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# Why hosting is not about saving money for large Agencies

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Trapeze delivers **proven** scalable, innovative technology and services to **automate** the multitude of tasks that come with **supporting,** building, **managing** and measuring better **transport services** to more than 1100 customers globally through **hosted** and **non-hosted** Solutions



# London Bus Operations

- Buses operate 24 hours per day, 7 days per week
- 700 + routes (from 1 to 50+ buses)
- 8,000+ buses
- 19,000 bus stops, 30 bus stations
- 2.3 billion passengers in 2009/10
- 6.5 million passengers per weekday
- 46% of all bus journeys in England are in London (London has 15% of the population)



# The Hosting Balance

## **Cost**

**What level of service can we afford**

## **Risk**

**What are the consequences of failure**

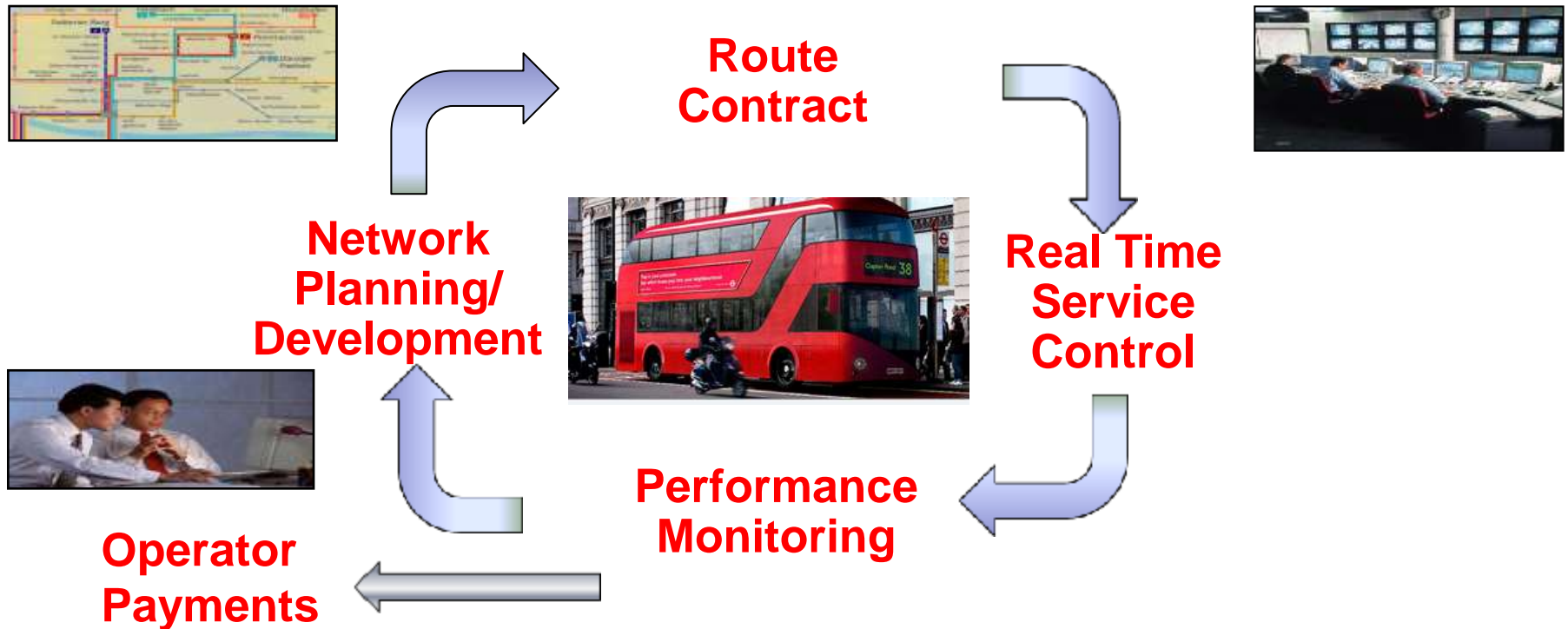
**What steps need to be taken to protect**

