



# ZigBee Health Care

October 2011  
ZigBee Alliance  
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# Wireless Sensors in Health Care



# ZigBee Health Care

- **ZigBee Health Care sets the standard for low power wireless monitoring & management in:**
  - low-acuity healthcare
  - aging independence
  - wellness & fitness
  - patient and asset tracking
- **Large and growing eco-system**  
more than 30 ZigBee member companies are also member of the Continua Alliance
- **ZigBee Health Care included in Continua Alliance's "2010 Guidelines" as low power local area network (LAN) standard for WPAN applications**

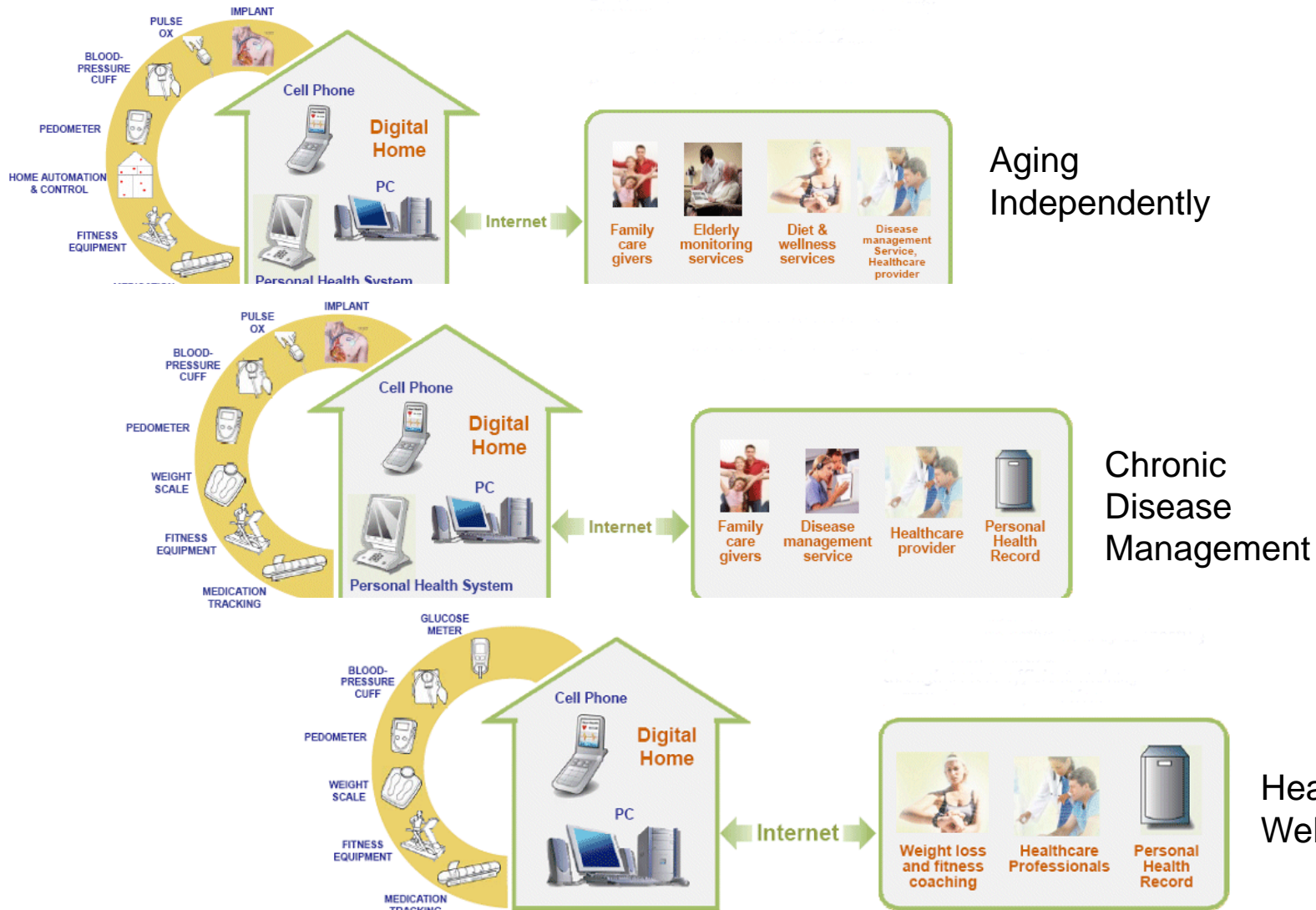




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# Targeted Applications





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# Aging Independently

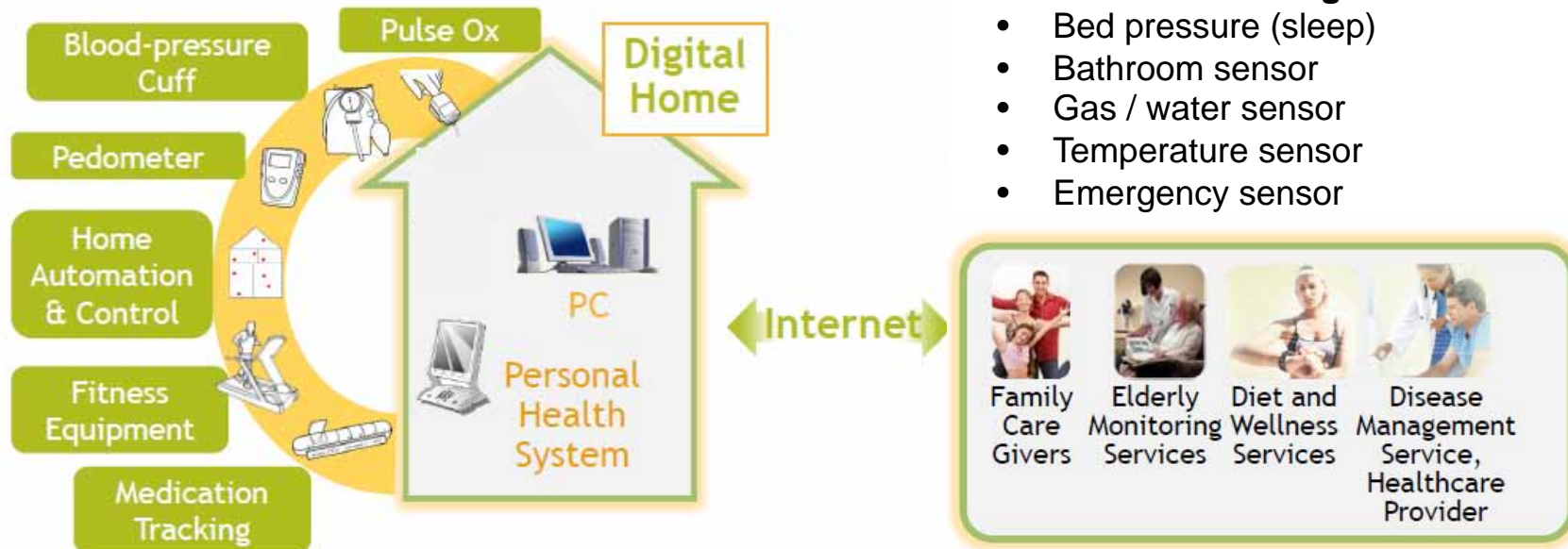




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# Aging Independently Use Case\*



## Basic life monitoring:

- Bed pressure (sleep)
- Bathroom sensor
- Gas / water sensor
- Temperature sensor
- Emergency sensor

## System Benefits:

- Involve family members
- Allow remote analysis & care
- Provide integrated view
- Encourage early detection
- Reduce costs

## System Requirements:

- Whole home coverage
- Support for IEEE11073 data models
- Communication to Health Care provider
- Low cost
- Long battery life
- Home control information access

\* Courtesy of Continua Health Alliance



# Health Care Facility Opportunities

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- ***Independent Living:*** Either Stand-Alone or Integrated with higher levels of care (not Including At-Home care)
  - 25,000 Facilities serving 1.475M Seniors
  - \$141.6M Revenue potential per year in USA for E-call pendant @ \$8.00 per/mo/per resident
- ***Assisted Living:*** ‘Medium Level’ of Care, Available when needed
  - 36,000 Facilities Serving 900,000 Seniors
  - \$229.5M Projected spending in USA on Fall prevention & E-Call/Nurse call/Comm



# Health Care Facility Opportunities

- ***Skilled Nursing: Highest Level of Care outside of Hospital - Classic 'Nursing Home'***
  - 17,000 of Facilities serving 1,500,000 Senior Residents
  - \$937M in projected spending in the USA on E-call, Wandering, Fall Prevention and Incontinence
- ***Continuing Care Retirement Centers: large scale “sub-division” communities. Enter fully Independent with support and social options – age into Assisted living and on to skilled nursing care all within the same community***
  - 1,900 CCRC locations serving 725,000 residents with a E-Call/ Duress market potential of \$69.6M



