



## TAKING TO THE SKIES: HOW AIRLINES CAN BENEFIT FROM CLOUD ADOPTION

“Close scrutiny will show that most ‘crisis situations’ are opportunities to either advance, or stay where you are.”

## Maxwell Maltz

As COVID-19 spread around the world, the world came to a screeching halt. While many industries faced disruptions in their supply chains and business models, the travel and hospitality industry was probably the worst affected, with demand dropping to the lowest the industry had ever experienced. Not only did the pandemic affect projects in the pipeline, but it also exposed the weaknesses of existing business models. Historical norms and patterns of operations that the industry depended on in the pre-COVID era were no longer valid to make business decisions. With the cessation of travel due to border restrictions, the industry struggled, and the situation was made worse by legacy ecosystems and age-old business models which prevented travel companies from adapting to the situation. Example : Revenue management algorithms that calculate the fares based on demand and capacity failed as they were not tuned for such drastic drop in demand.

The pandemic brought to the surface the industry's weaknesses such as rigid static systems, segregation of systems, pre-defined manual rules which prevented airlines from taking proactive steps to safeguard their crew and passengers. Even though the industry has been evaluating cloud adoption and pivoting to digital technology, it has happened only in pockets. True business value cannot be derived if the infrastructure, applications, and services are not fluid enough to make dynamic changes based on real-time information and offer personalized packages to fliers.

In 2018, 95% of airlines offered Web check-in while only 54% offered mobile check-in – when the pandemic hit, they had to quickly deploy contactless check-in.

As new patterns of customer behavior continue to emerge, airlines have to evolve fast to keep their customers engaged. The agility to respond to sudden changes, and the capability to define new business models is only possible by creating a smarter enterprise. While many airline companies have been on a digital transformation journey for many years, it should be targeted at the cloud, and designed to be business focused.

The shift to the cloud can make a significant difference when it comes to extreme disruptions in existing business models, such as weather or pandemics by ensuring robust security, compliance and risk mitigation. It can also lead to significant improvement in operational efficiency and productivity by increasing margins and preventing revenue leakage and fraud. Migrating to the cloud will also support business growth with shorter time-to-market cycles, ability to innovate (fail fast, learn faster) when expanding into new markets. It will also enhance customer service with unlimited self-service options and insight-driven hyper-personalized products.

Cloud adoption will transform many touchpoints for a travel enterprise:

1. Customer facing
  - a. Improved passenger self-service
  - b. Migrate or build new customer portals
  - c. Call center automation
  - d. Leverage speed of development and agile architecture
2. Software-as-a-service (SaaS) adoption
  - a. Pay-as-you-go based on passenger / booking / flight / aircraft usage
  - b. Vertical business value-driven packages

- c. Procurement, finance, HR, sales and marketing applications
3. Analytics, AI / ML and innovation
  - a. Seamless travel experience
  - b. Proactive disruption management
  - c. Newer applications have cloud native-first strategy
  - d. Real-time analytics, IoT, smart meters
4. Datacenter (DC) migration to infrastructure-as-a-service (IaaS)
  - a. Reduce capex / opex in cash-crunch situation
  - b. Total DC exit where regulation permits
  - c. IT, development / test environment, dynamic workload systems moved to IaaS or platform-as-a-service (PaaS)
  - d. Reduce carbon footprint
5. Enterprise resource planning (ERP), supply chain, workforce management
  - a. Migrate to cloud platform for ERP and supply chain products
  - b. Integration of on-premise operational technology (OT) systems
6. Safety and security
  - a. Focus on cloud-first safety and security infrastructure
  - b. Global integration

