

# Case study: The Olympic Challenge

Maintaining a seamless service during one of the UK's biggest aviation challenges.





The NATS Olympics project was delivered seamlessly, and is testament to the hours of meticulous planning and effort of everyone involved across the business. We can truly say NATS did our bit to ensure a smooth and seamless service for our customers during this unique opportunity to showcase the UK.



Richard Deakin  
NATS  
Chief Executive Officer

---

# Introduction

---

In July 2005 London was awarded the Olympic and Paralympic Games of 2012. NATS, the UK's air navigation services provider, immediately took on the task of preparing for one of the biggest challenges in its history.

The task was to manage the maximum predicted influx of extra air traffic, including a surge in business and general aviation flights, at the same time as providing business as usual services to five of the busiest airports in the world. There was also the matter of playing our role in maintaining UK security at a time when London would be in the eyes of the world.

---

# The challenge

## Our task

- › Maintain and maximise capacity of London's core Terminal Manoeuvring Area (TMA) Airports which would be operating at maximum capacity at times.
- › Create extra capacity to satisfy demands on Instrument Flight Rules (IFR) airspace to continue to meet core demands without disruption.
- › Manage a significant expected increase in IFR movements to London's second and third tier airports.
- › Accommodate military requirements with multiple fixed wing and rotary fighter and surveillance aircraft in the biggest peacetime military operation the UK has ever seen.

On a typical summer's day NATS controls around 6,000 flights, 4,000 of which arrive or depart London's airports and fly through one of the most complex and congested airspaces in the world. It includes Heathrow – one of the world's busiest airports – and Gatwick – the world's busiest single runway airport – as well as Stansted, Luton and the central London City airport. There are some 50 smaller, but busy, airports on its outskirts, including Farnborough, Oxford and Southend.

To add to the challenge, numerous flight paths between northern Europe and North America cross over London and South East England.

With the world's attention focused on London, the UK government wanted assurance that rigorous security arrangements were in place for UK airspace. NATS also had to be prepared for potentially disruptive summer weather, such as thunderstorms. It was going to be a demanding and high profile time.

It was against this backdrop that we identified the Olympic-sized task we faced. At the top of our priority list was maintaining a safe, efficient, and uninterrupted business as usual service for airline customers.

## Potential air traffic

NATS had to maximise the capacity of the airspace to prepare for:

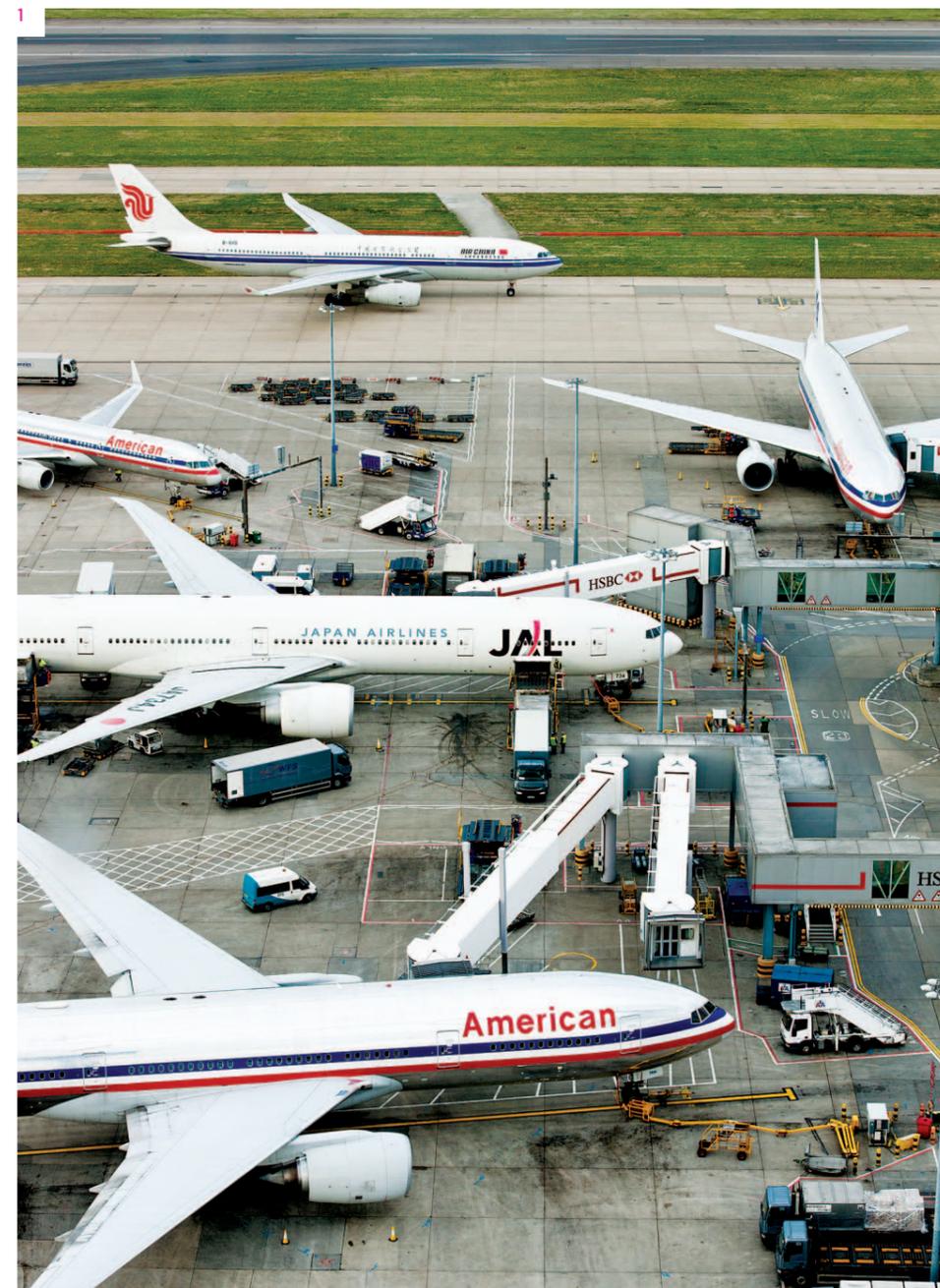
- › An estimated half a million overseas spectators.
- › Flights carrying 70,000 overseas 'Olympics Family' members.
- › Flights carrying 150 Heads of State.
- › 700 extra commercial flights into London's main airports (assuming the existing schedule was fully utilised).
- › 10,000 business jet movements.



