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Control your world

Trends in Wireless: An IoT Perspective

SDR WInComm 2014

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Director of Strategic Marketing

March 11, 2014

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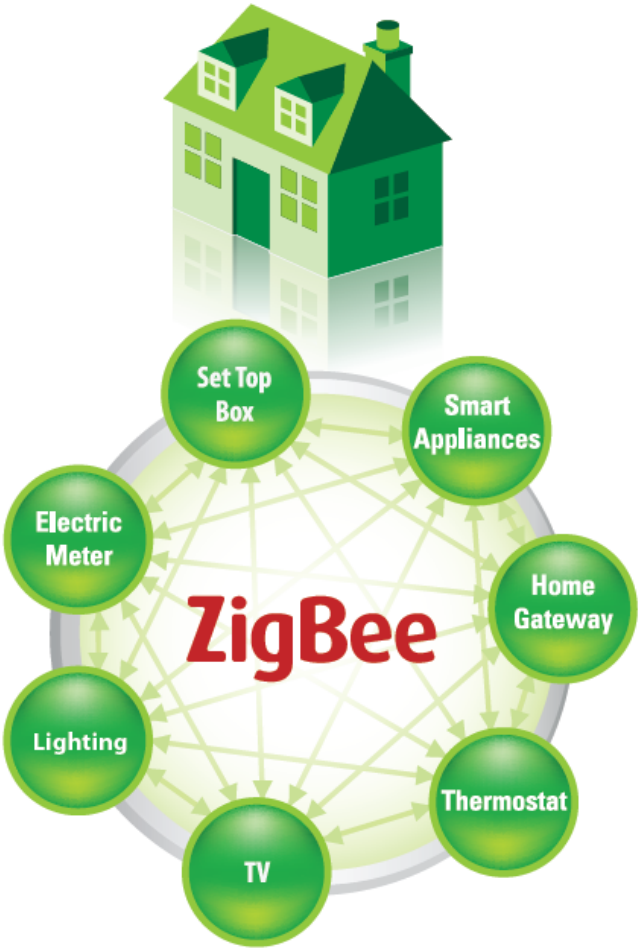
ZigBee Alliance

- **Who We Are**
  - Open, global not-for-profit since 2002
  - More than 400 companies worldwide are members
  - Membership is approximately 40% Americas, 35% Asia, 25% EMEA

- **What We Do**
  - Develop standards for wireless device-to-device communication (Internet of Things)
  - Certify products to help insure interoperability through the ZigBee Certified program
  - Promote the use of ZigBee standards around the world



Smart Home

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Standardization

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Open, Global Standard Benefits

- Single product can be deployed globally
- Consumer choice of products
- Product Competition
  - Quality
  - Product Feature Innovation
- Price Competition
- Buyer choice of suppliers
  - No vendor lock-in to specific chip manufacturer
  - Multiple sources for interoperable end products

ZigBee continues to be the **primary driver** toward **standardization and interoperability** and will see further **strong growth** across many markets, accounting for almost **80% of total 802.15.4**-enabled device shipments in 2018. – *ABI, July 2013*

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ZigBee Alliance Ecosystem

Silicon (10 out of top 20 largest)	Certified Platforms >25	Modules	Tools & Service	OEMs Certified End Products
Analog Devices	Accent	Atmel	Exegin	AlertMe
Atmel	Amiccom	CEL	Korwin	Belkin
Freescale	Atmel	Digi	LS Research	Computime
Greenpeak	Freescale	LS Research	MMB Resrch	Comcast
Intel	GreenPeak	NEC	San Juan SW	Computime
Marvell Technology	Lapis	NXP	Tendril NW	Emerson Electric
NEC	Marvell Technology	Radiocraft	Ubilogix	General Electric
NXP	Microchip	RFM		Honeywell
Oki	NXP	Telegesis	+more	Huawei
Renesas	Radiopulse			iControl
Samsung	Renesas	+more		Johnson Controls
ST Micro	Silicon Labs			LG
Silicon Labs	Skyley Networks			Osram
Texas Instruments	STMicroelectronics			Philips
	Texas Instruments			Tendril Networks
+more	+more			+more

