

New Jersey Chapter Meeting June 2022

The background of the slide is a photograph of a warehouse. In the foreground, a person wearing a yellow and white polo shirt and blue jeans is operating a forklift. The forklift's mast and wheels are visible. In the background, there are high industrial shelving units filled with cardboard boxes. The floor is concrete, and there are some boxes and equipment scattered around.

Introducing RFID for Improved Inventory Control w/ S/4HANA

Brief education session introducing **RFID technology to supplement barcoding automation** for inventory control and tracking for SAP ECC 6.0 and SAP S/4HANA – IM, WM & EWM applications.

June 9th, 2022

About BCC Distribution & Presenter

For over 20 years, BCC Distribution has been the premier provider of complete data collection solutions that integrate barcode scanning, printing, and RFID automation into SAP ERP business systems. BCCD offers clients best-of-breed mobile terminals, scanners, readers, printers, and wireless infrastructures along with the 'state of the art' software and technical services to deliver best practice solutions. By bringing all of our strengths to the table – hardware distributor, software developer and systems integrator, BCCD is able to deliver optimized barcode and RFID solutions that meet the unique requirements for inventory control and tracking in manufacturing, warehousing and/or distribution business operations.

Delivering and supporting ALL aspects of a turn-key IM/WM/EWM RF scanning and barcode printing solution for SAP ECC 6.0 and SAP S/4HANA.

- **SOFTWARE** | Solutions & Development
- **EQUIPMENT** | Distributor & Integrator
- **SERVICES** | Software & Equipment
- **SUPPORT** | All System Deliverables

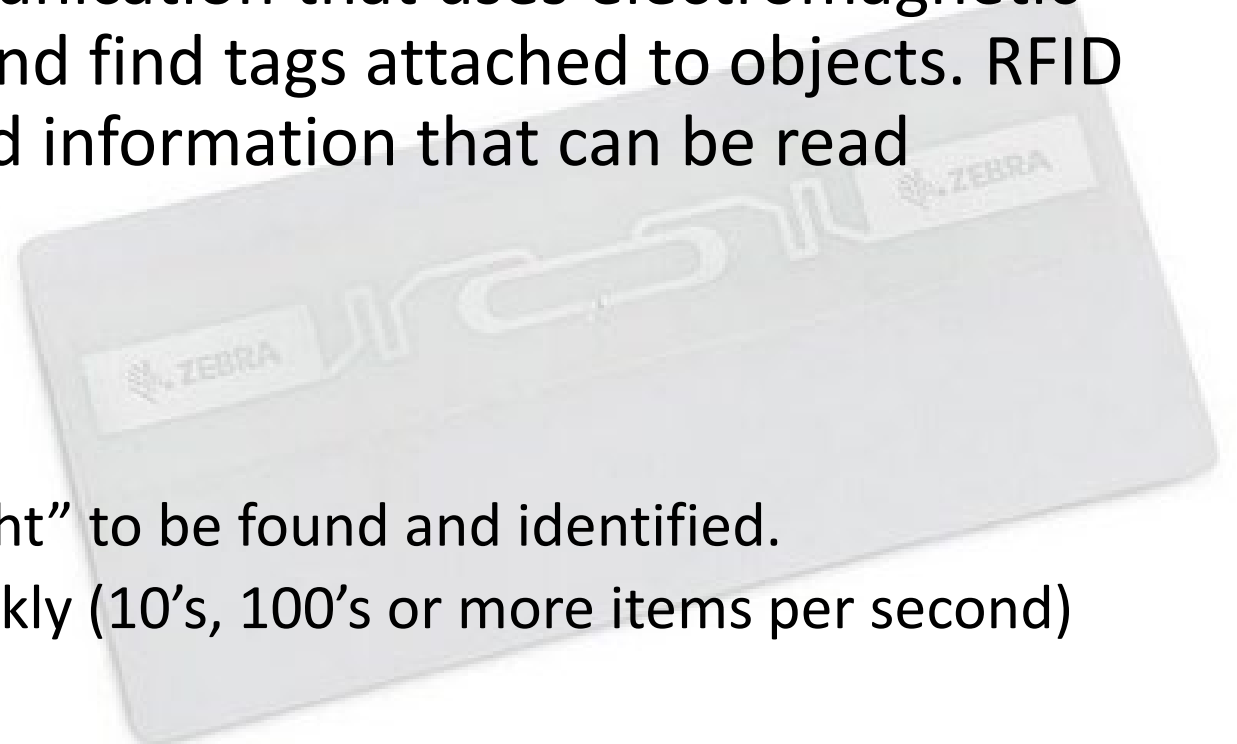
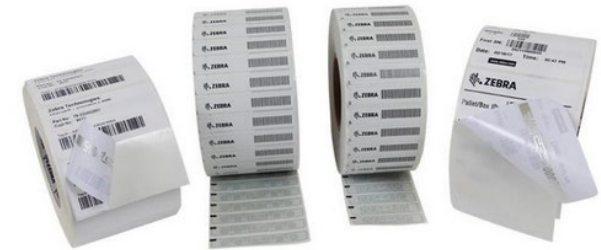




