

# The Airtours Cruise Intranet: Streamlining the distribution of information, knowledge and money

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## Abstract

Airtours PLC is one of the largest vertically integrated tour operator groups in the world, and is partly-owned by Carnival Corporation, the world's largest cruise ship operator. The Airtours Cruise Division currently operates four wholly-owned cruise ships, servicing passengers from many different states in Europe and North America. The Airtours Cruise Division has implemented an advanced Intranet, i.e. a virtual private corporate network based on Internet-technologies. This Intranet links, via land lines and satellites, the Airtours cruise ships and all offices of the Airtours Cruise Division worldwide. Using this communication infrastructure, both voice and data are distributed between different locations as required. This paper outlines, in case study form, the technical and organisational infrastructure and operations of this 'state-of-the-art' Intranet, which cost-effectively streamlines the distribution of information, knowledge and money.

## 1 Introduction

The Airtours Cruise & Hotels Division (CHD), based in Helmshore/Lancashire near Manchester, is a wholly-owned division of Airtours PLC (Airtours Group), Manchester, England. Airtours Group is one of the largest travel and tourism companies in the world, with substantial international interests in charter airline, cruise, hotel, tour, and leisure travel agency operations (Table 1).

Operations	Geographic Focus	Main Subsidiaries
<b>Charter Airlines</b>	Scandinavian Leisure Group (SLG)	Premiair (13 aircraft)
	UK Leisure Group (UKLG)	Airtours International (22 aircraft)
	West European Leisure Group (WELG)	Air Belgium
<b>Cruise Ship Operations</b>	Caribbean, Mediterranean	Airtours CHD (4 cruise ships) Costa Cruises (7 cruise ships)
<b>Hotel Operations</b>	Mediterranean	Airtours CHD (> 30 properties; 2 timeshare complexes)
<b>Tour Operators</b>	North American Leisure Group (NALG)	Alba Tours, Silver Wing, Sunquest Holidays, Sunquest Vacations, SunTrips
	Scandinavian Leisure Group (SLG)	Always, Saga Solreiser, Simon Spies, Tjaereborg Rejser, Ving Group
	UK Leisure Group (UKLG)	Airtours Holidays, Aspro Holidays, Bridge Travel Group, Cresta Holidays, Direct Holidays, EuroSites, Panorama Holidays, Tradewinds
	West European Leisure Group (WELG)	Frosch Touristik / FTI, Sun International
<b>Leisure Travel Agents</b>	Scandinavian Leisure Group (SLG)	Ving Shops
	UK Leisure Group (UKLG)	Going Places (> 700 outlets), Travelworld (> 100 outlets)
	West European Leisure Group (WELG)	Flugbörse D+S Reisen (> 90 outlets), Sun International

**Table 1. Main Airtours Group Interests in January 1999**

In April 1996, Airtours PLC was partly acquired by Carnival Corporation, Miami/Florida, USA. Carnival is, with a fleet of approximately 40 cruise ships, the world's largest cruise ship operator. Airtours CHD, which trades as 'Sun Cruises', 'Sunwing Hotels' and 'Vacation Ownership' (i.e. the timeshare operation), was set-up in early 1994. By mid 1998, Airtours CHD operated four wholly-owned cruise ships (Table 2), carrying approximately 1.6 million passengers per year in total.

Cruise Ship	Acquisition	Cabins	Berths	Crew	Tonnes
MS Carousel	October 1994	528	1,160	400	23,200
MS Seawing	April 1994	339	916	300	16,607
MS Sunbird	May 1998	707	1,575	500	37,584
MS Sundream	August 1996	540	1,190	400	22,945
<b>Total</b>		2,114	4,841	1,600	100,336

**Table 2. The Airtours Cruise Ships**

In late 1996 and early 1997, Airtours CHD formulated and approved a new IT strategy (see for example Airtours CHD, 1997). In essence, a decision was made to develop and implement a technical and organisational infrastructure to cost-effectively streamline the distribution of information, knowledge and money within all Airtours CHD business units. The two main commercial aims of this strategy were (i) to increase passenger revenue streams, and (ii) to control costs. As a result of this IT strategy, the 'state-of-the-art' Airtours Cruise Intranet, which is discussed in this paper, was implemented between January 1997 and summer 1998.

