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ARIS/CX® crew-connection analyzer

Determine how flight delays and cancellations affect connecting crews

The ARIS/CX crew-connection analyzer reduces departure delays caused when crews needed to staff outbound flights are delayed by late inbound flights or by long walking distances between inbound and outbound flights.

The ARIS/CX crew-connection analyzer obtains crew-rotation identifiers for each flight from the ARIS/SmartBase® database and then tracks flight crews through connecting airports. The ARIS/CX crew-connection analyzer can track flight attendants separately from cockpit crews, and it can handle split crews that combine from multiple inbound flights to staff outbound flights.

The ARIS/CX crew-connection analyzer enables you to assign aircraft-parking positions that minimize outbound delays that occur when inbound crews are on aircraft waiting for parking positions. Actual crew-connection information is supplied to the ARIS/SmartBase database from an external system, such as a crew-assignment system.

Representative features

Scrollable connection matrix. The ARIS/CX crew-connection analyzer display is a scrollable matrix, containing as many as 1,000 by 1,000 cells, that displays inbound flights across the horizontal axis and outbound flights down the vertical axis. Each cell of the matrix contains separate indicators for cockpit crews and for flight attendants connecting between inbound and outbound flights associated with the cell. The scrolling capability makes it possible to maintain a cell size that is easily readable.

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Flight information. Actual or estimated flight arrival and departure times are displayed along the edges of the matrix, enabling you to assess the extent of the delays. When you place your pointer over a flight, the ARIS/CX crew-connection analyzer indicates the original schedule time. Flight status indicators provide information about the flight, such as inbound, in range, or taxiing to a position.

Accurate connection time model. When the ARIS/CX crew-connection analyzer is installed, models of times required for flight crews to connect from each parking position to every other parking position are entered into the ARIS/SmartBase database. Because flight crews are usually the last to deplane, the ARIS/CX crew-connection analyzer considers aircraft deplaning time as part of the crew-connection time.

Alert indicator. Using models, the ARIS/CX crew-connection analyzer computes the most reasonable connection times between flights and automatically selects and displays on each cell in the matrix one of four alert levels: no alert, difficult connection, unlikely to connect, and impossible to connect. Because each alert is associated with a different color, you can identify possible problems rapidly and select the best course of action.

Connection-detail information. When you place the pointer over connection cells in the matrix, the ARIS/CX crew-connection analyzer displays crew information, such as crew ID, rotation start date, and active or ferry status. The connection-detail information enables you to track crews and reassign crews to other flights.

Aircraft-turn indicator. The ARIS/CX crew-connection analyzer displays an indicator when an aircraft makes the turn from an inbound to an outbound flight. Aircraft-turn indicators may be used to identify departure times that are overly optimistic and that, if readjusted correctly, could reduce connection problems.

Automatic sort and update. The ARIS/CX crew-connection analyzer automatically places the most difficult connections in the upper left corner of the display. The system updates cells and flight information automatically as the ARIS/SmartBase database receives new information.

Time-range control. Rather than scrolling through a large matrix, you can use time-range control functions to select a specific time range for arrivals or for departures. You can view connections within each bank of flights. Because connections within the same bank of flights usually represent 95% of all connections, the bank-selection system provides a convenient way to partition the matrix.

Report generation. The ARIS/CX crew-connection analyzer produces hardcopy output of sections of the connection matrix. The printout, which can cover any time period, is generated by a separate program that accesses the ARIS/SmartBase database directly.

Generalized database access. All information processed by the ARIS/CX crew-connection analyzer is stored in the ARIS/SmartBase database, where it can be used by other ARIS® products or by external systems. You can create reports that show, for example, the average delay due to crew-connection problems.

Worldwide capability. The ARIS/CX crew-connection analyzer can store crew-connection information on a worldwide basis. You can monitor crew connections system-wide and locate any connection problems.

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Integration with the ARIS/PX® passenger-connection analyzer. When the ARIS/PX passenger-connection analyzer is also running, passenger-connection information is integrated with the crew-connection matrix. By sharing the matrix with the ARIS/PX passenger-connection analyzer, a single display can monitor both passenger and crew connections.

