

Mesa Resolves Multiple Comms Issues with AvFinity's AIRS™ Solution

The contract air carrier airline does more with less thanks to AvFinity's innovative technology.

Mesa Air Group provides contract flying of regional jets for other scheduled air carriers such as United Airlines and US Airways— along with their own Go! regional jet operation in the Hawaiian Islands. Mesa, headquartered in Phoenix, AZ, flies millions of passengers a year to their destinations.

Like many air carriers in today's economy, Mesa must do more with less. For Mesa's Operational Support, that means developing the most efficient means of keeping flights on schedule. The goal is seamless flight-critical communications supported by the ability to solve immediately any messaging issues that arise.

Business Challenges

Mesa wanted to achieve the following four solutions to improve flight-critical message performance:

NEEDED SOLUTION NO. 1:

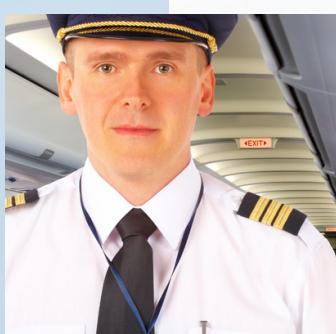
Develop a failover system for connectivity to AFTN

An addendum to Murphy's Law for an airline's Systems Operations Center (SOC) is that if something can go wrong it will happen after business hours or on weekends. It's not that Mesa's problems occur frequently. In fact, they happen so rarely that personnel have to double-check to determine if they actually took place. But when issues do arise, support personnel who know how to recover an employee's Microsoft Outlook might not be quite so effective at 4 a.m. when problems arise with a third-party messaging provider that impacts the filing of flight plans to the Aeronautical Fixed Telecommunications Network (AFTN).

If the problem is serious enough to disrupt the flow of messages like flight plans, dispatchers have to be pulled from normal duties in order to file manually with Air Traffic Control (ATC) via Flight Service Stations or ATC centers.

"The other issue is timing," says Kris Frost, Mesa's information systems director, operational support. "If the dispatchers don't get a reject message then it is the pilots who are normally calling the towers less than 30 minutes prior to departure and notifying dispatch of a missing flight plan. Typically the dispatcher will first try resending the flight plan prior to a manual process."

What usually takes a second with a machine-to-machine system takes several minutes per flight when done by hand. The cascading chain of events causes banks of 20 or 40 scheduled flights to back up.



Flights can stay backed up long after the technological problem has been solved. It's a situation that no airline wants, especially one like Mesa whose business model is to deliver safe reliable service to its customer airlines.

To ready its infrastructure to overcome these problems, Mesa needs a reliable communications system that provides failover at all times so that flight plans are always filed. This proactive approach to communications issues management will help the airline avoid incidents that have the potential to disrupt flight operations throughout the system.

NEEDED SOLUTION NO. 2:

Implement a more flexible messaging system with United Airlines via the Apollo Global Distribution System

A dispatch desk may need to handle more than one group of flights for multiple reasons. It may be because an aircraft type operates in more than one group or because of redistribution of flights during various times of the day or because of fewer available personnel at a certain point in time.

Keeping track of these changes requires that Mesa coordinate irregular operations with its contract partners. The preferred way of achieving these communications is through the operational Y message format via United Airlines to the Apollo system.

Mesa's issue is that United's Apollo system will only accept the specific "from" address assigned to Mesa. This requirement limits Mesa to sending its messages in the Type B format via a legacy messaging provider. But this means higher expense through a legacy third-party provider and intensive database management in order to monitor each outgoing address. And even with that management, frequent message rejections still occur due to incorrect addresses or improper setup.

Mesa requires a reliable system that will overcome these frequent issues and allow messages to be sent to Apollo in a cost-effective, reliable manner.

NEEDED SOLUTION NO. 3:

Eliminate persistent network problems

As airlines connect newer hardware and software with disparate legacy systems, problems are certain to arise. Mesa has such issues including a long-time IP address conflict with the FAA network system. Mesa's network administrators have worked around the conflict but that approach doesn't allow the airline to utilize all the FAA tools like CDMs through the Volpe National Transportation Center.

Mesa seeks a solution that will bridge legacy and more modern information systems so that hardware and software conflict problems can be overcome and communications grow much more efficient.

NEEDED SOLUTION NO. 4: Gain an efficient aviation messaging solution

Mesa seeks to enhance its Operational Support with an efficient communications system that allows the airline to focus its limited manpower on flight-critical duties. Specific areas of need are more efficient means of filing flight plans and Advance Passenger Information System (APIS) crew manifests as well as a connection into the Collaborative Decision Making (CDM) system at the Volpe National Transportation Center.

AVFINITY'S SOLUTION

Bob Hornburg, Mesa's chief information officer, and Frost have worked for several years with Steve D. Perkins, longtime aviation communications expert and founder of AvFinity LLC.