Only the Cruise Intranet is described here; thus the paper does not include information related to the Airtours Hotels Intranet of Airtours CHD (Anonymous, 1998a) nor to any other Airtours Group Intranet, unless where directly relevant. No cost and financial information is published for reasons of confidentiality.

## 2 Technical Information and Communication Infrastructure

Airtours CHD decided to implement a common platform with common reporting processes across the division. It was also decided to adopt standard telecommunications and IT products whenever available, and only to implement be-spoke systems where necessary. With regards to reporting, systems had to support 'push-reports', rather than 'old-style' 'pull-reports'. This meant that financial and management information were distributed automatically by the systems rather than having to be retrieved on demand.

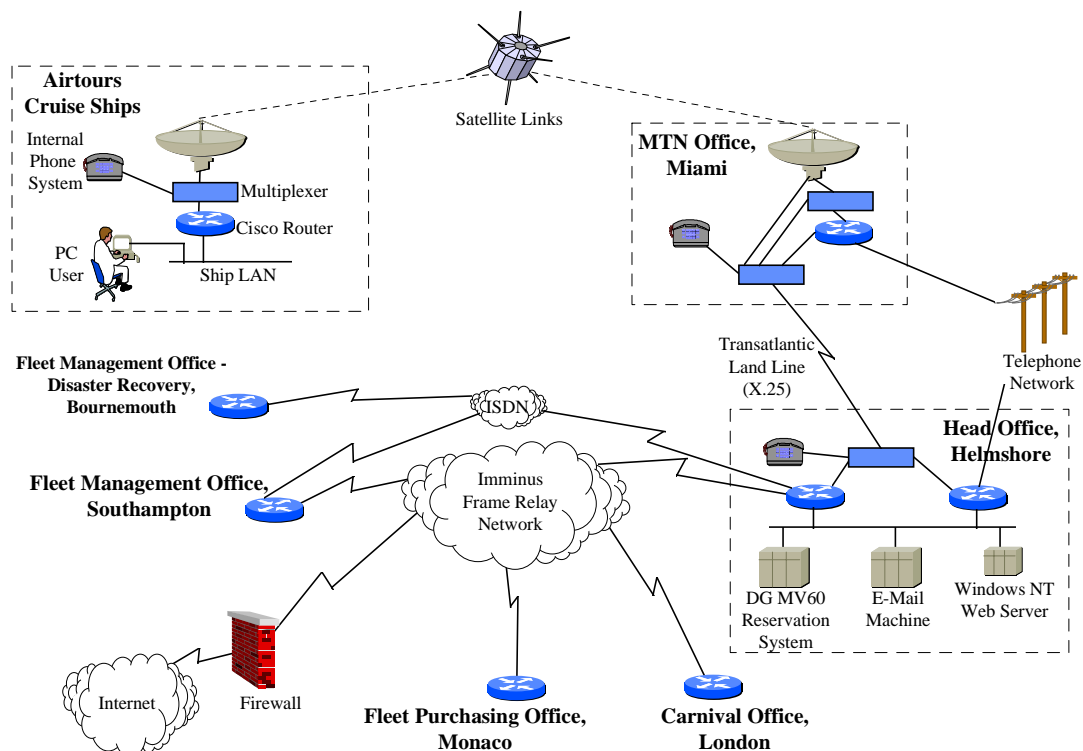
The main IT systems concentrated on initially during the project were (i) general ledger system and MIS (management information system), (ii) property database, and (iii) guest management system. Over time, more systems were added, and currently the main systems used by Airtours CHD are (in alphabetical order):

- **'Airtours Res'**: The be-spoke tour operator system of Airtours Holidays Limited, storing package holidays branded as 'Airtours' and 'Aspro' (Kärcher, 1997, pp. 139 - 140). The system operates on Data General (DG) MV60 machines in Helmsshore. The system is accessed either via an internal front-end, or via a viewdata (videotex) emulator accessing the external Airtours Holidays viewdata front-end system.
- **'AMOS'**: The standard ship stock control and purchasing system of Airtours CHD, developed and maintained by Spectec, Norway. The system, which is based on fully distributed databases, operates on PC servers on the cruise ships, at the Fleet Management Office in Southampton, and at the Fleet Purchasing Office in Monaco. The system was implemented during June and July 1998.