Collaborative decision-making. The ARIS/CX crew-connection analyzer supports team decision-making, ensuring all users share a consistent current view of operations. You can discuss possible solutions with other users before you commit to changes

Web-enabled for cost-effective rapid and wide deployment. You gain access to the ARIS/CX crew-connection analyzer through Ascent's From Touchdown to Takeoff® cloud-hosted service, a secure, highly-available, and readily-expandable platform. When you subscribe to the service, you can gain access Ascent's entire suite of products, including the ARIS/CX crew-connection analyzer, using a standard browser directly from your network without any need to install, maintain, and support on-premise hardware and software. We can readily adjust available computing power to meet your organization's changing needs and easily expand your solution to accommodate additional users and to manage additional resources, facilities, and locations.

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Services to help you maximize the benefits of Ascent solutions

Advisory and consulting services. Ascent advises about resource allocation, optimization, planning, scheduling, management, and deployment methodologies; develops cost-benefit analyses; analyzes business processes; and gathers and develops technical requirements and functional specifications.

Project-management services. Ascent's project-management team works closely with you, following time-proven delivery methodologies, and uses face-to-face meetings, teleconferences, web conferences, and email exchanges to keep you informed every step of the way. Ascent believes careful collaborative project management is the key to successful on-time and on-budget deliveries of Ascent's solutions.

Knowledge-engineering services. Knowledge engineering is the process of identifying your business knowledge—the business rules, policies, procedures, preferences, reference information, and requirements that guide the way your organization operates—and then codifying your business knowledge into rules stored in the knowledge base at the heart of the Ascent solutions. Your business knowledge, stored in the knowledge base, determines how the solutions behave. Ascent's knowledge engineers work with you to ensure the solution behaves just as you want it to.

Implementation, integration, and cloud-hosting services. Ascent's implementation team provides system integration and testing services, and develops product extensions, enhancements, and connectivity software for importing data to and exporting data from external systems. Ascent's implementation team also sets up, monitors, and maintains highly secure and reliable AWS hosting environments for the Ascent solutions you rely on, customized to meet your organization's need for redundancy and performance.

Training services. Ascent offers a wide range of user, administrator, trainer, and refresher training classes at your location, at Ascent's Boston, MA, headquarters, and remotely over the web. Ascent also offers operational training services remotely when you begin to use an Ascent solution in production.

Maintenance and support services. Ascent offers maintenance and technical support services for Ascent's solutions around the clock. Ascent provides comprehensive remote support services via telephone, email, web conference, and Internet; software maintenance, such as product updates, patches, and releases; and cloud-hosted environment monitoring, tuning, and switchover. Ascent's web-based ticket system enables you to request service, report problems, track issues day and night, and communicate with the Ascent support team.

Who we are

Since our founding 40 years ago by members of the Massachusetts Institute of Technology Artificial Intelligence Laboratory, Ascent has helped organizations deploy costly resources as efficiently, effectively, and economically as possible. Our highly trained and capable team of technologists, problem solvers, and solution designers has broad domain expertise and substantial experience in artificial intelligence, computer science and engineering, system design, mathematical optimization, operations research, and resource optimization, planning, scheduling, and management. To learn more about how Ascent can help you optimize your resources to greatest advantage, send an email to sales@ascent.com or call our Sales and Marketing team at +1.617.395.4800.