## **Objective**

**Find the best solution, which might involve Hosting.**



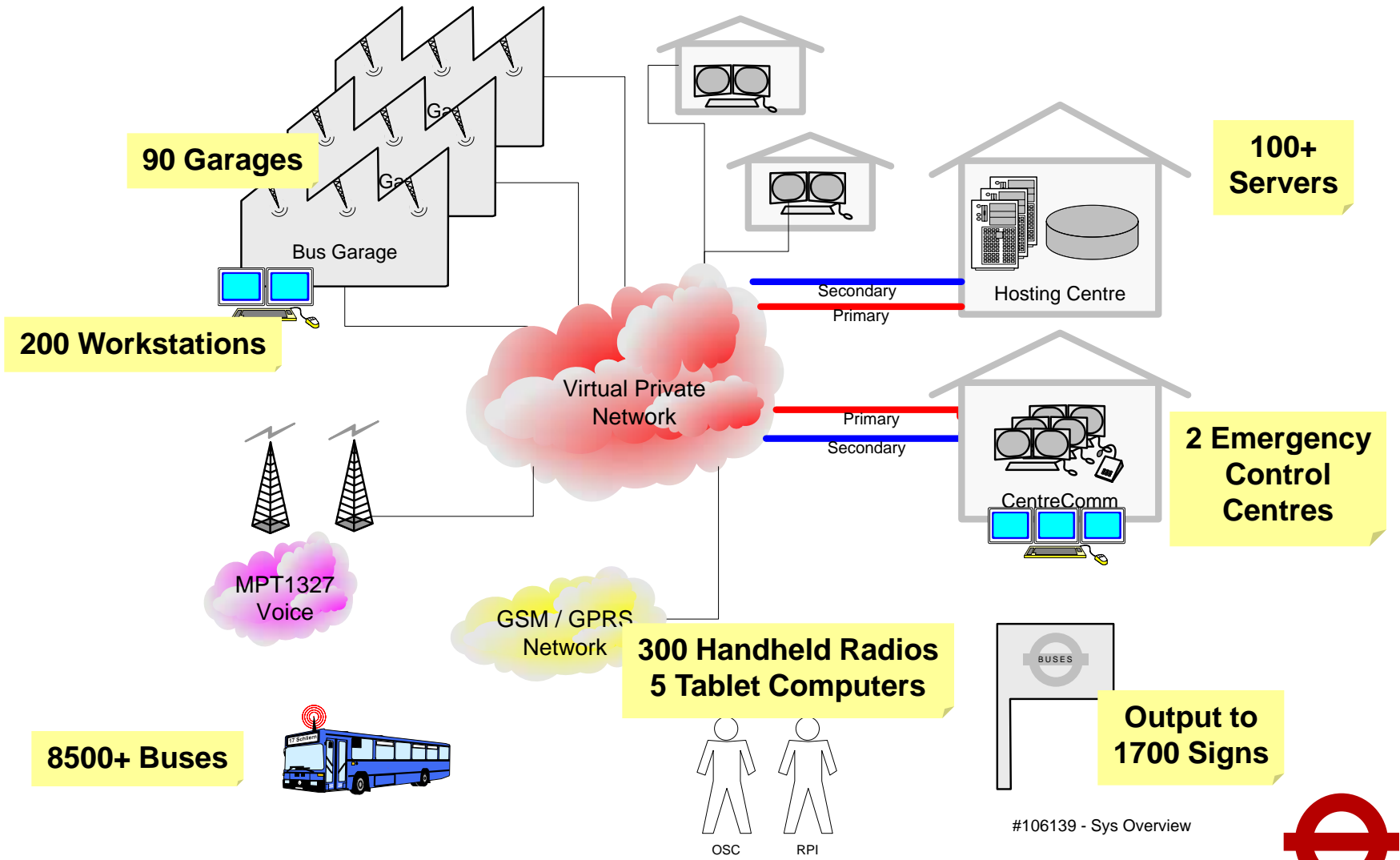
# The London Business Model



- **Bus Operators are contracted to provide a Bus Service.**
- **ITS Contractors paid based on KPI's for Availability, performance, accuracy, and Quality**
- **Installed IT infrastructure critical!**



