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Putting RFID to Work

May 3, 2006



Case Study: Virgin Atlantic Airways Tracks High Value Parts

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The next 20 minutes

- Virgin Atlantic Airways Ltd – quick overview
- RFID and Virgin Atlantic
- Pilot study overview
- What do we expect to achieve?
- Findings so far
- What next?

Virgin Atlantic Airways..... *virgin atlantic*

- Started in 1984 with one aircraft
- Currently fleet of 35 aircraft:
 - Boeing 747's and Airbus A340-300's & -600's
- Fly long-haul to USA, Asia, Africa and Australia
- Hangar facilities at Heathrow
- Central Logistics store serving global satellite stores



RFID and Virgin Atlantic

VAA have got involved in RFID for a number of reasons:

- Industry drivers – Major manufacturers and suppliers are developing RFID capability
- RFID becoming more widely used – reducing risk
- Operate in a hugely competitive market – need to find efficiencies
- Opportunity – recently implemented Engineering Management System
- Opportunity – slip stream Airbus/Boeing
- Business expansion – costs control

What are the expected benefits of using RFID technologies?

- Process efficiencies – Data capture; Data accuracy
- Improved turn around performance of components through stores.
- Increased visibility of parts within the maintenance environment
- More accurate inventory control at the point of entry
- Consequential benefits – process control

In addition to these benefits, the wider benefits include:

- Greater ability to comply with guidelines from EASA (European Aviation Safety Agency) concerning traceability and authenticity of aircraft components
- Integration with the RFID specifications proposed by Boeing and Airbus for use within the aircraft supply chain

Why did Virgin Atlantic decide to do a pilot study?

- Lots of unanswered questions
- Opportunity to get real practical experience of technology
- Low risk
- Concerns over system integration
- Opportunity to build a realistic business case, based on actual results
- NOT expecting quantified benefits from the pilot

The Pilot Study

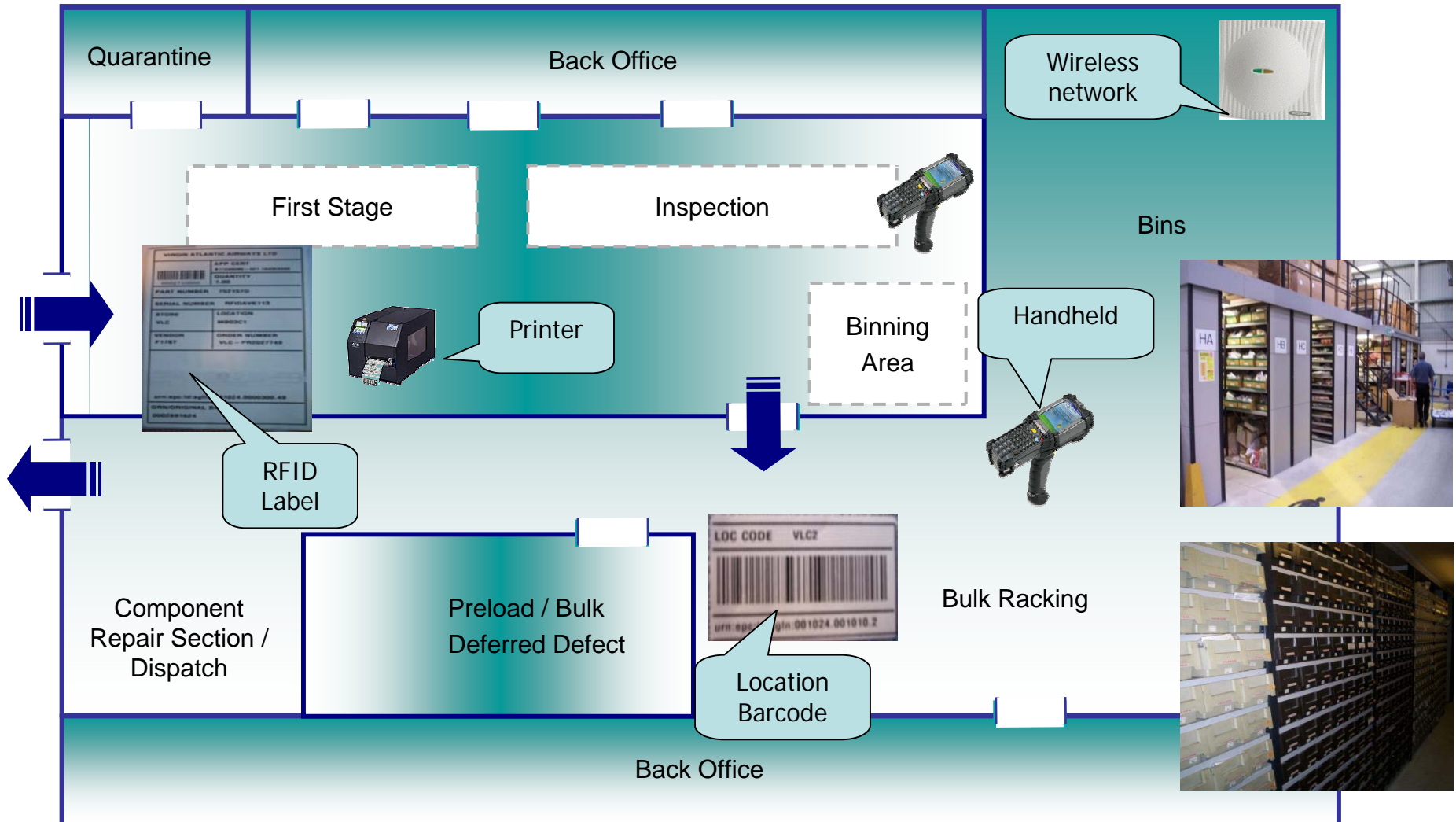
The high level scope of the pilot was:

- **To RFID tag all rotatable parts within the Heathrow warehouse**
- **To integrate with Ultramain process**
- **To provide automated tag printing to work in line with existing Goods inwards process**

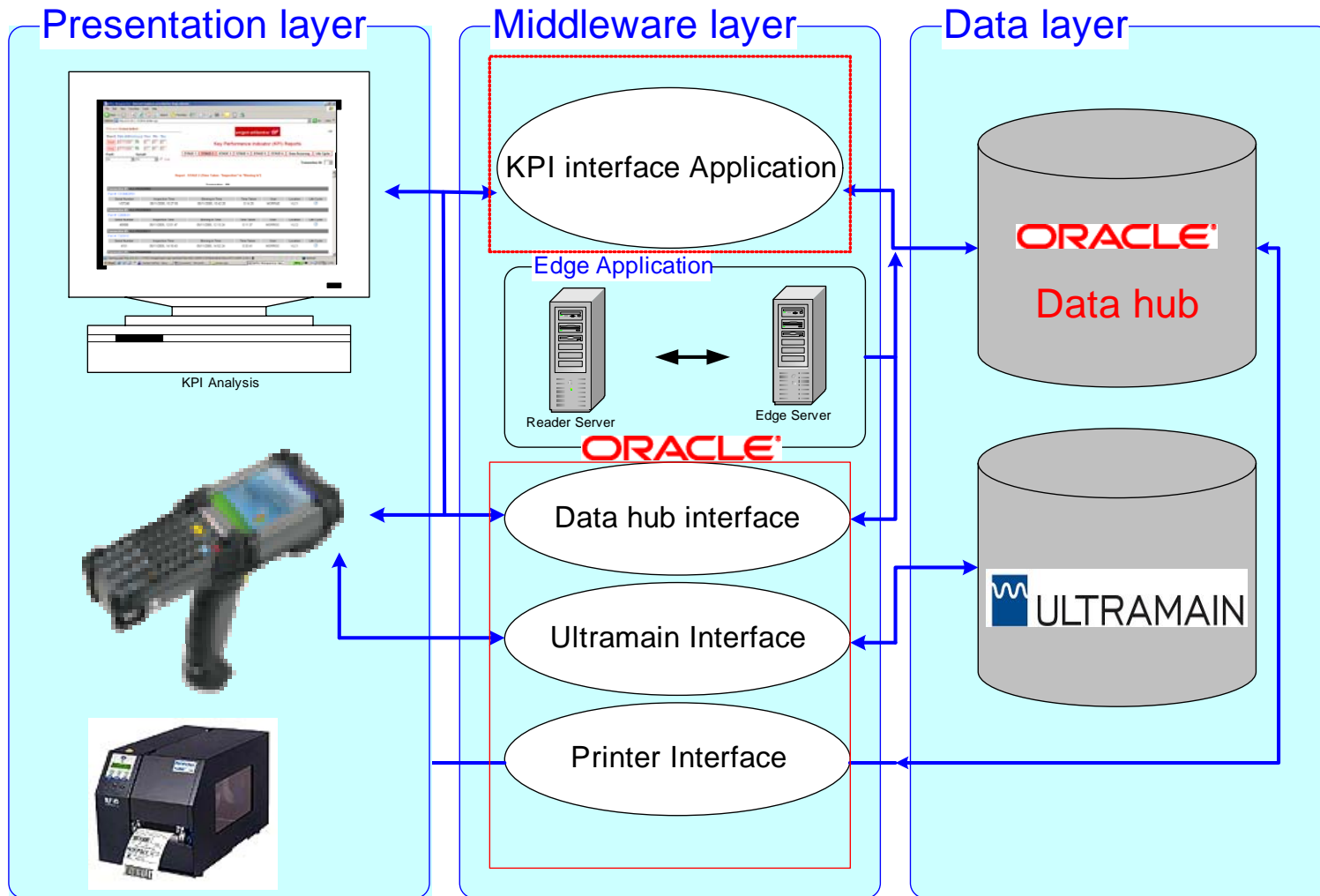
The objectives of the pilot were:

