



クラウドを利用したワイヤレスM2M システム構築プラットフォーム

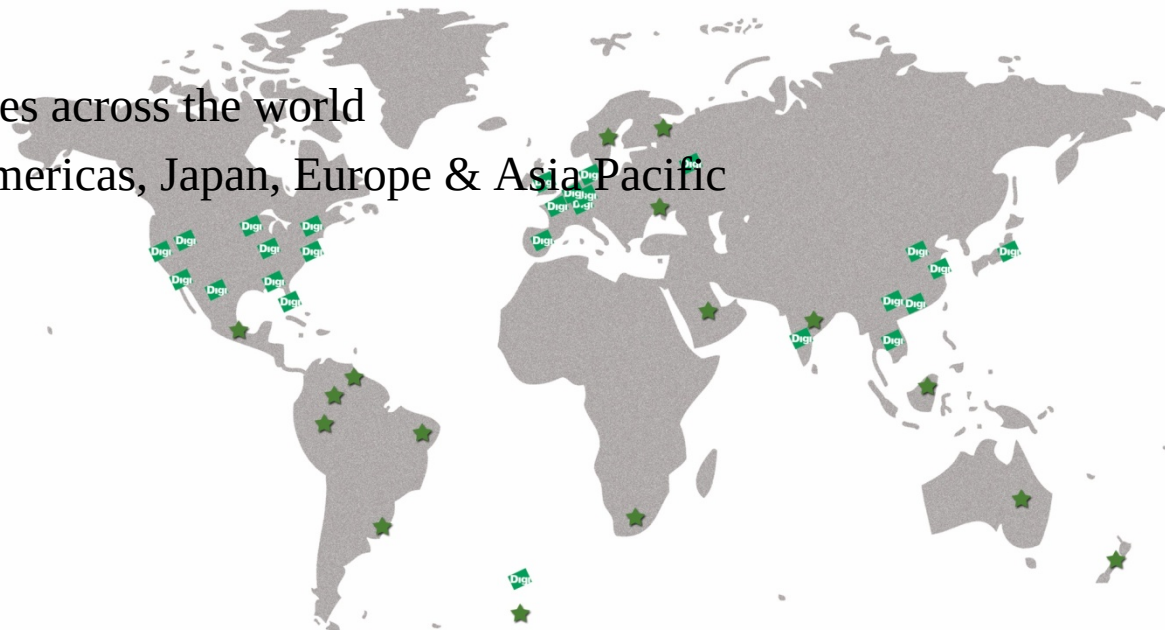
江川 将峰 / Shoho Egawa

Digi International K.K.



Digi International

- Founded in 1985 as DigiBoard, public offering in 1989... NASDAQ DGII
- Headquartered in Minnetonka, Minnesota
- \$166M in Revenue (FY2009) , -10.3% over FY2008
 - Cash Position: \$80 Million, with no Bank Debt
 - By 2013, Revenues will be in excess of \$500M
- Global
 - 640 employees across the world
 - Offices in Americas, Japan, Europe & Asia Pacific



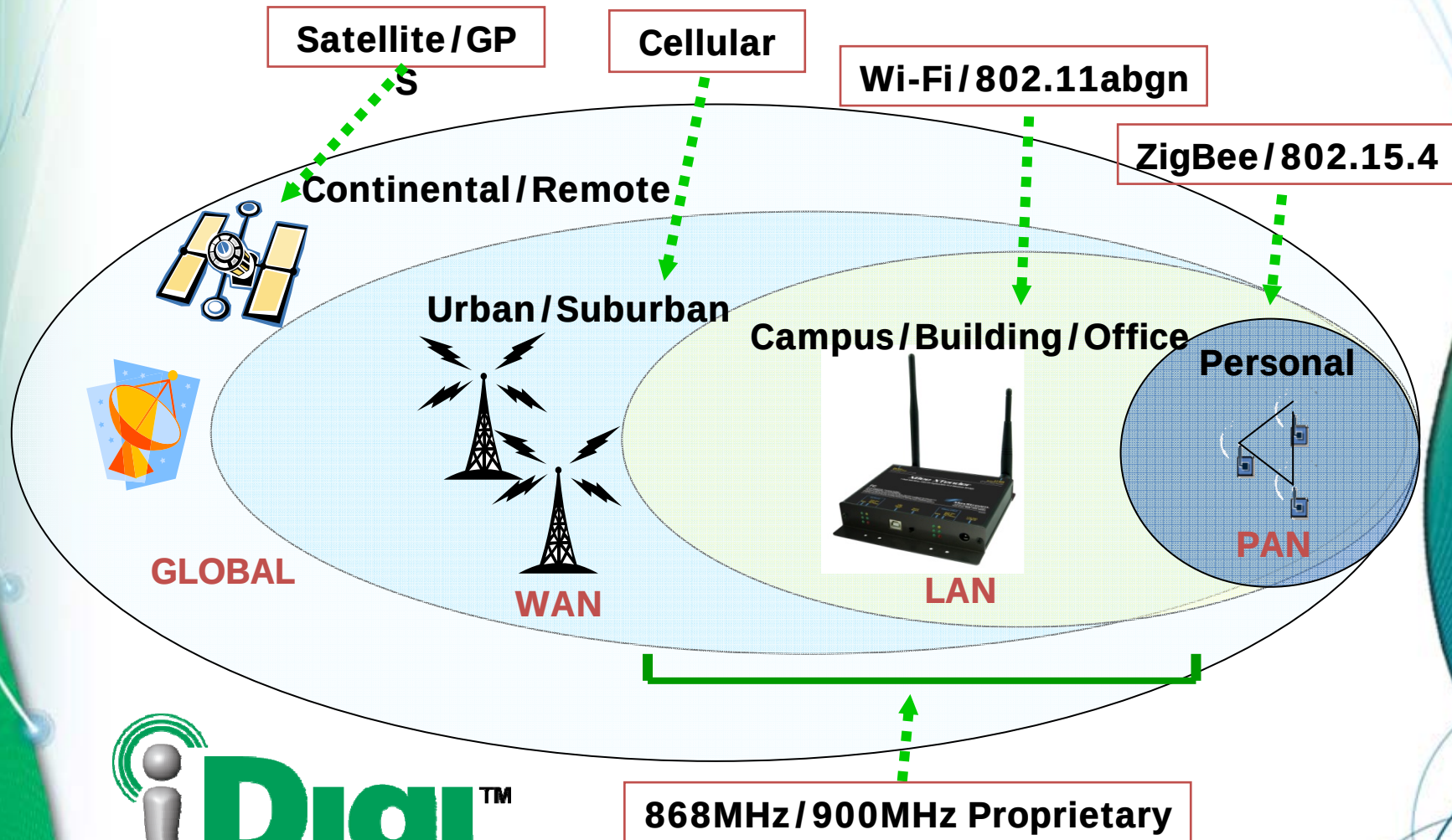
Digi

M2M Device Networking



- Strong technical expertise in Ethernet, Serial, USB & Wireless- Satellite, Cellular, Wi-Fi, 802.15.4, ZigBee/Mesh, Proprietary 900MHz of Hardware, Software and Service

