

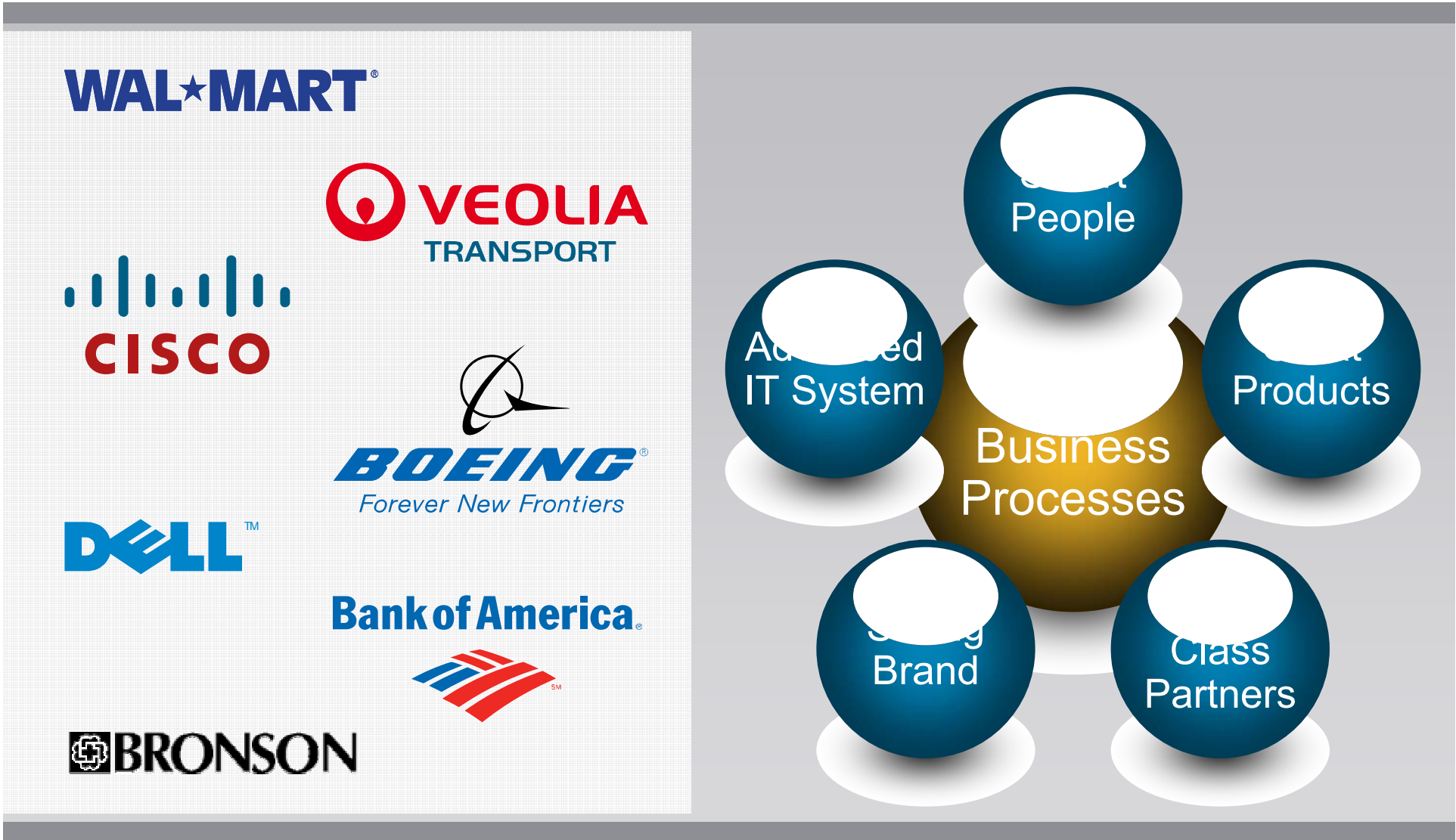


# Location Solutions



## Isabelle Guis – Cisco Mobility Solutions

# What do Successful Companies Have in Common?



# Need for a Solution Approach



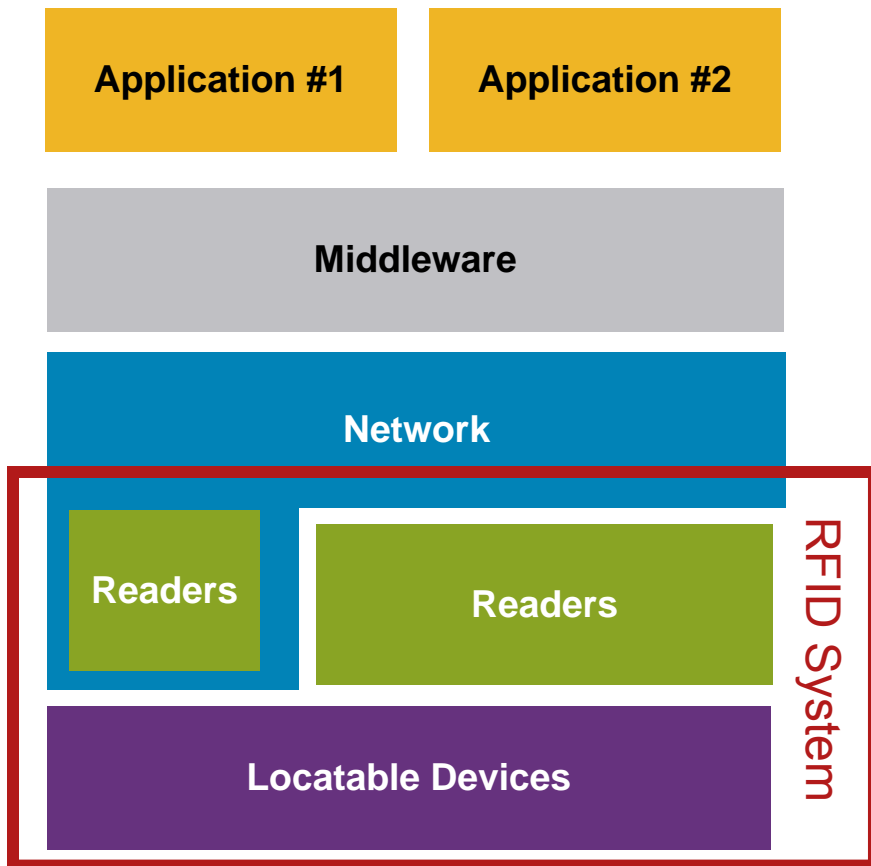