# IT Infrastructure Overview



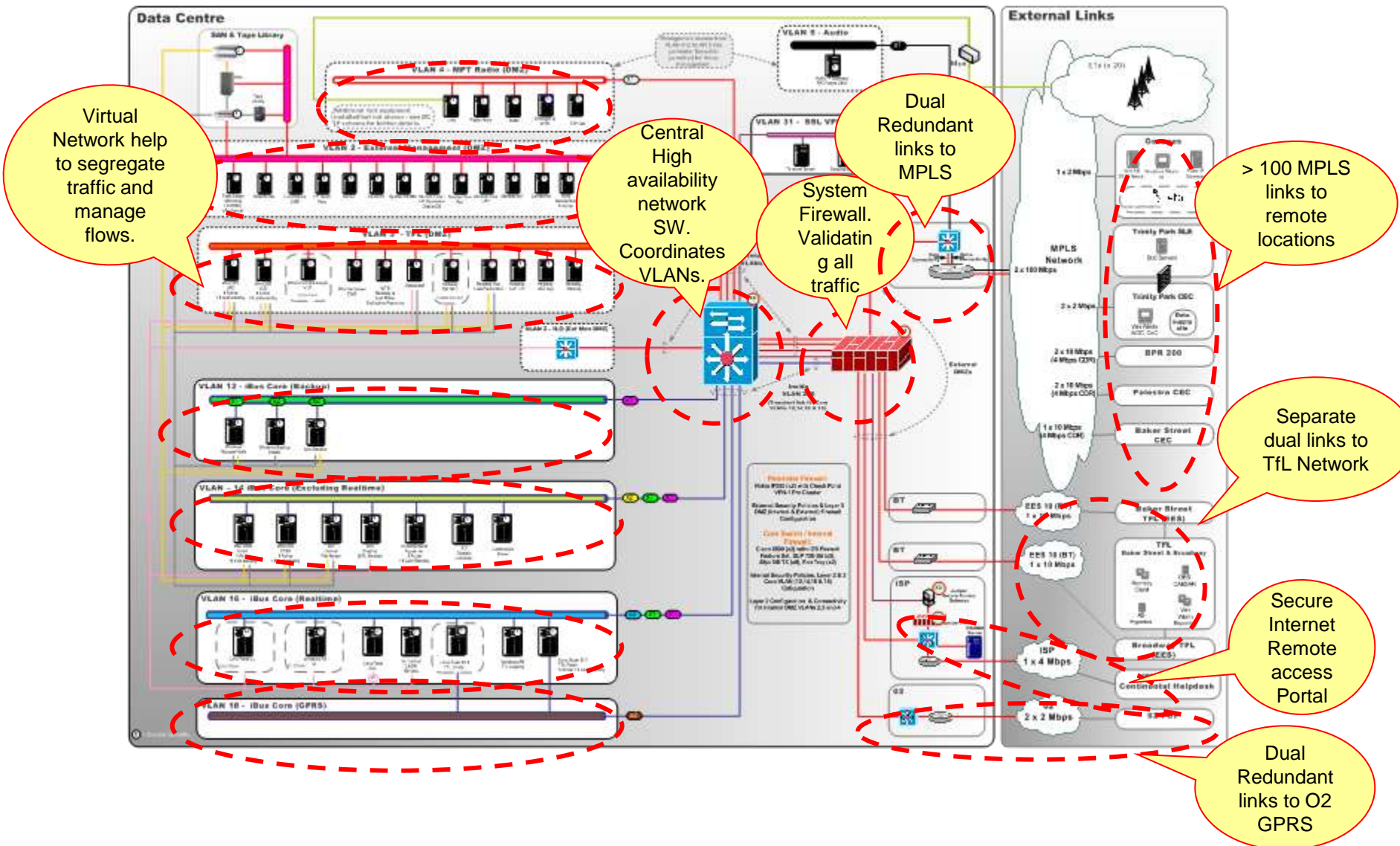
# Why did London choose a hosted solution?

