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Solution Overview

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Company	Amadeus Global Travel Distribution		
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Author	Jitendra Bhavsar/Yannick Beunardeau/Antonia Cokasova/ Thomas Morrison		
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1 Introduction

Amadeus Altéa Airport Link complements nicely the Altéa suite of products and solutions. With its Altéa DCS and RTB solutions, Amadeus has the opportunity to become firmly established in most of the existing 2200 commercial Airports in the world. The commercial success of Altéa DCS is building a market penetration in certain Airports above 75%. The existence of a robust Amadeus network backbone, connecting more than 385.000 points of sale in 218 countries, naturally led Amadeus to answer positively to the increasing number of customer requests to connect Airports to the Amadeus Data Centre. The benefit of sharing big communication infrastructures will be lower communications costs for all users and customers.

2 Altéa Airport Link

Amadeus created Altéa Airport Link based on the latest IP technology, enabling deployment of the new generation Altéa applications very quickly and efficiently.

2.1 Service Offering

In Scope Services

The **Amadeus Altéa Airport Link** service is provided using a unified end-to-end IP network utilizing highly reliable components through the Amadeus global network supplying a fully managed and guaranteed business class of service. This allows Airlines and Ground Handlers to access the Amadeus Altéa DCS services from proprietary (non-CUTE) and shared (CUTE) environment at Airports.

Optional In Scope Services

The **Amadeus Altéa Airport Link** service can provide access to customer's own systems, applications or direct access to the world-wide-web for email and / or browsing capability.

As the connectivity is deployed using a MPLS (Multi Protocol Label Switching) IP based network that provides at least three Classes of Service to prioritise;

- voice and / or video;
- transaction; and
- batch or lower priority (FTP, E-mail or web based);

traffic, you can be assured that the use of the optional services will not affect the core mission critical transactional services.

Out of Scope Services

Customer will need to continue contracting separately with their chosen local CUTE/Local supplier for the Airport LAN Services. Amadeus proposes to add some processes to these current contracts whereas Amadeus would be mandated to act on customer behalf on specifics items.

2.2 Standard Services

The standard service provides for an unlimited number of CUTE & CUSS terminals and up to 3000 dedicated Customer terminals (non-CUTE), access to the Amadeus central system with connection speeds ranging from 64kbps to 34Mbps using the infrastructure of global and local telecommunication providers, and fully managed end-to-end by Amadeus.

The network that Amadeus deploys in airports is provided using a MPLS (Multi Protocol Label Switching) IP based network that permits at least three Classes of Service to allow for the prioritisation of traffic in the following categories as a minimum;

- voice and / or video;
- transaction; and
- batch or lower priority (FTP, E-mail or web based);

The network is fully resilient and supports very high Availability standards of greater than 99.9%.

2.3 Optional Services

Amadeus understand that not every turn-key solution provides the exact requirements that all customers need, and has developed optional services that can be added to the standard service offering, including;

- Access to Airline/Ground Handler hosted applications from CUTE terminals and from non-CUTE terminals.
- Access to Amadeus and Airline/Ground Handler application via Internet from non-CUTE terminals (data will be encrypted)
- Public Internet access directly from the CUTE and non-CUTE terminals embedded in the network

These solutions require a detailed case by case study of the customer configuration, and Amadeus will work with the Customer to review the scope of services to be implemented and designed into the network services offering.

2.4 Service Value

The solution enables Altéa Airlines and Ground Handlers to share network connectivity at airports in order to

- reduce operating network costs; and
- provide an operationally simple, community solution.

Using the Amadeus global IP network with PoP's worldwide provides for a complete end-to-end managed service, where the solution guarantees access to Amadeus applications with higher service levels for availability and response times than available today in the airports. The solution provides the highest range of access speeds available, providing a very flexible and scalable solution for the whole community of users.

The network provides different Class of Service (CoS) functionality in order to assign higher priority to business critical traffic (e.g. Check-in) and lower priority to non-critical traffic (e.g. back office).

The solution is price competitive and is chargeable on a monthly basis through Amadeus contracts.

With the addition of the optional services, the network provides access to the public internet, providing capitalization of the infrastructure.

2.5 Target Customers

The Amadeus Altéa Airport Link provides connectivity to Altéa customers (both DCS and RTB DCS) at small, medium and large airports where quality and end-to-end services are of the highest importance.

The service is suitable for Altéa customers (DCS and RTB DCS) who wish to concentrate on their core business and allow Amadeus to provide full IT services including network connectivity.

