

**EPCglobal Taiwan**

# **RFID Solutions and Initiatives in Transport and Logistics**

**Bob Nonneman**  
**Industrial Engineering Manager**  
**UPS Corporate Engineering Group**

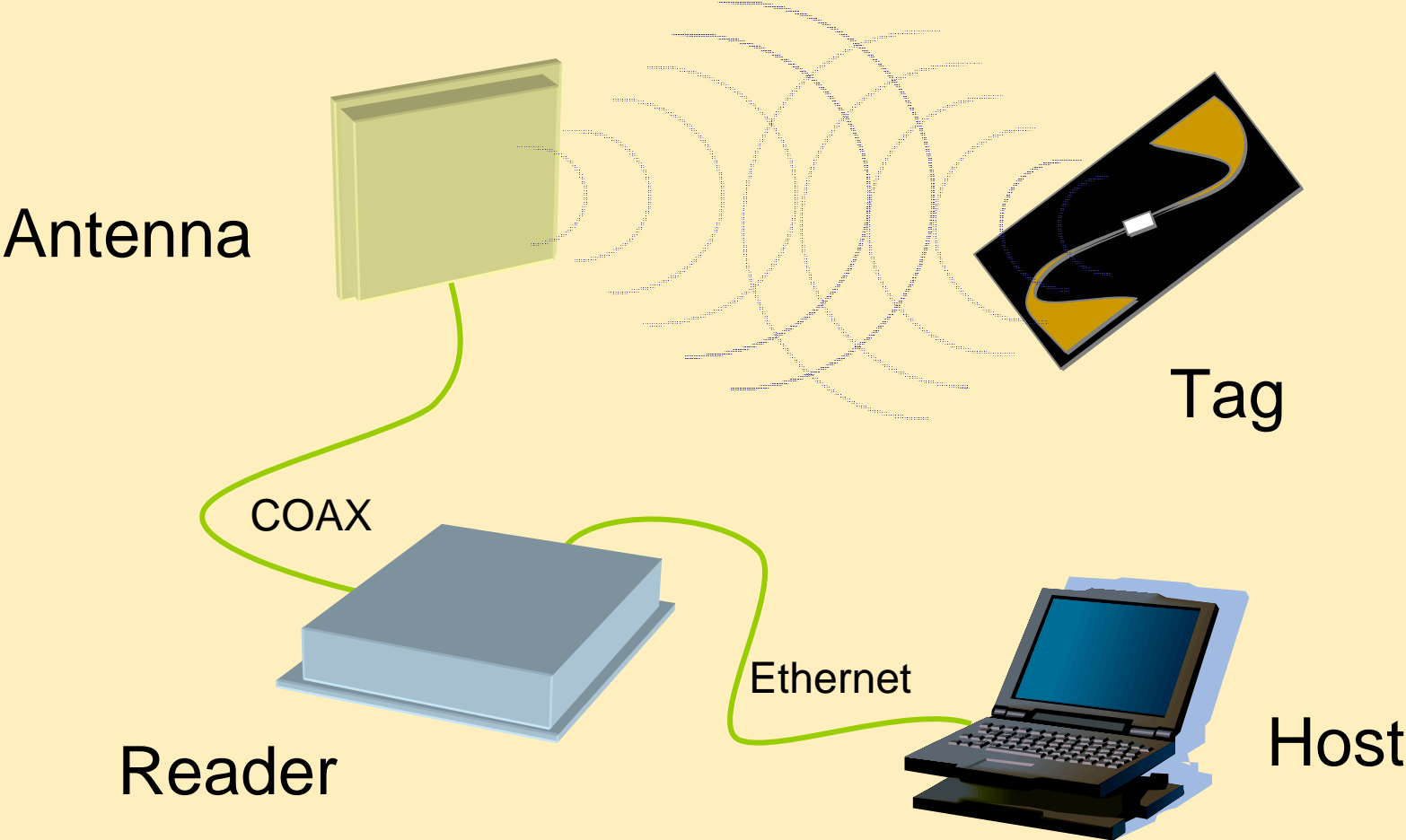


**January 13<sup>th</sup> 2006**

# Agenda

- Clarify RFID Technology Basics
- UPS RFID Initiatives and Customer Solutions
- Investing in Industry
- Key Learnings and Recommendations

