

Leveraging Spec 2000 in Aircraft Asset Management

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This is the Message

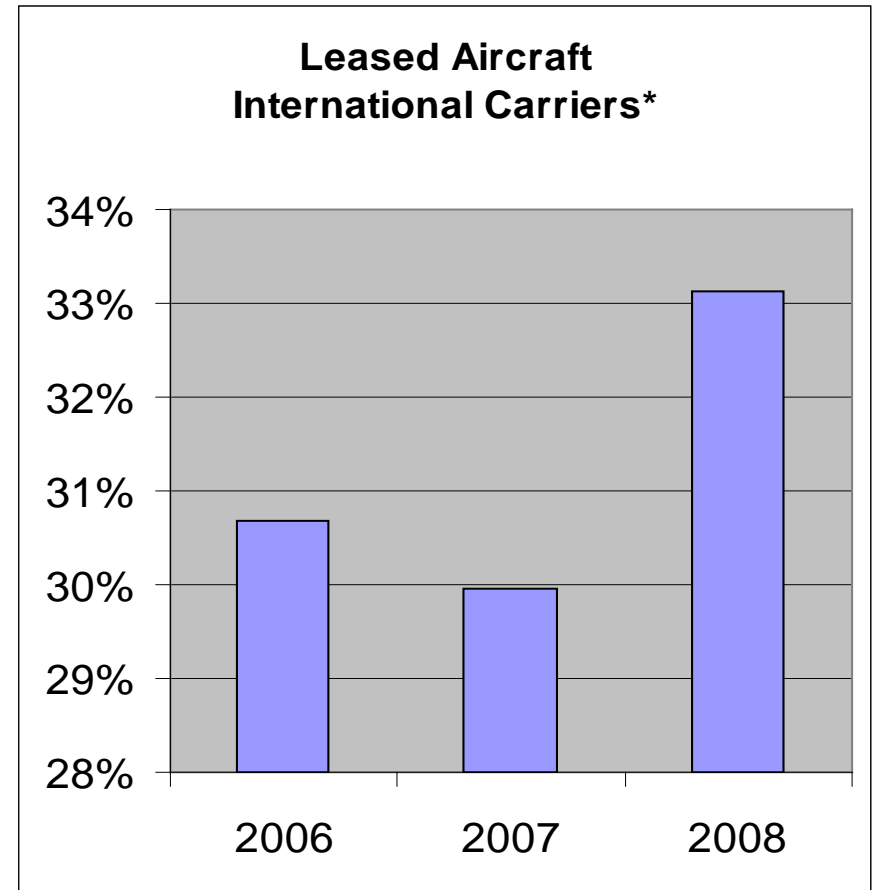
- The airline industry continually needs to increase efficiency and productivity – doing more with less.
- The airline industry is characterized by high complexity, also because of the number of partners that make up the delivery chain.
- A key way to increase efficiency in this environment is to increase coordination between partners using standardized communication.
- TCO on leased aircraft can be reduced by sharing reliability data between aircraft operators, MRO companies and leasing companies.

Agenda

- Aircraft reliability data in leasing
- Data sharing now and the opportunities ahead
- Spec 2000 Reliability data
- A practical example

A Significant Number of Aircraft Is Financed Through Leasing

- According to AerCap - one of the leading aircraft and engine lessors - one third of commercial aircraft are leased globally



*Source: IATA Wats

Special considerations applying to lease financed aircraft – E.g.

For the lessor:

- The aircraft operator must return the aircraft in the contracted state leading to an optimal utilization plan
 - E.g. avoiding overhauls because flying time is kept just under the number of hours that will necessitate the next overhaul

For the lessee

- The leasing company needs to sell a new lease on the returned aircraft. If the state of the aircraft is known to the leasing company then marketing of the aircraft can start earlier reducing the time without a lease for the aircraft