- **The bus service is a part of the critical transport infrastructure.**
- **London wanted a single contractor to run the end-to-end Radio, Vehicle Location and Real Time Information system**
- **London wanted contractor to be incentivised by Key Performance Indicators**
- **It was difficult to see how a single supplier could contract without having responsibility for the IT infrastructure**
- **Thus London needed a highly reliable, available system with a low risk of failure**
  - **High availability data centre**
  - **High Availability radio system**
  - **Redundancy where appropriate**





# The Trapeze Hosting Center

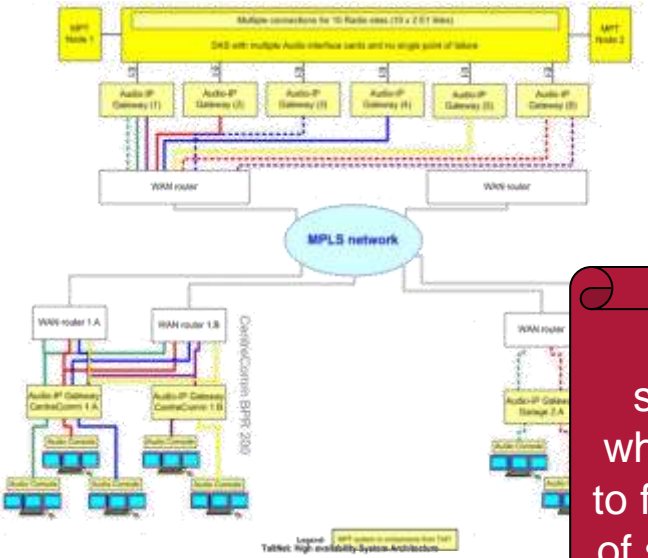


# IT infrastructure overview: some numbers

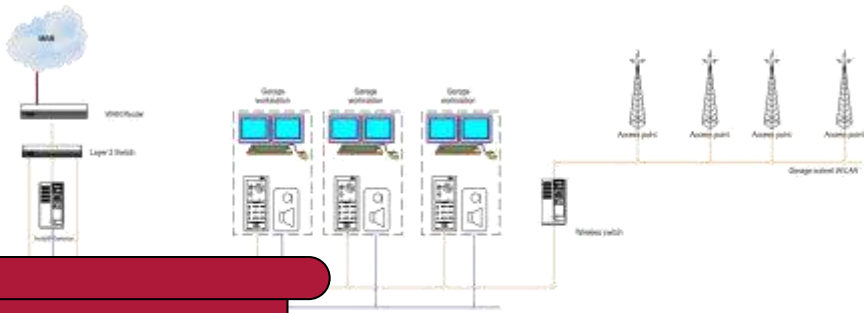
- **Number of Servers:** 85 up to 4x4 CPU Boxes
- **Number of Terabytes:** 20 in mixed RAID with mix of R & Fast Read / Write
- **Number of Transactions** 8,000+ buses every 30 sec with 1.2M location message / hr and 3MB per bus per month in GPRS data
  
- **Availability**
  - **End to End availability** 99.30% (incl. bus equip)
  - **System Availability** 99.50%
  - **Central Real Time Servers** 99.99%
  - **Garage System** 99.83%