"Steve's been a great person to work with," Frost said. "He is a smart guy and always on the cutting edge. Steve develops innovations that make airlines' data communications and data integration easier, less expensive and more reliable."

Mesa for several years has been using software that Perkins developed for airlines. His application promotes connectivity between legacy and modern IT architectures as well as provides multiple other features designed to facilitate robust, secure and efficient aviation communications.

Perkins approached Mesa about installing the AvFinity Integrated Router Solution (AIRS) as a next-generation upgrade of the software in order to bring higher efficiency to Operations and improve the multiple issues that have impeded seamless communications .

AIRS is patent-pending software technology Perkins and his team developed from the bottom up to handle all aspects of aviation communications. For airlines, the software technology handles every area of communication that flight operations needs. Just a few of its abilities include:

- Communicates data
- Integrates Data
- Provides connectivity to vital messaging recipients
- Operates with any protocols
- Handles any formats
- Utilizes any transport media
- Connects dissimilar or similar communications systems

The AIRS application functions on a Cisco Integrated Services Router (ISR) using Cisco's Application Extension Platform (AXP) loaded on a Cisco blade server. The porting of the AvFinity software technology to Cisco is important in that it provides airlines with a single-box solution for all communications needs.

Mesa studied the technology and decided to implement AIRS in its datacenter as long as it provided an easy transition with current operations. Mesa got what it asked for.

"The overall testing, setup and rollover to production from our existing app to the AIRS Cisco router was very quick and painless," Frost said. "AvFinity immediately provided quick and easy access and support to Customs, Volpe and ATC for basically seamless transitions without any issues at all."

QUICK OPERATIONAL IMPROVEMENT

AIRS does much more than just transmit messages, however. Within weeks, AIRS had improved the IT infrastructure for Mesa across its broad operations. AIRS provided a clear path for Mesa to achieve all the solutions it had sought when it first considered investing in a new communications system.

1. AIRS diminishes threats of downtime due to unplanned outages

AIRS also provides assured message delivery so that if a circuit goes down, the message isn't lost during failover. Assured delivery occurs even if SOC personnel don't immediately see the output alert telling them the outbound message had failed. With AIRS, the message is sent until it arrives at the receiving address.

"Since implementation of the ATS filings on AIRS, we have had a couple of NADIN circuit hiccups but they've had no impact at all on flight departures since they were rolled over to AvFinity's backup messaging circuit," Frost said. "In fact, the only complaint from SOC was there had been some duplicate flight plans filed because SOC had also re-sent secondary ATS messages through our backup connection when they saw the alert errors on the AFTN circuit."

2. AIRS eliminated Apollo address worries

"With our Y messages to United via Apollo, it no longer matters what desk and its associated 'from' address are," Frost said. "AIRS changes the 'from' address for all Apollo short Y messages to the applicable Apollo Mesa address by adding a second queue for these messages."

The resulting edited message is placed in the Apollo send-queue so that the message is handled internally within the Apollo system, eliminating added costs by avoiding legacy third-party providers. The Sabre FliteTrac system captures the sent message status of each message whether it is successful or a failure. (Failures are due to "to" address errors.)

3. AIRS resolved pesky network problems

AIRS resolved Mesa's longtime IP issue and many other conflicts. Mesa soon will be able to use all FAAs tools including participation in the CDM program to bring orderly use of national airspace. "CDMs are flight-critical data," Frost said, "and we view them as very important in communications between SOC, ATC and our customers."

4. AIRS provides full flight-critical communications

AIRS files all Mesa's flight plans with AFTN via a direct connection to FAAs NADIN II. It files all APIS crew manifests through a direct connection to U.S. Customs and Border Protection and the Transportation Security Agency. And CDMs help Mesa provide key flight information in line with the policies of its contract customers including United Airlines and US Airways.

It's pretty awesome that if we have an issue with AFTN circuit now, we don't have to do anything because on AvFinity's side AIRS flips the data over to another messaging backup," Frost said. "That is seamless to us, which is huge."

Kris Frost

Mesa's Information Systems Director

CONCLUSION

For Mesa, the switch to AIRS has been a positive step in updating its entire communications system in this era of tight budgets and fluctuating passenger demand.

"The AIRS solution is pretty much out of sight, out of mind," Frost said. "The few issues we have had have been handled timely by the AvFinity support group and we get a subsequent notification of the resolution. This AvFinity product hasn't been anything I have had to worry about it since it was installed. In fact, when my network admin was asked about the reliability of the AIRS product, he stated that he has not touched the equipment since it was initially installed."

*To find out more about the **AvFinity Integrated Router Solution**, visit www.avfinity.com.*



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This case study is based upon actual solutions provided to Mesa Air Group by AvFinity LLC. It describes Mesa's results from having implemented the AvFinity Integrated Router Solution (AIRS™). Results may vary for other customers using a combination of other AvFinity solutions.