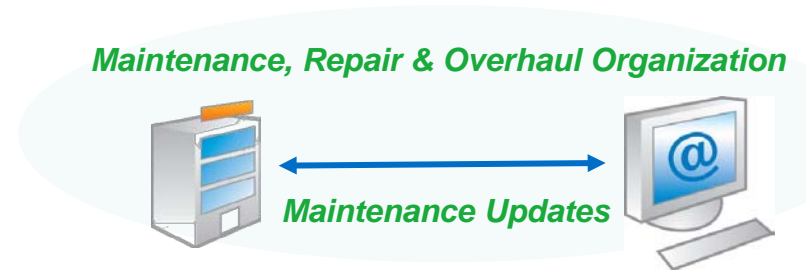
The Shared Ownership Means That Usage Data on the Aircraft is Vital Information for Lessor and Lessee

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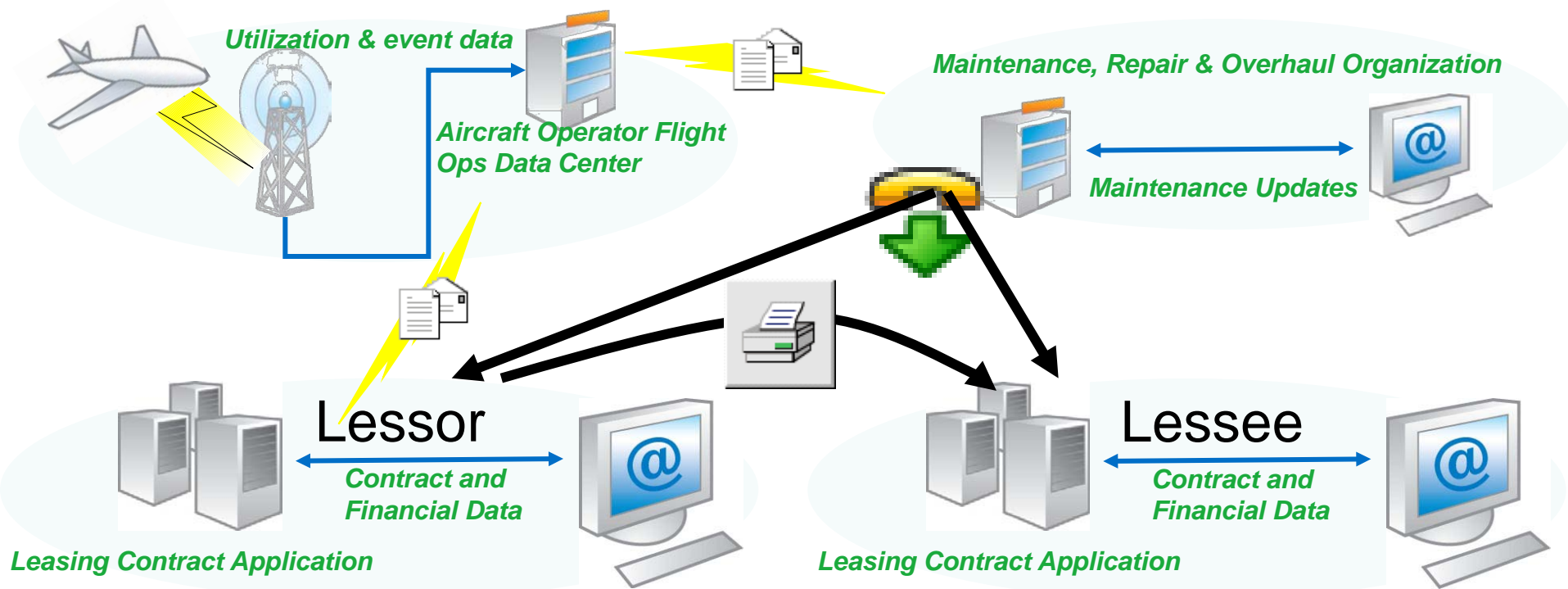
But Sharing Data is a Made Complicated Because Data is Distributed and Live in Silos

- Daily cycles for the fuselage, the engine, the APUs are under control of the aircraft operator – potentially registered through application of AirGround communication
- Maintenance records are updated and kept by the MRO organization – either inside the airline or by the contracted maintenance company
- Leasing contracts are registered in systems that may be run as an application service which mean that the data is kept with the application company



Today Data Sharing – When it Happens - is Through Retyping of Faxes, e-mails, Phone Calls etc.