- **To demonstrate the potential savings of using RFID**
- **To improve the visibility of critical parts**
- **To provide measurement of the impact of the pilot**
- **To improve the service provided by the warehouse**
- **To test the technology**

Pilot Environment



The Pilot Study - architecture



Hardware used in Pilot Study

→ Printronix SL-900r – RFID printer

- AWID RFID Reader module
- EPC Class 1 Gen 2 compatible
- XML Printing enabled

→ Symbol MC 9000G Handheld reader

- Rugged, durable and very user friendly
- EPC Class 1 Gen 2 Ready (operating at 915 – 920 Mhz)*
- Windows Mobile 2003 supports both RFID and bar codes.

→ Symbol Wireless LAN Infrastructure

- Wireless Switch – WS 2000
- Wireless Access Port – AP 300 with external antennas



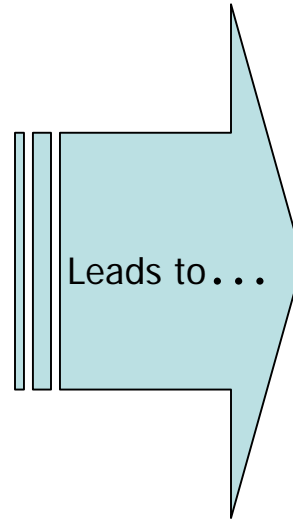
What did we expect to achieve?

- Proof that technology works
- Detail on integration requirements
- Peripheral technology requirements
- Process changes required
- Business case
 - Evidence of efficiency gains
 - Evidence of process improvements
- To be prepared for industry advances – in particular working with VAA's part suppliers

Business Case – Key Elements

Pilot evidence

- Process Efficiencies
 - Real time information
 - Process automation
- Data Integrity
 - Data accuracy improvements
 - Improved data reporting
- Peripheral benefits
 - Efficiency of handhelds
 - Integration opportunities
 - Real time data analysis



Cost Case

- Greater tracability
 - Reduced shrinkage
 - Improved SLA performance
- Resource efficiencies
 - Less data entry
 - Fewer errors
 - Higher transaction count
- Improved inventory profiling
 - Right components at right time
 - AOG alerting – Tech delays

Other Considerations

- Industry Advantage
- Collaboration opportunities - AIB and Boeing's Plans
- Regulatory Compliance

What next?

- Gathering KPI data and reviewing
- Building and reviewing business case and assessing against business priorities
- Reviewing technology advancements
- Two key factors:
 - Industry Standards – Data and technology
 - Suppliers – who will take up RFID?

Thank you!