- **‘ASI’**: The standard cruise ship hotel management and catering system of Airtours CHD, developed and maintained by Automated Sciences Inc. (ASI), Sarasota, USA. The system operates on PC servers on the ships. It was implemented on MS Carousel in January 1997, on MS Seawing in March 1997, and on MS Sundream in April 1997.
- **‘Fidelio’**: The standard (land-based) hotel management and catering system of Airtours CHD, developed and maintained by Micros Fidelio, Germany (and USA). The system was implemented in the first Airtours Sunwing Hotels in January 1997, but was not used on the cruise ships.
- **‘Frango’**: The be-spoke corporate accountancy database system of Airtours Group, used in particular for generation of monthly and annual financial reports. The system operates in Helmsshore.
- **‘MS Explorer’**: The standard Microsoft Internet browser software, allowing access to the internal Windows NT web server in Helmsshore and to public Internet web sites.
- **‘MS Outlook’**: The standard Microsoft e-mail software, which was implemented by Airtours Group worldwide between January and August 1998.
- **‘Scala’**: The standard financial system of Airtours CHD, developed and maintained by Scala, Sweden. Relevant information is extracted automatically from ‘ASI’ and ‘Fidelio’. On a monthly basis, financial information is passed automatically to ‘Frango’. The system operates in Helmsshore and was implemented in February 1998.

Throughout the division, Windows NT has been implemented as the operating system, Ethernet as the LAN (local area network) standard, and TCP/IP as the LAN and WAN (wide area network) protocol. For cost reasons, ISDN is used for back-up and disaster recovery processes.

All IT systems are linked by a modern telecommunication infrastructure using Internet technologies (i.e. TCP/IP) to allow communication over various platforms, without the need to implement complex gateways. Fig. 1 gives an overview of the Airtours Cruise Intranet IT infrastructure.



**Fig. 1. Airtours Cruise Intranet Technical Infrastructure**

Fig. 1 does not show additional links to the Airtours Group Head-Office in Manchester, and to other Airtours Group offices and subsidiaries worldwide, as these links are not part of the Airtours Cruise Intranet. While on-line access is available to 'Airtours Res', no other land-based systems can be accessed on-line by cruise staff for security reasons.

Most of the international Cisco router management and maintenance, and the land-based telecommunications infrastructure and support, is provided by Imminus / General Telecom Limited, Peterborough, England. The satellite links are provided by Maritime Telecommunications Network (MTN), Miami, USA. The software company ASI has dial-up access to the network in Miami via the public telephone network for on-line 'ASI' software support. Imminus / General Telecom has access to the Cisco routers for management via further separate public telephone dial-up links both in Miami and in Helmsore. The Fleet Purchasing Office is operated by Martinoli in Monte Carlo, Monaco, and the Disaster Recovery Centre of the Fleet Management Office is operated by RGH Associates (Richard, Graham, Humphrey) in Bournemouth, England.

The MTN satellite links are used as the main communication links to the ships. This connectivity is paid for on a fixed charge for volume independent voice and data traffic (limited only by bandwidth). Each cruise ship has eight voice chunks for passengers, one voice line for staff, and one fax (/voice) line. Each ship operates a telephone exchange (PABX) capable of supporting over 1,000 extensions per ship. In addition, voice internal traffic via routers is provided to the ships, as well as the Miami office and the Head-Office, allowing for up to four concurrent calls.

Connectivity to the Inmarsat, which is charged on a time-dependant basis, is maintained for emergencies. For example, the 'MariNet' store-and-forward system can be used via the Inmarsat as a back-up messaging system. Television and radio programmes are received via further satellite links. Moreover, the GMDSS (Global Maritime Distress and Safety System) was implemented during November 1997 to May 1998. This modern safety system made the role of Ship Radio Officer as well as the function of the Ship's Radio Room redundant.

While some links existed prior to the implementation of the Airtours Cruise Intranet (for example, Helmsore was linked during 1996), the main Intranet developments and implementations were conducted during January 1997 to summer 1998. The first cruise ship, MS Sundream, was refitted during February and March 1997 (Jordan, 1997). The routers on MS Carousel and MS Seawing were installed in September 1997 (Anonymous, 1997 and 1998b), the fleet purchasing office was linked in October 1997, the fleet management office in February 1998, and the disaster recovery site in early summer 1998. Finally, Internet access was provided in September 1998.