# RFID *Typical System Components*



# RFID Tag Basics



## 1 Backscatter

- Typical Called “Passive”
- No power source –
  - Derives power from RF
- Short Range (3-10 m)
- Costs: 0.10 - \$1 per tag

### ***UPS Applications***

- Tags embedded in label or packaging material



## 2 Transmitter Tags

- Sometimes called “Active”
- Requires battery power
- Long Range (10-100 m)
- Additional Features
  - Sensors / Memory
- Costs: \$5 - \$50 per tag

### ***UPS Applications***

- Asset tracking
- High Risk

# UPS RFID Initiatives and Pilots



# UPS RFID-EPC Steering Committee

Executive Sponsor: COO

Co-chairs: VPs of Engineering and Strategy

Members: VP level stakeholders from Functional and Business Units

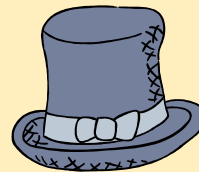
- Mission:
  - To develop and maintain a UPS enterprise-wide RFID-EPC vision and execution strategy
- Methods:
  - Working Groups for investigative areas – H/W, S/W, IP
  - Approve and monitor RFID pilots and implementations
  - Develop a Business Case for adoption

# UPS wears multiple hats in the RFID Community

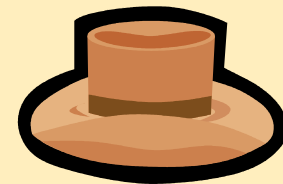
- UPS is a charter member of EPCglobal with people actively involved in many working groups:
  - Developing cross-industry standards
  - Facilitating adoption