Digi Wireless Products



Digi

WPAN

ZigBee/802.15.4



XBee アダプタ
ZigBee/802.15.4



XBee モジュール
ZigBee/802.15.4



1mW出力

50mW/10mW出力



2mW出力

XBee ウォールルータ
ZigBee



WLAN

802.11a/b/g/n

Connect Wi-SP
802.11b アダプタ



ConnectCore Wi-i.MX51
Cortex-A8 ベース 802.11a/b/g/n
モジュール



Connect Wi-9P 9215
ARM9 ベース 802.11a/b/g
モジュール



Connect Wi-ME
ARM9 ベース 802.11b/g/n
モジュール



Connect Wi-Wave
802.11a/b/g
PCI Express mini card
モジュール

WWAN 2G/3G Cellular



TransPort WR
Enterprise Grade
セルラールータ



ConnectCore 3G
Ethernet to Cellular



Connect WAN
Small, cost-optimized
セルラールータ



ConnectPort X
ZigBee ゲートウェイ

Digi

Satellite



Digi m10

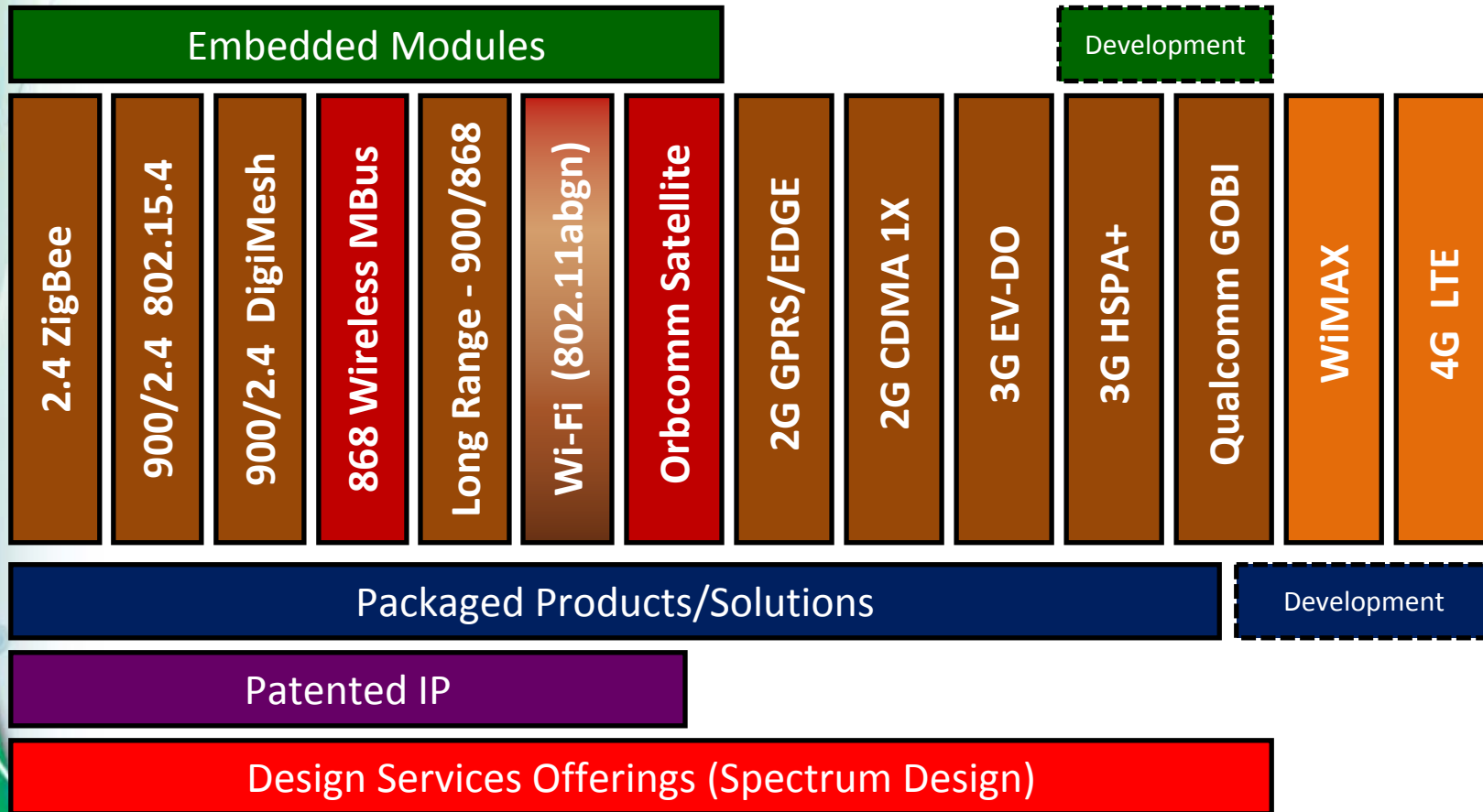


Digi m100



Digi RTU

Wirelessly Enable Everything





Drop-in Network

ZigBee System Platform



Drop-in Network Products

XBeeモジュール

XBee アダプタ
 -RS-232, RS-485, AIO,
 DIO, 1-wire(Sensor)
 -USB, RS-232PH
 -USB Dongle Type

XBee ウォールルータ

XBee センサ
 -内蔵温度、湿度、光センサ

Embedded
Modules

RF
Adapters

Software
Tools

Routers,
Extenders
& Smart
Plugs

Cellular
Routers

DiN

RF
Sensors

Gateways

ConnectPort X
 -XBee to Ethernet, Cellular, Wi-Fi
 -NEMA 4/IP66 enclosure



XBeeモジュール



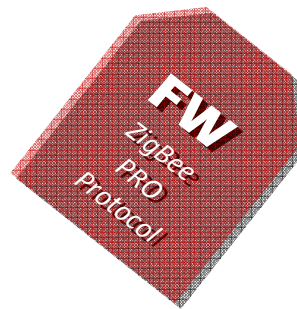
XBee RF モジュール

- 4つのアンテナオプション
RPSMA, Chip(PCB), Wire, U.FL
- UART, DIO, AIO
- Pin compatible

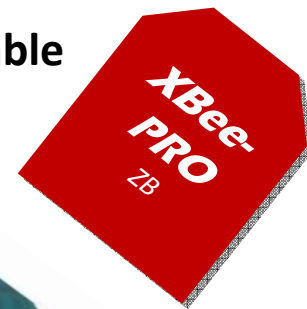
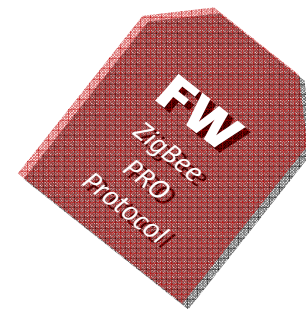
Product Name	Frequency	Power Output	Indoor Range Outdoor Range	Protocol
XBee	2.4 GHz	1 mW	40 meters 120 meters	802.15.4 ZigBee-PRO Smart Energy DigiMesh
XBee-PRO	2.4 GHz	50 mW	90 meters 3200 meters (1500 meters/10mW)	802.15.4 ZigBee-PRO Smart Energy DigiMesh

電波法認証取得済み: 日本、北米、EU、etc

New XBee-PRO ZB & Programmable XBee-PRO ZB



Cost Reduction



Programmable

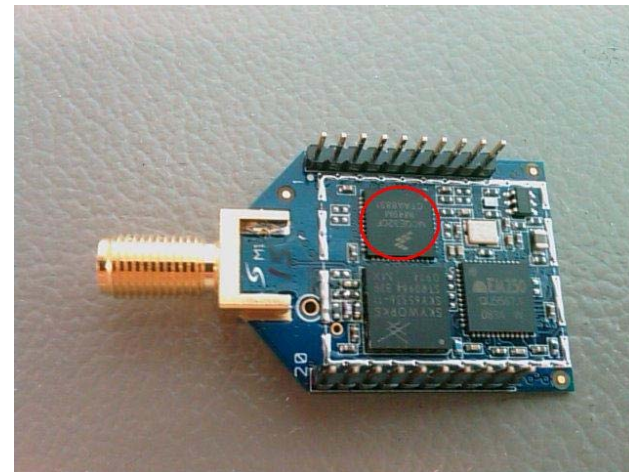


Programmable XBee-PRO ZB

- An onboard microcontroller with memory capacity (32k flash/2k ram) to enable customization