United Airlines really appreciates the work that NATS has done in preparing for the London Olympics. NATS listened to our needs and concerns, giving us and all other stakeholders the opportunity to participate in the extensive planning process by communicating and coordinating directly with us and giving us unrivalled service quality.



**Mark Hurston** United Airlines - Air Traffic Systems, Regional Manager, International Air Traffic Operations, N. Atlantic, UK, Europe, Middle East and Africa



**NATS had to maximise the capacity of the airspace to prepare for:**

- (1) 700 extra commercial flights into London's main airports.
- (2) Flights carrying 150 Heads of State.
- (3) Flights carrying 70,000 overseas 'Olympic Family' members.
- (4) An estimated half a million overseas spectators.

# The solution

NATS approach to the monumental task was to break down the challenge into specific areas: Airspace, Airports, Military Liaison and Outreach.

## Airspace

NATS took a holistic approach to the challenge at hand and worked with its many stakeholders to identify where temporary changes could meet the concerns the Olympics presented.

We looked at potential pinch points created by the influx of extra traffic and the demand for routes into and out of some of the tertiary airports on London's periphery – as Heathrow and Gatwick operate at or near full capacity as a matter of course.

An extra concern was the UK government's decision to introduce security-based airspace restrictions around London. The impact would be felt particularly by the region's popular and politically active general and business aviation community, so it had to be handled with sensitivity.

The government put two security zones in the skies above London:

- › A restricted zone above all of London and its surrounding area. Flights could enter this zone as long as they had filed a flight plan and were receiving an ATC service.
- › A prohibited zone above the main Olympic Park in East London and over key London venues – accessible by commercial and broadcast aviation only.

Taking into account the impact of these airspace restrictions, the new flows to tertiary airfields, the need for commercial, helicopter, and broadcaster movements and the expected increase in business and general aviation, it was clear that the existing airspace would not be flexible enough to respond to any disruption during the Olympics. As a result, we would have to increase our airspace network.

The solution to meet the demands of all aviators and comply with the security restrictions was to propose a number of new, temporary, controlled airspaces.

Working with the Department for Transport, the Civil Aviation Authority (CAA) – the UK regulatory authority – and the general and business aviation community, who generally fly from London's second and third tier airports, NATS created three areas of temporary controlled airspace, and designed new routes into and out of the Olympics designated airports.

The design underwent intensive evaluation in our simulators before being submitted for approval to the CAA. This also included local community consultation

These changes were intended to accommodate the increase in business and general aviation without affecting the service to commercial airlines. This was done by allowing NATS air traffic controllers to coordinate the arrival and departure of all aircraft through the already congested, and now restricted, airspace above London.

