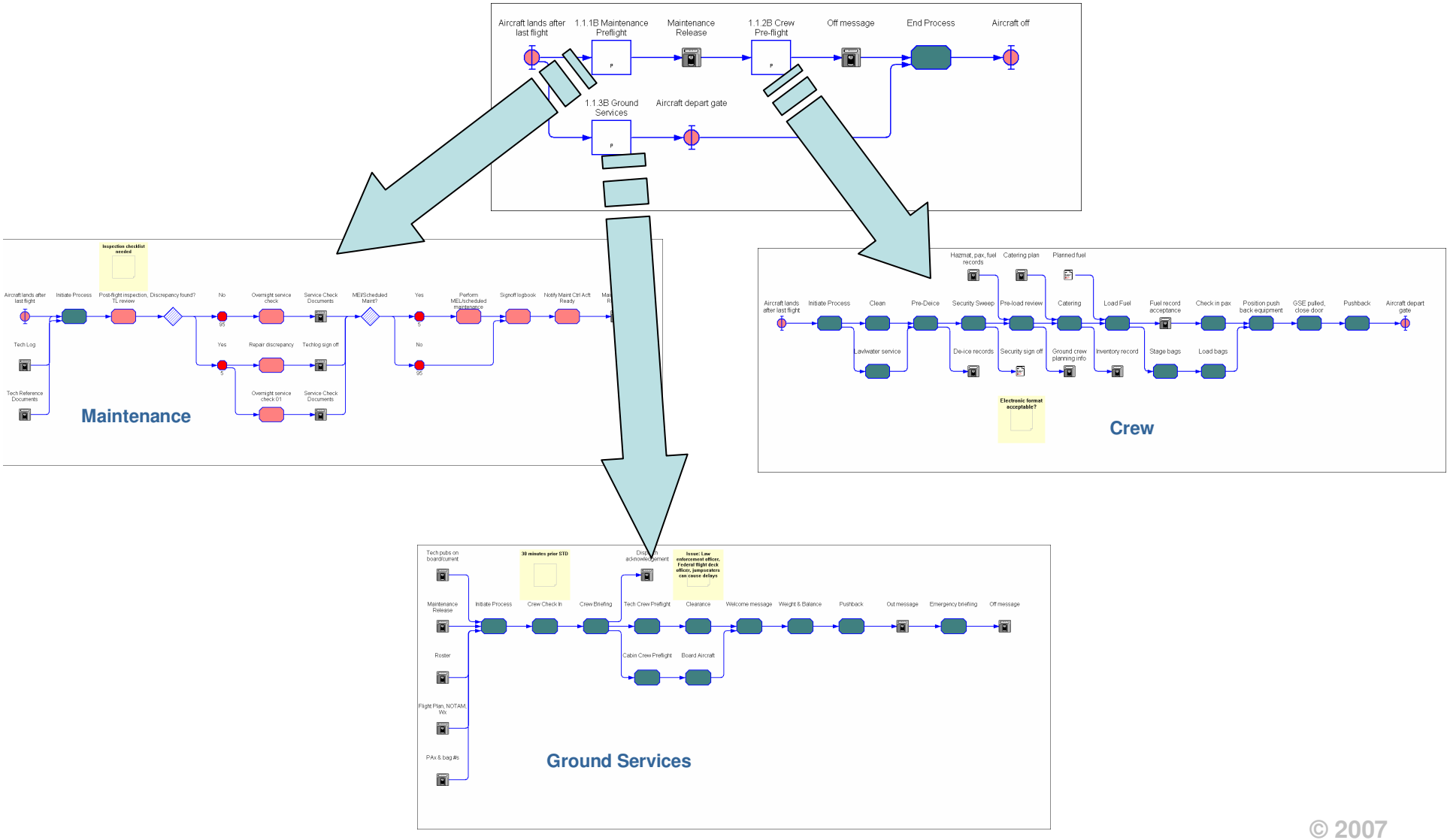
- **Skybus held a one-week, cross-functional workshop in May 2005**
  - Defined 12 operations and maintenance processes
  - Calculated predicted process costs & times
    - Fed into Key Performance Indicators

