

Tracking the Explosive Growth of RFID



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MIT Club of Northern California

Peter Winer
Big Chief Partners, Inc
May 11, 2004



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Today's Panelists

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Anurag Mendhekar, CEO, Blue
Vector Systems

Ray Blanchard, CEO, Truth Software
(formerly from SAP)

Blair LaCorte, EVP, Savi Technology

Jon Chorley, Senior Director, Oracle
Corporation

What is RFID?

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- Common knowledge
- Functional definition
- Technical definition
- Privacy perspective

Common Knowledge

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- Wal-Mart mandate
- Easy Pass toll collection
- Supermarket loyalty cards
- Speed Pass
- Oyster and Octopus transit passes
- Patriot Act

Benefits

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- Visibility
- Avoiding loss and shrinkage
- Authenticity
- Reducing errors
- Reducing labor costs
- Compliance
- Convenience

Common Uses of RFID Today

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- Toll roads
- Public transport
- Automotive immobilizers
- Access control
- Cashless commerce
- Supply chain
- Digital identity
- Self-service retail

The MIT Auto ID Center

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- Established in 1999
- Second largest consortium at MIT (largest is W3C)
- Over 100 members including vendors and customers
- Established basic standards under the Electronic Product Code (EPC) umbrella

Auto ID Standards

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- EPC numbering system
- EPC tag standards
- Reader specifications
- Savant middleware
- Object Naming Service (ONS)
- EPC Information Service
- Physical Markup Language

EPC Global and Auto ID Labs

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- In November 2003, the Auto ID Center closed
- EPC Global was formed as a joint venture of EAN International and the Uniform Code Council (UCC)
- The research functions are being continued by Auto ID Labs

Functional Definition from Acsis, Inc

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- Two key hardware elements – programmable tags and readers
- Tags broadcast their data when they receive a cue from a reader and they can record data as well
- Two way data streaming has great appeal in many industries, especially in retailing, in tracking inventory

Technical Definition from RFID Journal

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- RFID is a term for technology that uses radio waves to identify individual items
- Most common method is to store a serial number on a microchip that's attached to an antenna
- The antenna enables the chip to transmit information to the reader
- The reader converts the radio waves into data that can be passed on to computers that can make use of it

Privacy Perspective from Electronic Frontier Foundation

“Libraries, schools, the government and private sector businesses are adopting radio frequency identification tags, or RFIDs — a technology that pinpoints the physical location of whatever item the tags are embedded in. While this may seem like a convenient way to track items, it's also a convenient way to do something less benign: track people and their activities through their belongings. EFF is working to ensure that embrace of this technology does not erode your right to privacy.”

Source: Electronic Frontier Foundation

Privacy Perspective

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- Tagging personal possessions causes great concern among consumers
- In some cases, massive convenience outweighs privacy concerns
- Consumers must be able to opt out

RFID in China

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- RFID-based identity cards for 1.3BN population by government mandate
- Handheld readers for 3MM police officers
- 50MM – 100MM yearly demand from damage and newborns
- Consumer choice is not an issue