*End User*

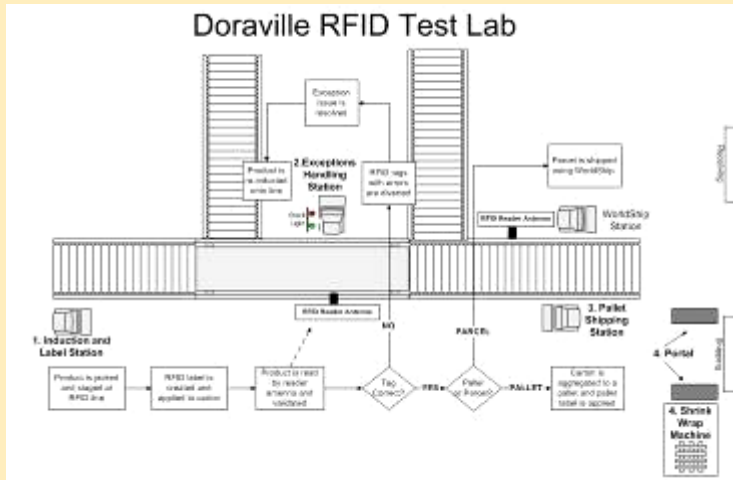


*Solution Provider*



*Investor*

# Pilot: Supply Chain Distribution & Fulfillment

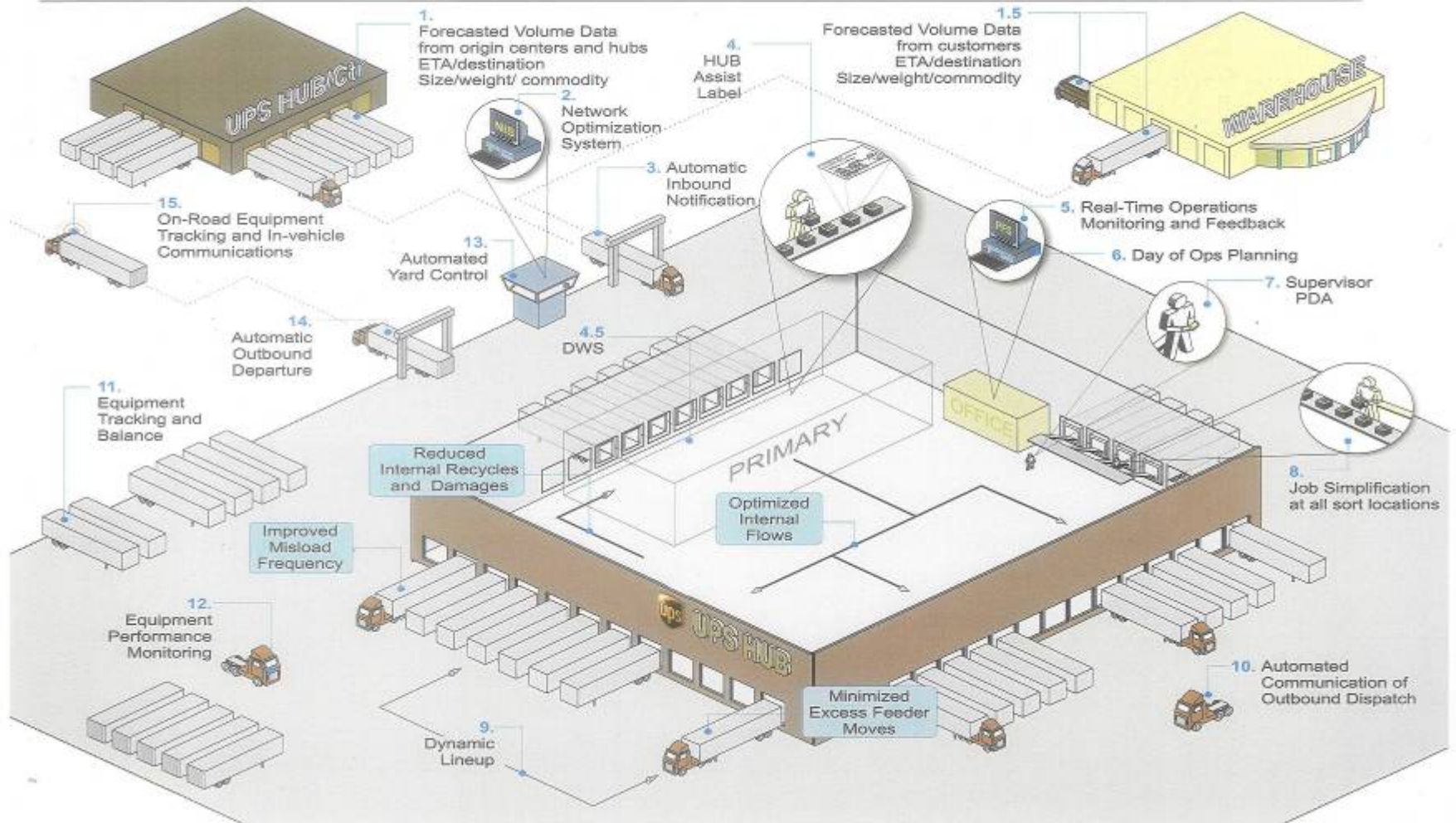


**Integrated with Warehouse Management Systems**



# Beyond Compliance – RFID-enabled distribution operations

## TRANSPORTATION PROCESS OF TOMMOROW



# Pilot: UPS RFID-Enabled Shipping Tools

- **WorldShip Domestic<sup>®</sup>**
  - **ConnectShip<sup>™</sup>**
- Initial software tools for RFID compliant shipping
  - Print RFID labels dynamically as needed
  - Eliminates need for dedicated shipping lines for RFID-tagged goods