Workshop Example: Aircraft Release

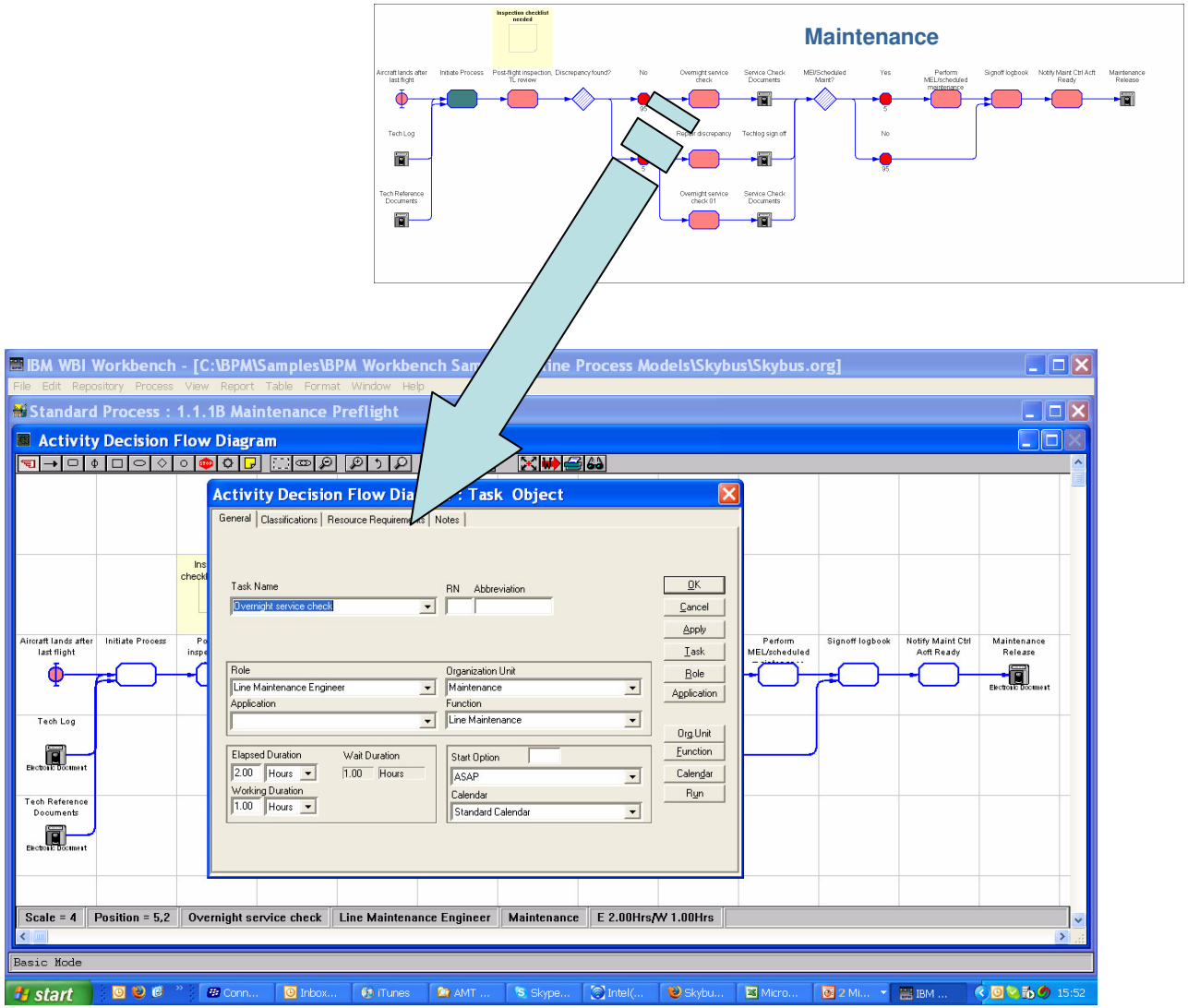


(Modelling tool: IBM WBI Workbench)