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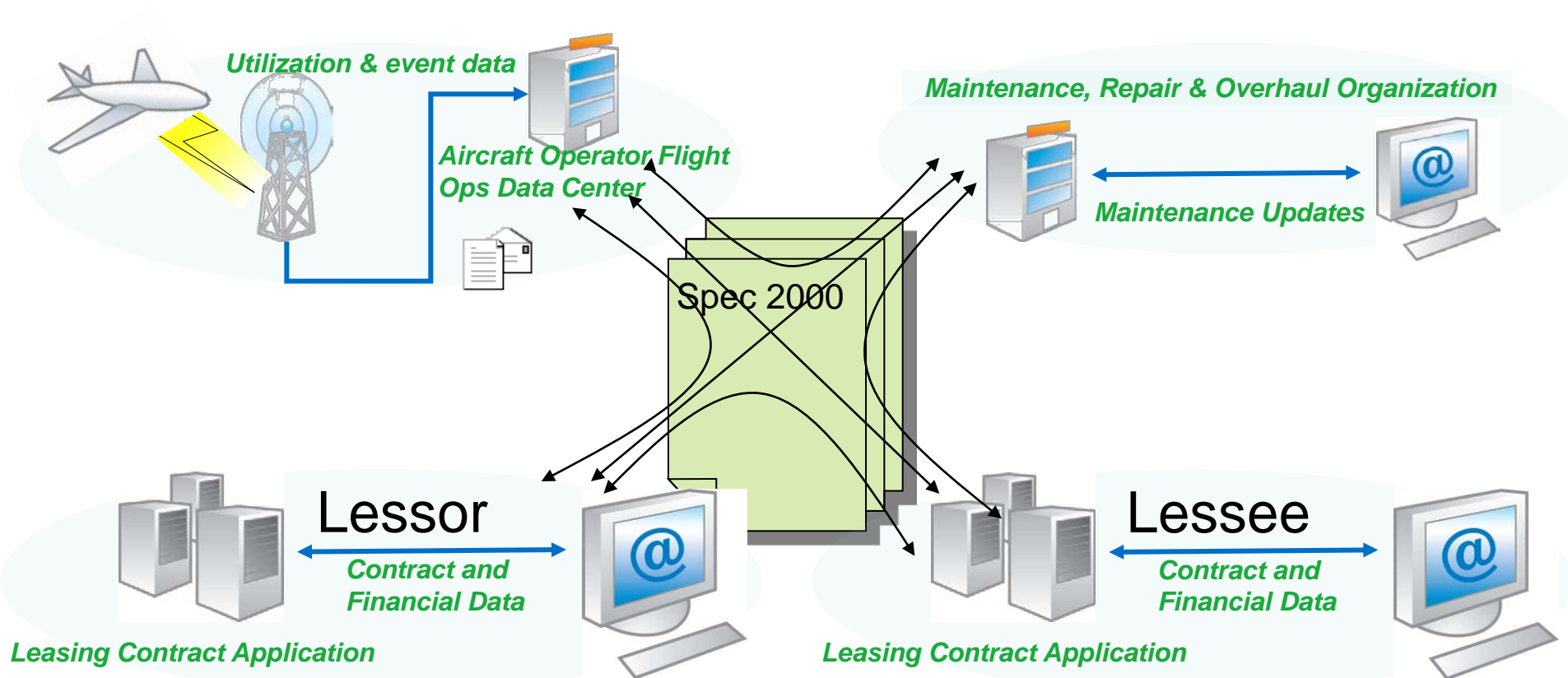


