

What Do We Really Mean By Security for RFID And How Much Is Enough?

March 26, 2008

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SecureRF at a glance...

RFID tag and reader security development and consulting to protect Pharmaceutical Supply Chain and provide Cold Chain Management functions.

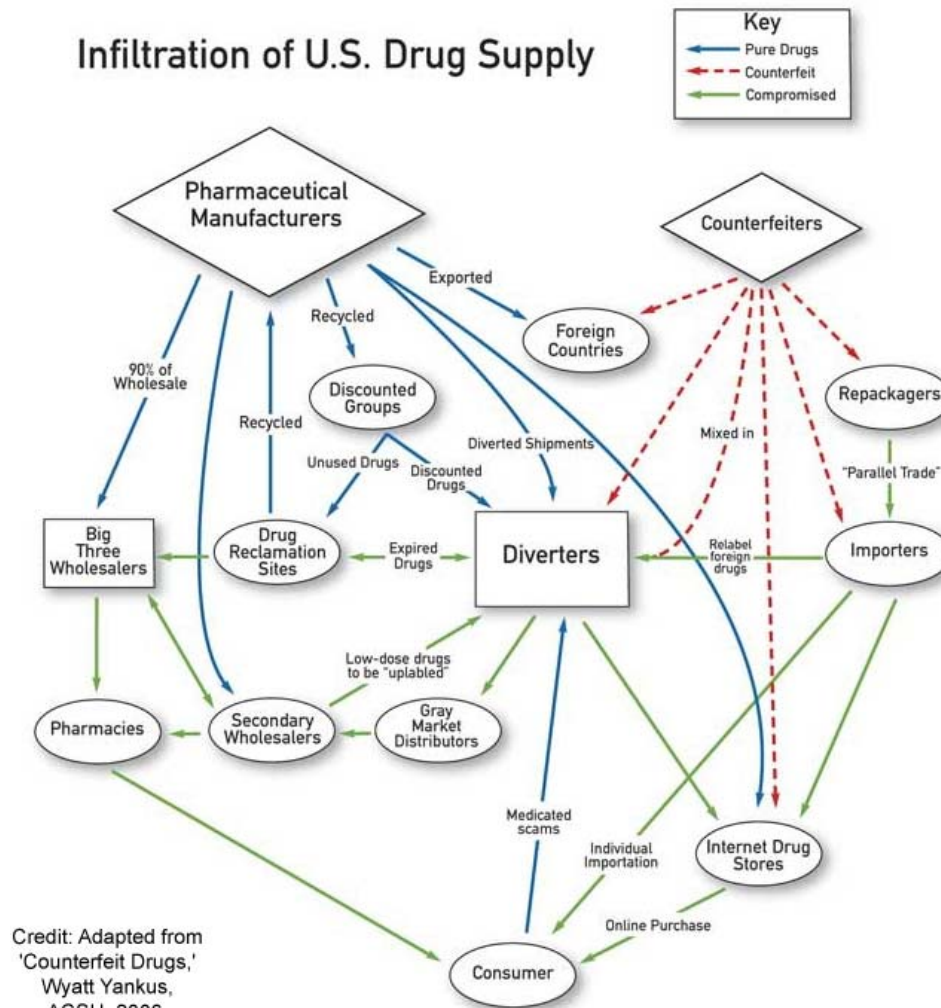
- Protocol Independent/EPCglobal
- National Science Foundation supported research
- World-class mathematician/cryptographers
- Lead by top RFID Solution designer
- Advisors and board members leading security and Pharmaceutical Experts
RSA, Certicom, Verisign, McKesson, PDX

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Today's Supply Chain



Credit: Adapted from
'Counterfeit Drugs,'
Wyatt Yankus,
ACSH, 2006.

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Need to Secure Pharma Supply Chain

- Counterfeit drugs cost Pharma Industry \$40 Billion Yearly.

Source: World Health Organization

- Counterfeiting of Pharmaceuticals is now a global trade.

Source: Eye On Europe, Stockholm Network

- United States ranked “Six” in Top Ten Countries for Counterfeits Seizures/Discoveries.

Source: PSI Situational Report

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Issues in our Pharmaceutical Supply?



← Counterfeit
Viagra
Seizure

- Counterfeit Lipitor tablets on the left. Only distinguishable to the consumer by their bitter taste.
- More than 18 million counterfeit Lipitor tablets removed from the U.S. supply chain in 2003.

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Product and Supply Chain Threats

- Counterfeits
- Diverted Products
- Parallel Imports
- Unapproved Generics
- Stolen Products
- Up-labeled Products
- Expired Products

Patient Safety - Manufacturer Brand - Financial Impact

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RFID in Pharma Supply Chain

“We continue to believe that RFID is the most promising technology for implementing electronic track and trace in the drug supply chain.”