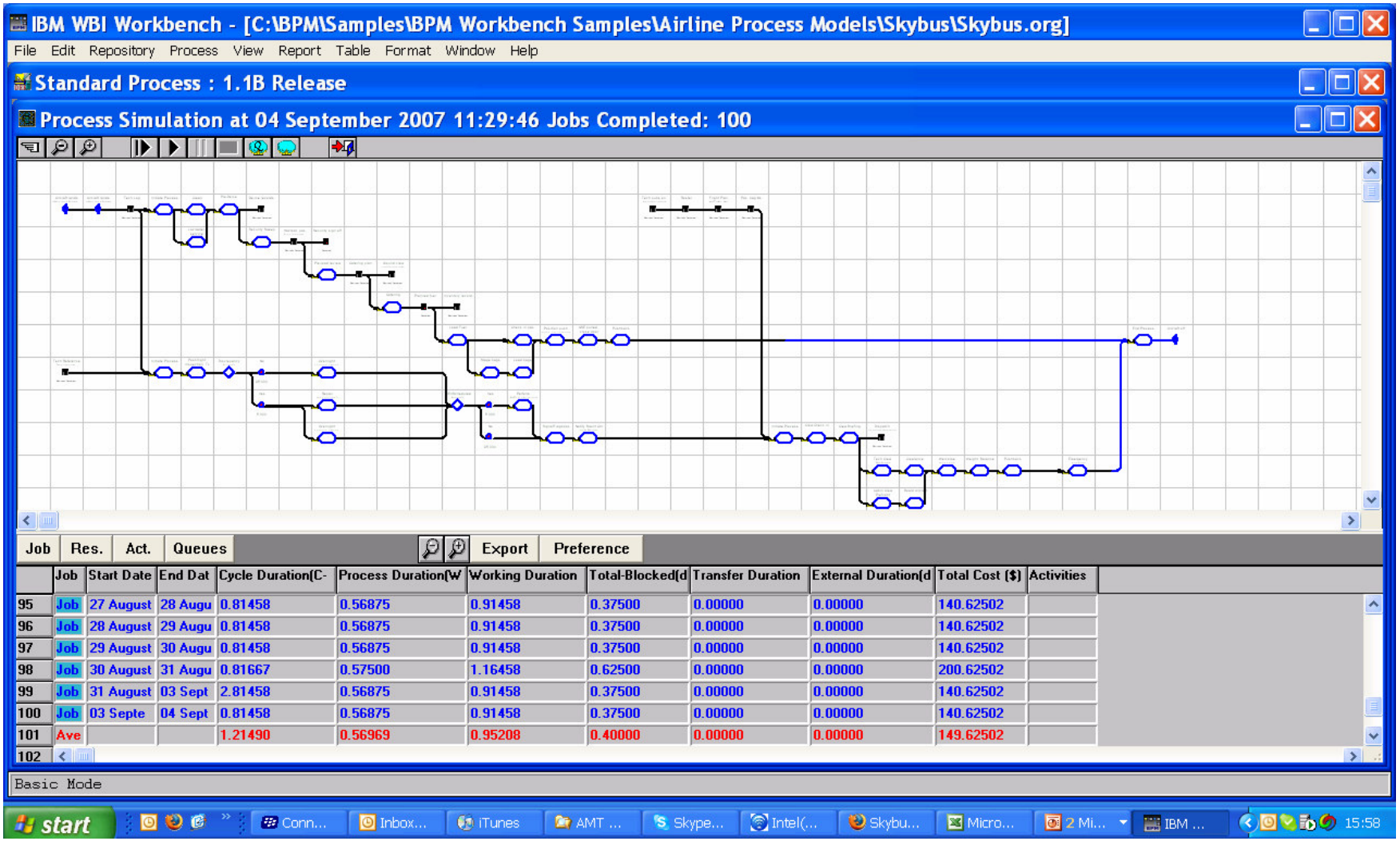
Example: Aircraft Release—Expanded



Example: Aircraft Release—Task Level Detail



Example: Aircraft Release—Quantified

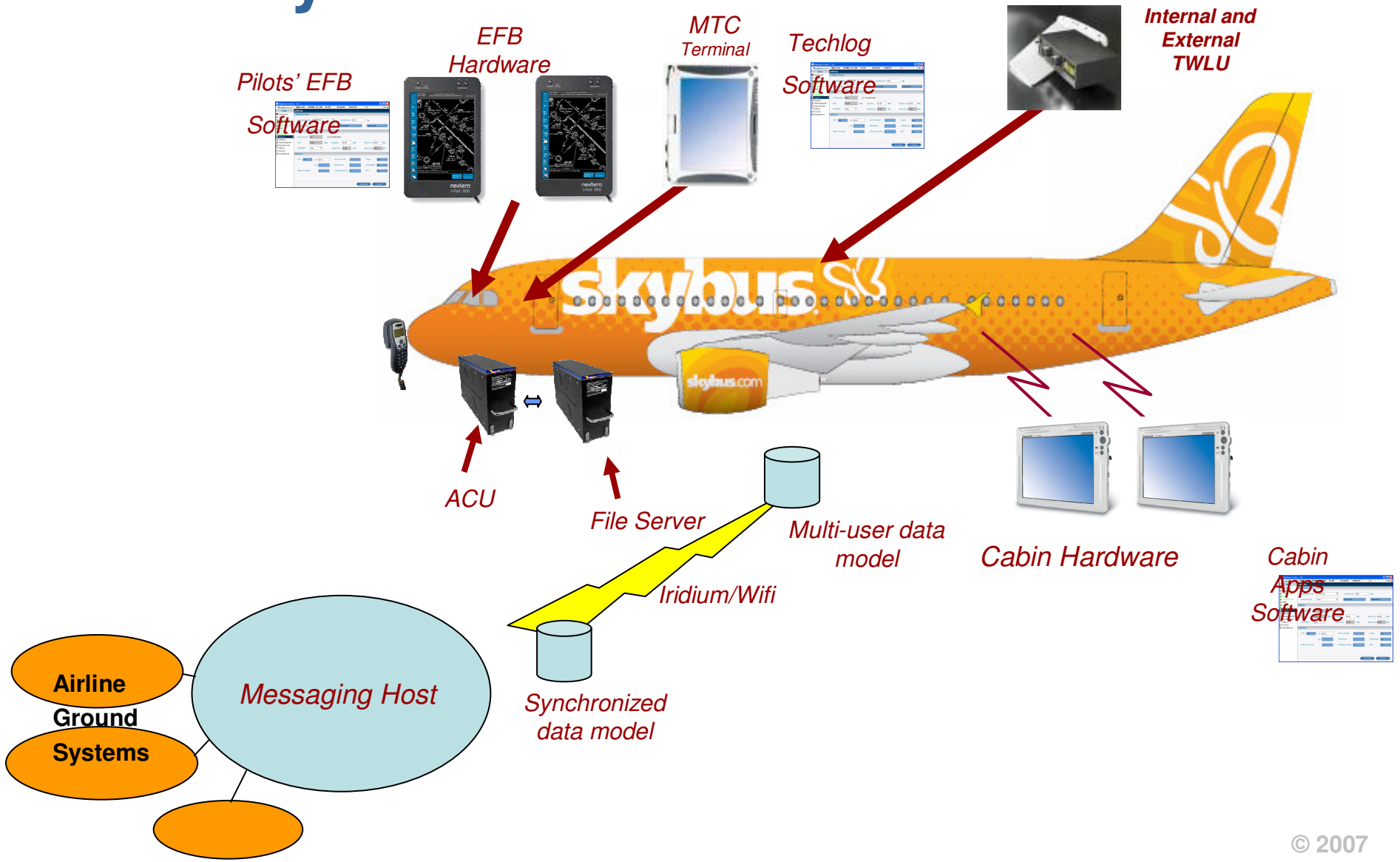


	Job	Start Date	End Dat	Cycle Duration(C-	Process Duration(W	Working Duration	Total-Blocked(d	Transfer Duration	External Duration(d	Total Cost ($)	Activities
95	Job	27 August	28 Augu	0.81458	0.56875	0.91458	0.37500	0.00000	0.00000	140.62502	
96	Job	28 August	29 Augu	0.81458	0.56875	0.91458	0.37500	0.00000	0.00000	140.62502	
97	Job	29 August	30 Augu	0.81458	0.56875	0.91458	0.37500	0.00000	0.00000	140.62502	
98	Job	30 August	31 Augu	0.81667	0.57500	1.16458	0.62500	0.00000	0.00000	200.62502	
99	Job	31 August	03 Sept	2.81458	0.56875	0.91458	0.37500	0.00000	0.00000	140.62502	
100	Job	03 Septe	04 Sept	0.81458	0.56875	0.91458	0.37500	0.00000	0.00000	140.62502	
101	Ave			1.21490	0.56969	0.95208	0.40000	0.00000	0.00000	149.62502	
102											