These temporary airspace changes affected almost every aspect of NATS London TMA and a significant section of its Area Control Room. Once the airspace structure was agreed, our controllers and equipment had to be made ready to bring this airspace to life.

95%

Reduction in delays from the same period in 2011.

400

Controllers were trained to operate the new temporary airspace.

46

Movements per hour between Birmingham and Coventry airports.

“

It has been reassuring to know that NATS have had everything in place to deal with anything at a moment's notice. Like all forms of insurance – you never know if or when it is going to be needed.

”

Mark Deacon Navigation Services  
Administrator, Monarch Airlines

Our training experts devised a package that included both online and simulator based exercises through which some 400 controllers were trained to operate the new airspace and routings. This was carried out over the three months prior to the Olympics to ensure they had the very latest training.

NATS engineers worked hard to ensure that the changes to airspace were loaded onto NATS systems – and, when no longer needed, removed – in a timely and safe manner. They also created new supervisory positions and installed new workstations for the controllers managing the temporary airspace.

## Airports

The airports in London and the South East at which NATS provides tower ATC services were also at the forefront of our Olympics programme.

With Heathrow and Gatwick fully booked with commercial flights the impact of Olympics traffic on them was minimal. However, both would serve as main reception airports for athletes, officials, media and the many thousands of visitors who came to London as spectators. This put the need for harmonisation across the whole of the London airport network into sharp focus.

Surrounding airports would be affected by increases in all forms of traffic, so they adapted their operations to cope with new traffic and to support the London Terminal Control Area ecosystem.

› **NATS Farnborough** produced a new set of procedures and completed the ATC Procedures Safety Analysis with all the associated mitigations required. The procedures included Letters of Agreement with the Military and nine other airspace users.

› **Farnborough** worked closely with NATS controllers at **Southampton** to manage airspace that directly affected both airports.

› **Luton** anticipated an increase in business jet traffic and had to develop plans to offload aircraft to other local airfields, including Cranfield, because of parking restraints. The airport worked with NATS central Olympics team to minimise the impact these positioning flights would have on London's airspace.

› **Stansted** controllers ran simulator exercises to prepare all staff for the anticipated additional traffic. Additional staff were rostered at the beginning and end of the Olympics and other expected busy key dates.

› **Birmingham's** ATC simulation assessed the airspace capacity between Birmingham and Coventry airports during the Olympics to manage 46 movements per hour. The airport's ATC and its stakeholders also conducted a hazard analysis to identify safety risks caused by the increase in air traffic movements, unfamiliar aircrew, RA(T)s, security incidents, risks of runway incursions, airspace infringements and level busts.



# Safety and security



(1–3) The military was involved at every stage of the planning and implementation.

(4&5) The ATLAS Control Centre allowed the military to monitor flights in and out of the restricted and prohibited zones.

This was a major exercise to integrate an intense military operation into an existing, busy civil ATC operation – safely. Throughout the years of planning and implementation, NATS safety experts were at the core of the process. They carried out numerous hazard analysis exercises for proposed changes to ensure they conformed to NATS rigorous safety standards without jeopardising any of the safeguards already in place.

## Military liaison

The safety and security of the Olympics were the government's highest priority. To ensure the authorities had the flexibility to carry out airborne security procedures while NATS moved high volumes of traffic through London airspace, close coordination between NATS and the UK Ministry of Defence was vital.

The military was involved at every stage of the planning and implementation of our Olympics programme. Over a year in advance, key military personnel took seats on the NATS project board to participate in regular meetings and briefing sessions.

Monitoring of the prohibited and restricted zones was carried out by military controllers in a special command centre housed within NATS Swanwick Centre, known as ATLAS Control. In the biggest airborne security operation since World War II, NATS engineers designed, built, and configured this new, bespoke centre in an unused training room. This was the result of longstanding discussions and liaison with the military to make sure military and civil operations could run concurrently with agreed procedures, processes, communication channels, and service level agreements.

The ATLAS Control Centre allowed the military to monitor flights in and out of the restricted and prohibited zones throughout the build up to, and during, the Olympics. Military personnel were also embedded in NATS critical response unit, the Air Traffic Incident Communications Coordination Cell (ATICCC), and their close proximity to NATS controllers allowed direct lines of communication and coordination between military and civil aspects of ATC, including fighter pilots and controllers.

## Outreach

The implementation of the restricted and prohibited zones over London during the Olympics would have the biggest impact on business and general aviation. No business or general aviation flights would be allowed through the prohibited zone, while flights through the restricted zone would have to follow strict flight planning procedures.

