
TPAC Operations

Keeping a transport fleet functioning while balancing the sometimes-conflicting demands of on-time running, resource management and cost control can be difficult.

In current-day operations, things don't always follow the carefully worked-out schedule: vehicles break down, weather slows things down (or closes ports), late passengers delay departures, which leads to knock-on delays. One must be able to re-schedule on the fly, keeping track of not only what vehicles are available, but of passenger connections, crew connections, maintenance schedules, curfews, slots and other restrictions.

What is an Operations Control System?

An Operations Control System aids in the control of the current-day operations of a transport fleet. To aid with this, it provides real-time visibility of:

- where the vehicles and crew are
- whether they are on time
- whether they will make their connections
- whether they will violate restrictions
- whether vehicles are unserviceable or crew are sick

It then allows the user to take corrective action to minimise the disruption, such as:

- re-scheduling or cancelling sectors
- reallocating vehicles and crew

Feature Summary

TPAC Operations has been designed to handle the requirements of operations control for a transport fleet, including:

- real-time fleet tracking and management
- optimised and user-controlled problem solving
- scenario development and modelling
- network-wide information gathering, display, management and dissemination, covering problem alerts, resource constraints and commercial imperatives.
- fully integrated capability with both CTI and other in-house systems, including network development, crew management and maintenance systems
- interface capability with a range of other external systems
- regulatory and company compliance checking and reporting
- extensive reporting

Feature Highlights

Modelling and Publishing

Changes are made to a model, and when the operator is satisfied with the changes, they are then published. They are updated in real-time with data continually fed to the database, so changes, arrivals,

departures and warnings appear on the screen as they happen. Models can also be shared with more than one operator so that simultaneous problem solving can occur.

Schedule Recovery

Juggling all the factors required to make optimal re-scheduling of vehicles needs all the help it can get. The Operations Control system can be interfaced with TPAC Schedule Recovery, that advises recommended actions that can be used to recover to schedule in the minimum time with the minimum disruption. This allows the operator to use this function to support the fleet's operational management, by advising changes that reduce current and future operational problems.

Reporting

TPAC Operations has many built-in reports and information windows, including:

- Crew Connections
- Cost and Contribution
- Flying Hours/Frequency Analysis
- Numeric Schedule Notices
- Capacity by Flight Type
- Overnight Bases
- Broken Connections
- Passenger Loadings
- Block Hours

Block Hours Report

Block hours for 6 Jan 2006					
Report date 6 Jan 2006					
Report time 13:23					
Aircraft Type	Flight Type	Passenger	Cargo	Others	Total
340		20	0	0	20
342		4	0	0	4
343		3	0	0	3
346		12	0	0	12
74Y		0	20	0	20
772		29	0	0	29
773		7	0	0	7
744		471	0	11	482
743		45	0	0	45
333		115	0	0	115
332		54	0	0	54
763		356	0	0	356
73H		355	0	0	355
734		180	0	0	180
733		67	0	0	67
320		275	0	0	275
717		55	0	0	55
Total:		2048	20	11	2080
Total:		2048	20	11	2080

Close

Status At A Glance

The Pattern Display shows a colour-coded GANTT chart that enables the operator to easily see the status of the fleet: a time-positioned time-proportional display of the schedule with details such as:

- Vehicle type and registration
- Departure and Arrival times
- On-ground times
- Ports
- Scheduling conflicts
- Problems
- Crew problems
- Movement slot violations