# Location Technology Overview

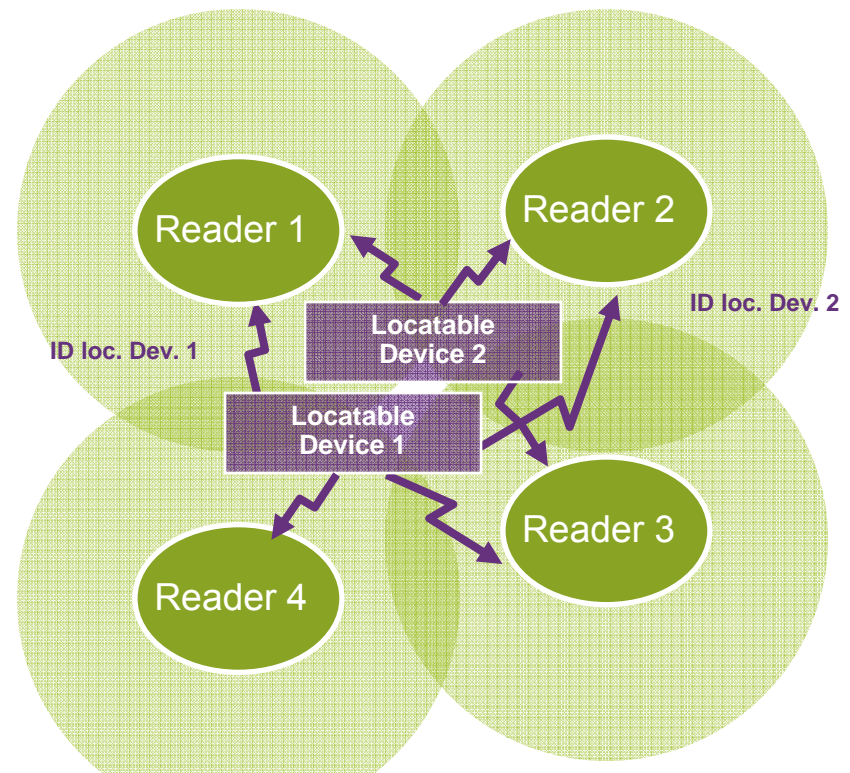


# Location Solution Components

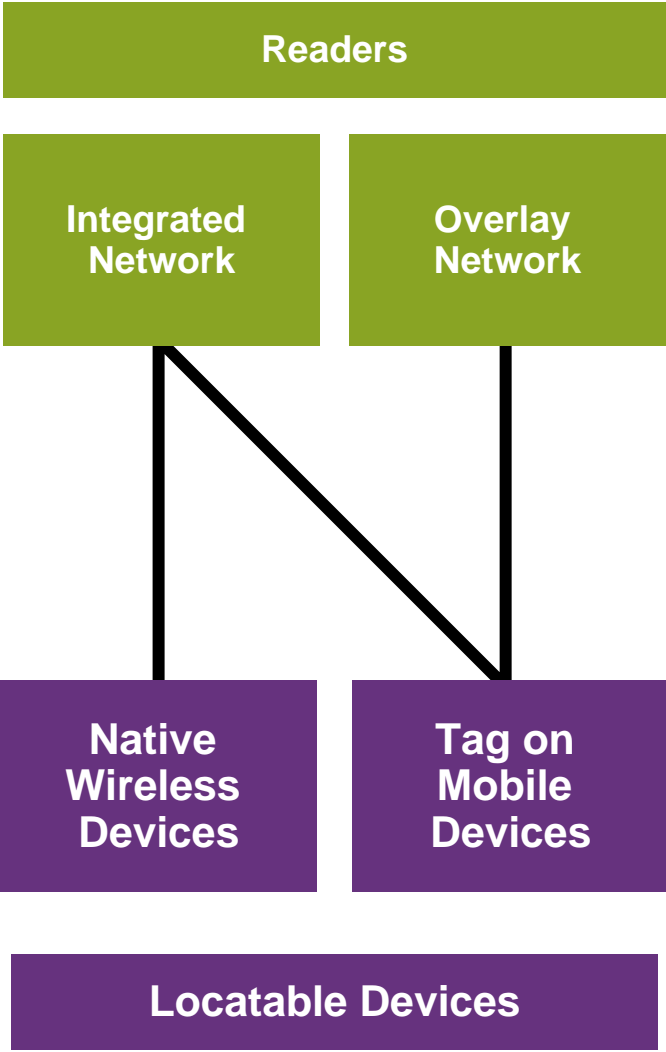
A Solution that Enables Relevant and Up-to-Date Location Information to be Included into Business Applications and Decisions



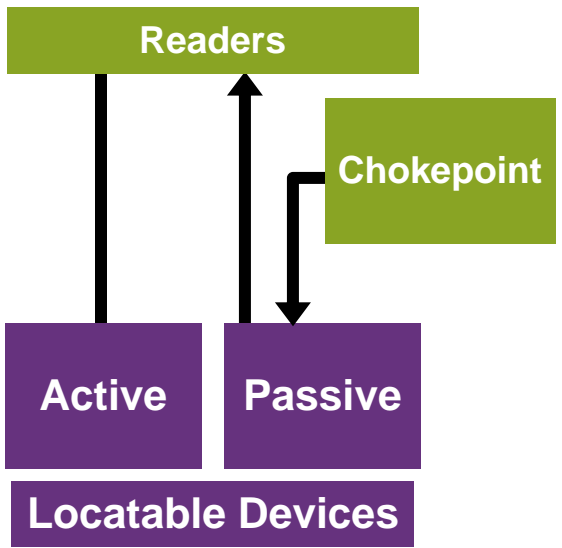
An RFID System Uses a **Wireless Technology** to Exchange ID Information Between a Reader and a Locatable Device