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More Connected Devices

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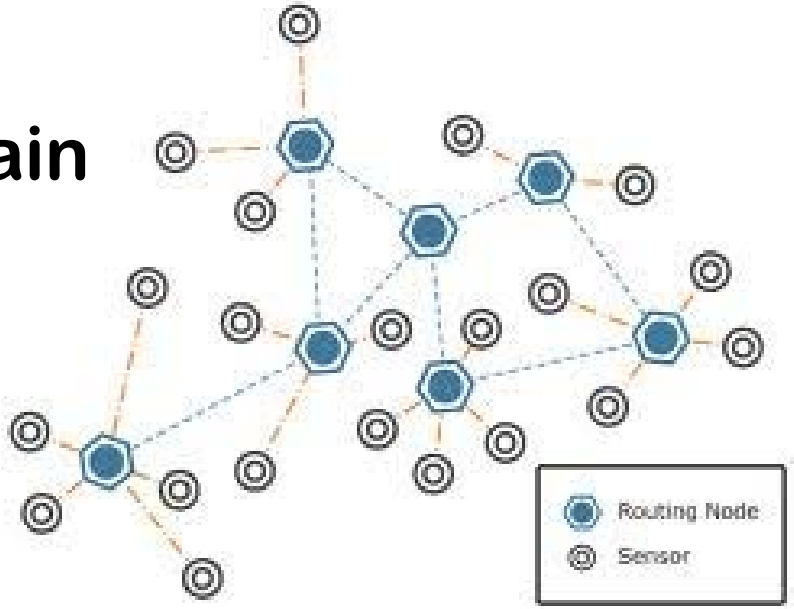
Key IoT Network Attributes

- No new wires
- Easy to install and maintain (mesh, self organizing, self healing)
- Ability to scale easily to thousands of nodes
- Secure (AES 128)
- Reliable (mesh, multiple channels, demonstrated interference tolerance)
- Long battery life (years on an AA battery)
- Low Cost (open standard, many suppliers)



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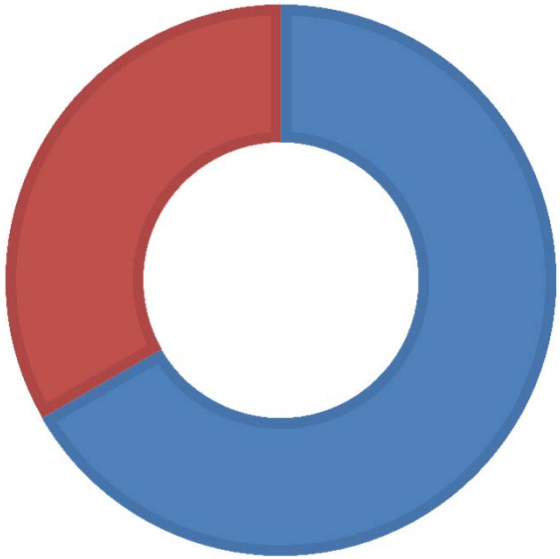
ON World Connected Lighting Report

1/3 OF LIGHTING ENERGY IS WASTED



Wireless Mesh Networking

Energy Harvesting

Smart LED Drivers

$

4.2 Billion USD Savings by 2020

ZigBee provides two of the three drivers to realize lighting energy savings.

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The Standard for Residential Lighting

"The Connected Lighting Alliance announced today its endorsement of ZigBee Light Link as the preferred common open standard for residential connected lighting applications, simplifying choices for both lighting companies and consumers. …

This decision represents the first time an alliance of leading lighting companies has unanimously endorsed a common open standard for wireless lighting solutions."