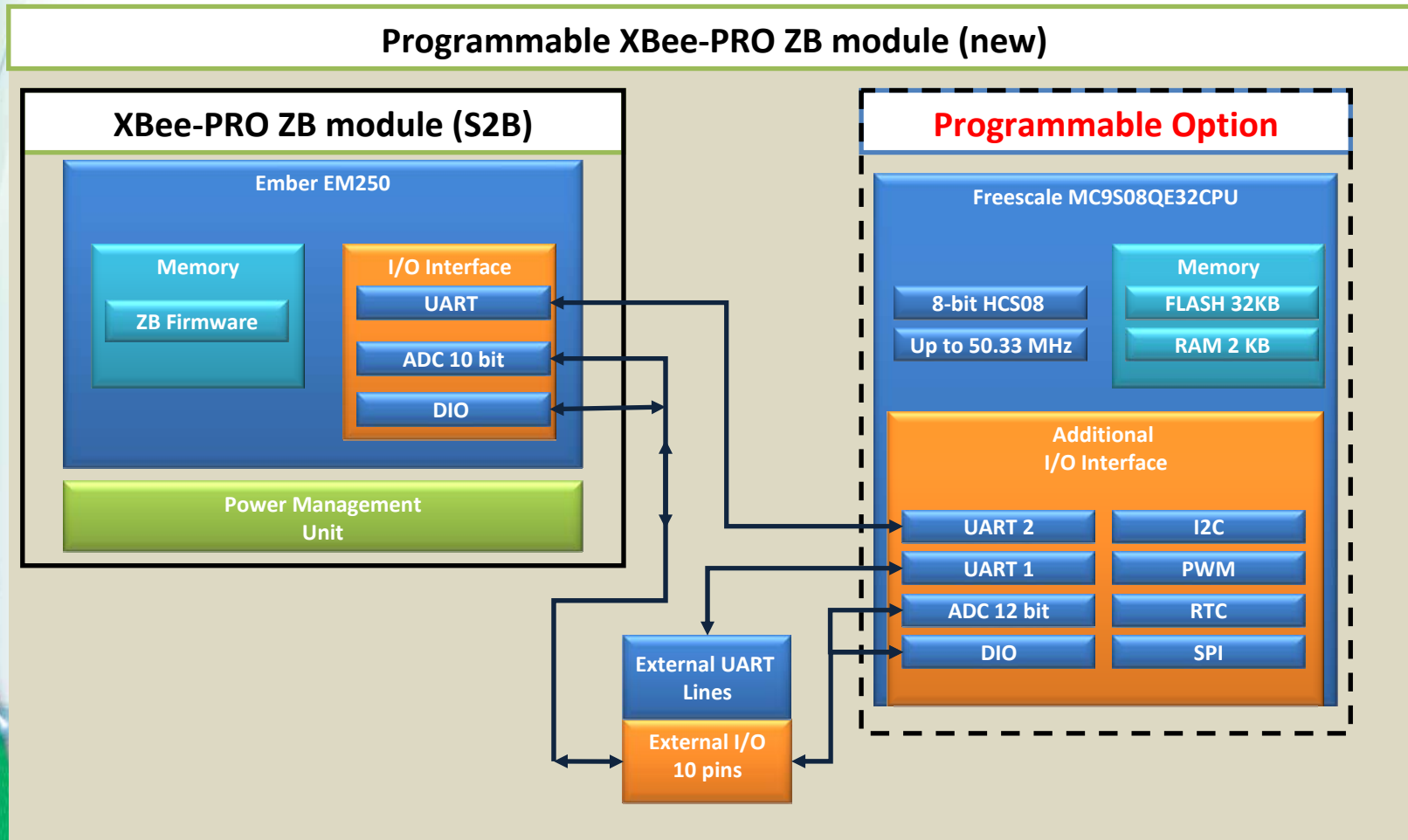


- S2B

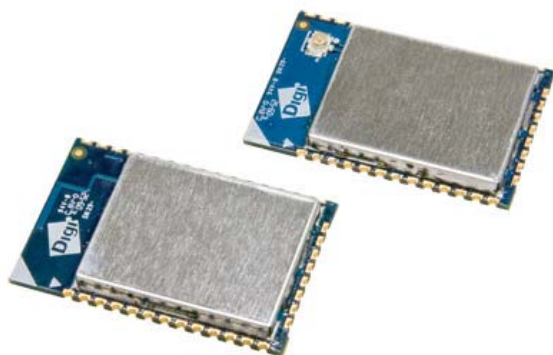


- S2B Programmable

System Diagram for Programmable XBee-PRO ZB



New XBee & XBee-PRO SMT

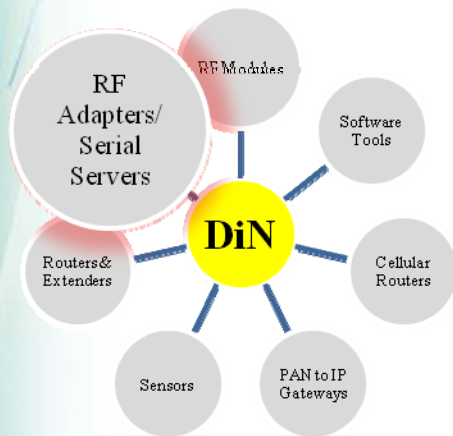


XBee SMT モジュール

- PCB, U.FL, PAD antenna option
- SPI(1Mbps), UART, DIO, AIO
- Programmable coming

Product Name	Frequency	Power Output	Indoor Range Outdoor Range	Protocol
XBee	2.4 GHz	3 mW	60 meters 1200 meters	ZigBee-PRO Smart Energy 2.0
XBee-PRO	2.4 GHz	50 mW	90 meters 3200 meters	ZigBee-PRO Smart Energy 2.0

RF アダプタ



XBee アダプタ

- USB
- RS-232PH



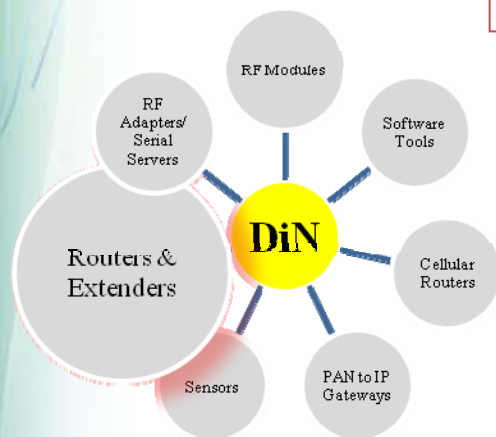
XBee アダプタ

- RS-232
- RS-485
- Analog IO
- Digital IO
- 1-wire(Sensor)



XStick

ルータ/ブリッジ



内蔵アンテナ

ユニバーサル プラグイン
(swappable US, UK, EU,
Japan, Australia plugs)