# Variety of RFID Systems



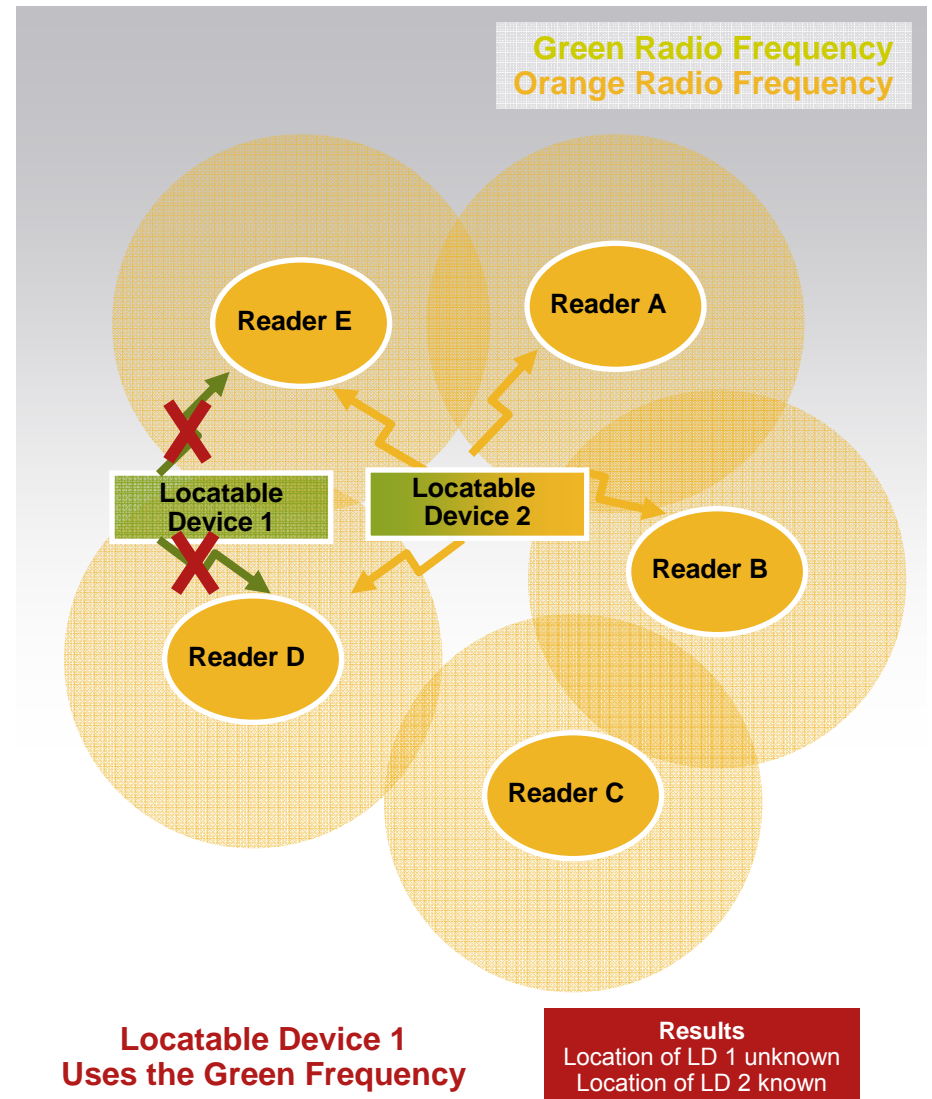
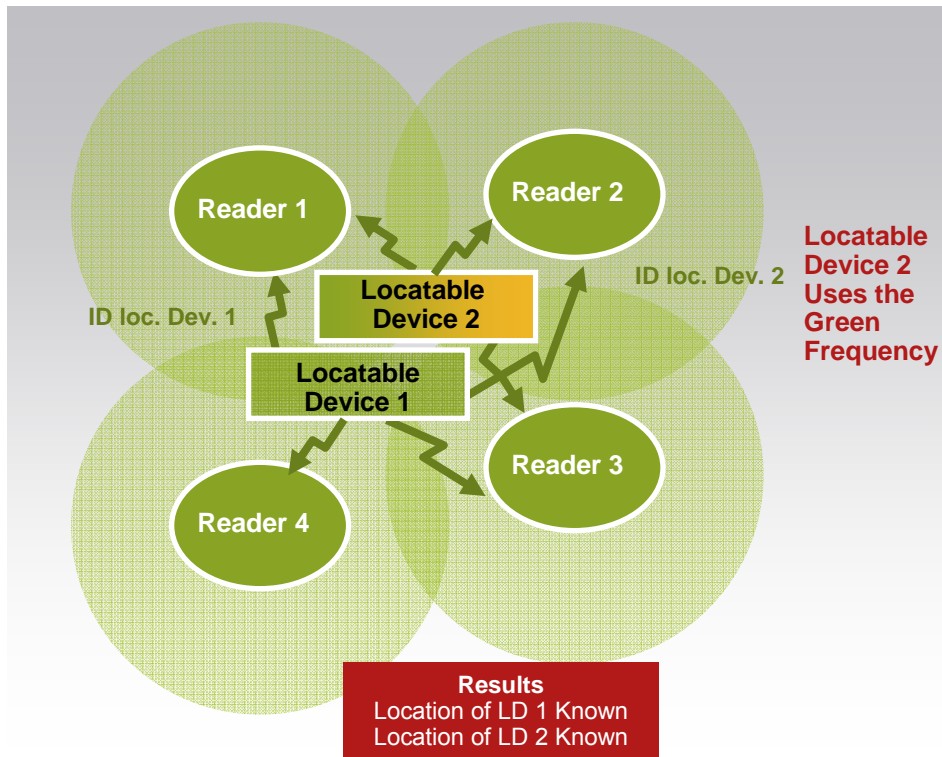
≠ Chokepoint



	Active RFID	Passive RFID
Power Source	Internal to locatable device	Energy transferred from chokepoint over wireless
Battery	Yes	No
Availability of Power	Continuous	Within chokepoint proximity
Required Signal Strength from Reader to Locatable Device	Very low	Very high
Available Signal Strength from Locatable Device to Reader	High	Very low
Read Range[1]	Long range (>100m)	Very short range (<3m)

