AECUS INNOVATION AWARDS 2016

Aecus Innovation Awards 2016 – Application Form

Name of Innovation Project: Uninterrupted Business and IT Operations at Multiple Airports during Unprecedented Crisis

Name of Supplier Organisation(s): NIIT Technologies Ltd.

Name of Client Organisation(s): Airports Authority of India

Nature of outsourcing / long term services relationship with Client:

NIIT Technologies signed a multi-year contract with Airports Authority of India (AAI). It is a first of its kind multi-airport project in Asia which included setting up of a centralized command centre, airport management applications, setting up of a primary Data Centre in Chennai and Disaster Recovery Data Centre at Kolkata. The project was undertaken for modernizing Indian airports to improve capacity utilization, passenger throughput enhancement, stakeholder management and process standardization. The project has been executed at the airports in Chennai, Kolkata, Ahmedabad, Pune, Thiruchirapalli, Thiruvananthapuram, Calicut, Mangalore, Guwahati and Jaipur.
Please provide details of the case study in the boxes below. The total word count for the free-from sections 1-3 should be no more than 800 words. Please focus on detailing the case study - there is no need to provide introductory information on the participating companies.

1. Background – What was the business challenge / opportunity?

NIIT Technologies has set up a centralized data centre across 10 airports for Airport's Authority of India (AAI) including Kolkata, Ahmedabad, Pune, Thiruchirapalli, Thiruvanathapuram, Calicut, Mangalore, Guwahati, and Jaipur, at Chennai. We have also set up a Disaster Recovery Data Centre in Kolkata. On 2nd December, heavy rainfalls in Chennai caused immense flooding on the runway and as a safety protocol, the Chennai airport was evacuated and shut down. Thousands of passengers and hundreds of flights running daily were at risk of being delayed. There was a need to move from the Data Centre in Chennai to the Disaster Recovery Data Centre in Kolkata. NIIT Tech was faced with the challenge of ensuring a smooth changeover in minimal time.

2. Approach – What was the innovation that was delivered? In what way was it innovative?

- As a part of overall engagement plan NIIT Tech had already conducted a detailed break point analysis and come up with a Business Continuity Plan (BCP) to handle unprecedented events which could lead to failure.

- When the airport had to be shut down due to heavy flooding, NIIT Tech's already tested BCP kicked in and the switch from the Data Centre (DC) to the Disaster Recovery Data Centre (DRC) was carried out during the failover thanks to proper planning and design which was in place. NIIT Tech created scripts which automated the entire process and effectively reduced time of failover (changeover) from up to 4 hours to under 15mins.

- The team had been carrying out a planned drill for DC to DRC changeover every quarter and in every drill they ensured a transition time of less than 15 mins.

- A network load balancer was used as an entry point to connect all airports to Chennai. The same IP was also given to Kolkata and services were kept in 'STOP' mode. This is very different from a traditional approach wherein different IPs are assigned to different locations. Here as the IP was common, the switch could be performed in a matter of minutes rather than hours. All activities were monitored by our monitoring tool 'Spectrum' which would inform of any errors.

- Tailor made Standard Operating Procedures from NIIT Technologies and AAI, which were well-documented and time tested, assisted in speedy recovery and helped resume operations on time.

- Backup for Backup: Besides secondary backup cloud MPLS link, internet based backup links configured and available instantly

3. Impact – What was the value delivered?

As a result of the efforts made my NIIT Tech the following benefits were achieved:

- The DC/DRC changeover was completed rapidly in just 11 minutes, despite the fact that the core team of NIIT and decision making authorities of customer were not contactable owing to the severe floods in Chennai which had disrupted many communication channels.
- Flight operations were not impacted in the remaining 9 airports
- No data loss reported during the failover
- The quick transition saved huge amounts of manual efforts as flight allocations at other airports would have happened manually otherwise.
- Real time flight information was made available without which efficiencies would have dropped considerably.
- On time performance of flights was maintained as manual changes were avoided which could have resulted in delays in both the international and domestic sector.
- Lack of automation and manual operations could have increased operational costs significantly. This was avoided thanks to quick failover from DC to DRC by NIIT Tech.

For more details on the quantifiable benefits, please refer to question 5.

4. Tools, techniques and technologies – Which of the following was important for this case?

Innovative use of…	**Important Y/N?**	**Details: How was this used in your project?**
Analytics		
Applications	Y	The main airport management application and reports are made highly available with 2 levels of redundancy at the Data Centre and an additional 2 levels at the Disaster Recovery Data Centre. In case of this disaster the whole system was made available from the DRC in under 15 mins.
Artificial Intelligence / Cognitive		
Cloud	Y	Customer operations for 10 locations under the Airports Authority of India is operating their Airport Operation Control Centre at 99.9% Uptime with the primary Data Centre (DC) at Chennai and Disaster Recovery Data Centre (DRC) at Kolkata. Additionally Both DC and DRC are interlinked via a Multiprotocol Label Switching (MPLS) Cloud Environment with High Speed redundant Point-To-Point Links which offer Data Migration Services and Replication between them.
Commercials / contractuals		
Digitisation		
Governance		
Internet of things / telematics		
Mobility		
Multi-channel engagement		
Infrastructure	Y	Multi-layered Infrastructure with identical setup at DC and DRC designed with Service Level Clustering on multiple servers to remove SAN dependency. This assisted in performing software and server upgrades with very minimal impact on production and downtime to applications maintaining high availability to all service offerings.
Platform		
Process improvement	Y	IGNITE platform which is used to source innovative ideas across NIIT Technologies assisted in provisioning of unique scripts which enabled quick shut down of DC at Chennai and DRC at Kolkata using partial scripts.
Industry-specific knowledge	Y	NIIT Technologies specializes in providing a range of Industry-specific solutions, with more than two decades of experience of providing IT services to leading airports worldwide. Travel and Transport is NIIT Tech's largest vertical contributing to 35% of the company revenue.