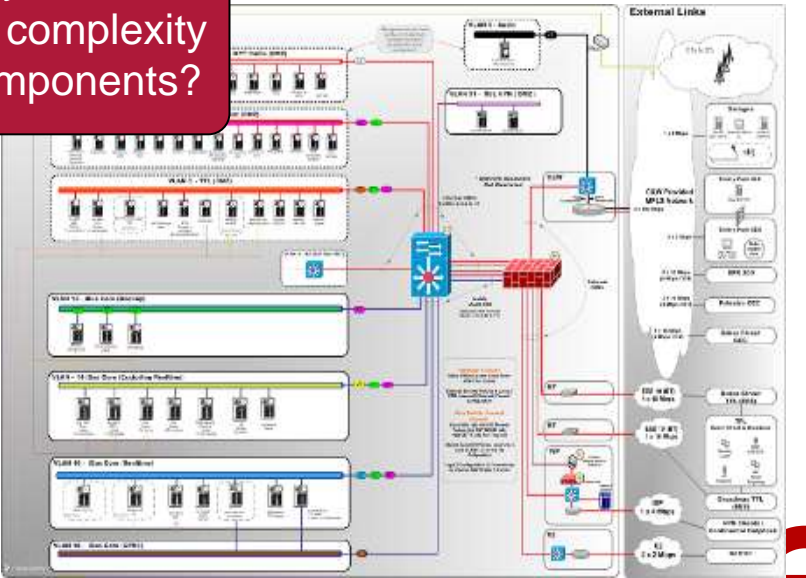
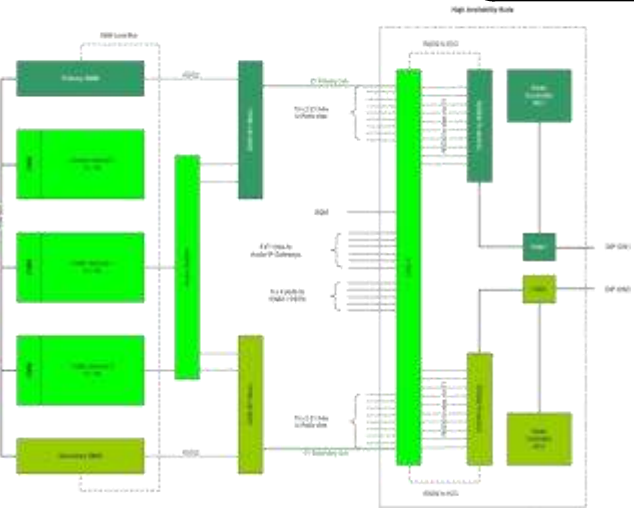
# Achieving Performance levels



Radio integration site

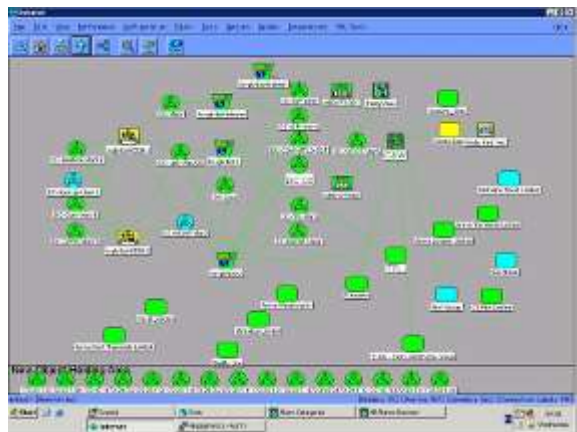


How do you tell if something is wrong, what it is, why and how to fix it in this complexity of system components?



# Error Detection: What does this look like....?

- The Infrastructure Monitoring tools raise events for the infrastructure
- Other issues are identified by the user and reported
- The tools also provide means of looking at the system



... Identify there is an issue



... Check Radio System



... Drill in on Issue detail



# Benefits and Issues

- **If you are having a single contract for the provision of IT solutions then hosting on its own is not a major issue**
- **Setting up an efficient set of procedures to monitor, detect and respond to issues *is* key**
- **However customer needs to remain informed:**
  - **Ensure business objectives met**
  - **Issues handled effectively**



# Recommendation

- **When considering hosting**
  - It is about risk management, not just about costs
  - Ensure all issues have an owner
    - For London all issues with Single Main Contractor (Trapeze)
- **Hosting**
  - Don't just Host and forget
  - Known your system and assets
- **Operational**
  - Ensure procedures and processes are in place
  - Be clear about what service provider is to provide
- **Cooperation**
  - Most problems need more than one party to solve
  - Everyone has their own speciality



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# Error Detection