Prior to the implementation of the Cruise Intranet, all ship-to-shore and shore-to-ship communication was by voice and fax only. The Intranet allowed for the introduction of electronic mail and FTP (file transfer programme). With the introduction of 'MS Outlook', FTP has been replaced by more efficient file attachments to e-mail messages.

Each cruise ship had one to two IT staff, consisting of an Electronic Technical Officer (ETO) and, in some cases, a Communications Assistant. Overall, the entire IT department for both cruise and hotel operations consisted of approximately 20 staff. Additional IT support is provided by Airtours Holidays / EDS, and by the IT and telecommunication partner organisations.

### 3 Organisational Information and Communication Processes

Prior to the implementation of the Intranet, all data and other information was held on PCs on the ships and the various cruise offices locally. Information could only be transferred either by phone or fax, and it then needed to be re-keyed into the PCs. This process was very labour intensive and slow, and occasionally lead to errors through re-keying. Some land-based offices also used the e-mail software 'MS Mail', while the very restrictive 'Uniplex' was in use on some cruise ships. However, electronic communication between these systems was 'piecemeal' and perceived as unsatisfactory. With the introduction of the Intranet, many processes were completely re-engineered, as outlined in the following.

#### 3.1 Corporate Information and Knowledge Management

- **General information and knowledge management:** 'MS Outlook' was introduced between June and 1 August 1998, replacing 'MS Mail' in land-based offices and 'Uniplex' on the cruise ships. This allowed for the integration of the internal electronic communication infrastructure, thereby leading to increased communication speeds and considerable cost savings, such as in reduced telephone and fax costs and in lower administration effort. Using 'MS Explorer', Intranet web-sites based in Helmsore displaying corporate information can also be accessed. In addition, through a guarded outbreak to the public Internet, staff can also exchange e-mail messages with company external contacts including their families and friends. Moreover, staff can access Internet web-sites. For example, the cruise ship doctors can access up-to-date medical information on-line via the Internet. However, it is worth noting that due to ship procedure, all cruise ship outgoing and incoming communication is seen by the Captain. Moreover, all safety-related communication is printed on paper and retained for records according to ISM (Institute of Safety Management for Shipping) procedures.
- **Financial information management:** 'Scala' (and 'Frango') replaced the Airtours Holidays accountancy system 'Miracle', as well as various 'MS Excel' spreadsheets. This implementation reduced system response times and, through interfaces to other systems, fully automated many manual procedures, thus gaining substantial savings in administration. In addition, flexibility and commercial control was increased as more financial information on the operations of the hotels and cruise ships could be extracted from 'Scala', in particular due to interfaces to 'Fidelio' and (since summer 1998) to 'ASI'.
- **Human resource (HR) information management:** Staffing information is mailed electronically between the ships, head-office and the fleet management office. No HR system is currently used, but the 'ASI' HR module is planned for the end of 1998.
- **Ship layout information management:** In the past, all ship layout drawings were stored on paper both on the ships and in the land-based offices. These drawings are used for engineering, maintenance and passenger information purposes. In July 1998, a CAD (computer-aided design) software was implemented, developed and maintained by DHE, Southampton, England. CAD files are now sent as e-mail attachments and are stored on PCs on the ships and in the land-based offices, thus substantially reducing the workload of transferring, storing and handling the layouts. An automated interface between the CAD software and the 'AMOS' inventory system is also planned.

#### 3.2 Supply Management

Prior to the implementation of 'AMOS', stock management was mainly manual, with the occasional use of standard PC word processing and spreadsheet software. The processes were little integrated and therefore slow and labour intensive.

- **Stock control management:** Since the implementation of the database stock inventory module 'AMOS-D' on 1 June 1998, all stock of water, fuel and spare parts (ranging from screws to major engineering components) held on the cruise ships is stored electronically. Updates of this stock information are e-mailed to Head-Office and the Fleet Management Office. In addition, food stocks are held in 'ASI', and medical stocks in 'MS Access' databases (which will be integrated into 'ASI' in the future).
- **Purchasing management:** When stock levels in 'AMOS-D' get below a certain amount, the 'AMOS-P' purchase order generator module, which was implemented in July 1998, automatically generates an electronic purchase order, which is e-mailed to the Fleet Management Office. The Fleet Management Office either orders the items directly, or passes an electronic order to the Purchasing Office in Monaco. Electronic messages confirming the delivery dates are returned to the ships. In parallel, food and medical supply orders are sent to and handled by the Head-Office in Helmsshore.
- **Maintenance management:** 'AMOS' contains electronic preventative and planned / scheduled maintenance plans. These plans automatically update, via 'AMOS-D', the stock information, and generate, via 'AMOS-P', any necessary purchase orders. 'AMOS' also contains a hotel fault reporting module, which supplements 'ASI'. For example, when a passenger informs a crew member that a cabin toilet does not work, various pieces of paper (so-called 'AVOs' / 'avoid verbal order') which had to be filled in manually were passed between that crew member, the engine control room, and the resident ship plumber. With the implementation of the hotel fault reporting system in 'AMOS', all fault reports are keyed into the system, which then automatically generates all reports, updates the database regarding spare part stock use, orders new parts, records times of each system entry and therefore the length of repairs, and finally automatically generates a letter of apology for the passenger.