Reaping the Benefits of Sharing Data Requires a Number of Components

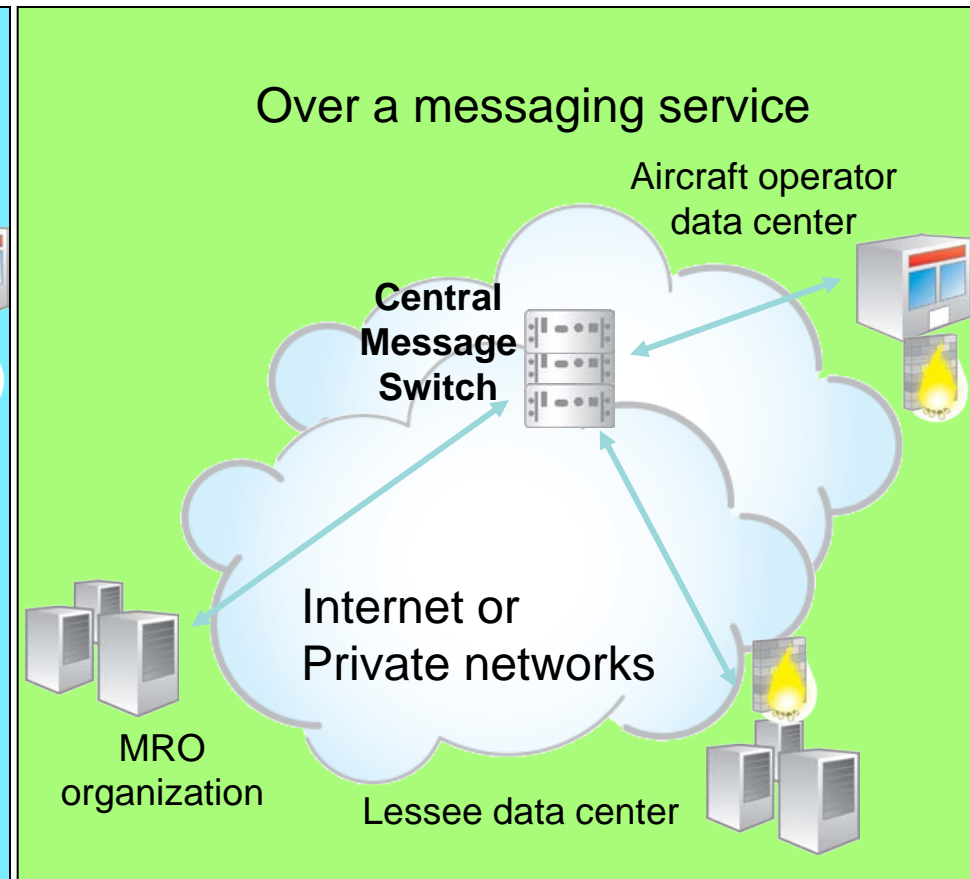
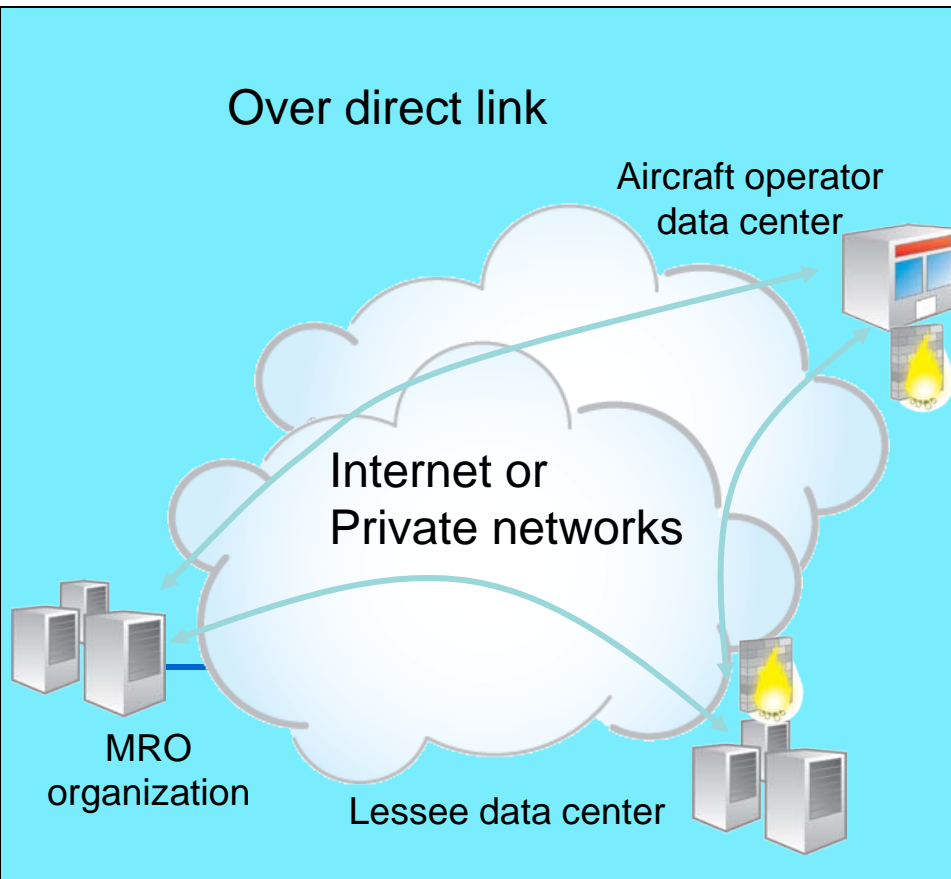
- **Standardisation of message content**
 - Agreement on how data is formatted – preferably based on XML
- **Secure Content Delivery Network**
 - Performance-optimized network infrastructure for XML payload delivery
 - Support of digital security mechanisms incl. PKI and signatures
- **Recipient application is capable of exploiting payload**
 - Application Programming Interfaces to allow application to pick up and send data