Source: FDA Task Force Report: 2006 Update

- Asset tracking – supply chain management
- Anti-counterfeiting
- Anti-diversion
- Pedigree reporting
- Recalls and reverse logistics

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The Need for Security and Privacy

“Pharmacies need to be unimpeachable about the security and privacy of their customer’s records.”

Source: RFID in the Pharmacy: Q&A with CVS

- Security versus Privacy
- Patient Safety
- HIPAA

“Pedigree versus RFID”

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How Secure is RFID?

“The weakest link in the security chain is the RFID tag -- in particular, the so-called passive tag”

Forrester Research

“...good security tools developed over the last 20 years won't fit into the hardware that's available on most of these RFID tags...”

Burt Kaliski, Chief Scientist RSA Laboratories

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Emerging Cyber Threats Report - 2008

“As RFID systems continue to gain popularity in 2008, particularly with credit cards and other personal and financial systems, this vulnerability will be a major threat for years to come.”

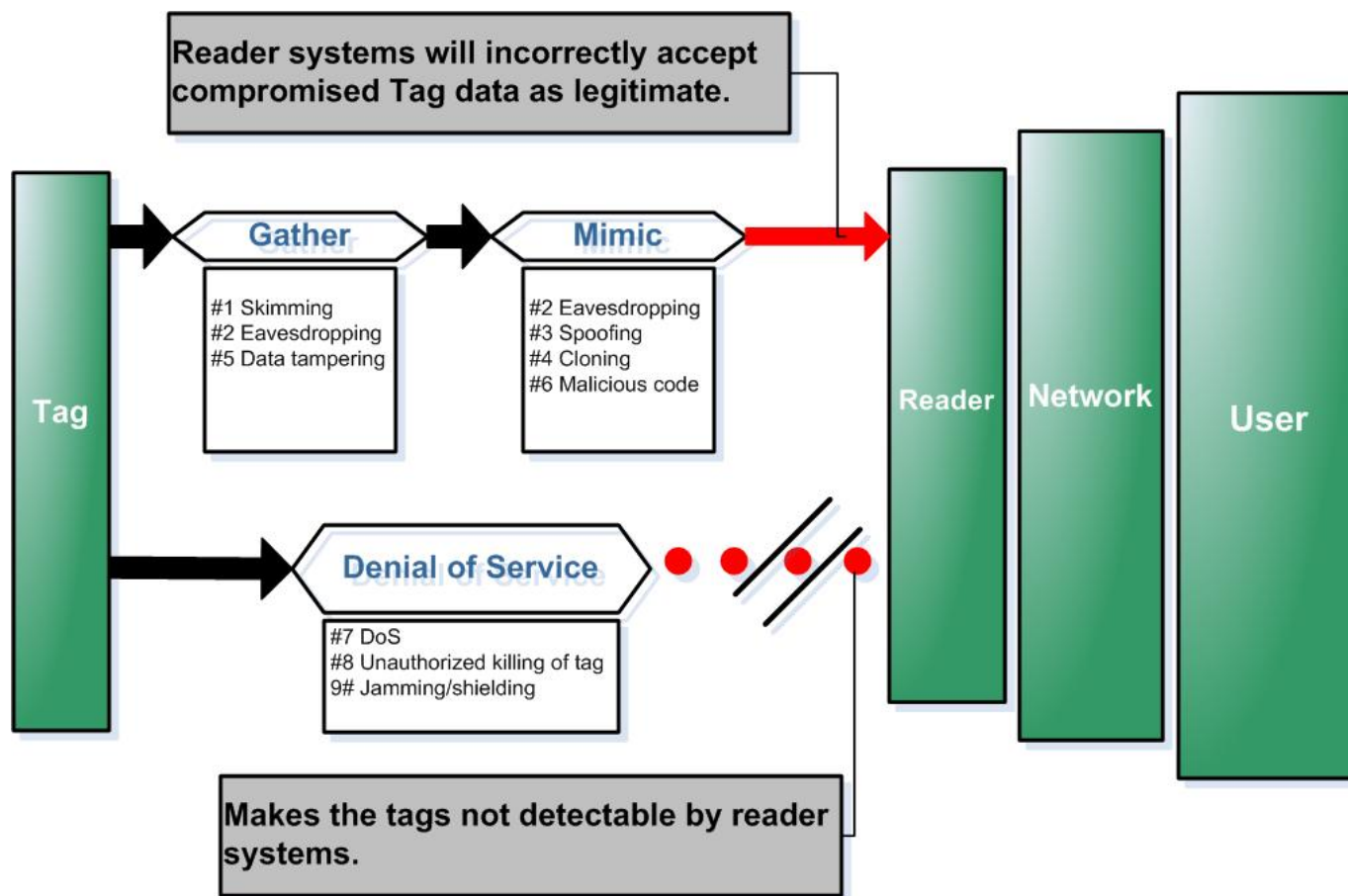
Chris Rouland - Chief Technology Officer
IBM Internet Security Systems and
IBM Distinguished Engineer

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Possible Security Threats



Graphics Source: AIM Reg 302

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What is “Security”?