### 3.3 Customer Service Management

- **Hotel operations:** The on-board passenger accommodation is operated as a hotel, and all hotel management and catering information is held in 'ASI'. 'ASI' is supplemented by the hotel fault reporting module of 'AMOS'. Passenger information is automatically transferred via FTP from 'Airtours Res' onto a PC word processor based charting system in Helmsshore. The passenger lists are then e-mailed to the cruise ships and loaded into 'ASI'. While customer complaints were previously handled manually, they are now entered into the passenger complaint reporting module in 'AMOS'. This module records what, when and by whom complaints have been reported, and passes this information to the individuals concerned. Dates and times of all activities are recorded, and these time stamps cannot be changed. The three new systems 'ASI', 'AMOS' and 'Scala' also allowed for, among others, monitoring of guest spending, identification of changes in customer demand, control of quality of service, and information on repeat bookings.
- **Payment handling:** Using the 'ASI' credit card module, any on-board credit card payments are captured in this passenger manifest system. Shortly before the end of each voyage, this information is electronically transferred to Helmsshore and onto the NatWest bank host system for authorisation and settlement. Electronic messages confirming or declining the payments are returned. This semi on-line clearing process takes a few hours, but has substantially improved the previous manual process which took five to six days. Full on-line credit card authorisations, as well as ATMs (automated teller machines) for cash withdrawals in the ship casinos, are being considered for the future.
- **Travel agent operations:** Passengers can purchase on-board next year's Airtours holidays, with crew being able to access 'Airtours Res' on-line. An 'ASI' module for tour excursions from the ships is planned in addition. The operation of travel agent outlet on the ships allowing the bookings of a wide range of travel and tourism components and packages from different suppliers via the Imminus Travel and Tourism Intranet (Edwards et al., 1998) is also being considered.

- **General information handling:** Passengers have free access to daily electronic headline information including home news and sports, which is supplied by the Daily Mail newspaper and downloaded via the Inmarsat. Moreover, it is planned to give passengers access to Intranet web sites, displaying information on the cruise ships and excursions, as well as to the public Internet to 'surf the Web' and send e-mails to family and friends. Stand-alone touch-screen systems, for example for information on ship and tour excursions, are also being considered. Digital images of every cabin on the ships have been produced, with the aim to display this information on an Intranet and an Internet site both to passengers as well as future customers.

## 4 Conclusions

Pickup (1998, p. 4) lists a number of direct and indirect business benefits arising from the implementation of intranets:

- Direct business benefits: Savings in paper; savings in print production and distribution of newsletters, policy documents and telephone directories; increased efficiency of staff; increased turn-around for sales quotations; savings in replacing legacy systems.
- Indirect business benefits: Knowledge management; improved motivation; shared common visions; communication and change; keeping in step with new technology; competing with external media; aiding communication in disparate organisations; modern working practices; synergy of the work force; free market research; innovation from everyone; relief from information overload; breaking down the 'silo' mentality.

In the case of the Airtours Cruise Intranet, all these benefits were achieved (to different degrees). Moreover, the Airtours Cruise Intranet has led to a number of further benefits, ranging from increased quality of service to increased customer satisfaction. In particular, major improvements have been made to achieve the two main aims (i) to increase passenger revenue streams, and (ii) to control costs. Although it is too early to assess the full impact of the implementation of the Intranet on the business and financial performance of Airtours CHD, the Cruise Intranet is likely to have substantially improved the operations of and has added crucial short and long-term competitive advantage to the Airtours Cruise Division.

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