シンプル コードレス プラグイン
ZigBee PRO ルータ

リセットボタン

XBee ウォール ルータ

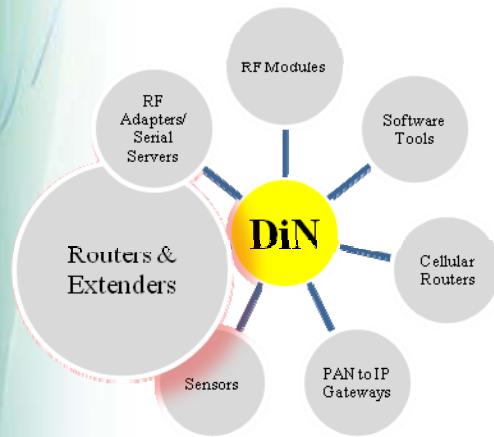
状態表示LED

温度、光センサ内蔵

XBee-PRO 60mW/10mW
with Router function

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XBee Smart Plug

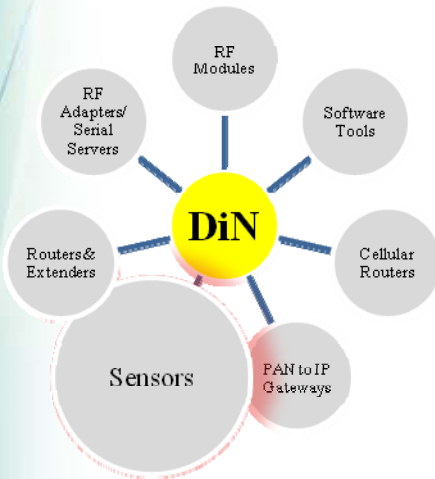


XBee Smart Plug

- Wall Router + Power Monitoring
- Now: U.S. version
- CY10: Japan version coming

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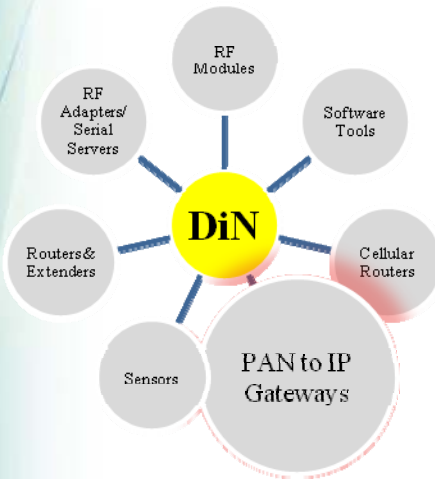
センサ



XBee センサ
-内蔵温度、湿度、光センサ
- バッテリ駆動

Watchport センサ with XBee 1-wire アダプタ
-温度センサ、湿度センサ、距離センサ、水検知センサ、加速度センサ

ゲートウェイ



ConnectPort X4

- XBee to Ethernet, Cellular, Wi-Fi
- 1 PCIe slot



ConnectPort X2

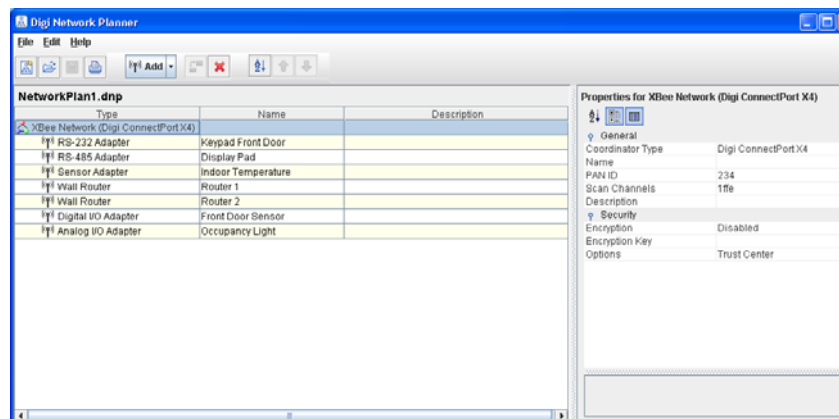
- XBee to Ethernet or Wi-Fi
- W-MBus to Ethernet
- SE version
- Consumer Grade w/Plastic Enclosure



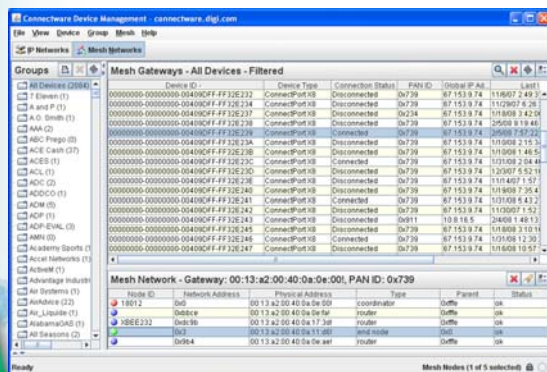
ConnectPort X4 NEMA

- XBee to Cellular
- NEMA 4/IP66 enclosure

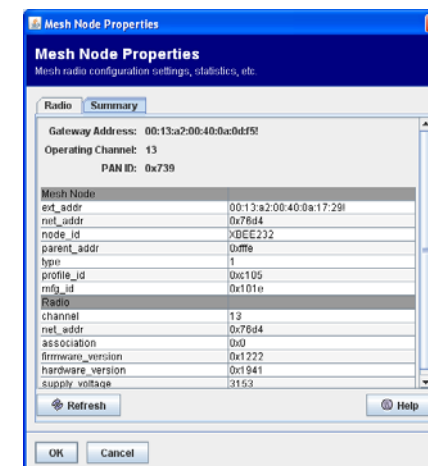
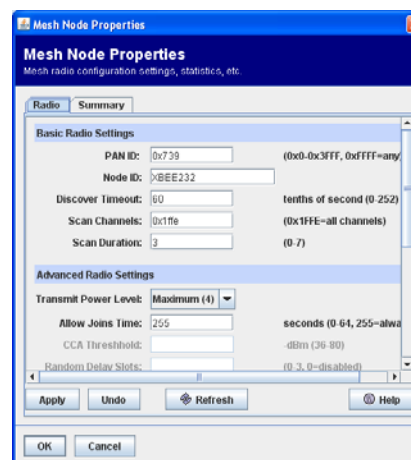
ソフトウェア ツール