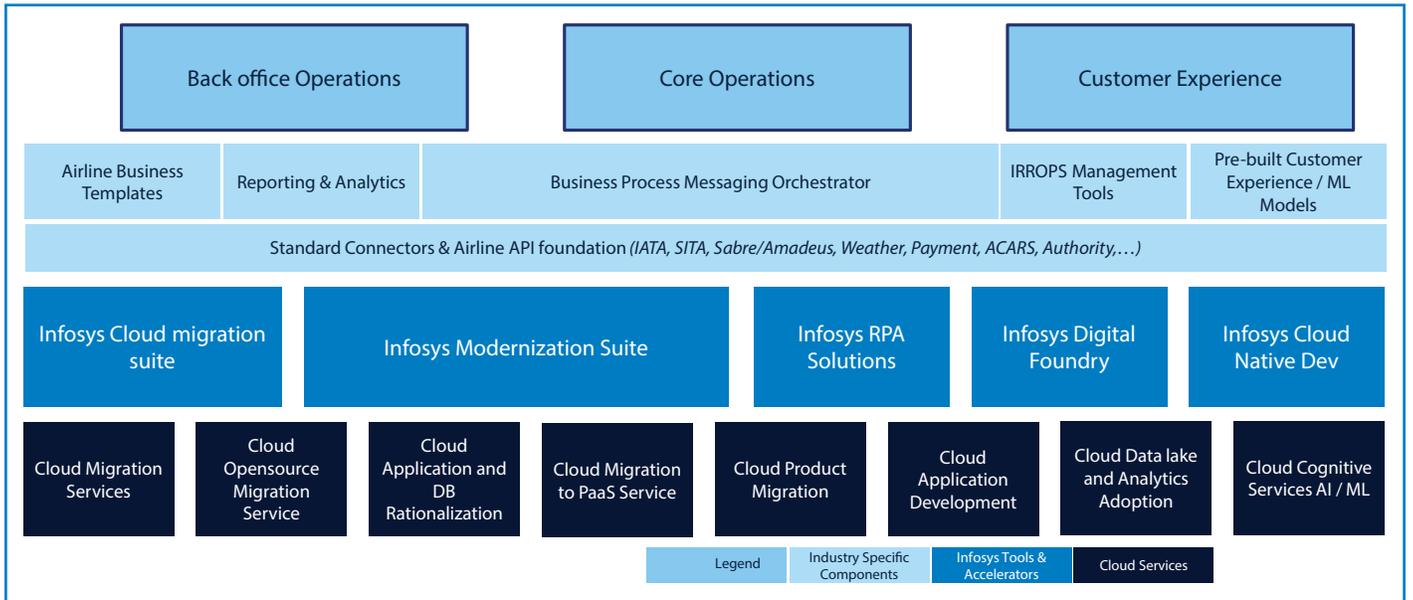
Cloud adoption delivers tangible benefits across the airline value chain. Enterprises need to re-evaluate their focus areas in the end-to-end travel journey. The next generation of tech-savvy millennial travelers prefer hyper-personalized engagement and high-levels of service. Airlines can use the downturn to transform their value chain so that they are prepared to serve customers when demand returns.

Focus Areas	Pre-Travel	Travel Experience	Post Travel
<b>Hyper Personalized Traveler engagement</b>	<ul style="list-style-type: none"> <li>Inspirational Campaigns</li> <li>Personalized Messaging</li> <li>Traveler touchpoints &amp; triggering</li> <li>Seamless Search &amp; Booking</li> <li>Safety &amp; security planning</li> </ul>	<ul style="list-style-type: none"> <li>Seamless travel (self-service tools, virtual assistance, real time communication, touch less engagement)</li> <li>Recommendations (airport, in-flight &amp; destination)</li> <li>Integrated servicing (taxi, hotel, travel services)</li> <li>Safety &amp; Security monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Feedback capture</li> <li>Loyalty program &amp; engagement</li> <li>Integrated social apps</li> </ul>
<b>Improved Service Levels</b>	<ul style="list-style-type: none"> <li>Quality of services monitoring</li> <li>Infra flexibility/Scalability</li> <li>Automated/virtual call center</li> <li>Legacy Modernization</li> </ul>	<ul style="list-style-type: none"> <li>Business continuity</li> <li>Connected customer care services</li> <li>Agent on demand</li> <li>Command center &amp; automated alerting</li> </ul>	<ul style="list-style-type: none"> <li>Feedback analysis and automated follow-up</li> <li>Seamless Loyalty partner products and services</li> <li>Virtual customer service</li> </ul>
<b>Revenue &amp; Cost Optimization</b>	<ul style="list-style-type: none"> <li>Demand &amp; Competition watch</li> <li>Automated revenue planning &amp; management</li> <li>Infrastructure Consolidation</li> <li>Schedule optimization</li> <li>Proactive Disruption Management</li> </ul>	<ul style="list-style-type: none"> <li>Recommendation engine to the agents for ancillary sales</li> <li>Resource Optimization</li> <li>IaaS/PaaS services on demand</li> <li>Pay as you go licensing</li> <li>Automated IT monitoring and proactive alerting</li> </ul>	<ul style="list-style-type: none"> <li>Back-office automation (RPA)</li> <li>Automated IT &amp; Service analytics and recommendations</li> </ul>
<b>Innovation Platform</b>	<ul style="list-style-type: none"> <li>Dynamic marketing, packaging, pricing, yield and offerings</li> <li>AI/ML based recommendations</li> </ul>	<ul style="list-style-type: none"> <li>Proactive travel notifications, suggestions, recommendations</li> <li>Intelligent virtual assistant (voice/chat bots)</li> </ul>	<ul style="list-style-type: none"> <li>Customer analytics</li> <li>Dynamic offerings</li> </ul>