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# Assisted Living

## Facility

Smoke Detectors



Blood Pressure Meters



Weighing Scales

## Residents



Positioning Straps



Panic Button Fall Detectors



## Staff



Mobile Phone



Central Monitoring Station





# ZigBee Health Care in Aging Independently



- Enables reliable remote patient monitoring and maintains freedom of mobility
- Offers safety and activity monitoring sensors
- Provides real-time location capabilities
- Full support for IEEE 11073 device specialization profiles
- Support for:
  - Medical devices such as glucometer, pulse oximeter, electrocardiograph, weight scale, thermometer, blood pressure monitor, respirometer
  - Non-medical devices including social alarm device, personal activity monitor, pill minder, independent living activity hub, fitness equipment
- Long battery life from low-cost coin cells for wearable devices
- Wireless range up to 70m indoors and 400m outdoors
- Networking flexibility to cover entire homes/campuses
- Highly scalable solutions for many more devices to add
- Integrates control and monitoring devices for lighting, security, occupancy, motion detection and convenience



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# Facility Management





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# Health Care Facility Management Issues

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- **Patient Safety/Elopement**
  - Improving Quality and Reducing Risk
- **Workflow Optimization**
  - Cost Control
  - Revenue Generation
  - Health Care Value Equation

*Quality of Care \* (Revenue/Cost) – Risk*

- **Asset Management**
  - Reducing Rental Costs
  - Improving Asset Utilization
  - Reducing Lost/Misplaced/Stolen Items
  - Environmental Sensing (Temp, Humidity)



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# Real Time Awareness Solution

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



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





# Awarepoint Return on Investment Datapoints

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



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# Services Opportunities



# Enablers for Services

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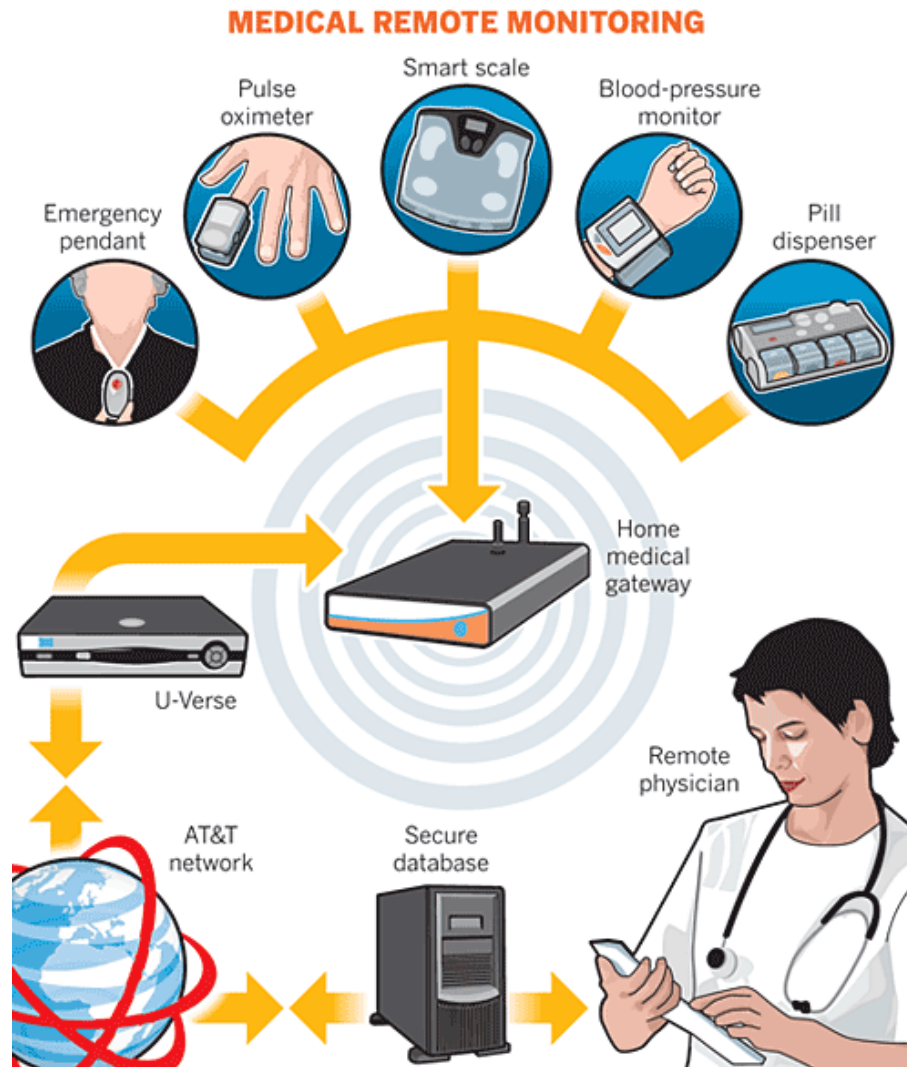
- **Increased demand for monitoring and chronic disease management**
- **Increasing costs of providing services**
- **Regulatory approval for remote monitoring**



