Hundreds of Flights Disrupted After Air-Traffic Control System Confused by U-2 Spy Plane

Hundreds of flights were disrupted in the Los Angeles area on April 30, 2014 when the air traffic control system En Route Automation Modernization (ERAM) crashed. It’s been reported that the presence of a U-2 spy plane played a role in the air traffic control issues.

**Problem**

- What: Air traffic disrupted, air-traffic control outage
- When: April 30, 2014
- Where: LAX Airport
- Impact to the Goals:
  - Customer Service: Significant air travel disruptions
  - Production/Schedule: 50 flights canceled and 455 delayed
  - Labor/Time: Investigation and system recovery needed

**Analysis**

1. **Effect**
   - Air traffic control system malfunctioned
   - System was overwhelmed
   - Computer system crashed
   - Air traffic control required to keep flights on schedule

2. **Cause**
   - System tried to reroute a high volume of flights
   - System exceeded available memory
   - System exceeded its memory
   - Calculation exceeded system's memory
   - Thought data showed potential collisions
   - Misinterpreted U-2 flight path
   - U-2 wasn't in danger of collision
   - U-2 operating higher than commercial traffic
   - U-2s have unusual flight parameters
   - Routine training mission

**Why?**

- Cart: U-2 was collision danger
- Evidence: U-2 is reported to have been flying above 60,000 feet. Commercial planes fly around 30,000 feet
- Evidence: Published information about the aircraft design
- Evidence: Statement by Federal Aviation Administration
- Evidence: Statement by Pentagon

**Possible solution:** Modify computer system to take into account altitude of flights

**Solutions**

The final step in the Cause Mapping process is to develop and implement solutions to reduce the risk of the problem from happening again.

In this example, it took several hours to sort out the problem, but then the Federal Aviation Administration was able to implement a short term fix relatively quickly and get the ERAM system back online. The ERAM system is being evaluated to ensure that no other flaws are needed to ensure that a similar problem doesn’t occur again.