

Data link Simulations

Data link in its Strategic Context

Toulouse, 13th October
C/AFT all airline meeting

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Overview

- Data link simulations
 - objective/approach
 - initial results
 - next steps
- Data link in its Strategic Context
 - WWH:
 - why
 - when
 - how

Data link Simulations

- Objective:
 - To measure the effect of CPDLC on Controller Workload
- Context:
 - C/AFT DL Business Case
 - Workload >>Capacity >>Delay reduction/avoidance
- Scope limited due to time constraints
 - One upper sector (Reims YR)
 - Simulated: ACM/ACL/AMC/CAP

Data link Simulations approach



- Team:
 - 2 Reims controllers
 - Controllers for feed sectors
 - pseudo pilots
- Scenarios:
 - Traffic levels: 100%, 150%, 175%, 200%
 - Equipage levels: 0% (reference), 50%, 75%, 100% (mandatory equipage)
- Recorded variables
 - HMI interactions
 - number and duration of R/T comm and tel. Calls
 - ISA subjective workload measure (2 min interval)

Data link Simulations

initial results



Equipage: COM w/ red.: Workload:

50%	45%	84%
75%	61%	78%
100%	84%	71%

- Comm workload is 35% of total workload
- Medium (150%) traffic sample
- Results are indicative

Data link Simulations

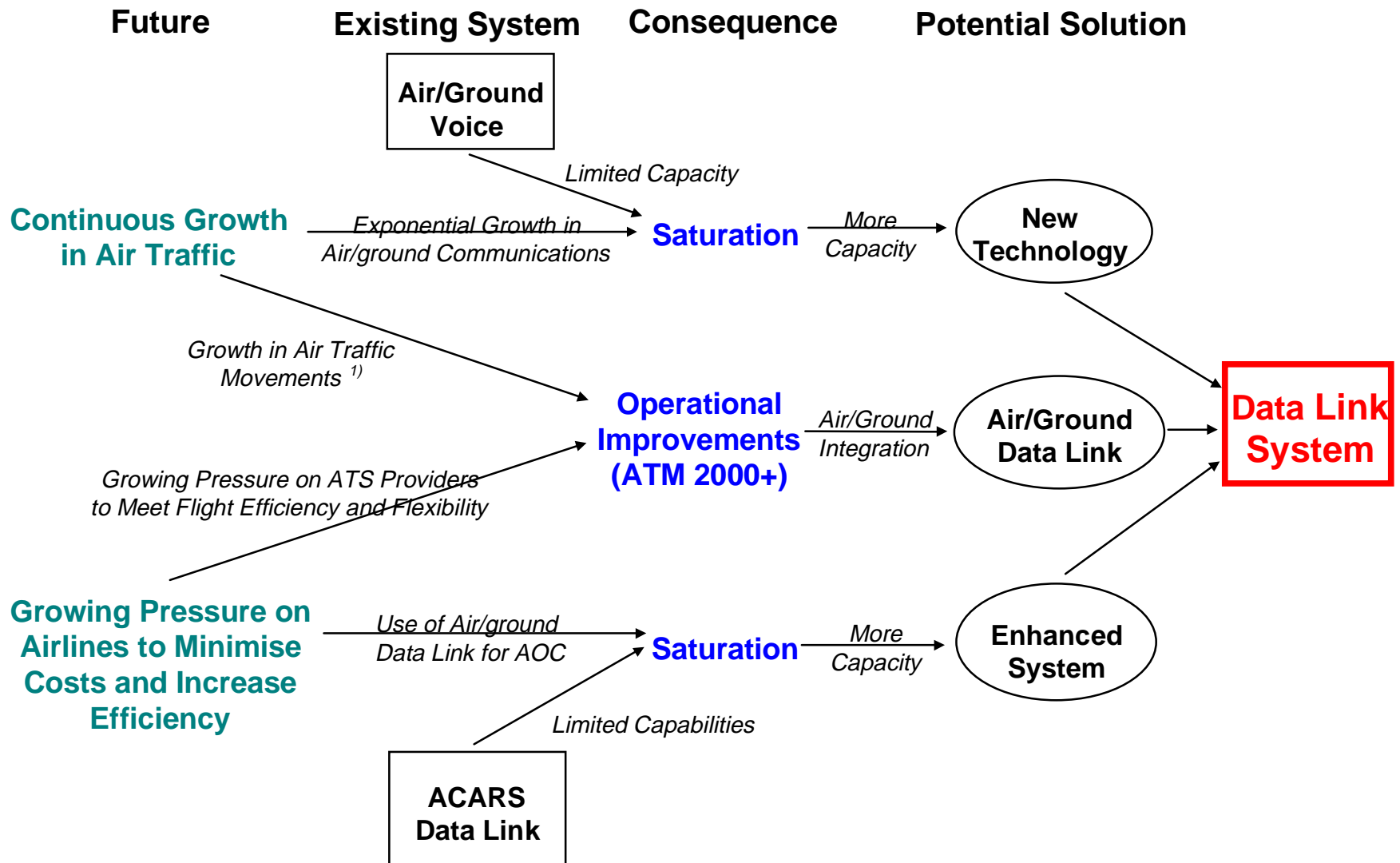
next steps



- More simulations are needed to:
 - Study HMI and improve HMI
 - Measure benefits
 - Involve controllers
- Next step:
 - Next year
 - Full scale simulation

Data link in its Strategic Context

Why Do We Need Data Link in Europe ?