What is RFID?

Radio Frequency Identification

- RFID is a form of wireless communication that uses electromagnetic fields (radio waves) to identify and find tags attached to objects. RFID tags contain electronically stored information that can be read wirelessly by a RFID reader.
- Unlike barcode scanning...
 - RFID does not need direct “line-of-sight” to be found and identified.
 - RFID can identify many items quickly (10’s, 100’s or more items per second)

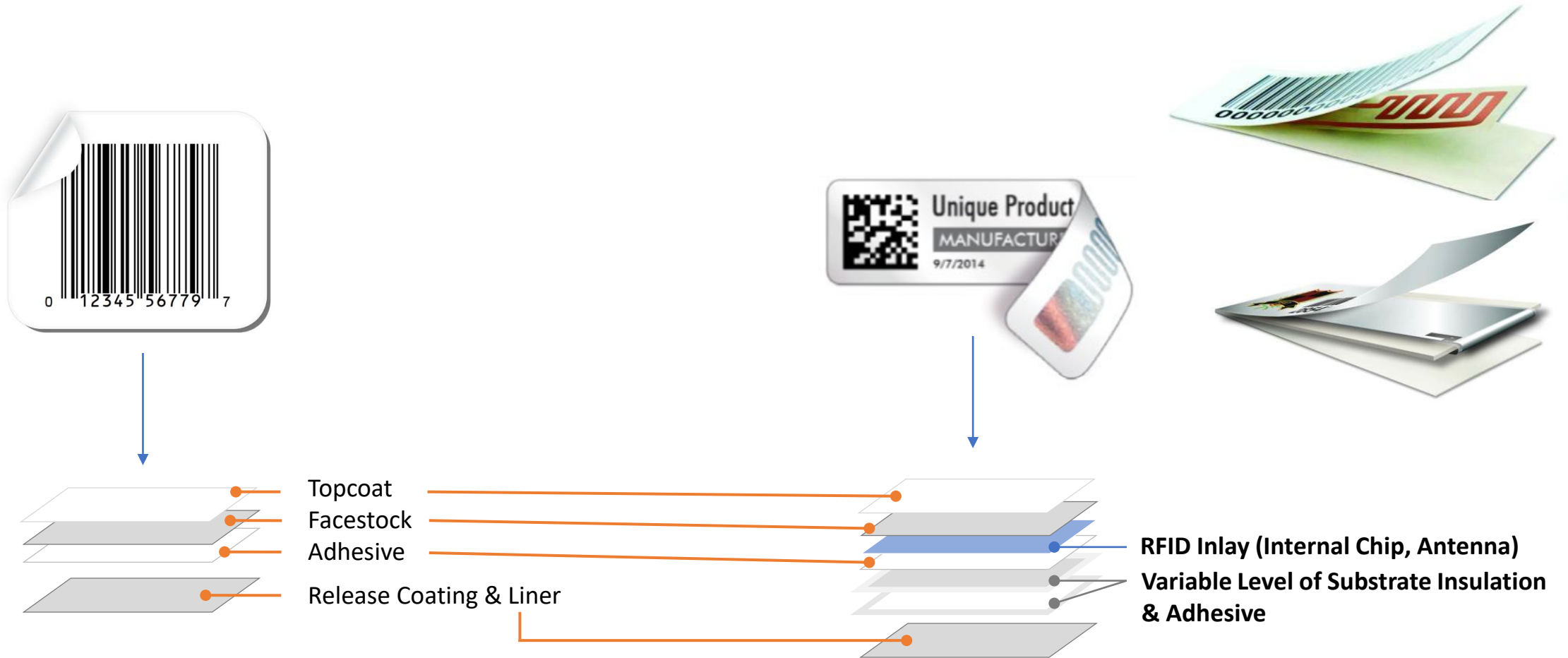


Common RFID Terms Explained

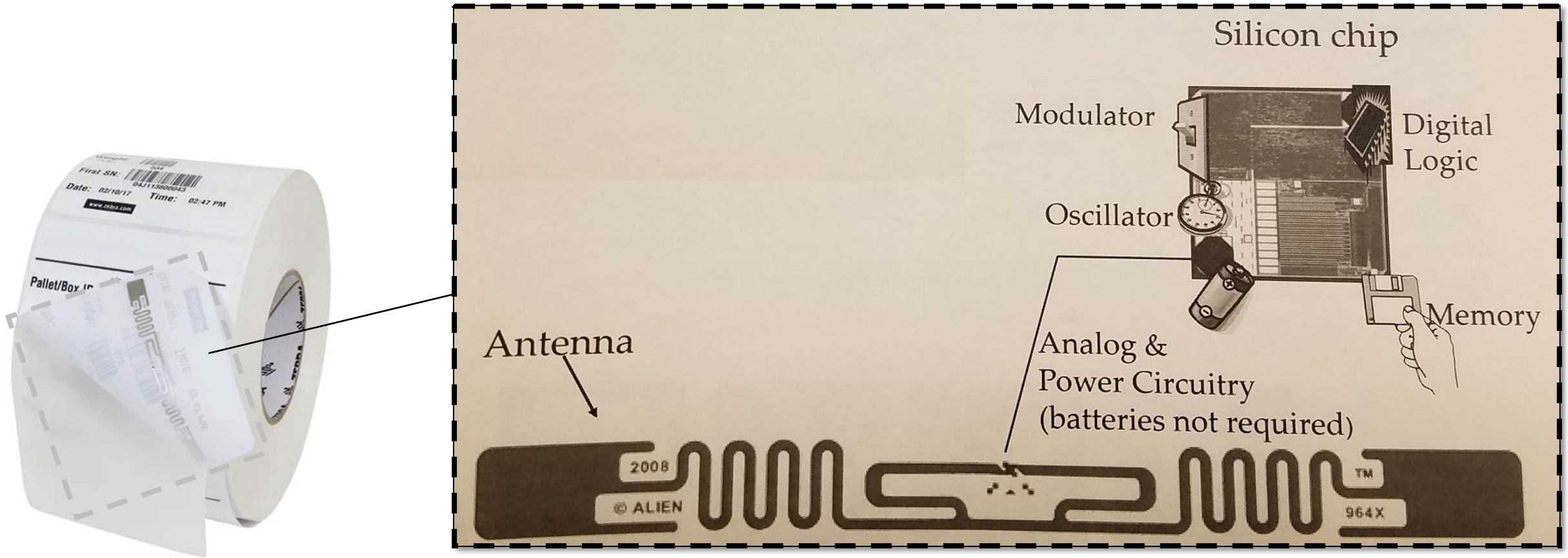
- **RFID “Tag”** – label, tag, document, cartridge, or many other products with an embedded RFID inlay.
- **Passive Technology** – collect energy from a nearby RFID reader's interrogating radio waves... **NO BATTERY**
- **Active Technology** – local power source (battery, etc.), operate at hundreds of meters from an RFID reader.
- **UHF** (Ultra High Frequency) – a operates up to ~30’ range, relatively inexpensive.
- **IC** – Internal Chip
- **Inlay** – RFID chip and antenna “wet inlay” embedded in the label.
- **UPC** – Universal Product Code (often associated to barcodes, used for redundancy.)
- **EPC** – Electronic Product Code
- **Gen 2** – Second Generation UHF (lower cost/better performance.)
- **SSCC** – Serial Shipping Container Code, related to GS1 or Logistic Shipping Units (similar to HU’s)
- Impinj, Alien, Zebra, Squiggle, Dogbone, Dipole, Smartrac, etc.
- **HF & LF** (High/Low Frequency) – entry cards, keyless ignitions, expensive & short range.
- **Bluetooth | Low Energy | NFC** – tap to pair, payment systems, etc.