2.6 Amadeus Front Office Products Supported

The Altéa Premium Airport Link product supports:

- Altéa DCS Customer Management and Flight Management front end GUI clients.
- Amadeus Reservation Desktop GUI client
- RTB solution Front Ends: Swift check and Damarel

2.7 Service Levels Provided

The service levels that Amadeus provides as part of the Services fully meet the established industry standards, where the following table is indicative of the service offering. A more detailed and accurate service level will be provided based on requirements and on a country-by-country basis.

Network Availability	> 99.9% (will be based on the customer airport locations)
Packet Loss	Typically <0.1% (dependant on Country and Airport)
Mean Time to Repair	<4 hrs.

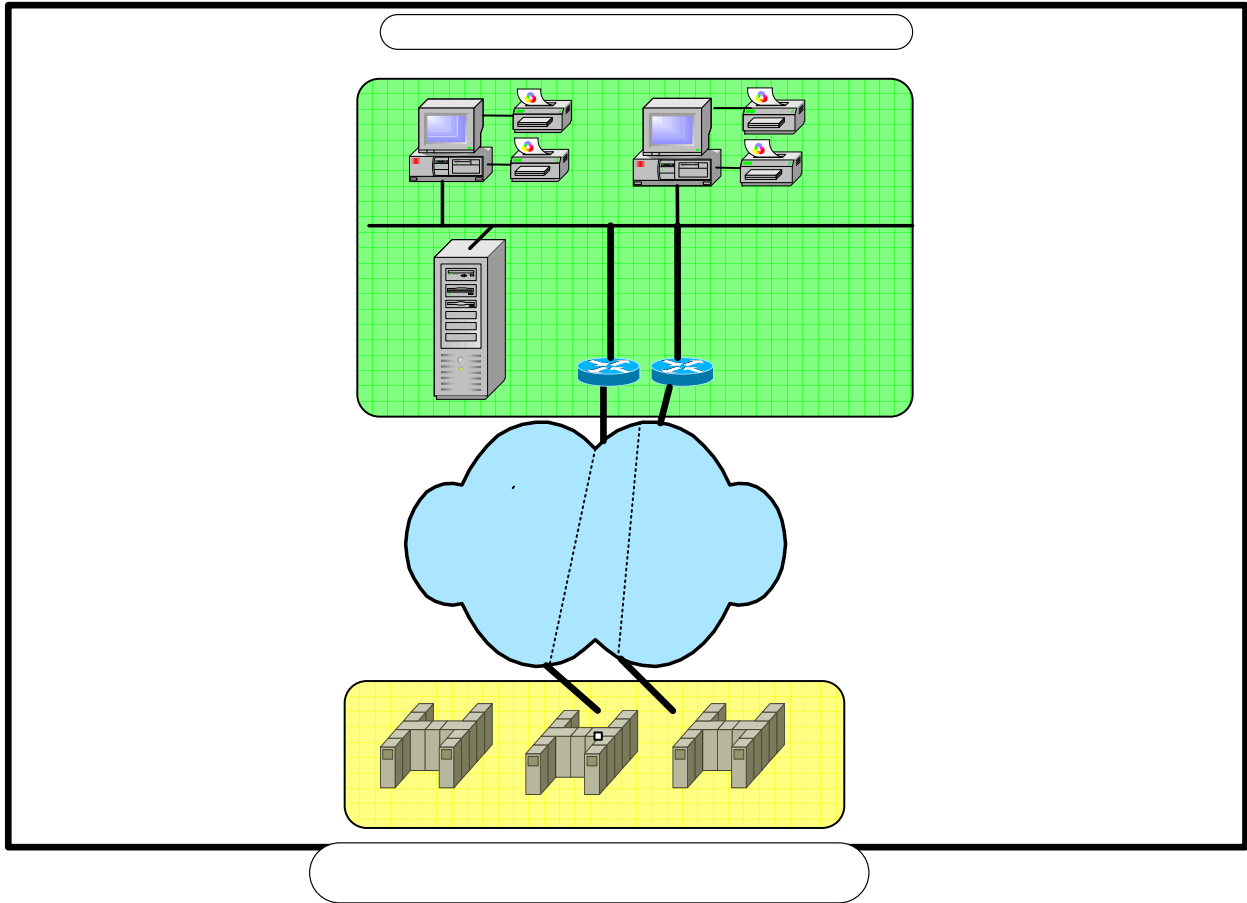
2.8 Network Summary

Amadeus proposes to deploy this highly available state-of-the-art IP network at all of the CUTE and non-CUTE airports operated by each participating Altea airline. The IP network will be scalable and sized to carry the DCS traffic between the Airports and the Amadeus Services in Erding, Germany.