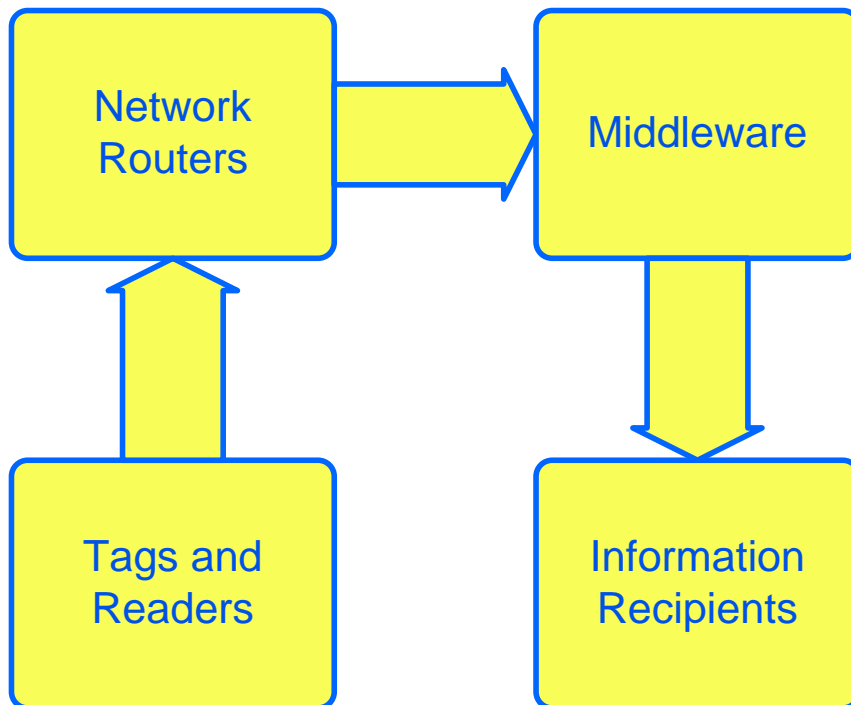
International Civil Aviation Organization (ICAO)

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- 188 member countries including USA
- Advocate for Machine Readable Travel Documents (MRTD)
- Recommending Passports with biometric information and RFID interface
- Required by USA Patriot Act within 2 years

How Does RFID Work?

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- Tags and Readers
- Network Routers
- Middleware
- Information Recipients

RFID Middleware and Infrastructure

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Middleware Definition from Forrester Research

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“The bulk of the return on investment for RFID tagging will come from intelligent use of the generated data. But the question is, how will companies capture clean data they can use? The answer is a new kind of software called RFID middleware. It manages the flow of data between tag readers and enterprise applications and is responsible for the quality, and therefore usability, of the information.”

Source: Forrester Research

Middleware Functions

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- Reader control, configuration and monitoring
- Receiving reader events
- Library of adapters for popular readers

Middleware Functions

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- Filtering, smoothing and aggregating
- Persistent storage
- Enhancing and translating
- Business rules, process management

Middleware Functions

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- Routing and integration
- Which data is passed to which recipient
- Library of adapters to popular SCM and ERP software

Middleware Functions

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- Security and authentication
- Network management

RFID Vendors

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- Reader manufacturers
- Network device vendors
- RFID Middleware pure plays
- Messaging Infrastructure vendors
- Database Management Systems
- Application Server vendors
- Supply Chain Management

RFID Pure Plays

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- Agile Readers as required by Wal-Mart
- Matrics Visibility Manager
- SAMSys Reader Concentrator
- iMotion Edgeware from Globe Ranger
- RFID Router from Blue Vector Systems
- Senseware from Oat Systems
- RFTagAware from ConnecTerra
- RF Middleware from DataBrokers

RFID Opportunistic Plays

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- Sun ONE Integration Server
- TIBCO Message Bus
- Oracle Inventory and WMS
- IBM WebSphere and NetView
- SAP Auto-ID Infrastructure
- Microsoft RFID Council
- Many SCM Vendors

The View from Cisco

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- By 2009 the predominant traffic on Cisco networks will be ePC related
- By 2014 reader populations may approach 300 million
- It is important to preserve bandwidth by making decisions as close to the edge as possible
- Savant is an ePC Router

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Blue Vector Systems

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- Anurag Mendhekar will describe infrastructure technology and products from Blue Vector Systems.
- <http://www.bluevectorsystems.com>

Truth Software

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- Ray Blanchard will provide an overview of Truth Software's new products and his perspective on opportunities in the RFID Space



Savi Technology

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- Blair LaCorte will discuss products from Savi Technology and how they improve efficiency for the Department of Defense
- <http://www.savi.com>

Oracle

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- Jon Chorley will present Oracle's perspective on RFID.
- <http://www.oracle.com>



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Questions

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