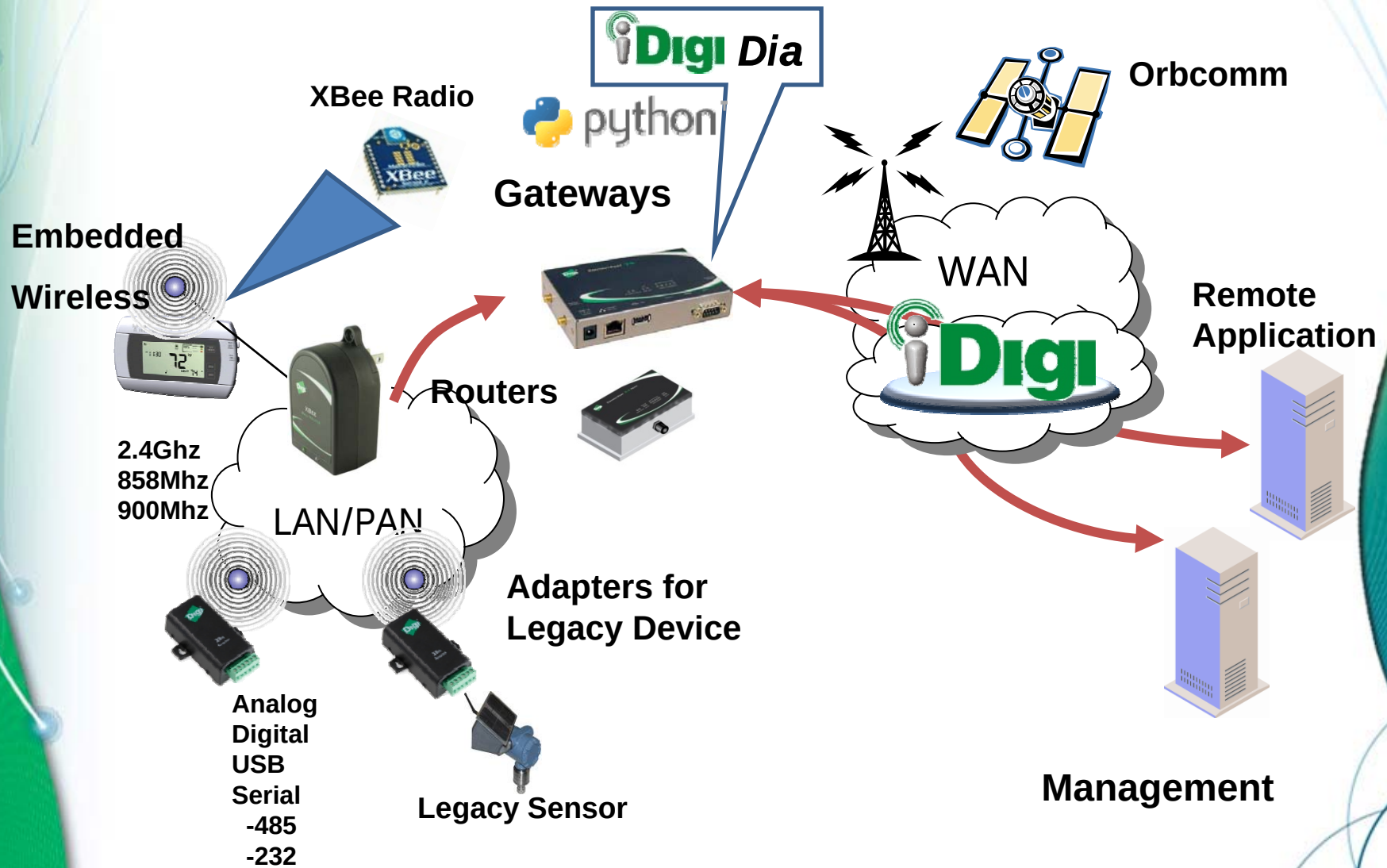
Network Planner & Commissioning Tool



Digi Connectware Manager
-Enterprise class network management with PAN extensions



Drop-in Network Architecture





iDigi

Wireless M2M クラウドサービス



www.digi.com

Digi Solutions Lower the Barriers

BARRIERS TO M2M

Business
Application
s



**Application
Access**

Getting
remote
device data
to
enterprise
application
s is difficult
and
expensive

**Device
Management**

Device
Management
is complex
and difficult

**Network
Integration**

Integrating
multiple
network
types
(Zigbee, RF,
Cellular,
Legacy) is
hard

**Device
Connectivity**

Connecting
Devices
requires
M2M
expertise
and low-level
programmin
g

Remote
Information
Assets



← **TIME - TO - MARKET** →

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iDigi in a Picture

Business Applications

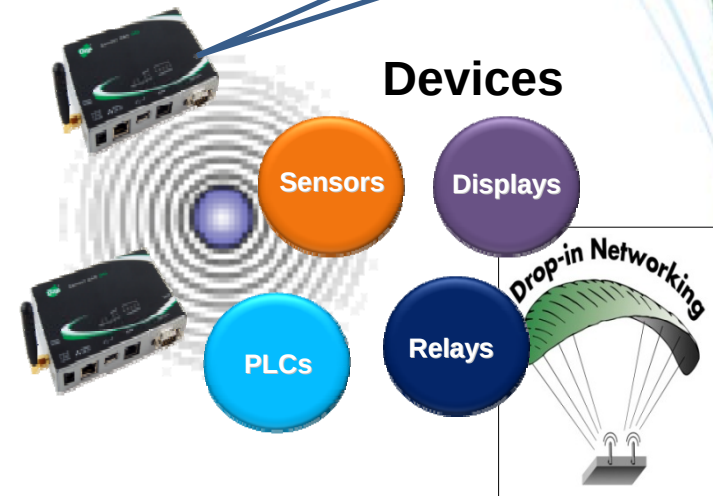


iDigi PLATFORM



Digi Dia

Devices



**Use as
Information**

**Manage &
Deliver**

**Connect to
Remote Assets**

Digi Professional Services (hardware, site survey, optimization)