Press release by The Connected Lighting Alliance, July 15, 2013

THE CONNECTED LIGHTING ALLIANCE
SHAPING THE FUTURE OF LIGHTING

GE Lighting

Lutron Electronics

OSRAM

Panasonic

Royal Philips

Toshiba

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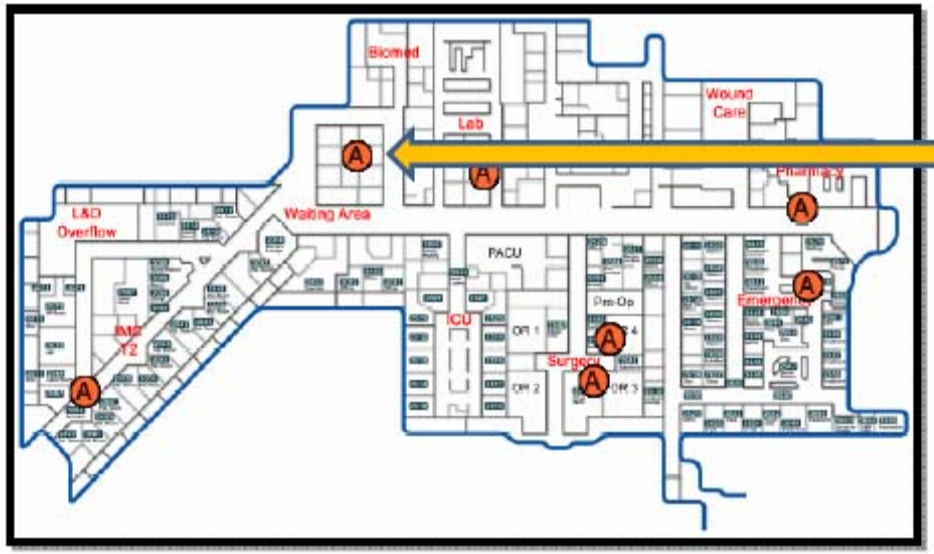
Real Time Asset Awareness

- Map Location
- Monitor Status
- Measure Utilization
- Improve Processes



- 4.2 million square feet
- 121 floors
- 27 buildings
- 16,000 assets

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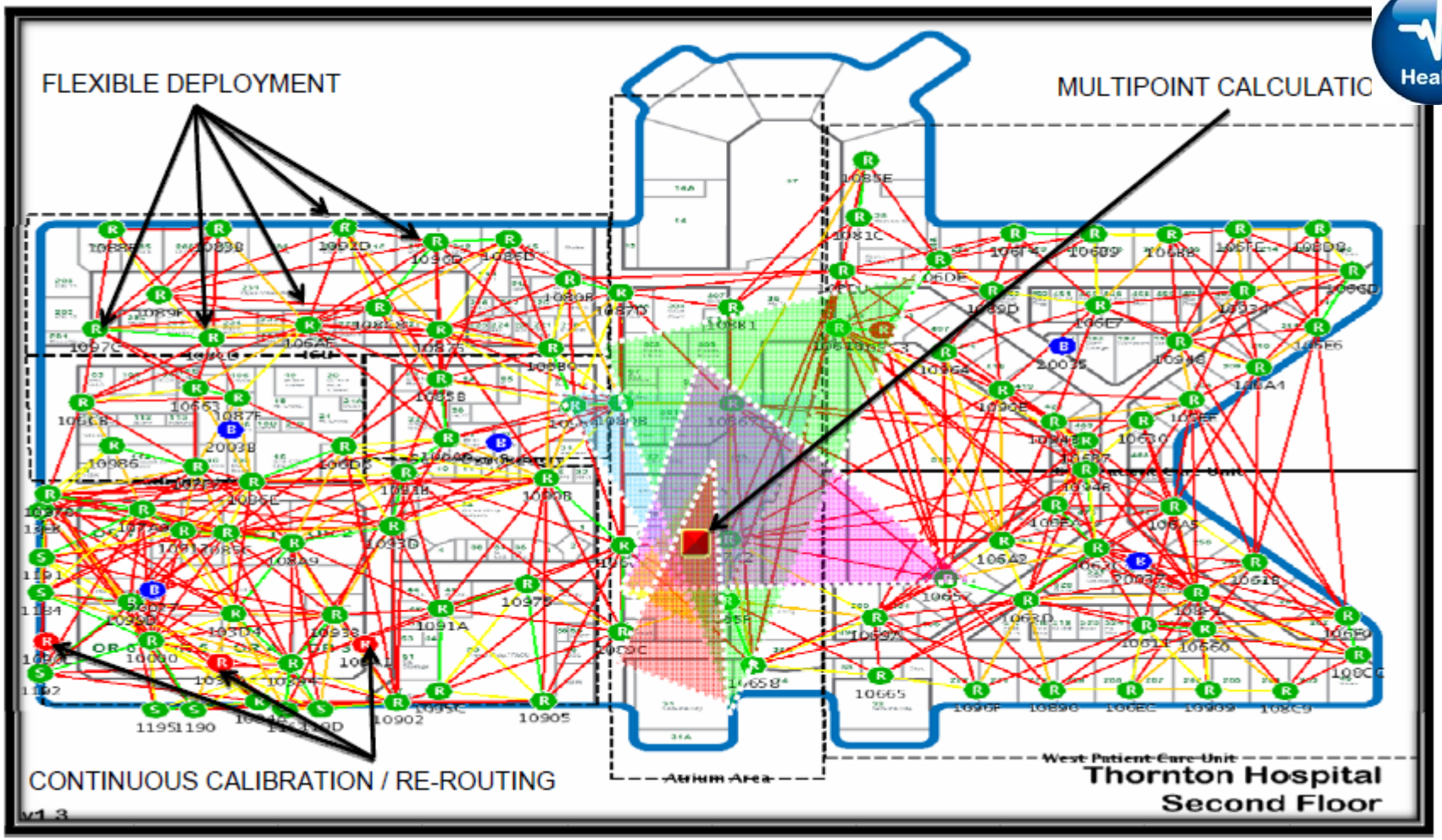
Hospital Network Deployment