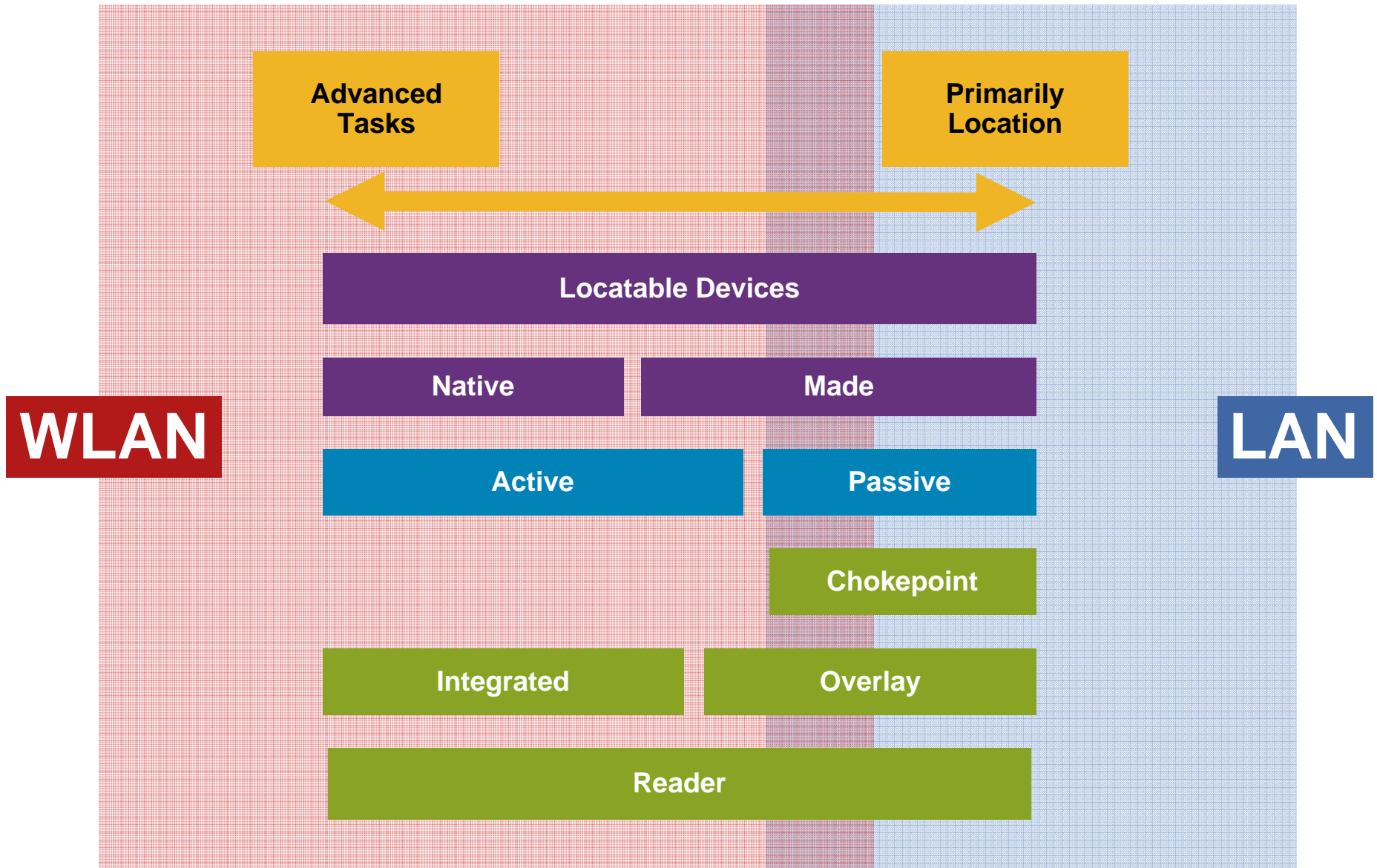
[1] Distance between the locatable device and the reader

# Variety of RFID Systems



Calculation Methods
Nearest Reader
Cell of Origin
Received Signal Strength (RSS)
Time Difference of Arrival (TDoA)
Time of Arrival (ToA)
Angle of Arrival (AoA)

# Networks



# Variety of Networks

**Best of Both Worlds  
More Flexibility**

	Wired LAN	Wireless LAN	
		Wi-Fi RFID	Non Wi-Fi RFID
Event Triggered	√		√
Predetermined Set of Places	√		√
Anytime		√	
Anywhere		√	
Read Range	Short	Long	Short
Connection RFID System/ Network	USB, Ethernet	Wi-Fi	Wi-Fi
Type of RFID System	Overlay Passive	Integrated Active	Overlay Passive or Active
Type of Locatable Devices	Tag	Wi-Fi Devices	Tags