Digi's Wireless Tribal Knowledge



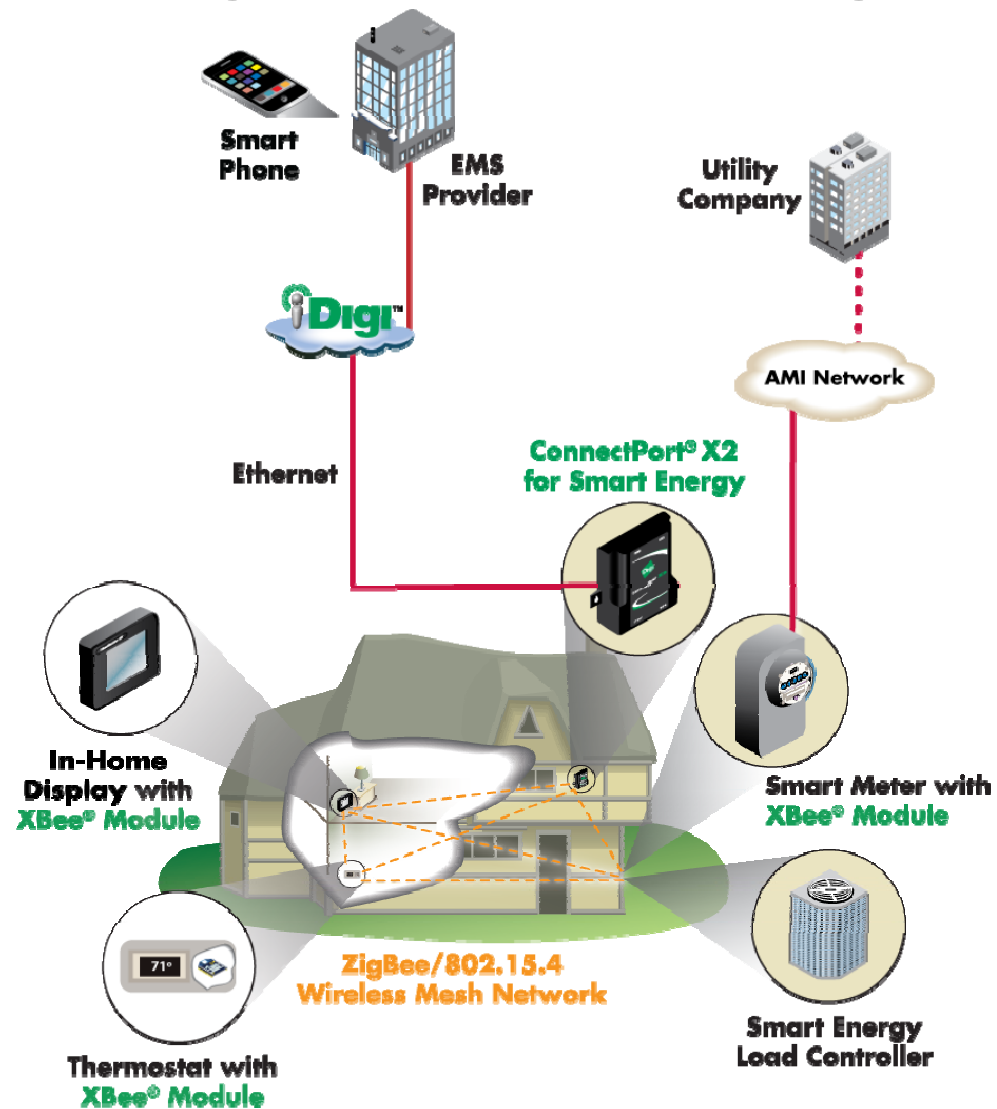
Applications with iDigi Cloud Service



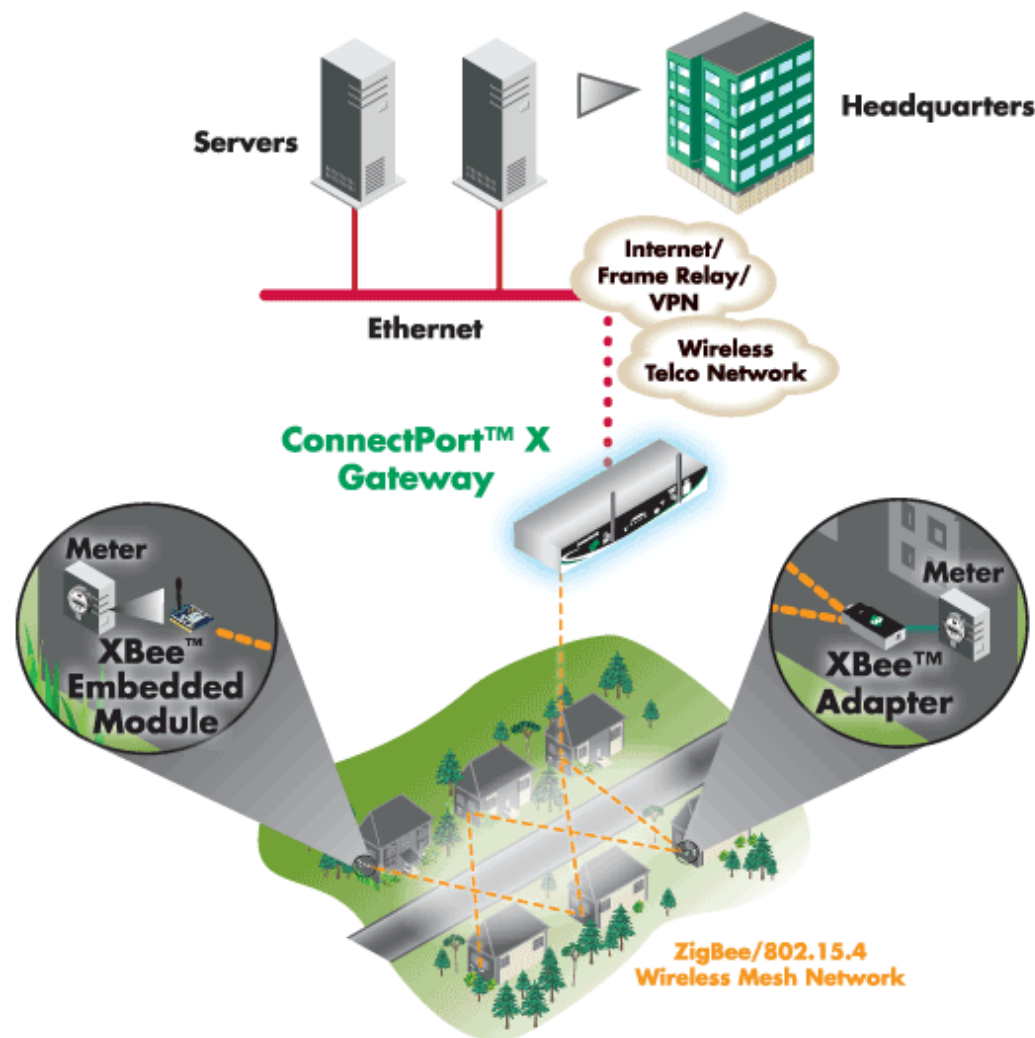
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ZigBee Smart Energy



Smart Meter





Energy Management Services

My Account Help Sign Out

Dashboard My Energy Plan Review Scheduled Actions

Your energy expenses heads up display
This page keeps you up to speed on what's going on with your account.

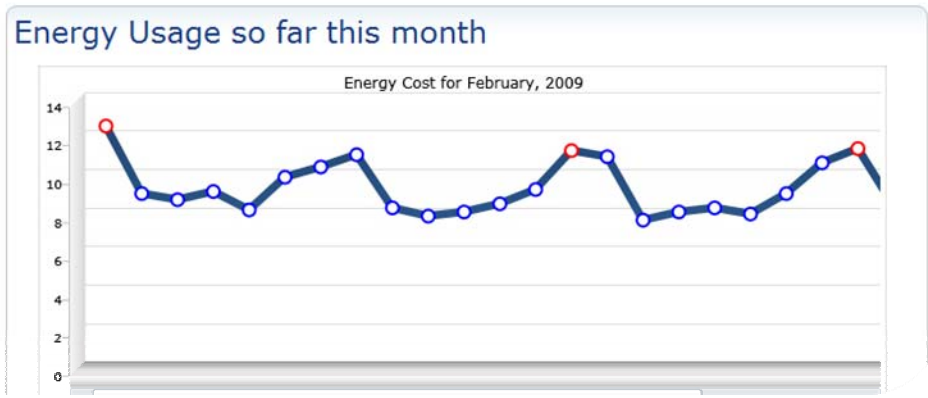
Current Energy Expenses:
This Month's Plan: **\$250.00**
Your Total to Date: **\$263.73**
Estimated Monthly Total: \$275.60

Oops... It looks like your plan is at risk this month.
Here are some options to help you get back on track:

Lower your **THERMOSTAT** 2 degrees Savings: \$12.00 **Do it now!**

Dim your **LIGHTS** by 10% Savings: \$4.00 **Do it now!**

Daily Usage		
Date	Usage (kWh)	Cost
2/1/2009	123	\$13.04
2/2/2009	90	\$9.54
2/3/2009	87	\$9.22
2/4/2009	91	\$9.65
2/5/2009	82	\$8.69
2/6/2009	98	\$10.39
2/7/2009	103	\$10.92
2/8/2009	109	\$11.55
2/9/2009	83	\$8.80
2/10/2009	79	\$8.37
2/11/2009	81	\$8.59
2/12/2009	85	\$9.01
2/13/2009	92	\$9.75
2/14/2009	111	\$11.77
2/15/2009	108	\$11.45



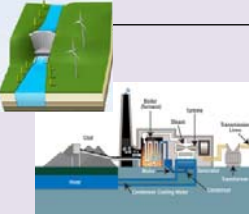
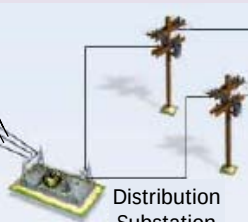
Alternative Energy – Wind