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Awarepoint Return on Investment Datapoints

- Increasing asset utilization – 60%
- Increased patient satisfaction – 73rd to 99th percentile
- Reduced equipment rental – 150,000 USD / per year
- Lost assets reduction – 14.2% to 0%

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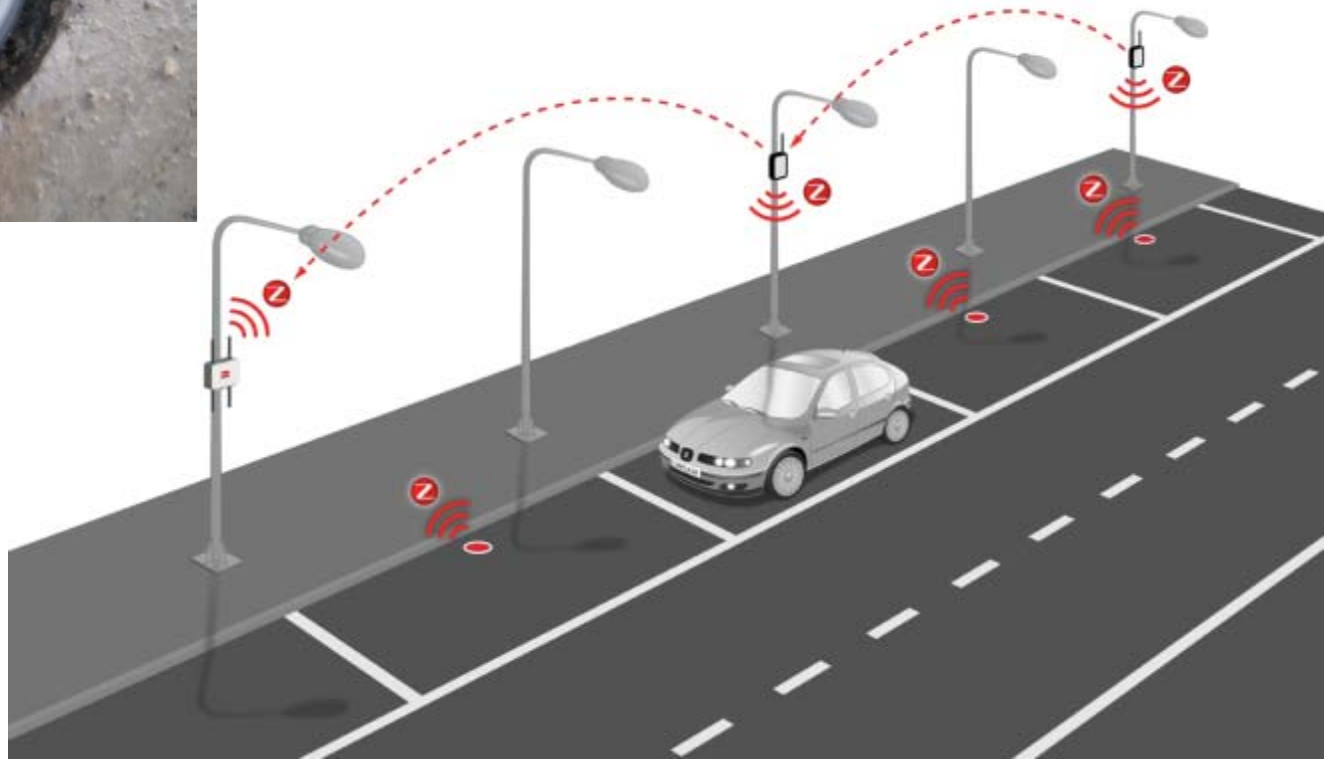
Using ZigBee IoT for Smart Parking – Street Side