Data link in its Strategic Context

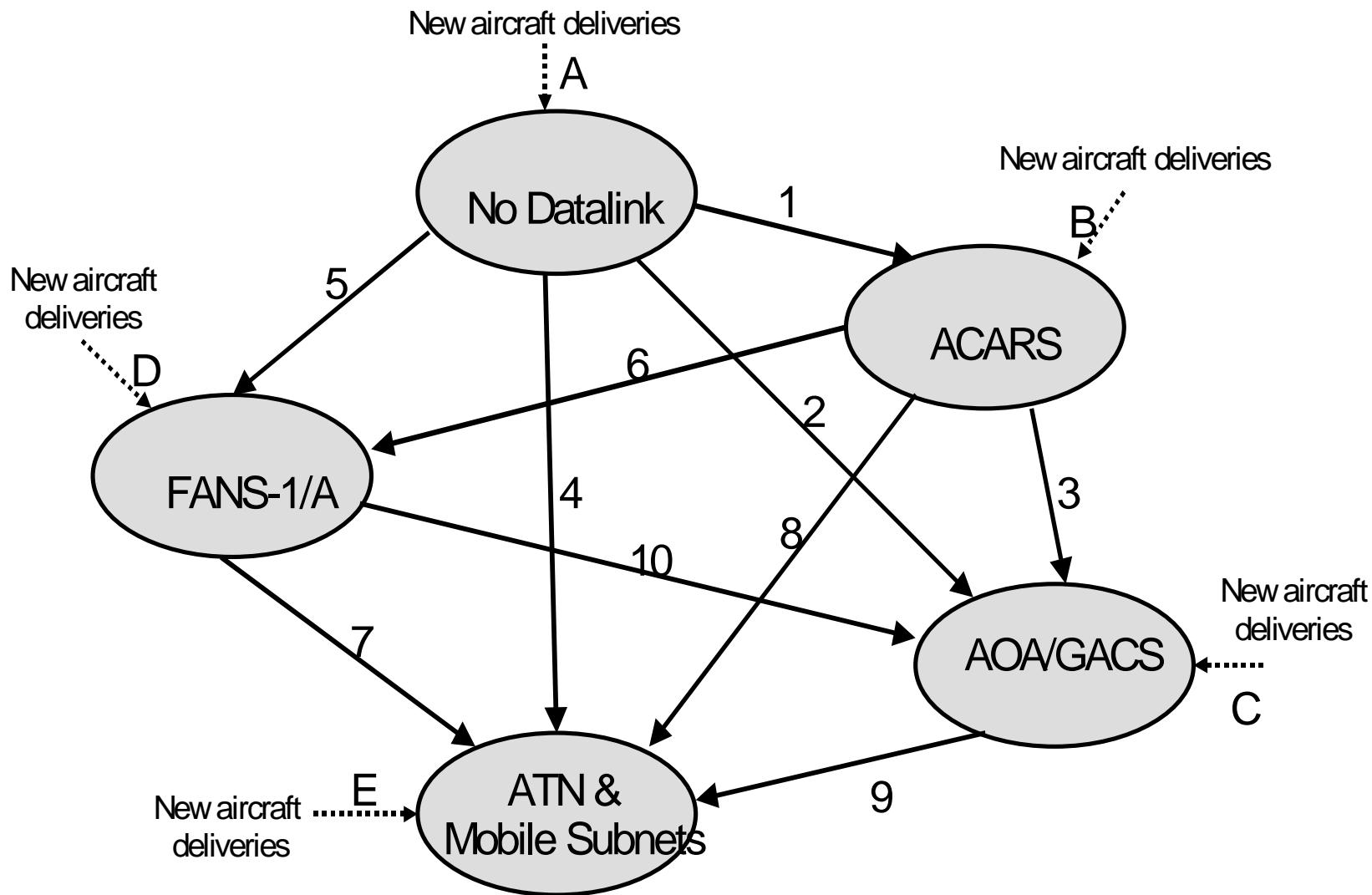
WHEN

- Demand continues to grow
- Diminishing return of short measures
- Need for sustainable growth:
 - affordable
 - scaleable
- Need to invest in productivity enhancing measures >> Need for data link services
- Long implementation times

Data link in its Strategic Context

HOW

- Use incentives to start implementation
- Use Business Case as Driver
- Reduce transition steps
 - uniformity of aircraft population increases benefits
 - transition is expensive
- Avoid fragmentation



Conclusion

- Initial results of simulation show a potential for capacity increase
- There is a continues need for simulations to measure benefits and improve HMI
- Full scale simulation next year
- Data link is needed and contributes to sustainable growth
- Implementation has to be driven by Business Case