Southwest Wind Power

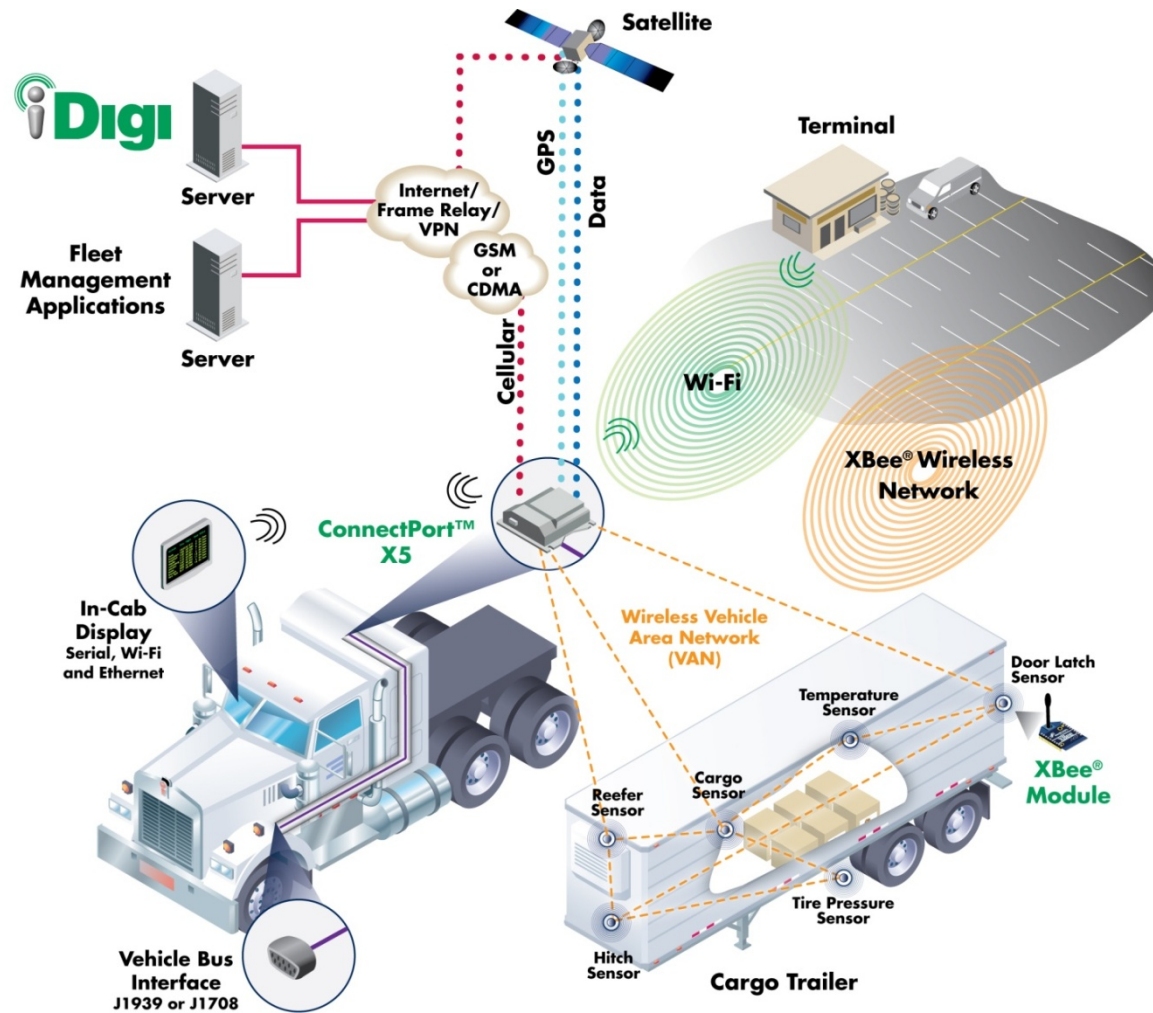
Remote Management & Control



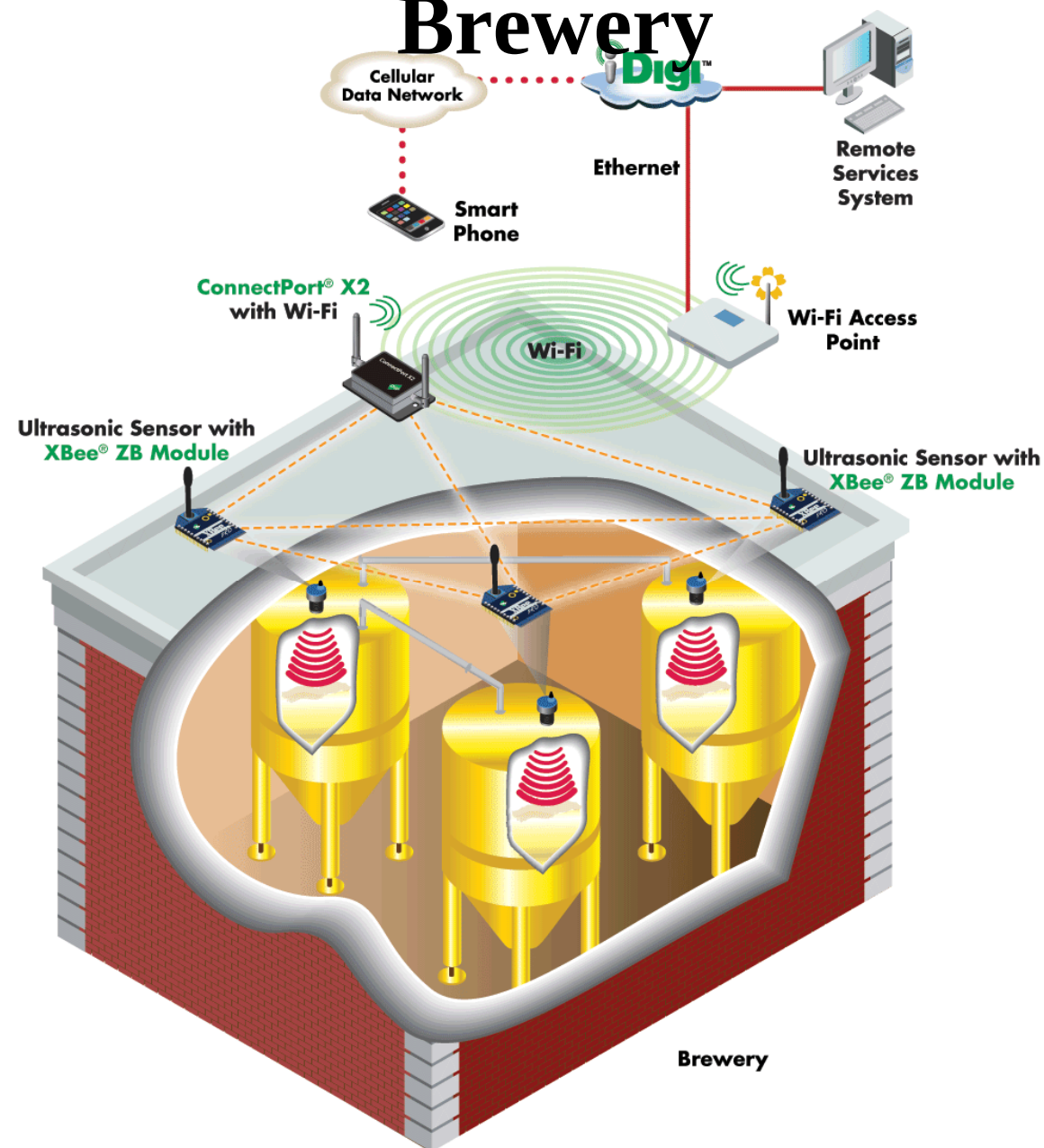
Major Smart Grid investment areas

Generation	Transmission	Distribution	Residential
	 Transmission Substation	 Distribution Substation	 AMI Smart Meters Home energy management systems & devices, and new energy management services
Renewable energy - Utility-scale - Distributed	Transmission substation automation	Distribution substation and feeder network automation	Commercial  AMI Smart Meters Sub-metering & cost allocation Emergency backup power Commercial energy management systems, and new energy management services
Efficient storage Generation optimization Generation protection & control	Superconducting transmission lines Reliability optimization Transmission line protection & control	Distribution protection and control Fault diagnostics and analytics Advanced Meter Infrastructure (AMI)	Industrial  Asset monitoring Peak demand management and load shedding New energy management services