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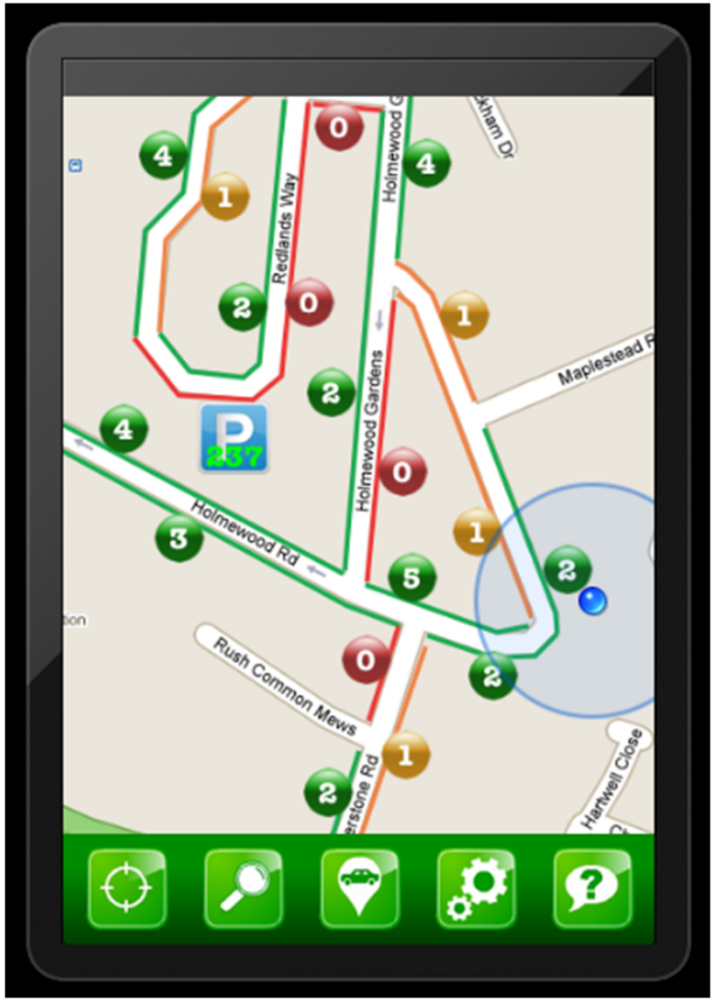

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ON World: ZigBee Will Lead the Fixed Wireless Sensor Network Market to 1 Billion Units in 2018

- "With its dominance for smart lighting assured, ZigBee is poised to drive the fixed Wireless Sensor Network (WSN) market to 1 billion annual unit shipments within the next five years."
- WSN chipsets for lighting controls will reach 100 million annual units within the next decade.
- WSN chipsets for home automation and entertainment will increase by nearly 1400 percent between 2011 and 2016.