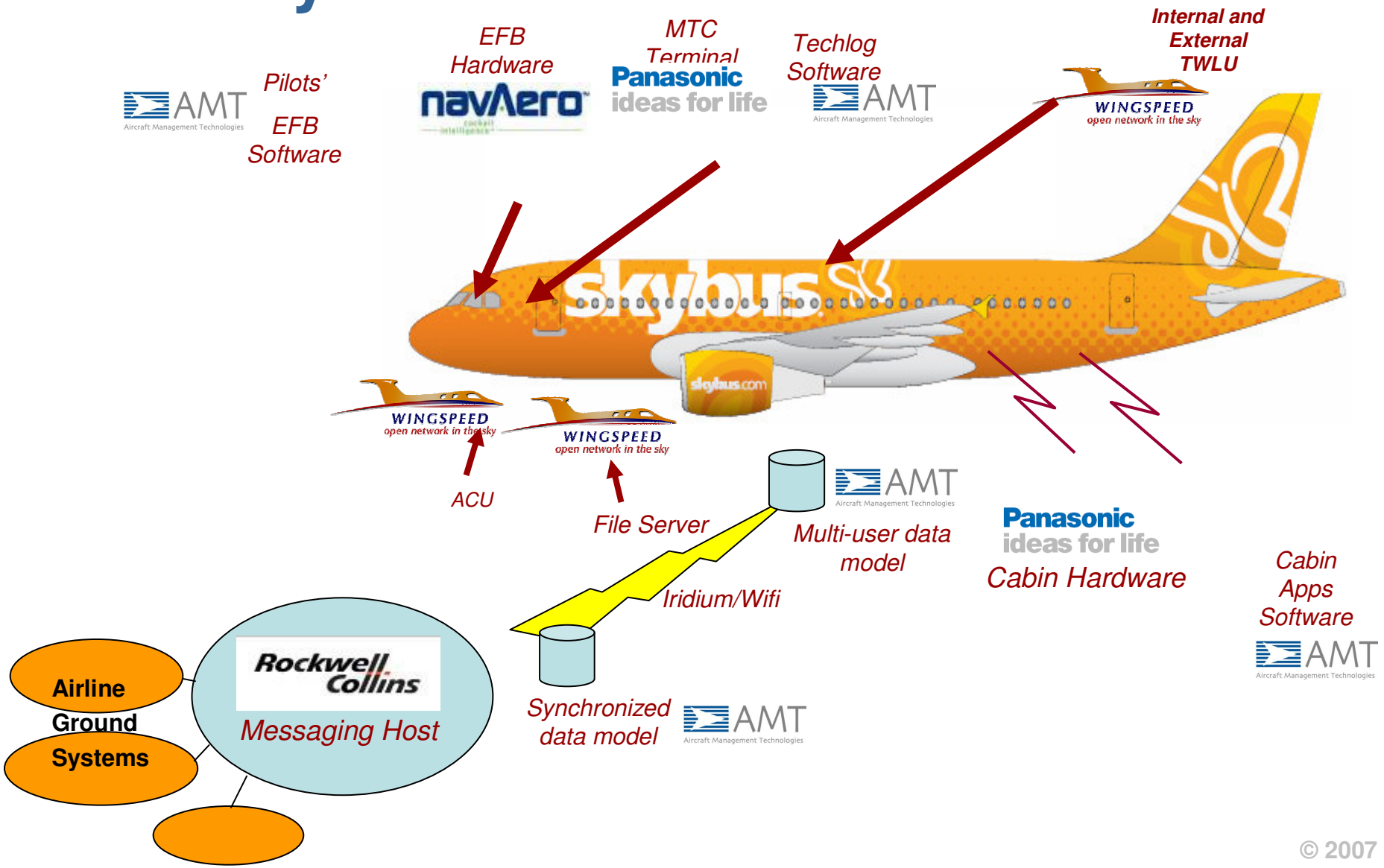
Workshop Output

- **Quantified comparison of "As Is" and "To Be" processes**
  - Cost
  - Elapsed time
  - Working time
  - Value added
  - Queues and bottlenecks
  - Resource constraints
- **Functional requirements drive the technical solution**
  - EFB class, connectivity model, integration requirements, software functionality
  - Guided RFP drafting and vendor selection

The Skybus Technical Solution



The Skybus Team-Effort Solution



Why Now? (or…why not before now?)

- **Understanding of lean (elimination of waste) as the driver behind "EFB" solutions**
  - Requires dramatic process reinvention
  - Needs a broad, connected solution (not isolated point applications)
- **Simultaneous maturity of complementary components (and teamwork/alliances to deliver them)**
  - Hardware
  - Software
  - Communications
  - Integration
  - Regulation

Demonstration

Conclusion

- **There is a convergence happening between:**
  - Lean principles
  - Airlines' imperative to change (cost reduction, performance improvement)
  - Technologies
    - Affordable, adequate, proven
- **This represents a huge opportunity to deliver real and sustainable benefits**
  - Workshop results have show savings of $100k - $200k per aircraft per annum

Questions?