So, To Increase Efficiency, Data Needs to be Shared based on a Mutual Format

Using Spec 2000 as the standard format for communicating the relevant data provides a global standard from the, start allowing everyone to immediately standardize on the same way of communicating



Based on Common Communications Infrastructures



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- **Spec 2000 Reliability data**
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Spec 2000 Ch. 11 Reliability Data Collection and Exchange

- "Chapter 11. Reliability Data Collection/Exchange
 - 11-1. Overview
 - 1. Purpose
 - Reliability data is being collected by virtually every aircraft operator as well as airframe, engine and component manufacturer in the world. Each day, individual companies collect and analyze thousands of pieces of vital information regarding aircraft components, operations and maintenance in an effort to further enhance aircraft reliability. This process, while successful within individual companies, is not properly structured for the collection and exchange of aircraft and component reliability data between companies.
- The purpose of this chapter is to provide a set of standardized formats for defining, collecting and exchanging aircraft, engine and component reliability data between organizations for the purpose of enhancing aircraft reliability.
- Spec 2000 Chapter 11 provides a standardized means to collect 8 categories aircraft and parts performance
- While all Reliability data affects aircraft value the finance department is principally interested in three categories
- These data directly influence leased aircraft value
 - Aircraft general statistical Data
 - Aircraft Event Data
 - Service Bulletin/Modification incorporation Data

Spec 2000 Chapter 11 Transactions Are a Natural Fit for the Information That Should be Shared

Three examples:

- Spec 2000 11-5: Aircraft Hours and Landings Record;
 - Detailing the total and monthly flight hours and cycles of an operator's fleet
- Spec 2000 11-9: LRU Removal Record;
 - Collecting LRU removal data identified by part number, serial number, Commercial And Government Entity (CAGE) code as well as the aircraft from which it was removed and the details surrounding why the LRU needed to be removed.
- Spec 2000 11-12: Aircraft Scheduled Maintenance Record;
 - Collecting aircraft scheduled maintenance visit data

Spec 2000 11-5: Aircraft Hours and Landings Record; Detailing the total and monthly flight hours and cycles of an operator's fleet

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Spec 2000 11-9: LRU Removal Record; Collecting LRU removal data

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```


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- **Two practical examples**