Anatomy of a RFID Tag

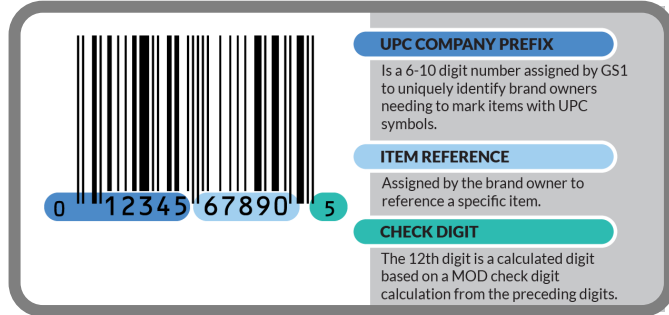
Makeup of Barcode Label vs RFID Label



Anatomy of a RFID Tag



Anatomy of a RFID Tag



Barcodes printed and done. 100's of symbologies.
Limited amount of data, permanent, set symbology.

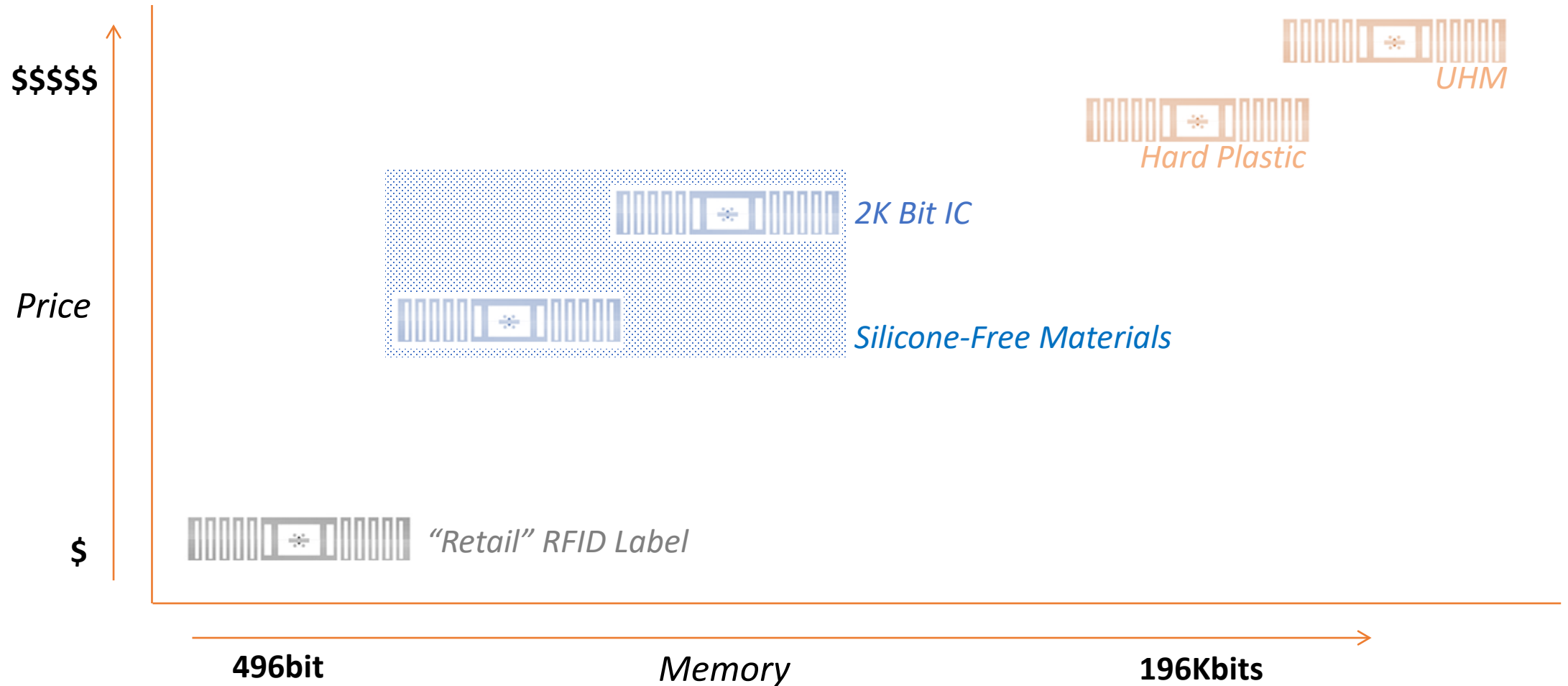
An RFID Tag can contain a lot of data... a memory card that travels with the product it is on.