- Source: ON World: "802.15.4 & ZigBee: Expanding Markets, Increasing Threats"

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Big Data and Analytics

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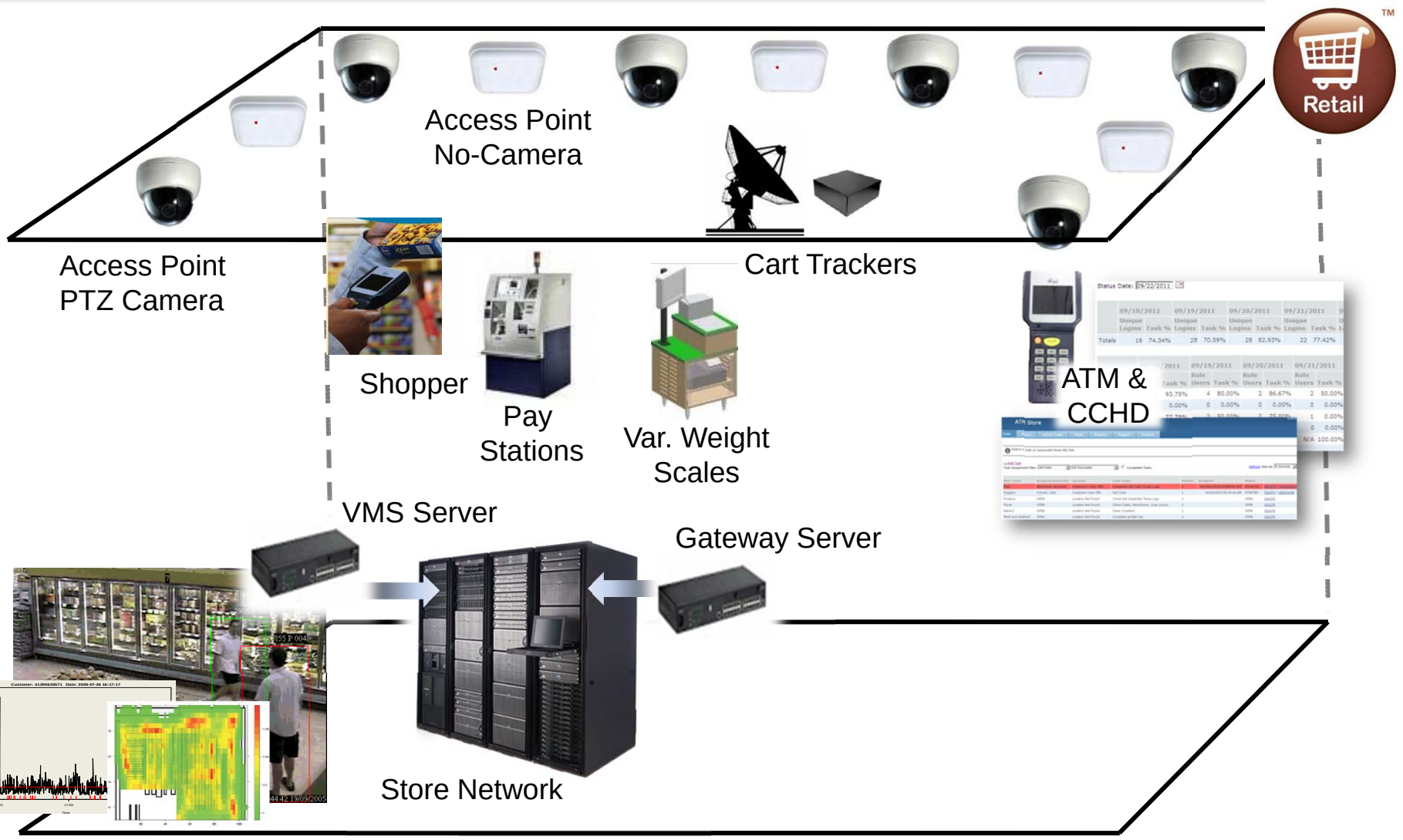
ZigBee Retail Services