# Variety of Networks

## RFID System Frequency

	<b>LF—HF—UHF</b> 125 kHz–915 MHz	<b>WLAN</b> 2.4 GHz	<b>Cellular</b> 800 MHz–2400 MHz	<b>GPS</b> 1176 MHz–1575 MHz
RFID System	Passive or Active Easier to transfer energy in low frequencies	Active	Active	Active
Locatable Devices	Made Tag	Native or Made Wi-Fi laptops, phone or tags	Native Cell phones	Native GPS Phones and Navigator
Calculation Method	Nearest reader, cell of origin	Cell of origin, RSS, TDoA	TDoA, EoTD	ToA
Read Range	Short Less than 6 feet	Long 100 feet indoor 300 feet outdoor	Long 35 kilometers	Long
Accuracy	Very High A few inches to 2 meters indoor	High Within 10 meters Indoor and outdoor	Medium Within 50-300 meters outdoor	High Within 5-30 meters outdoor
Readers	Overlay Standalone reader	Integrated Wi-Fi access point	Integrated Base Stations	Integrated Satellites
Readers	High-Density Every where location is needed	Medium Density Several meters	Low Density Several kilometers	Very Low Density

# Applications

Business Applications Used by Employees  
Customized for Specific Business Process

Application #1

Application #2

Middleware

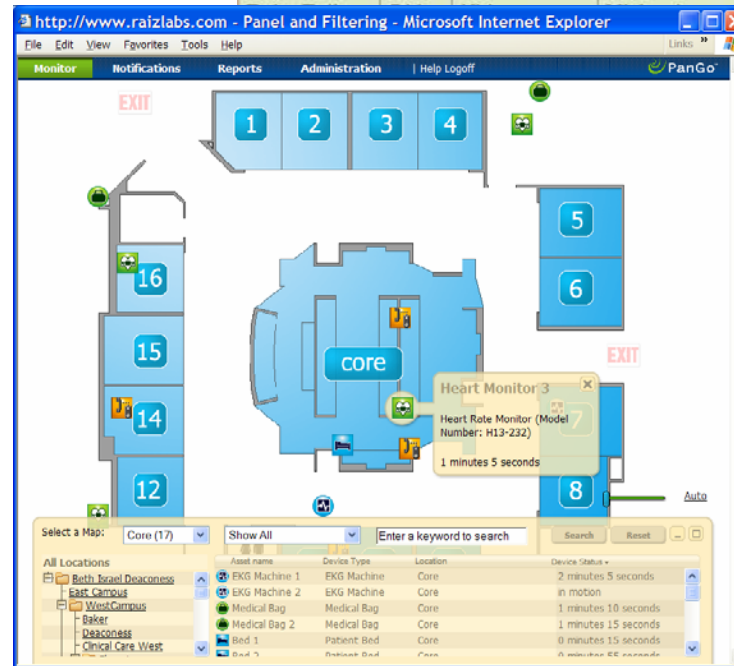
Network

Readers

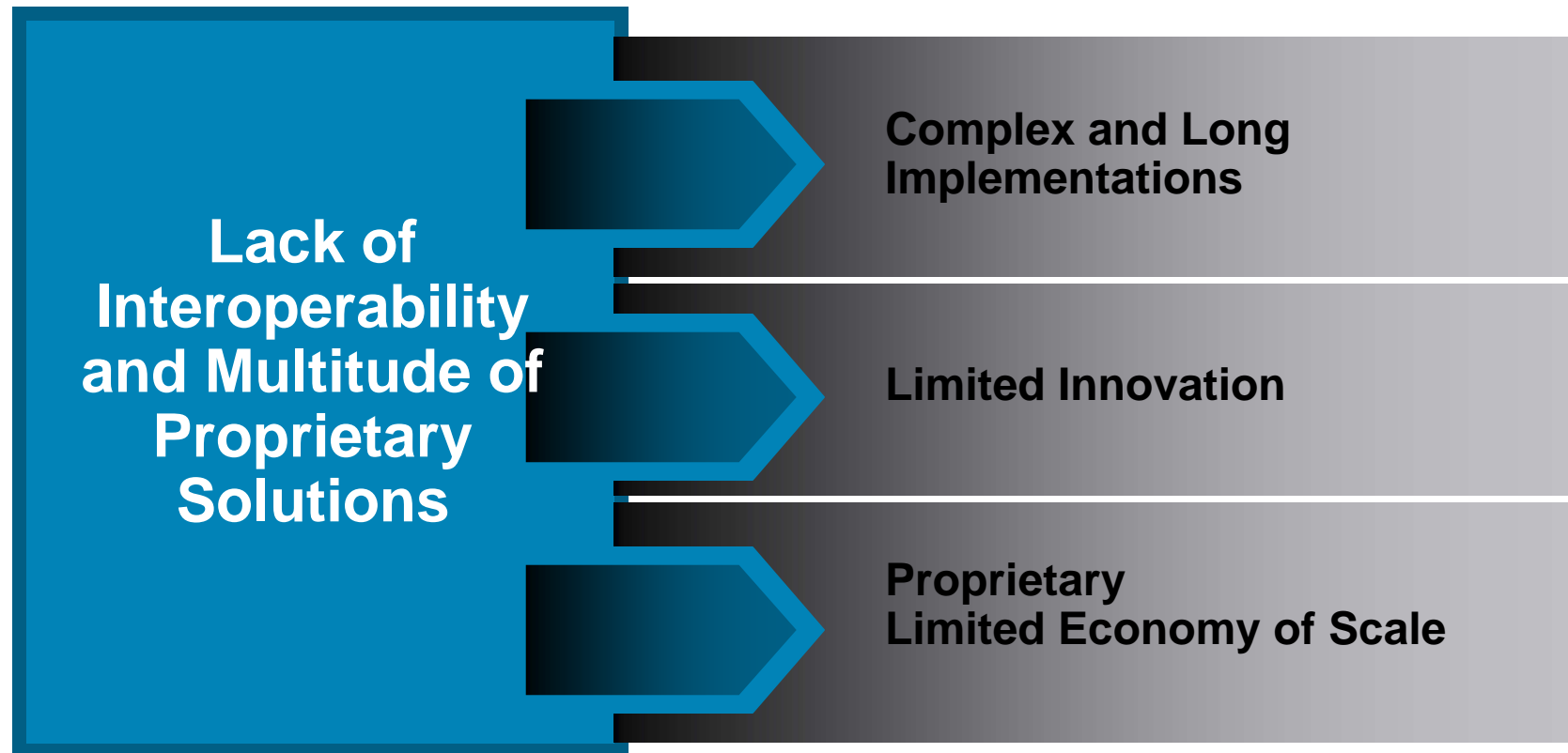
Readers

Locatable Devices

PATIENT ITINERARY				
PATIENT	ROOM	DIAGNOSIS	ATTENDING	MILESTONES
Smith, John M 72yo	601 NW	Heart Attack	Chambers, Justin	
Cate, Frisco M 65yo	602 NW	Heart Bypass	Chambers, Justin	

