The SmartConnect Gateway™
Industrial Internet of Things (IIoT)
Sensor Data Automation and Analytics

SMARTCONNECT
INTELLIGENCE AT WORK

Air Quality Brief

New Jersey Clean Air Council
April 5, 2016 Public Hearing

What Can Be Learned from Low Cost Air Quality Monitors:
Best Uses and the Current State of Technology

Who We Are

- Smart Connect Technologies, Inc. was formed to leverage its Data Automation and Analytics gateway software platform and the opportunity in the IIoT market.

- The SmartConnect Gateway™ is:
  - Based on our patent-pending GPAC (General Purpose Automation and Control) System,
  - The result of significant investment and years of development, and
  - Has garnered numerous industry awards with multiple customers internationally

- Smart Connect has a broad partnership with IBM

  - Sales, Channel and Joint Marketing, Teaming
  - Leverages IBM' Cloudant, DashDB, Watson Analytics, and Maximo to optimize the value of customer information

- Smart Connect is based in the San Francisco Bay Area and privately held

What We Do

- Smart Connect delivers a SaaS and licensed based Industrial Internet of Things (IIoT) solution that:
  - enables connectivity to any existing industrial equipment or sensor without proprietary protocols
  - aggregates valuable data from multiple disparate devices over wired or wireless networks into a cloud based analytics platform;
  - Improves efficiencies of equipment and personnel

- The SmartConnect Gateway™ solution, with partners IBM, Dell, and Intel, combines Industrial Automation, Big Data and Analytics so decision makers can:
  - model never-before-accessible data from legacy investments in a real-time analytics platform,
  - provide unsurpassed insight into operations
  - optimize performance, reduce costs, and
  - create analytics that enable intelligent decision making at the asset, process and business levels.

Success Breeds Success

IBM's Business Partner of the Future

Provided access to new technology ahead of market release and showcasing at Dell's Silicon Valley Lab

Smart Connect Nominated for the Beacon Award, IBM's Most Prestigious

Featured at IDC's Tech 500 Channel Executive Conference

Smart Connect: Leveraging Installed Base

Smart Connect Technology	**Golden Gate Transit**
▪ Focuses on connecting existing sensors in: • Automation • Control systems ▪ Bridge between: • Legacy sensor systems • Central database • IBM Watson ▪ Charge per sensor per month	▪ **What:** Bus feet management using existing sensors ▪ 1st implementation of Watson analytics in California's public sector ▪ **Result:** Improved fleet management and efficiency

IDC

451 Research Analyst Coverage Initiated in December

SmartConnect and IBM bring data translation and normalization to industrial IoT
CHRISTIAN RENAUD, BRIAN PARTRIDGE
2 DEC, 2015

Smart Connect Target Markets
IoT Value Projections*

Vehicles:

- A **value impact of $210B - $740B per year by 2025**
- Improving safety/security and condition-based maintenance

Manufacturing and Factory Settings:

- A **value impact of $1.2T -$3.7T per year in 2025**
- Operations optimization and predictive maintenance

Cities:

- A **value impact of $930B - $1.7T per year by 2025**
- Improved health and safety

Interoperability is critical – 40% of total value requires different IoT systems to work together

