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# Smart IROPS responses can turn frowns upside down

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**Strategies to deal with irregular operations (IROPS) are indispensable for the complex, IT-dependent aviation sector – and they can even deliver customer service improvements. Marisa Garcia and Barry Cross report**

On a day-to-day basis, the aviation industry relies on the impressive co-ordination of billions of separate events, carefully planned and synchronised for smooth operations.

Unforeseen events such as extreme weather, technical and systems failures, or labour disruption can lead to chaos. Recent examples include the temporary failure of the Enhanced Tactical Flow Management System (ETFMS) on 3 April. This causes some delays and reduction in capacity, as ETFMS delivers a 'big-picture' view of air traffic across Europe and adjacent airspace by harnessing air traffic position data with flight plan data. As a result of the system outage, the Network Manager lost an accurate depiction of the air traffic situation, and airspace users were unable to plan operations with predictability.

"The trigger event was an incorrect link between the testing of a new software release and the live operations system; this led to the deletion of all current flight plans on the live system," Eurocontrol announced in a statement on 4 April. "We are confident that there was no outside interference."

Ian Aitchison, senior product director – ITSM at Ivanti, noted a worrying aspect of the ETFMS outage. "Since this tool is so vital to the smooth running of all flights, a failover standby back-up system would be in place so that if the live system went wrong there would be a seamless transition to another mirrored system," he noted.

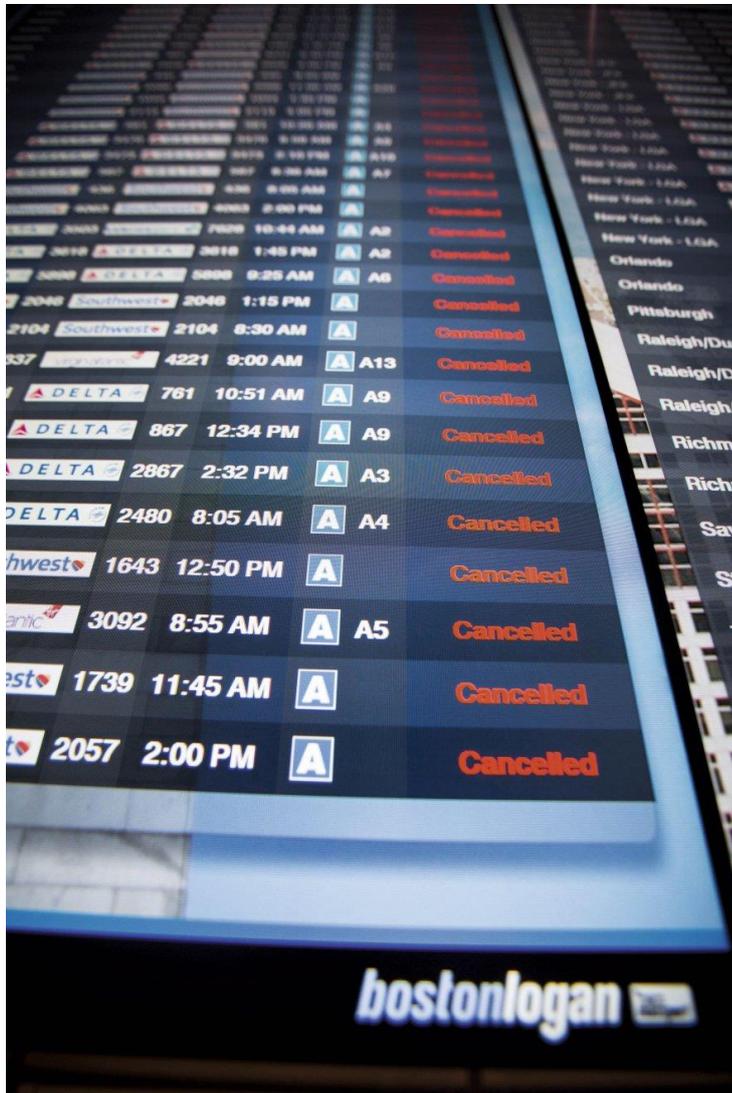
"But there is an important message to take away from this – apparently the failover standby system didn't work. Either the action of failover from system 1 to system 2 hadn't been recently tested and proven, or a sequence of data and events made the failover impossible. And that means that either the IT operations for ETFMS failed in the testing of vital continuity management processes, or that the range of events that can cause a successful failover didn't include whatever caused this 'system failure'."

The ETFMS event epitomises how the complex, technology-dependent aviation sector is vulnerable to disruption when one of the links in the chain fails. IROPS have a severe financial impact: the FAA Consortium in Aviation Operations Research (NEXTOR) calculates that delays and cancellations cost airlines USD8.3 billion per year in the United States alone, while the impact of lost time on passengers is USD16.7 billion.

However, solutions are at hand. Big Data can enable airports to mitigate risk, maintain business continuity, and optimise operations, said Moti Shabtai, president and CEO of Qognify.

He cited a large hub airport client in the United States, which asked Qognify to ascertain the operational impact if one of its runways is put out of action.

“It needed to know how many flights it would have to divert,” Shabtai told *Jane’s*. “The answer was of interest since the airport is trying to maximise the number of airlines using its facilities to provide onward connections. We looked at the data and available capacity, then ran simulations before making predictions, which in turn suggested what measures they needed to take, in order to return to normal operations as soon as possible.”



*Severe weather conditions often wreak havoc on airline schedules, underlining the need for strong IROPS procedures (pictured is a departure board on 13 March at Boston Logan International Airport in the United States). (Getty Images)*

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Qognify solutions are driven by specific customer requirements. “We start with a business needs analysis, move onto a technical needs analysis, and then generate a solution,” said Shabtai. He is confident that if an airport is willing to make an initial commitment, Qognify can predict a return on investment (ROI) with some confidence.

“We generally find that an ROI can be realised between one or two years, depending on the industry we are working with,” he said. “Furthermore, we can go into any airport and deliver a quantified ROI.”

The application of modern technology to IROPS can speed up recovery and create new opportunities, build positive relationships with passengers, and perhaps even boost revenue. “Proactivity has been proven to be the key factor,” said Chad Timms, portfolio director Airport Operations at SITA. “Operators can anticipate upcoming issues by intervening far ahead at the known bottlenecks in the airport environment. Today, IT tools and technology can anticipate, forecast, and predict potential issues; and counter actions can be agreed well before the issues materialise.”

### **Resource co-ordination**

IT tools that facilitate collaboration between airport operators, airlines, ground handlers, air traffic controllers, and security providers can ensure that resources are deployed where and when they are needed. SITA designed its Airport Management solution for this level of collaboration.

“When you consider the rules about robust planning, then the optimisation and resolution is almost in reach of a human being, and certainly when using a solid – even legacy – resource allocation tool,” Timms said.

However, he added, there are times when a more advanced tool is required to help business recovery at an airport. “If multiple constraints are playing a role in the decision-making process, if decisions are not centralised on a single operator but rather distributed across the airport’s departments, [and] if elements as cost reduction, carbon footprint, noise emissions, revenue optimisation are part of the decision-making process and aimed to be optimised, then an airport should definitively consider an evolved resource allocation tool,” Timms explained.

“For mobile resource management, the need for an automated tool is much more evident,” he added, as the complexity of shifts, tasks, and rules makes it too difficult for a human being to manage without a strong IT tool. “Also, the business results using a sophisticated tool are much more evident. Our airport customers enjoy the benefits that can be measured: for example, reduction of man hours spent on a turnaround of an aircraft, reduction of overtime, and so on.”

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