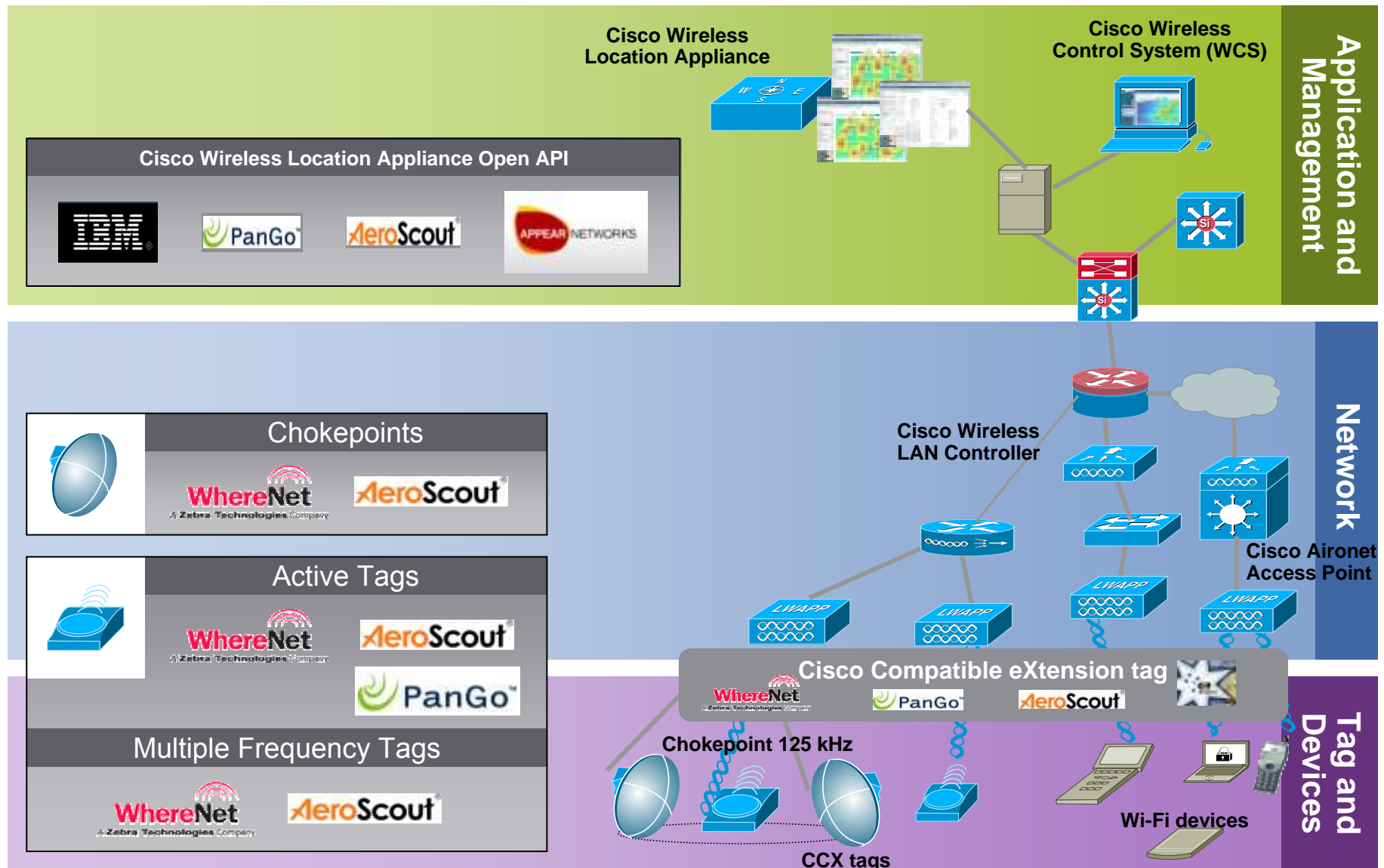


# A Fragmented Landscape



# Example of the Cisco Location Solution

## It is about Eco-System: Openness and Choice





Location everywhere



# Cisco Location-Aware Healthcare Solution

Delivering Rich Business Experiences Anytime, Anywhere Across Many Networks

**Location-Aware  
Healthcare Solution**

Bridging the  
Physical World  
With the  
Hospital to  
Monitor and  
Streamline  
Operations and  
Improve Patient  
Care

**Staff Management  
With Presence**



**Asset  
Management**



**Process  
Management**



**Sensor  
Management**

**Cisco Unified Wireless  
Network**

**Cisco Wireless Location  
Appliance**

**Technology Partners**

**Channel Partners with  
industry expertise**

# Location in Retail

- Today's Location Services

## *Applications in Use Today*

- Locate People or Equipment**  

- Inventory Tracking**  

- Policy Based Enforcement**  
Find Rogue Devices  


- Device and Guest Network Services Enhanced by Location Services

## *Visionary Applications*

- Location-Based Device Information**  

- Vendor Access To Restocking Information**  


# Location in Manufacturing

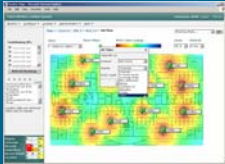

- Today's Location Services

## *Applications in Use Today*

<b>Locate People or Equipment</b> 	<b>Inventory Tracking</b> 	<b>Policy Based Enforcement</b> Find Rogue Devices 
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- Just-In-Time Manufacturing and Guest Access Enhanced by Location Services

## *Visionary Applications*

<b>Presence</b> Pallet X is on the line 	<b>Choke Point Tracking</b> Vendors and Partners 
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# Location in Government

- Today's Location Services

## *Applications in Use Today*

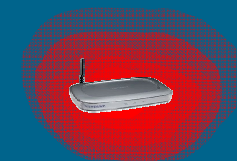
**Locate People or Equipment**



**Inventory Tracking**



**DoD Compliance**  
Find Rogue Devices



- Security and Network Visibility Enhanced by Location Services

## *Visionary Applications*

**Public Networks**  
Location-based access



**Automated City Infrastructure Reporting**



# Location in Education

- Today's Location Services

## *Applications in Use Today*

**Locate People or Equipment**



**Inventory Tracking**



**Wireless Policy Compliance**  
Find Rogue APs



- Security and Guest Network Services Enhanced by Location Services

## *Visionary Applications*

**Guest Networks**  
Location-based access privileges



**Student Presence for Safety, Automated Attendance**



## More...

- On the Cisco Location Solution at [www.cisco.com/go/location](http://www.cisco.com/go/location)
  - White paper
  - Solution Overview
  - Customer Case Studies...
- On the Cisco Unified Wireless Network at [www.cisco.com/go/wireless](http://www.cisco.com/go/wireless)
  - Product description
  - Data sheet
  - Customer Case Studies...