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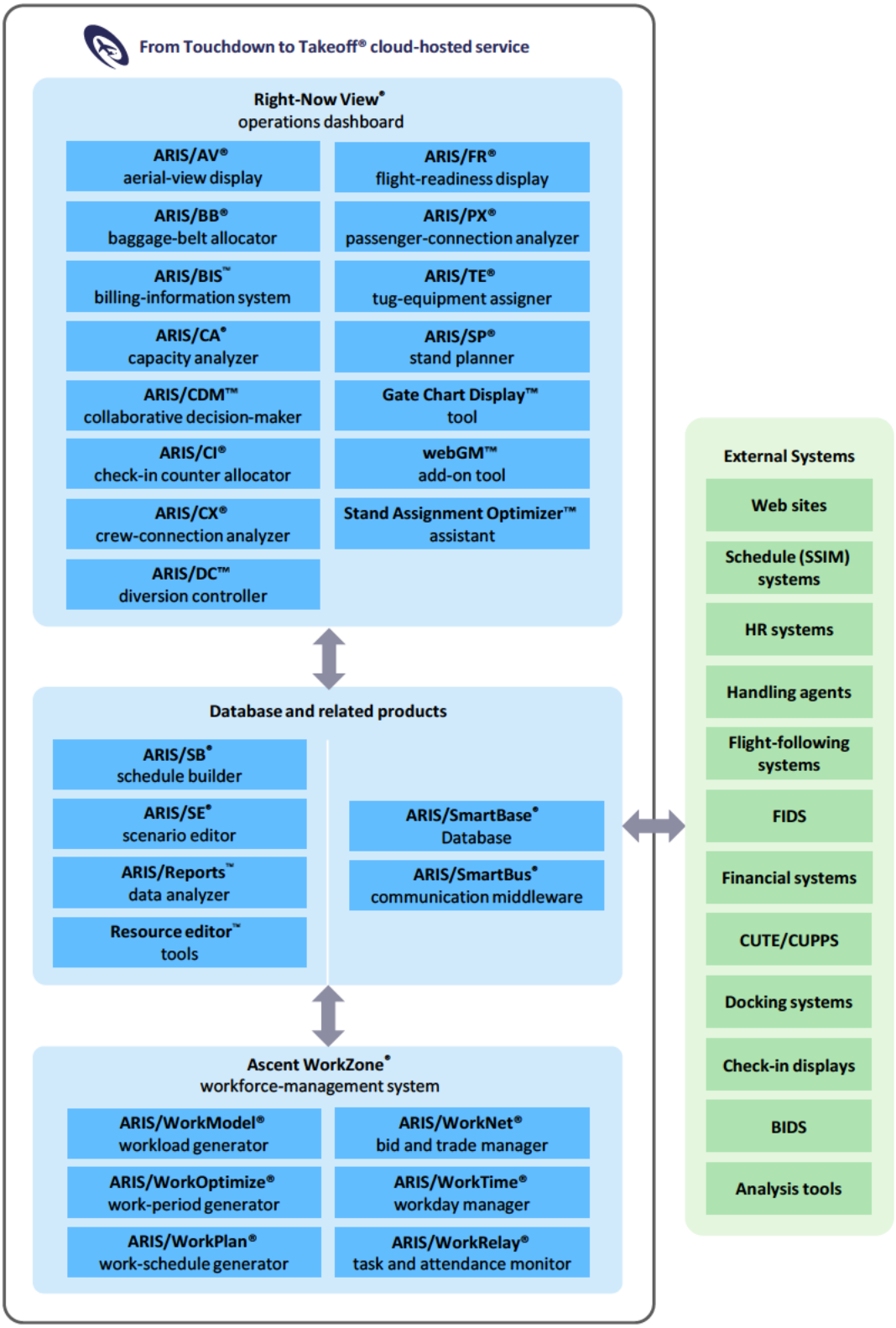
Ascent Resource Information System® solutions



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From Touchdown to Takeoff® cloud-hosted service

Solutions for airline and airport resource optimization, planning, scheduling, and management

A standard web browser, such as the Google Chrome™ browser or the Microsoft Edge™ browser, enables access to Ascent Technology's cloud-hosted solutions. The From Touchdown to Takeoff service requires a minimum resolution of full HD (FHD).

Airport Operational Database (AODB)	Central database
ARIS/SmartBase® database Includes one or more of the following tools:	Integrates, coordinates, disseminates, and maintains planning, operations, and historical information for resource and workforce management
• Location Editor™ tool	Manages the location hierarchy and records used to plan, schedule, and manage workload, workers, and tasks
• Planning Control™ tool	Manages work-schedule planning
• Profile Editor™ tool	Manages passenger-arrival profiles for departure flights
• Reference Editor™ tool	Manages reference-information records that determine how the Ascent Technology products, applications, and tools behave
• Rule Editor™ tool	Manages scenarios, rule groups, and rules for workforce management
• Template Worker Editor™ tool	Manages template worker records used to plan workload
• Update Control™ tool	Manages settings that block external systems from updating information in specified database fields
• User Editor™ tool	Manages user access to the products, applications, and tools
• User Group Editor™ tool	Manages user-group access to pre-set configurations and automated distribution of email and messages
• Worker Editor™ tool	Manages worker-related information and records
ARIS/Reports™ data analyzer	Produces reports based on plan, actual, and historic information
ARIS/SB® schedule builder (with ARIS/LegGen® flight-leg generator and ARIS/SL® schedule loader)	Creates, manages, and distributes flight-schedule and day-of-operation flight information; creates flight legs; and loads and stores SSIM flight data
ARIS/SE® scenario editor	Specifies and manages airport-resource rules and scenarios
ARIS/SmartBus® communication middleware	Enables information exchange between the ARIS/SmartBase database and external systems