The screenshot shows the 'Address Book Editor' window. It contains several input fields and buttons. The 'Company or Name' field is set to 'UPS'. The 'Street' field contains '670 Winters Ave', 'Room/Floor/Address 2' is 'Cube A501', and 'Department/Address 3' is 'CIM'. The 'Country' is 'United States' and the 'Postal/ZIP Code' is '07652'. The 'City' is 'PARAMUS' and the 'State/Prov.' is 'NJ'. There are buttons for 'Add New Address', 'Modify Address', 'Delete Address', 'Clear All Data', 'Validate Address', 'Close', and 'Help'. A 'Reference Numbers' section includes a dropdown for 'Reference No. 1' and a checkbox for 'Use the same value on all packages in a shipment:'. An 'Address Books' section has a list with 'Ship To' checked. At the bottom, there is an 'Address Validation' section with 'Status: Not Validated' and 'Date: 05/19/2004'.



# Pilot: High Speed Automated Sortation

## Phase 1

- Lab Evaluation and Feasibility in UPS Plant Engineering Test Lab - Doraville GA –Began 2004

## Phase 2

- Pilot Implementation at UPS World Port Air Hub - Louisville Ky - 2004
  - Measure improvement in read rates and exception handles



# Pilots: Mobile Asset Management



## Applications:

- Air container and ground support equipment tracking
- Vehicle access control and location monitoring
- Vehicle telematics data collection