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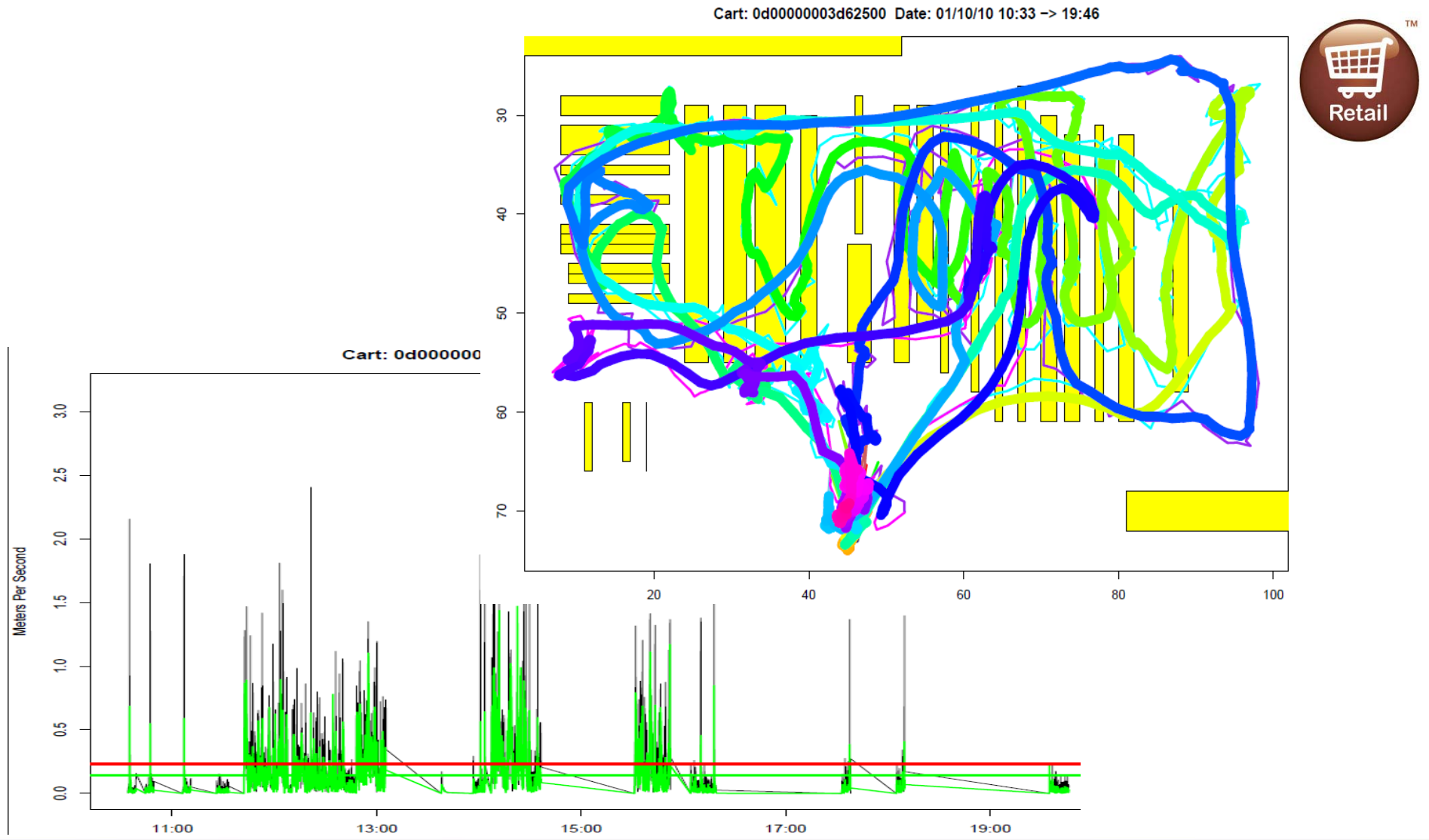
Cart Tracking to Enhance Merchandising & Marketing



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Value of Connected Customers

- Microsoft: $2,000 per customer
- Amazon: $4,500 per user (over ten years)

- Google: $3,200 per user

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Questions / Discussion

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