As new business / technology shifts and buying behavior patterns emerge, airlines need to alter their business models to remain competitive. The table illustrates the current state of cloud adoption by airlines:

	Marketing & Commercial	Operations	Passenger Services	Corporate	Enterprise IT & Innovation
Key Business Functions	Sales & Marketing	Aircraft Scheduling & Management	Reservation & Ticketing	Legal/Procurement/ Contract Management	Enterprise Services
	Products & Services	Crew Management	Departure Control	Safety/Security/ Compliance	IT Service Delivery
	Revenue Management	Network Operations Control	Customer Care/ Call Center	Billing & Payments	Technology & Architecture
	Schedule Planning	Airport/Ground Operations	CRM/Loyalty	Revenue Accounting	IT Infrastructure
	Fleet / Crew /Resource Planning	MRO/ Engineering	Travel Portal & Self-Service	HR & Finance	Digital & innovation
	Cargo	Baggage	In-flight Services	Training & Development	IT Support & Monitoring
	B2C Portals	Catering	IRROPS Management	Quality Assurance	Data & Business Intelligence
Maturity Levels	<b>Maturing</b> <ul style="list-style-type: none"> <li>Enterprise functions and B2C portals are typically the first and easiest pathway for airlines to move to cloud. E.g. Qantas moved 70% of their Enterprise apps onto cloud</li> <li>Lifting &amp; shifting of matured apps like various Sabre or Amadeus product suits can reduce cost of operations and Infosys cloud migration tools can expedite the process</li> <li>Airlines can also utilize the short-term heavy computing needs for running special processes like Jeppesen Crew roster optimization for few days every month</li> </ul>		<b>Advancing</b> <ul style="list-style-type: none"> <li>Customer Experience functions are seeing an accelerated cloud and new technology adoption fueled by customer experience transformation.</li> <li>80% of top airlines have already planned for improving customer experience and cloud plays a significant role in implementation</li> <li>Typically the systems should be cloud native solutions like self-service portals, modern call center solutions</li> <li>Many of the Airlines are in the advanced stages in moving their BI systems onto cloud for producing the right insights</li> </ul>		<b>Evolving</b> <ul style="list-style-type: none"> <li>Core Operations like CRS / DCS are lagging due to non availability of true cloud solutions. Good number of top airlines still use legacy core systems considering the risk of replacement. The product companies have also slowed in cloud adoption because of the large investment required for upgrading the products into cloud native.</li> <li>These are quite product heavy and need to bring as PaaS offering</li> <li>IBS iFlight suite has upgraded the crew and ops solution as iFlight NEO and being used by multiple airlines now</li> </ul>

Infosys Airline Cloud solution offers accelerators for home-grown applications, reusable templates for building new applications, standard connectors for key airlines products, airline API foundation coupled with cloud services and partnerships with key hyper scalers.



Infosys' end-to-end Airline Cloud not only helps enterprises migrate to the cloud faster, but also helps reduce their total cost of operations by leveraging an Enterprise Discount Program with most cloud service providers.

Infosys Cobalt, a set of services, solutions and platforms, enables airline enterprises to build cloud-first capabilities by leveraging

the Infosys Cloud Community of business and tech innovators, achieve faster speed-to-market by capitalizing on 200+ cloud-first solution blueprints, and co-create new solutions.

Infosys' Airline Cloud grows organically by adding accelerators, connectors to industry-leading products, and new engagement models to help enterprises

become resilient and future-proof their business model.

The COVID-19 pandemic has forced the airline industry to evaluate and rationalize their cost structure. Airlines need to respond to this disruption without losing their competitive edge. Airlines should take advantage of the lull in travel to modernize their enterprise landscape with the cloud.

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