# Acquiring Knowledge through Investment

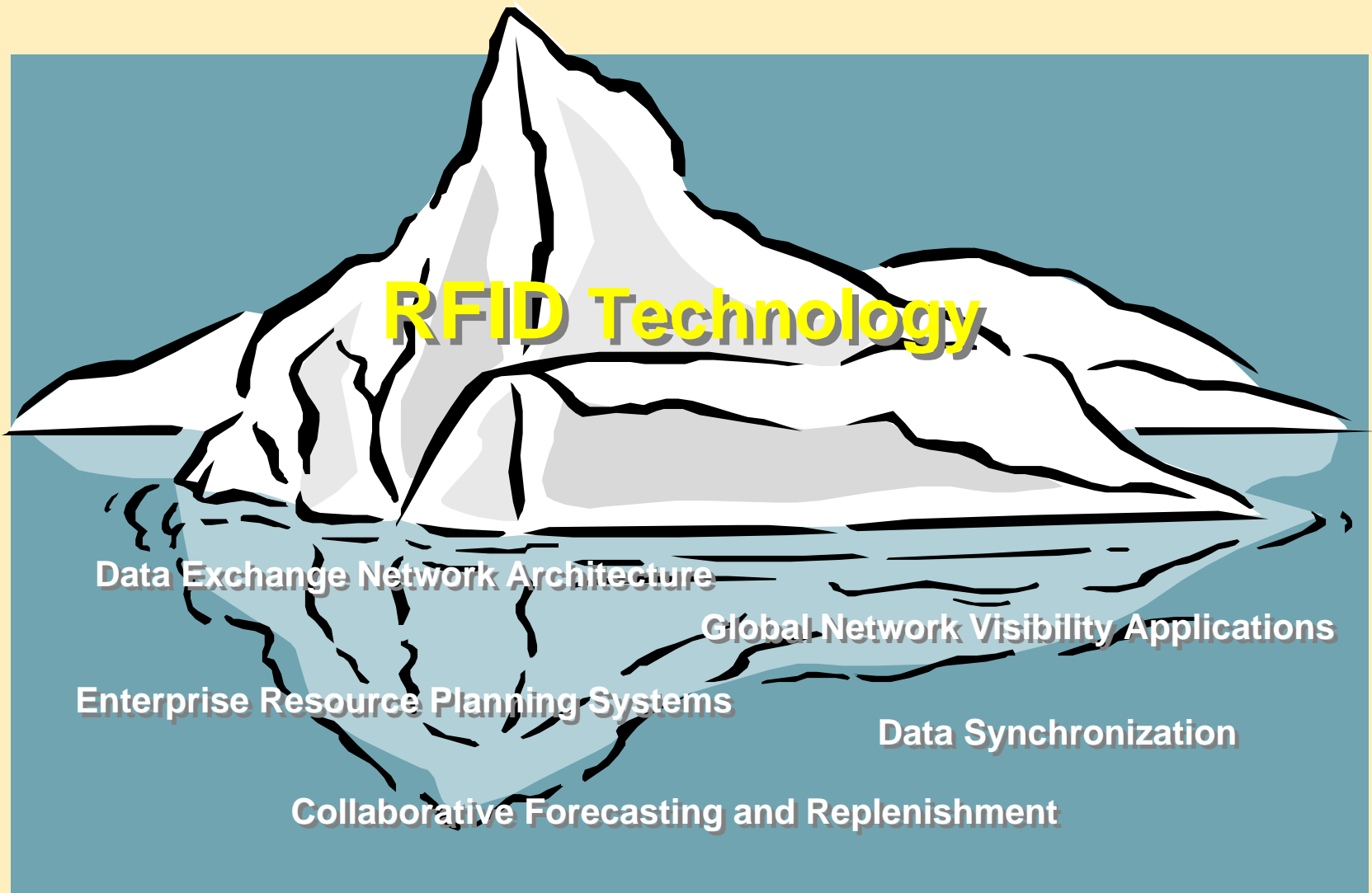
## UPS Strategic Enterprise Fund

- Began Operation in 1998
- Investments in over 20 companies
- Strategy: Invest in industries aligned with transportation and logistics for knowledge capital

- Industry: RFID

- Savi Technology
- Impinj, Inc.
- g2 Microsystems

# Tip of the iceberg...



# Key Learnings

- RFID is simply a new data carrier and collection technology
- Real business value will be found:
  - Use and management of the new information
  - Business process changes enabled by the integration of RFID to reduce costs or improve quality
- RFID is a complex integration proposition
  - High interdependencies between product, packaging, tag selection, reader/hardware selection, software, site environmental conditions, and configuration of all of the above
  - Standards are evolving in parallel to hardware and software
- RFID technology is evolving and improving rapidly. Change must be planned and its impact managed
- Many issues require scale to identify
- RFID is a disruptive technology
  - All functions and business units will ultimately be touched

# Recommendations

- Develop a **multi-disciplinary project team** and obtain executive support
  - Create a team charter and multi-year roadmap
- Consider participation in **industry standards development** (EPCglobal) processes
  - Great deal of collaboration – shared best practices
  - Support **GLOBAL** standards and applications of the technology
- **Match RFID technologies** (passive/active HF/UHF) to your business application
- **Engage solution providers with experience** and ability for local support
- **Re-engineer processes to leverage RFID** – not simply a replacement for barcodes
  - Focus on workflow/business proposition value, leveraging RFID and other technologies and people to achieve business goals
- **Conduct pilots** - confirm business case assumptions and capture knowledge as input to a model for wider deployment
- **Adjust as you learn** – learn from / help others
- **Stay current** – this remains a rapidly changing emerging technology – evolution is continuous

# A Value Proposition:

## *Partnering with the Right Solutions Provider*

### **Direction:**

- Proxy: involvement and leadership in standards processes
- See over the horizon – a sense of direction and speed
- Protect against premature obsolescence

### **Timing:**

- Shorten your cycle-time from pilot to deployment
- Avoid common early mistakes. Leverage current experience
- Be “compliant” early. Get ahead of the curve

### **Costs:**

- Leverage purchasing opportunities
- Share infrastructure costs across clients
- Reduce numbers of dedicated resources or internal teams
- Processes reengineered to capture savings opportunities

### **Strategic:**

- Capture competitive advantage

**EPCglobal Taiwan**

**Thank You**

**Bob Nonneman**

[bnonneman@ups.com](mailto:bnonneman@ups.com)

**Industrial Engineering Manager  
Corporate Engineering Group**



January 13<sup>th</sup> 2006