Any non-compliant flights found in those zones would be spotted by the military's ATLAS Control. With the potential to trigger interception flights and disrupt commercial traffic, it was critical that pilots understood their responsibilities.

NATS Safety and Public Relations teams worked with colleagues from various government bodies, including the CAA and the Department for Transport, to create an outreach programme. This began 18 months before the Olympics to ensure that anyone flying during the summer of 2012 was aware of the restrictions. This joint effort included:

- › A year of detailed preparatory work with more than 100 commercial airlines operating in and out of the London TMA.
- › Attendance at airshows and conferences in the UK and around the world to present and discuss the Olympics airspace changes to commercial, business and general aviation audiences.
- › Publicity material detailing the changes and the new airspace including leaflets, podcasts, articles and online tutorials.
- › Media campaign to raise awareness of NATS involvement in the Olympics and the changes to airspace.
- › 'File a flight plan' days – designed to show general aviators how to file flight plans correctly.
- › Telephone hotline and online information hub, set up to help the GA community understand the changes and the requirements on them regarding flight planning.
- › NATS much-respected ATICCC was active throughout the Olympics period. Daily calls were held with airlines and airports, Eurocontrol, CAA, DFT and the Meteorological Office to keep stakeholders up to date with all operational factors to help operational planning on a daily basis.

# The result



We would like to express our thanks and appreciation for the outstanding preparation for the Olympics 2012 in London related to the airspace operation in UK airspace – as well as for the professional and helpful set-up of the daily teleconferences.



**Ekkehard Gutt** Flight Operations Support, Emirates

Our years of planning, consultation and liaison delivered a solution fit to tackle one of the biggest challenges in NATS history. Following our careful evaluation and comprehensive understanding of the task at hand, we maintained – and enhanced – the high level of safety and service our customers expect, as well as accommodating the additional Olympics traffic in all its forms.

Through careful preparation we were able to manage the airspace changes with total confidence.

We modelled our solution using the maximum predicted impact, which meant we would have been capable of coping with major interference to air traffic flows without compromising the safety or capacity of our service delivery.

- › Safety: No risk bearing losses of separation attributed to the Olympics and no systems issues. There were just 11 infringements of NATS temporary controlled airspace by General Aviation aircraft.
- › Service: Just 593 minutes of delay attributable to NATS throughout the whole Olympics period, compared with 13,300 over the same month in 2011 – a 95% reduction. Including the Paralympics period, delay stood at just 1,900 minutes.
- › Value: In one of the most challenging periods ever for UK air traffic, NATS generated just 0.1% of total European delay attributable to ATC, despite handling nearly a quarter of Europe's traffic.

This was a unique challenge, and one that NATS rose to with characteristic calmness and professionalism. We had to be prepared for every eventuality, working with a wide range of stakeholders, on a job of the highest visibility. As a tribute to the way we managed the project, we have already been asked to share our experience with the organisers of the Rio Olympics in 2016.



**(1£2)** The years of planning, consultation and liaison delivered a solution fit to tackle the biggest challenge in NATS history.

**(3£4)** Through careful preparation we were able to manage the airspace changes with total confidence.

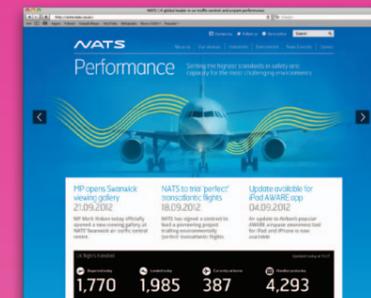
# Can NATS help you?

The Olympics project brought together NATS world class expertise in:

- › Maximising runway capacity
- › Airspace design and implementation, particularly to deal with temporary increased levels of traffic
- › Training
- › Engineering
- › Safety analysis
- › Airport ATC
- › Media relations and public consultation

If you are facing a similar challenge, bidding to host the Olympics, or simply anticipating a sudden and temporary increase in traffic and want to know more about how that could impact your ATC, contact NATS Consultancy on [Consultancy@nats.co.uk](mailto:Consultancy@nats.co.uk) or +44(0) 20 8750 3805 for more information

Want to find out more?



Visit our website:  
<http://www.nats.co.uk/>

Understanding NATS



Visit:  
<http://www.nats.co.uk/about-us/understanding-nats/>



Heathrow House  
Bath Road  
London  
TW5 9AT  
United Kingdom

T: +44 (0)20 8750 3704

F: +44 (0)20 8750 3611

E: [sales.info@nats.co.uk](mailto:sales.info@nats.co.uk)

<http://www.nats.co.uk>