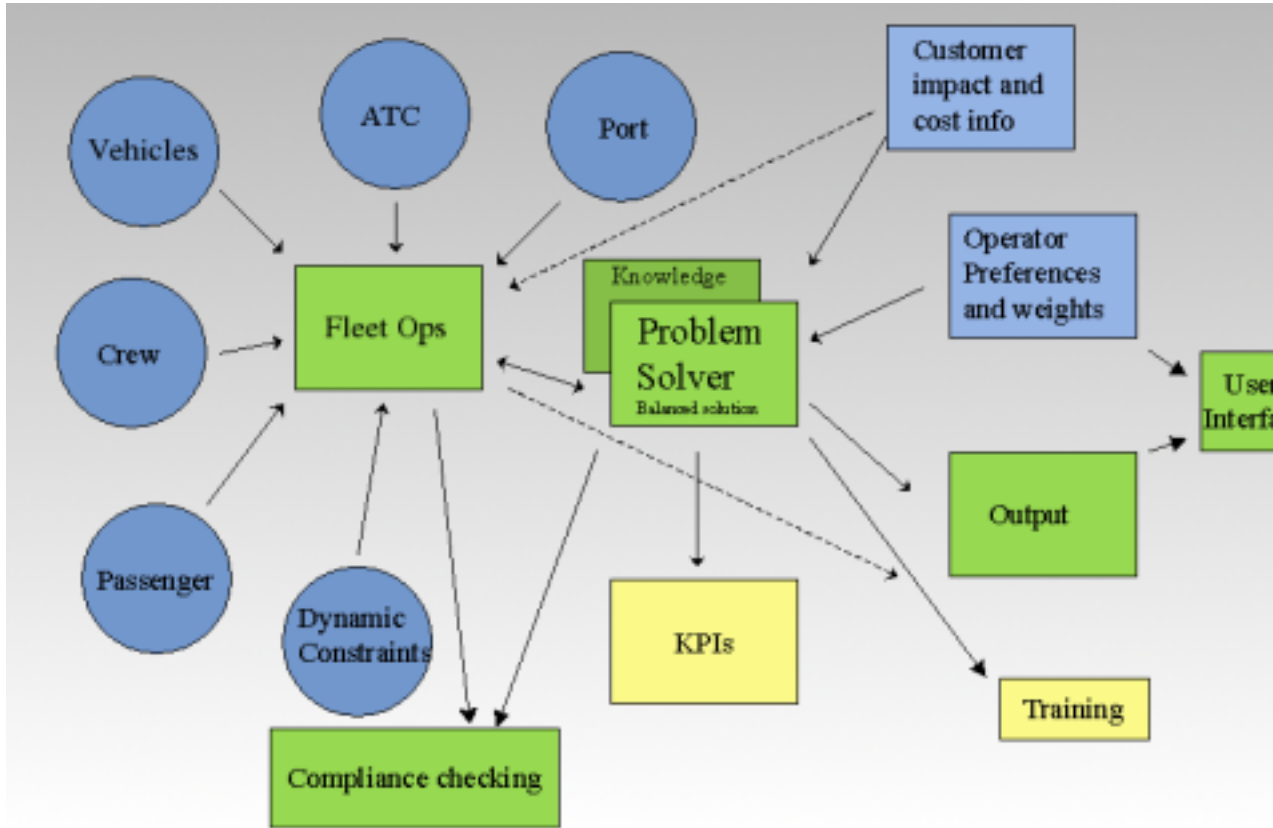
Differing vehicle types are given different colours. Arrivals are greyed out, so that the operator can concentrate on what is important. Warnings, errors, and unserviceability are shown in attention-getting colours. The display can be extensively configured by the operator to suit the needs of individual transport networks.

Detail of the GANTT display showing arrivals, warnings, and errors

1008 516	1027/08- 206	BNE		1415 537	1645 203	SYD	1730 455	1900 156			
BNE		1058/03+ 972	E 243/07- 128	TSV	1330 973	1515 116	BNE	1615 545	1845 154		
11/06+ 0	1118/07- 148	ASP		1205 791	1625 156	SYD		1720 783	1900 84		
13/05- 149	1120/15- 149	AYQ		1220 988	1310 147	ASP	1350 988	1620 168	CNS	1710 61	
SYD		1039/24+ 581	1240/35+ 162	L		1250 582	2005 162				
PER		0859/14+ 642	1555/05- 162			SYD		1740 805	1830 9		
BNE		1149/01- 619	1505/05- 161			MEL		1705 628	1810 98		
051/04- 6	114 114	MEL	1143 1122	1258/08+ 109	SYD	1335 550	1405 54	BNE	1515 541	1745 138	SYD
0856/26+ 824		1215/10+ 157	L		DRW	1250 825	1705 150				
1112/03- 118		DRW		1158/02- 757	1635 139			ADL	1715 692	1900 11	
1027/07+ 747		1205/05+ 135	ADL	1242/02+ 752	E 1445/20- 78	SYD	1605 536	1635 165	BNE	1710 54	
PER				1022/12+ 1074	1240 118	BME	1320 1073	1550 123			
1- 02	MEL	1101/11+ 475	1155/05- 167			PER	1245 476	1920 162			
ASP		1037/02+ 797	1435/05- 131			MEL	1605 626	1710 85	B		
13/07- 94	TSV	1015/05- 971	1157/08- 115	BNE	1300 597	1625 161					

Technical Overview

Architecture



TPAC Operations works on a client-server model. The client application, providing the application GUI, runs on individual PCs or workstations. The server and database run on one or more servers, and support server redundancy and automatic failover. This provides extremely high up-time even in the event of hardware failure.

Supported Platforms

Supported platforms for TPAC Operations are described below. Ports to other Unix platforms are available upon request.

TPAC Operations Client

Type of application	Native application
Required hardware	PC or Unix workstation
Operating System	Linux (RHEL 4), Solaris 8
Memory	512MB minimum
Disk space	200MB for full installation

Table 1. Client Supported Platforms

TPAC Operations Server and Database

Type of application	Native application
Required hardware	Server
Operating System	Linux (RHEL 4), Solaris 8
Memory	1.0GB minimum
Disk space	8.0GB minimum

Table 2. Server and Database Supported Platforms