4 Memory "Banks" (Storage Areas)

- Reserved & TID - Fixed
- EPC & User - Programmable

Reserved	(Electronic Product	TID (Tag Identifier)	User Memory
Access and Kill Password	Identification of Host Product	Type of Tag	Writable Area of Memory
	Pre-written	128-496 bit	32 to 512 bit

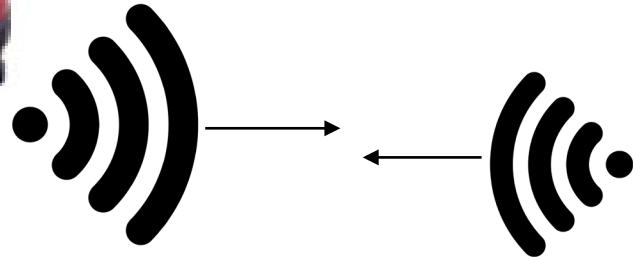
Anatomy of a RFID Tag – Memory



RFID Tag Diversity



How RFID Works (High Level)



Passive RFID Tag
Gen 2, UHF
Antenna
Microchip
Transmitter
NO battery

- 1) Reader sends **POWER & REQUEST** to tag.
- 2) Tag validates reader.
- 3) Tag Transmits back information.
- 4) Reader captures (and displays) tag data.
- 5) Captured data entered, validated, updated with SAP system.

RFID Technology Components

Industrial Handheld Terminals aka RFID Scanners, Handheld RFID Sleds



RFID Readers & Antennas w/ RFID Data Collection Software



Integrated RFID Portal Systems Shipping, Receiving, Passageways



RFID Label/Tag Printer Encoders Industrial, Desktop, and Mobile



RFID Software SAP Mobility & Data Collection SAP-Integrated Printing & Design RFID Reader Integration & Management



TranASAP™
by BCC Distribution, Inc.



QuickPrint™
by BCC Distribution, Inc.

RFID Labels & Tags Adhesive Labels, Tags, Reusable



RFID System Components (High Level)



RFID Technology Scenarios



Plus, RTLS

Illustrating the Business Case

Session Exercise - collect accurate data for 3 inventory items, and update SAP accordingly.

- a. Manual Data Collection
- b. Barcode Scanning Data Collection (Handheld)
- c. RFID Data Collection (Handheld)