Robotic process automation		
R&D		
Relationship/ vendor mgt		
SaaS		
Security		
Social media		
Sourcing model / location		
Other [please specify]		
Business Continuity Plan {DC-DRC]	Y	The primary Data Centre is located at Chennai and the Disaster Recovery Data Centre is located at Kolkata with two levels of redundancy at the site itself offering highly available services. In case of an actual disaster the failover can be done with the help of automated scripts in under 15 mins ensuring minimal impact on production and optimal operational efficiency

5. Measuring the value – Which of the following outcomes was important / quantified?
[not part of 800 word limit]

Measure	Important Y/N?	Quantified? e.g. % change, £/€ generated, ROI
Cost reduction		
Revenue growth		
Improve churn / retention		
Improved C-SAT / NPS	Y	NTLs quality of service has been rated at 4.67 on a scale of 5 by the customer which is 93.4%
Speed to serve	Y	DC/DRC failover and transition was carried out in 11mins, which would normally take 2 to 4 hours (without automated scripts)
Differentiation	Y	Automation layer which allowed all layers of infrastructure, software, applications and network to failover through scripts reduced the failover time from 2-4hours to just 11minutes
Product development	Y	Automated scripts created by NIIT Technologies enabled smooth transition from DC to DRC in 11minutes
Productivity	Y	Time savings and unhindered productivity led to roughly 30% time savings
Quality of service	Y	NTLs quality of service has been rated at 4.67 on a scale of 5 by the customer which is 93.4%
Employee experience		
Improved compliance		
Risk reduction	Y	The BCP strategy employed has reduced the risk of a total shut down of the Airport Control Centre which was well demonstrated during the Dec 2015 Chennai Floods as well when the system successfully failed over within 11 mins from the primary data centre at Chennai to the secondary data centre at Kolkata. This was sustained at Kolkata successfully for 14 days and fell back to Chennai seamlessly.
Operational flexibility	Y	The quick transition saved huge amounts of manual efforts as flight allocations at other airports would have happened manually in such a scenario. This roughly resulted in 30% time saving
Financial flexibility	Y	Manual operations could have increased operational costs by about 9 to 25%. This was avoided thanks to quick failover.
Other [please specify]		

6. Client Comments

NIIT Technologies' exceptional knowledge of the Infrastructure Management Services coupled with their partner SITA's expertise expertise in the Airport domain has greatly helped us in establishing Airport Operations Control Centers (AOCC) at 10 airports of Airports Authority of India (AAI) with ease; and we have achieved Go-Live within the stringent timelines. NIIT Technologies continues to do a commendable job of keeping the system up and running with strict adherence to the Service Level Agreements. We are looking forward to work together with them to establish AOCC at the other AAI airports

Operations of Chennai Airport had reached the verge of shutting down on 2nd Dec 2015 due to severe rains and floods that had left the airport space unusable and people wading in almost waist deep water. The water had entered the runway, reaching the under carriage of aircraft after two days of heavy and continuous rains. All flights had been suspended at the airport and all modes of transport out of Chennai Airport had been cancelled. This was one of the crisis faced after overnight rain that had left entire city flooded and people were forced to wade through waters to reach their destinations. Added to that, no shops were available in the near vicinity of airport. There was no power and Chennai had a revisit to the 18th century wherein people had no mode of motorable transport and electrification.

In view of the continuous power crisis faced at Chennai, It was decided that AOCC DC would be moved to Kolkata by AAI AGM IT Chennai / GM IT CHQ. With a dedicated but reduced task force NIIT safely transited the changeover successfully and efficiently in a short span of time. Also once the decision was taken to shut down the Chennai Airport NIIT along with AAI and other DC members collectively co-ordinated in shutting down all electrical and IT related infrastructure adhering to the system shutdown procedures. The timing had to be meticulously planned in order to avoid abrupt shutdown.

It took 4 days for the rains to subside and after tireless efforts from all stakeholders the Airport was revived on 6th Dec 15 with selective operations along with all IT infrastructure including AOCC. With immense effort the Airport power and infrastructure were restored. AOCC operations were bought online with the limited bandwidth that was available through BSNL connectivity through coordinated and tireless efforts till the wee hours of the morning by all the people from AAI, NIIT & Support Staff. AOCC Operations at Chennai Airport were successfully revived for Normal Operations to continue. After observing for three days Chennai was restored as Primary DC.

The crisis management was done in an efficient manner due to the expertise and commitment of the entire workforce with timely decision from AAI