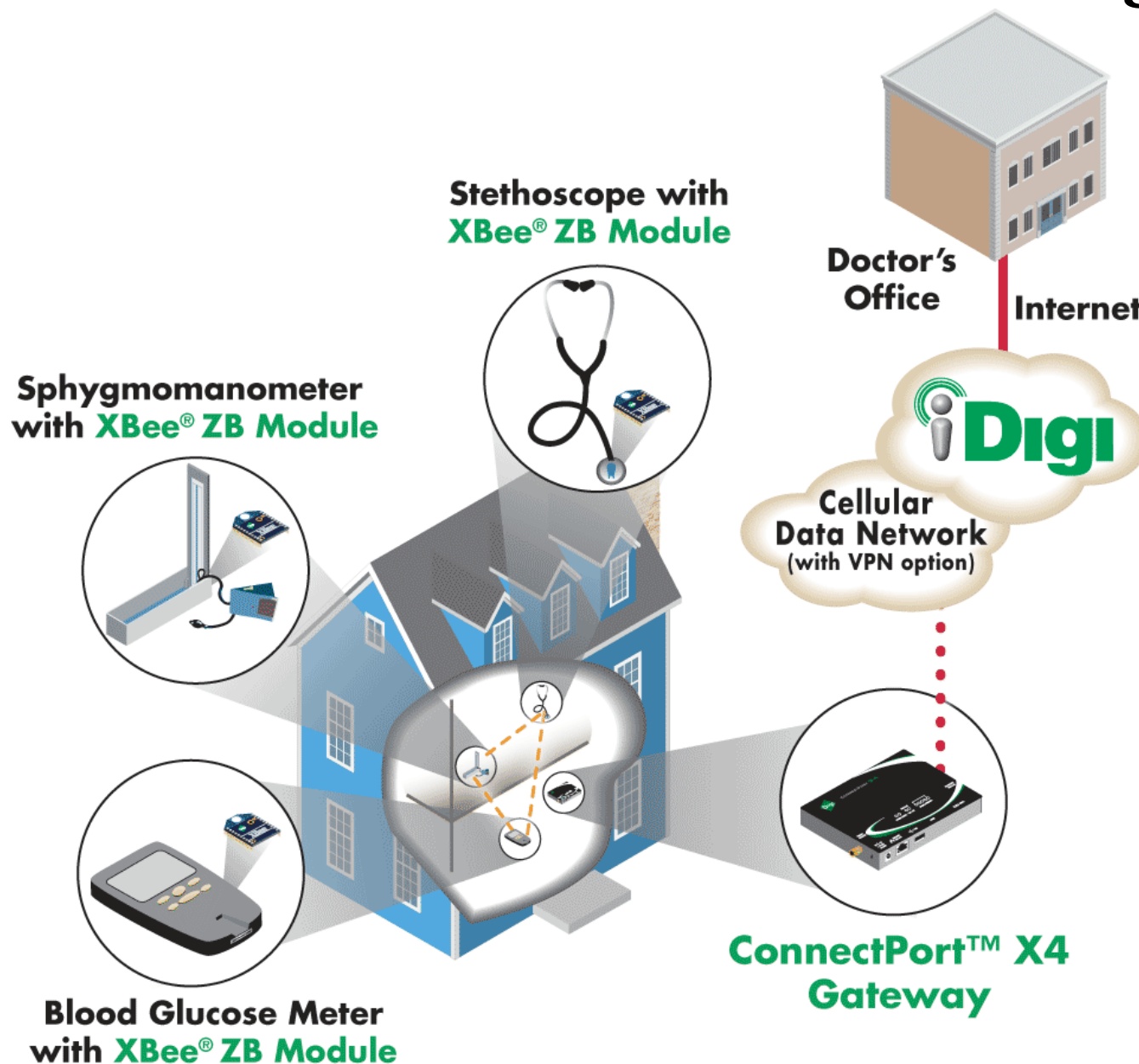
Fleet Management



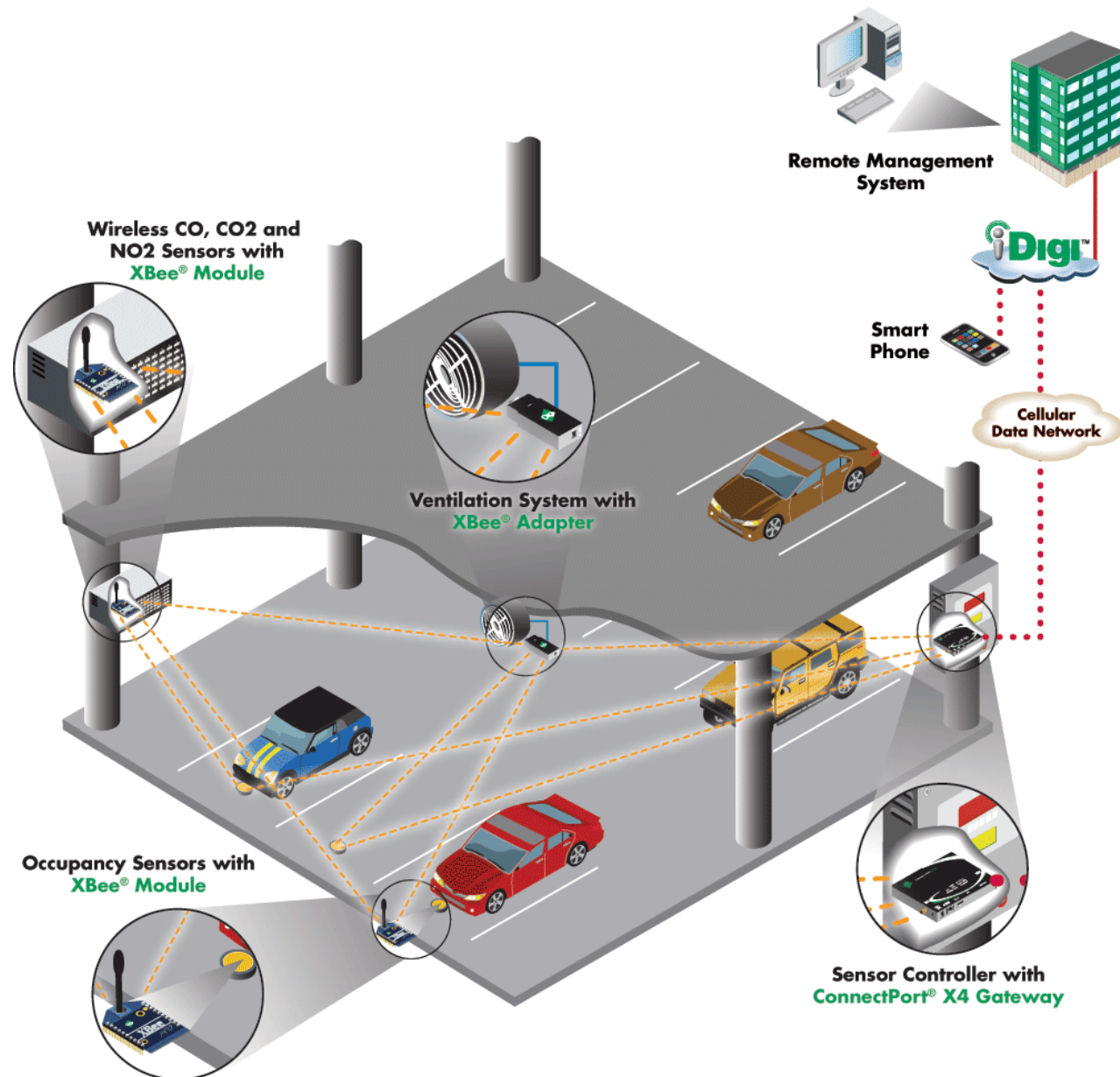
Measuring Tank Levels in a Brewery



Home Health Care Monitoring



Digi Automating Parking Structure System



Why Digi?

- 世界中での多くの実績
- 簡単ネットワークインテグレーション
 - システムプラットフォームの提供
 - オール イン ワン開発環境
 - 認証取得済み製品の提供
 - 北米、EU、日本、etc
- 短期開発・短期構築
- 豊富なラインナップ
- ローコスト キット プログラム
- 小ロット提供
- マイグレーション パス
 - システム製品から組込み製品へ
 - 短距離 -> 長距離
 - 国内仕様 -> 海外仕様、2.4GHz -> 900M/868MHz
 - 802.15.4、ZigBee、DigiMesh
- 長期製品供給
- 産業機器向けグレード
 - 工業温度範囲
 - NEMA/IP66対応



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Making Wireless M2M Easy

www.digi-intl.co.jp

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Gardening, the iDigi Way