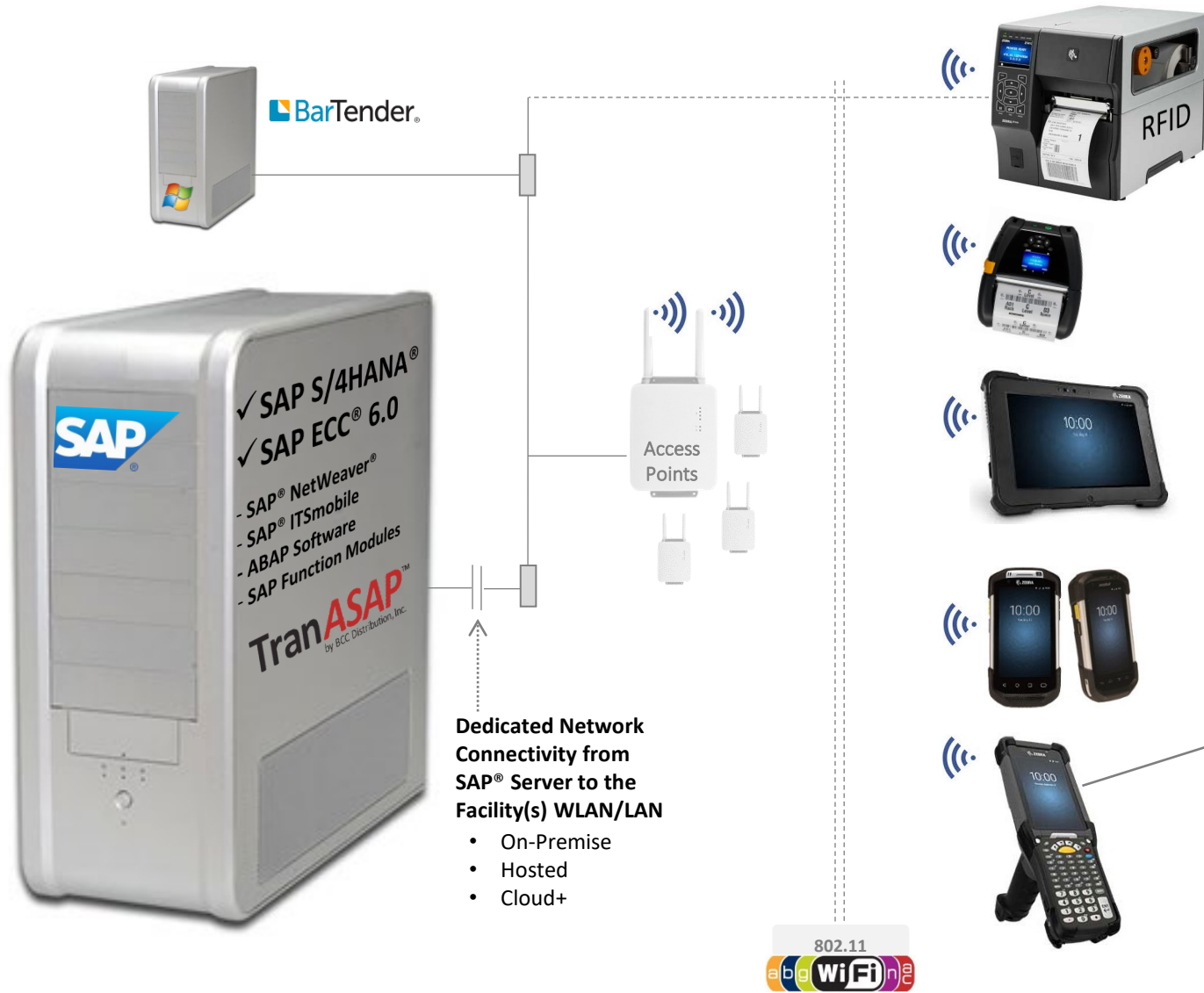
SAP Software System Integration

- Real-Time System (Handheld, Vehicle Terminal, Fixed Portal)
- Near-time system with Middleware
(e.g. SQL Database w/ SAP Tie-In via SAP .NET Connector)
- Advanced SAP Integration
(e.g. SAP Auto-ID Infrastructure & Extended Warehouse Mgmt.)
- Advanced RFID Functionality – RTLS (not in focus today)

TranASAP™ SAP® ITsmobile Infrastructure – Connectivity

[SAP's Recommended RF Framework for ECC & S/4HANA]

SAP® Certified
Powered by SAP NetWeaver®



RF Device Staging Services (from an SAP Expert)