Security is a collection of mechanisms, procedures and controls that can be implemented to reduce the risk of specific threats.

Examples include:

- Authentication
- Digital Signatures
- Encryption/Decryption
- Hash Functions

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Today's RFID Security Solutions

- Simple password protection
- "Rolling code"
 - Tag identifier information changes after each scan
- Challenge-response protocols
 - The reader issues a challenge to the tag, which responds with a result computed using a cryptographic circuit keyed with some secret value

Proposed RFID Security Solutions

- Protective bag prevents RFID signal from escaping.
- Key management by consumer via passwords.
- RFID privacy management by consumer via a mobile handheld device.
- “Snowflake” Solutions
- Devices that locally jam RFID signals.
- Physical disabling of tag by consumer
- Authentication and Data Protection

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Evaluating Security Risks

Create Model to evaluate:

- Damage Potential
- Reproducibility
- Exploitability
- Affected Users
- Discoverability

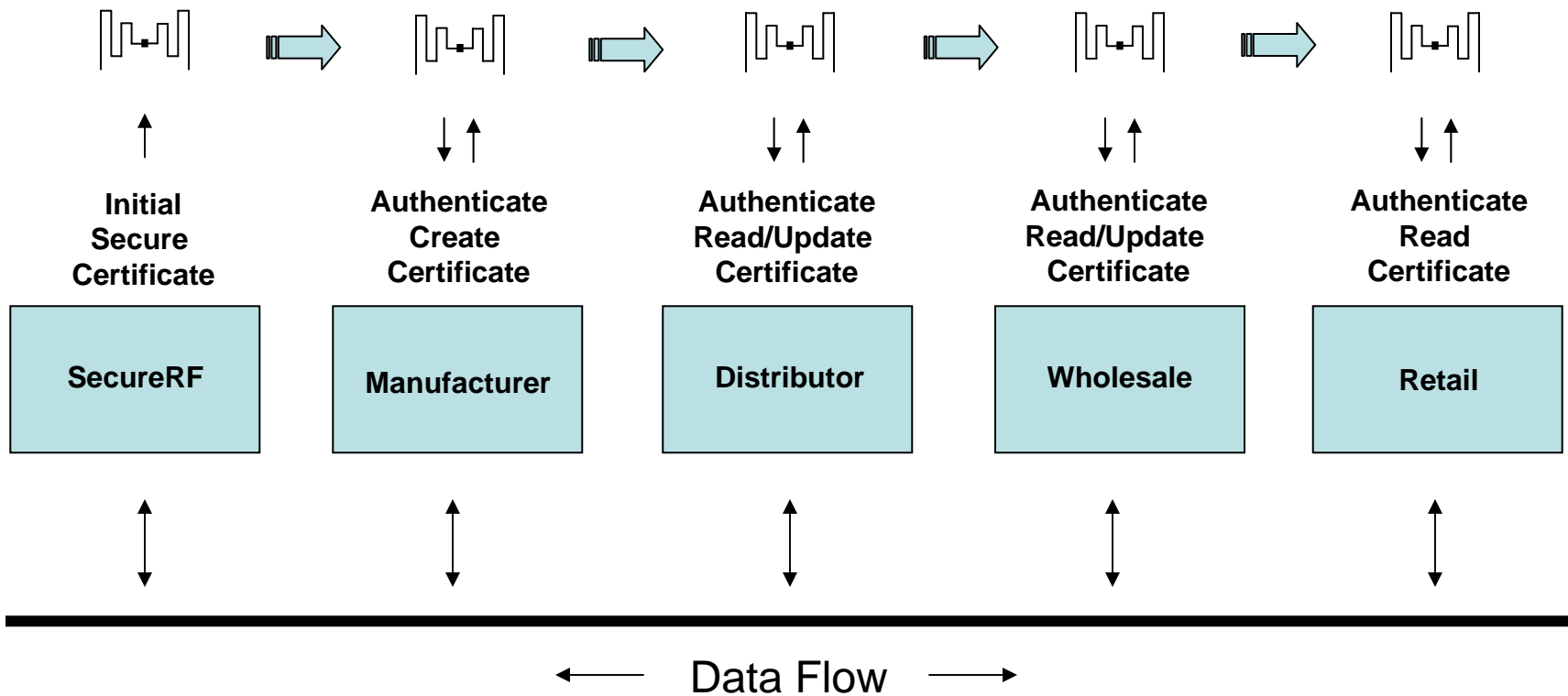
“Probability versus Possibility”

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Secure Pharma Network



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Action Today

- Security audit supply chain and process
- Understand risk in new technology
- Monitor progress in solutions
- Ask vendors for input and updates
- Understand solutions may not come from existing protocols
- Collaborate and support industry efforts

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Summary

- Strong need for secure Pharma Supply Chain
- High value to protecting data
- Privacy and HIPAA need to be addressed
- Many emerging schemes
- No winners yet

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Questions?

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