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# Providing Services Remotely

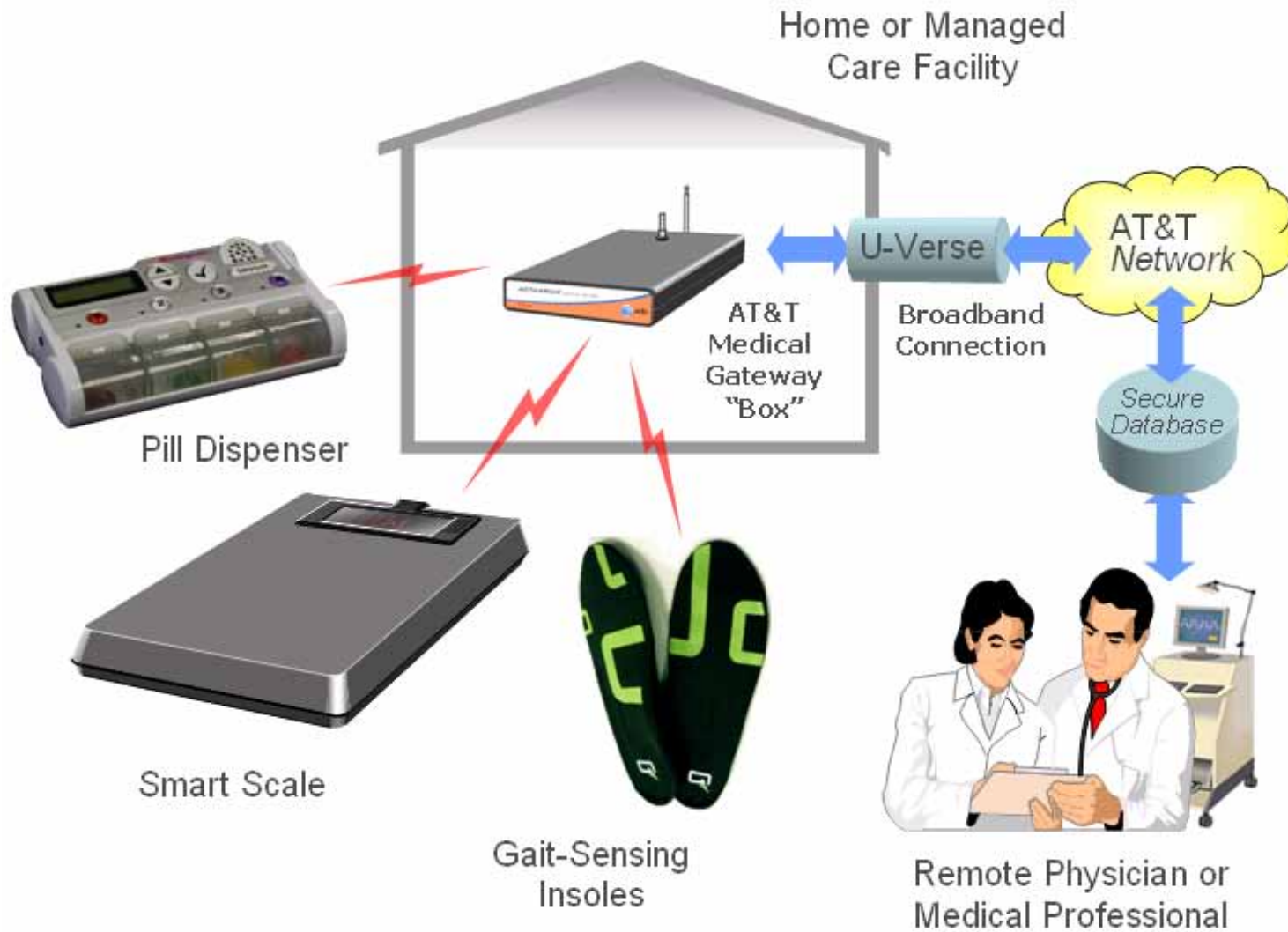




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# Remote Monitoring





## For More Information

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[www.zigbee.org](http://www.zigbee.org)

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