Example 1: Sending Aircraft Hours and Landings

ACARS message
type: QB, QC, QH, QD

Type B message
type: DEP, ARR

Aircraft Operator Flight
Ops Data Center

Central
Message
Switch

Internet or
Private networks

XML Spec 2000 message: Aircraft
Hours and Landings Record

Contract and
Financial Data

Contract and
Financial Data

Leasing Contract Application

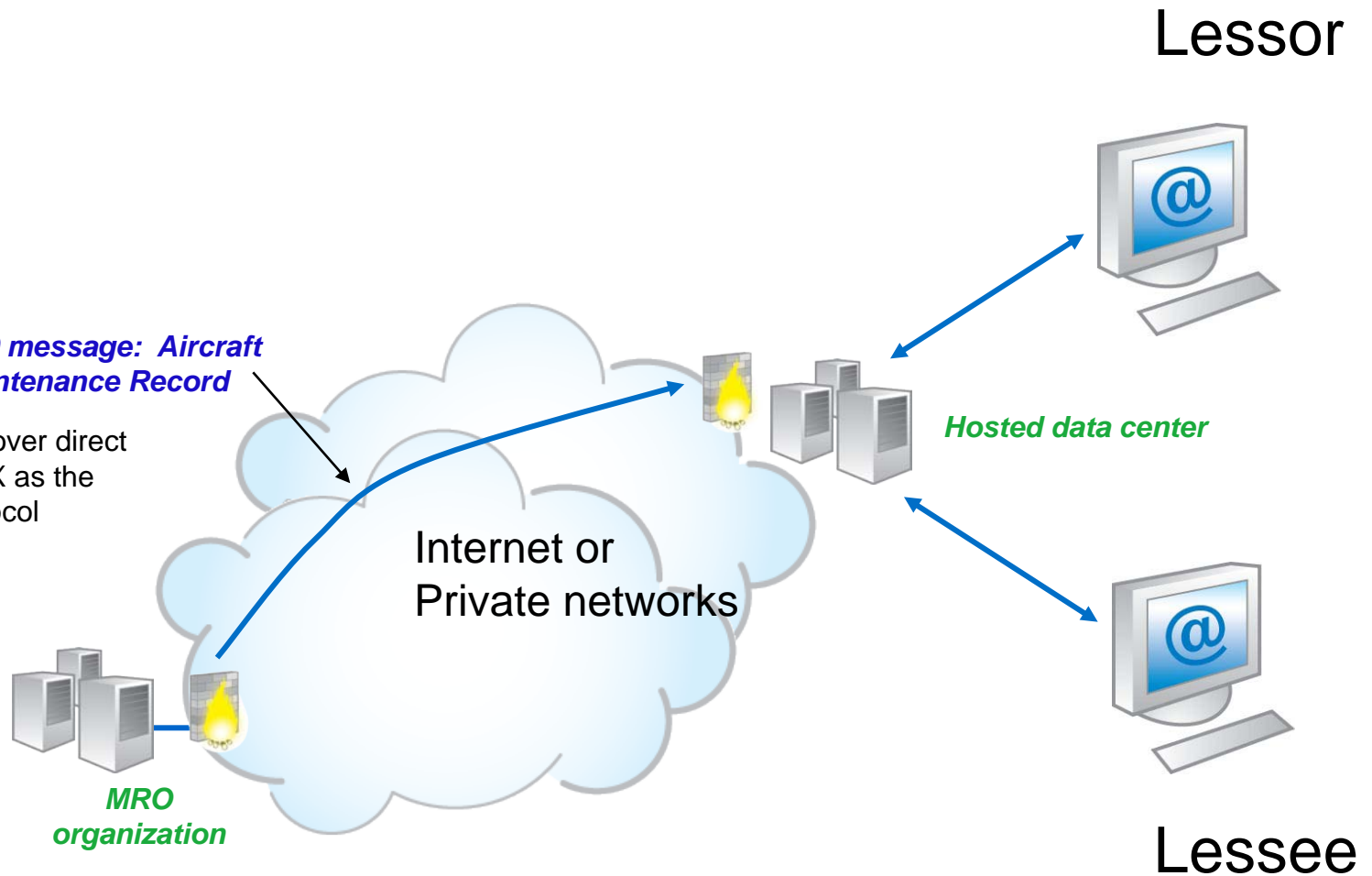
Lessor

Lessee

Example 2: Sending Scheduled Maintenance Record

XML Spec 2000 message: Aircraft Scheduled Maintenance Record

Communicated over direct link using Type X as the messaging protocol



Thank You

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