Amadeus ensures that there will be enough capacity provided to carry all the traffic for all of the participating Altéa customers in each airport without congestion.

Amadeus will use the most appropriate network provider in each country to establish the IP connectivity.

2.9 Architecture



3 Host Connectivity

3.1 Service Offering

The following solution is proposed to airlines that are Altéa DCS customers, but who decide to use their own network service providers to connect to the Amadeus Data Centre (does not apply to *Altea Airport Link* customers).

Amadeus will install its' own high speed resilient network connectivity from the Erding Data Centre to the nearest PoP of the each of the Airlines' chosen network provider(s). The solution will provide connectivity from airlines' point of presence (PoP) or directly from airports to the Erding data centre. The service will allow Airlines access to the Amadeus Altéa DCS services from proprietary (non-CUTE) and shared (CUTE) environment at Airports. Multiple airlines will share the infrastructure; therefore, no separate connectivity will be required for each airline. The shared connectivity will propose sufficient bandwidth to carry DCS traffic for all airlines. Amadeus will carry full responsibility for shared connectivity.

In case the airlines are Altea Airport Link customers, charges for host connectivity will be already included in the overall cost.

3.2 Target Customers

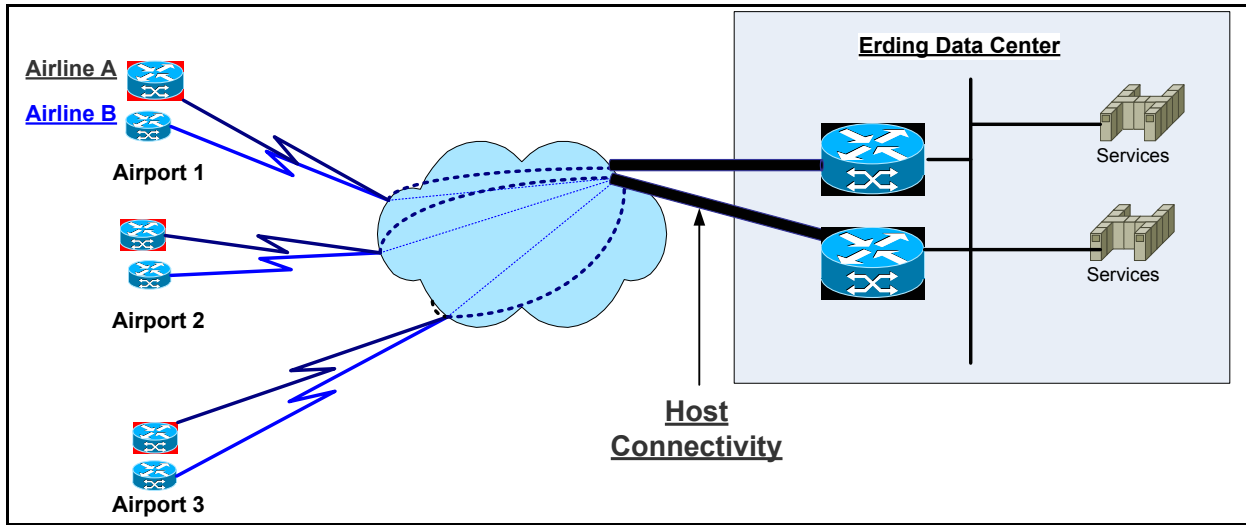
The service is suitable for Altéa customers (DCS and RTB DCS), that are not using Altéa Airport Link for their network connectivity.

3.3 Service Levels Provided

The service levels that Amadeus provides as part of the Services fully meet the established industry standards, where the following table is indicative of the service offering. A more detailed and accurate service level will be provided based on requirements and on a country-by-country basis.

Network Availability for Host Connectivity	> 99.9% (will be based on the customer airport locations)
Packet Loss	Typically <0.1% (dependant on Country and Airport)
Mean Time to Repair	<4 hrs.

3.4 Architecture



4 Glossary

IPSec	Internet Protocol Security
PoP	Network Point of Presence, means the LAN interfaces where a service request is received from Airline and the response to the service request is delivered to Airline.
CoS	Class of Service, to prioritize Voice/Video, Transaction and lower priority (E-mail, WWW) traffic.
ISP	Internet Service Provider
MPLS	Multi Protocol Label Switching, IP network providing at least 3 CoS (Class of Service) to prioritize Voice/Video, Transaction and lower priority (E-mail, WWW) traffic.