Ascent WorkZone® workforce manager	Workforce optimization and management for mission-critical environments
ARIS/WorkModel® workload generator	Forecasts workload based on expected demand
ARIS/WorkNet® bid and trade manager	Worker self-service tool for managing work schedules
ARIS/WorkOptimize® work-period generator	Determines how many workers are needed and when they are needed
ARIS/WorkPlan® work-schedule generator	Creates work lines for full-time and part-time workers
ARIS/WorkRelay® task and attendance monitor	Provides task-assignment information to workers in real time
ARIS/WorkTime® workday manager	Assigns work, breaks, and locations to workers dynamically in real time

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Right-Now View® operations dashboard	Dashboard to plan, schedule, and manage airline and airport resources and operations
ARIS/AV® aerial-view display	Displays real-time aircraft parking-assignment information on an airport aerial view
ARIS/BB® baggage-belt allocator	Plans and allocates baggage make-up and reclaim belts
ARIS/BIS™ billing-information system	Tracks usage-based ground fees
ARIS/CA® capacity analyzer	Plans, analyzes, and manages airport capacity and resources
ARIS/CDM™ collaborative decision-maker	Enables collaborative decision-making with support from Ascent's powerful advanced AI and optimization algorithms
ARIS/CI® check-in counter allocator (with ARIS/IQ® queue manager)	Plans, assigns, and manages ticket counters and kiosks
ARIS/CX® crew-connection analyzer	Shows how flight delays and cancellations affect connecting flight crews
ARIS/DC™ diversion controller	Tracks system-wide flight diversions, providing real-time status of diverted flights to diversion stations
ARIS/FR® flight-readiness display	Provides status of tasks and activities related to arrivals and departures
ARIS/PX® passenger-connection analyzer	Shows how flight delays and cancellations affect connecting passengers
ARIS/SB® schedule builder (with ARIS/LegGen® flight-leg generator and ARIS/SL® schedule loader)	Creates, manages, and distributes flight-schedule and day-of-operation flight information; creates flight legs; and loads and stores SSIM flight data
ARIS/SP® stand planner	Plans parking-position assignments for schedule periods
ARIS/TE® tug-equipment assigner	Manages aircraft tows, assigns tugs to tows, and displays tow status
Gate Chart Display™ tool	Manages day-of-operation parking assignments with manual entry using basic scenarios and rules
Gate Chart Display with webGM™ add-on tool	Plans and manages day-of-operation parking assignments with automated assistance using business rules and intelligent scenarios
Gate Chart Display with webGM add-on tool and Stand Assignment Optimizer™ assistant	Plans and manages day-of-operation parking assignments with automated assistance using business rules and intelligent scenarios, and resolves future parking-assignment problems caused by delays, swaps, and cancellations in compliance with business rules

ARIS, ARIS/AR, ARIS/AV, ARIS/BB, ARIS/CA, ARIS/CI, ARIS/CX, ARIS/FR, ARIS/FW, ARIS/GateView, ARIS/GM, ARIS/IQ, ARIS/PX, ARIS/SA, ARIS/SB, ARIS/SE, ARIS/SL, ARIS/SmartBase, ARIS/SmartBus, ARIS/SP, ARIS/TE, ARIS/Tow Panel, ARIS/WorkModel, ARIS/WorkNet, ARIS/WorkOptimize, ARIS/WorkPlan, ARIS/WorkRelay, ARIS/WorkTime, Ascent Resource Information System, Ascent Technology, Inc. (stylized), Ascent WorkZone, Ascent WorkZone (stylized), From Touchdown to Takeoff, Right-Now View, SmartAirline, SmartAirline Capacity Analyzer, SmartAirline Information Manager, SmartAirline Operations Center, SmartAirline Operations Manager, SmartAirline WorkZone, SmartAirport, SmartAirport Capacity Analyzer, SmartAirport Information Manager, SmartAirport Operations, SmartAirport Operations Center, SmartAirport Operations Manager, SmartAirport WorkZone are registered trademarks of Ascent Technology, Inc., in the United States.

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