SAP ITsmobile Certified RF Terminals

Certified Operating System

- Android Ent. (Mx)
- Windows® 10*
- Windows® Mobile
- Windows® CE

Certified Industrial Web Browser

- Zebra EB
- Velocity
- Naurtech

Staged & Configured for Direct, Real-Time Connectivity to SAP

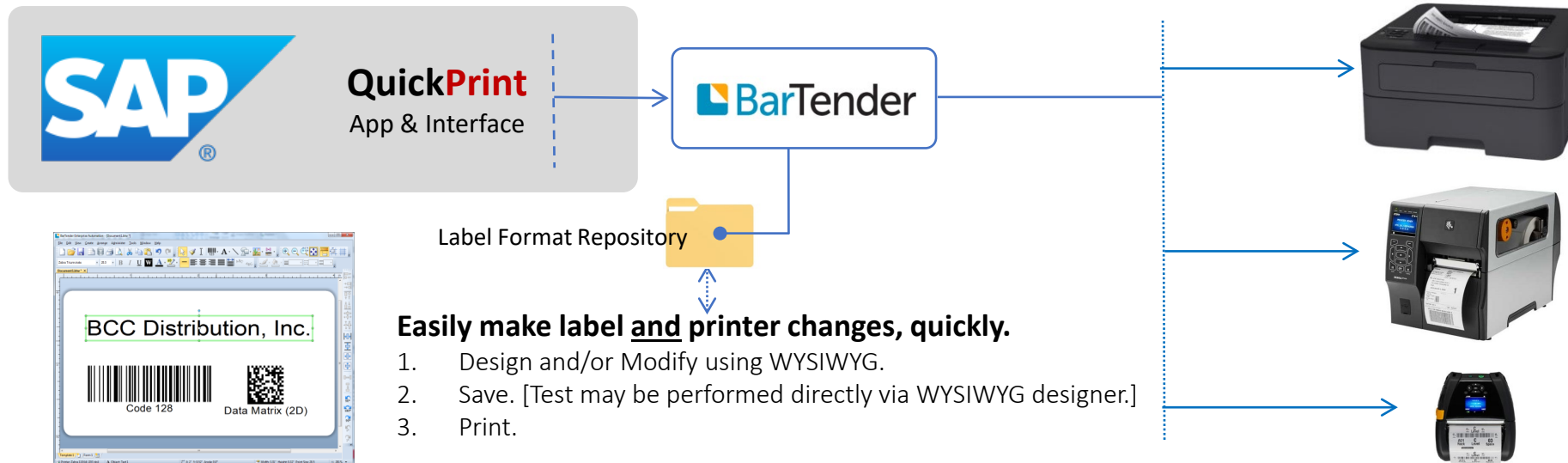
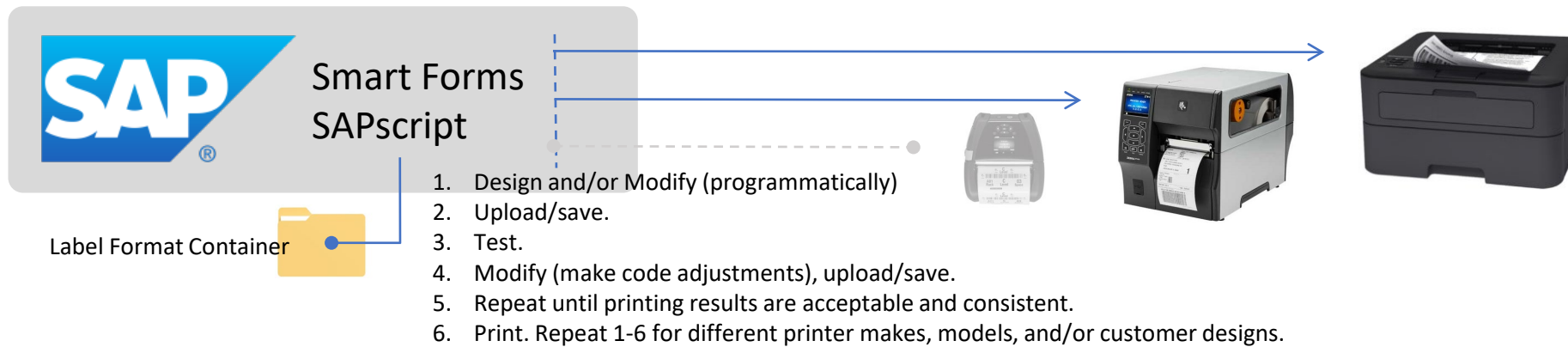
- OS/Firmware Version
- Utilities & GMS Disable
- I.P. Settings
- SSID
- Sys. Access/Passcode

SAP® Login Credentials



*Operating System availability limited on specific mobile RF terminals, and subject to EOL support.

SAP-Integrated RFID Printing/Encoding



Questions

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