*McKinsey; June, 2015

Value Proposition

- **Accelerate time-to-value** by easily deploying IoT applications for the most common use cases, such as remote monitoring, asset management, and predictive maintenance.
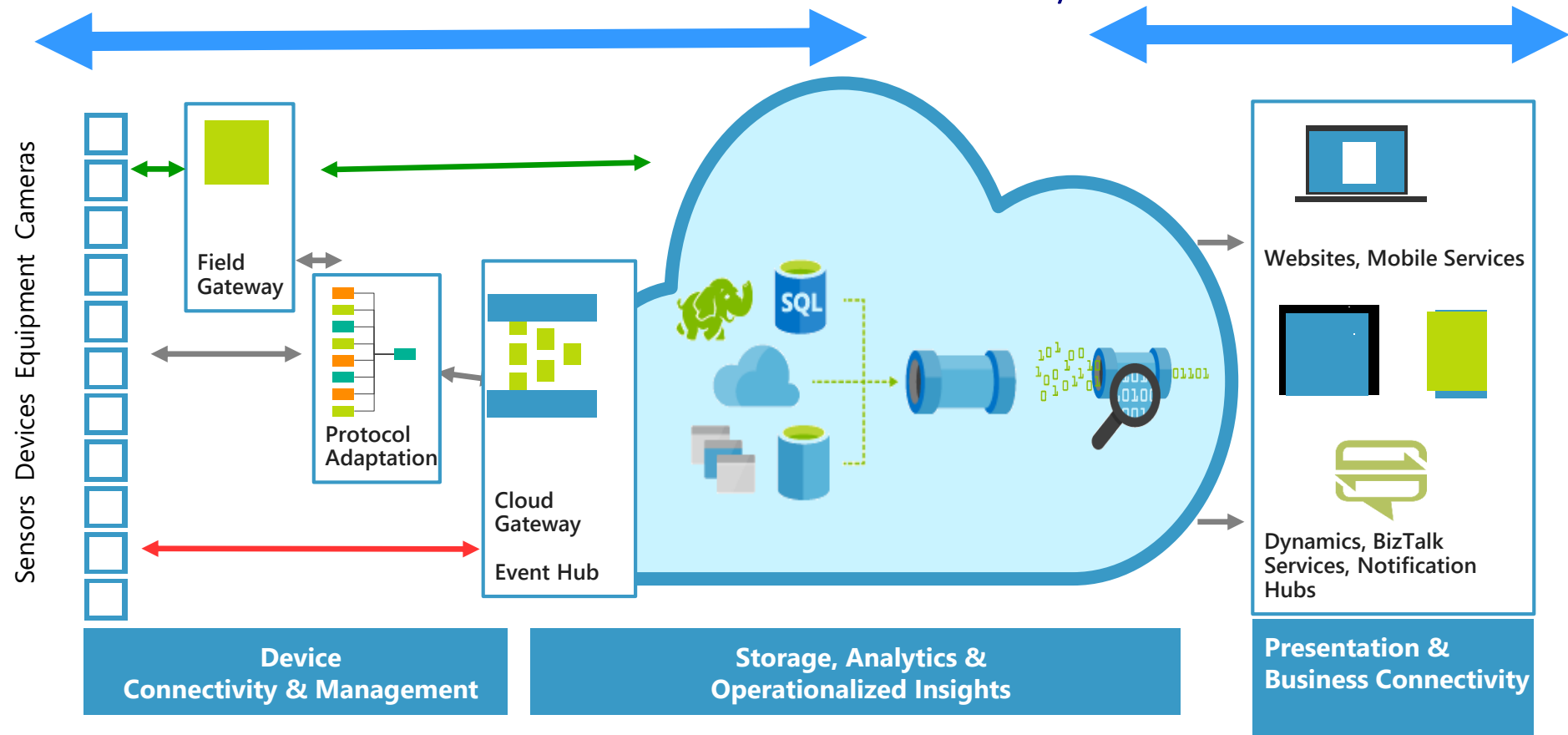
Remote Monitoring   Asset Management   Predictive Maintenance   And more...

- **Plan and budget appropriately** through a simple, predictable business model.
- **Grow and extend** solutions to support millions of assets

Connect assets → Mine data → Take action

IIoT Device & Cloud Patterns

SmartConnect Gateway™

Sensors   Devices   Equipment   Cameras

Field Gateway

Protocol Adaptation

Cloud Gateway

Event Hub

SQL

Websites, Mobile Services

Dynamics, BizTalk Services, Notification Hubs

Device Connectivity & Management

Storage, Analytics & Operationalized Insights

Presentation & Business Connectivity

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SaaS and License Cloud-Based Offerings

At the edge::
Identify sensors - find as many sensors as possible
Amalgamate data at the edge into Gateway(s)
Upload data into the cloud storage

Sensors – access to multitude of parameters with little or no restriction facilitated by rapid flexible development, expansions of less expensive, more user-friendly monitoring devices and sensors for pollutants such as ozone, particulate matter, oxides of nitrogen and sulfur, and pollen

Gateway – consolidate sensor data, reduce bandwidth usage, reduced storage, reduced processing overhead, support security and privacy concerns

Communication - availability and bandwidth

SaaS and License Cloud-Based Offerings

In the Cloud:

Extract data - pull data from other repositories/historians
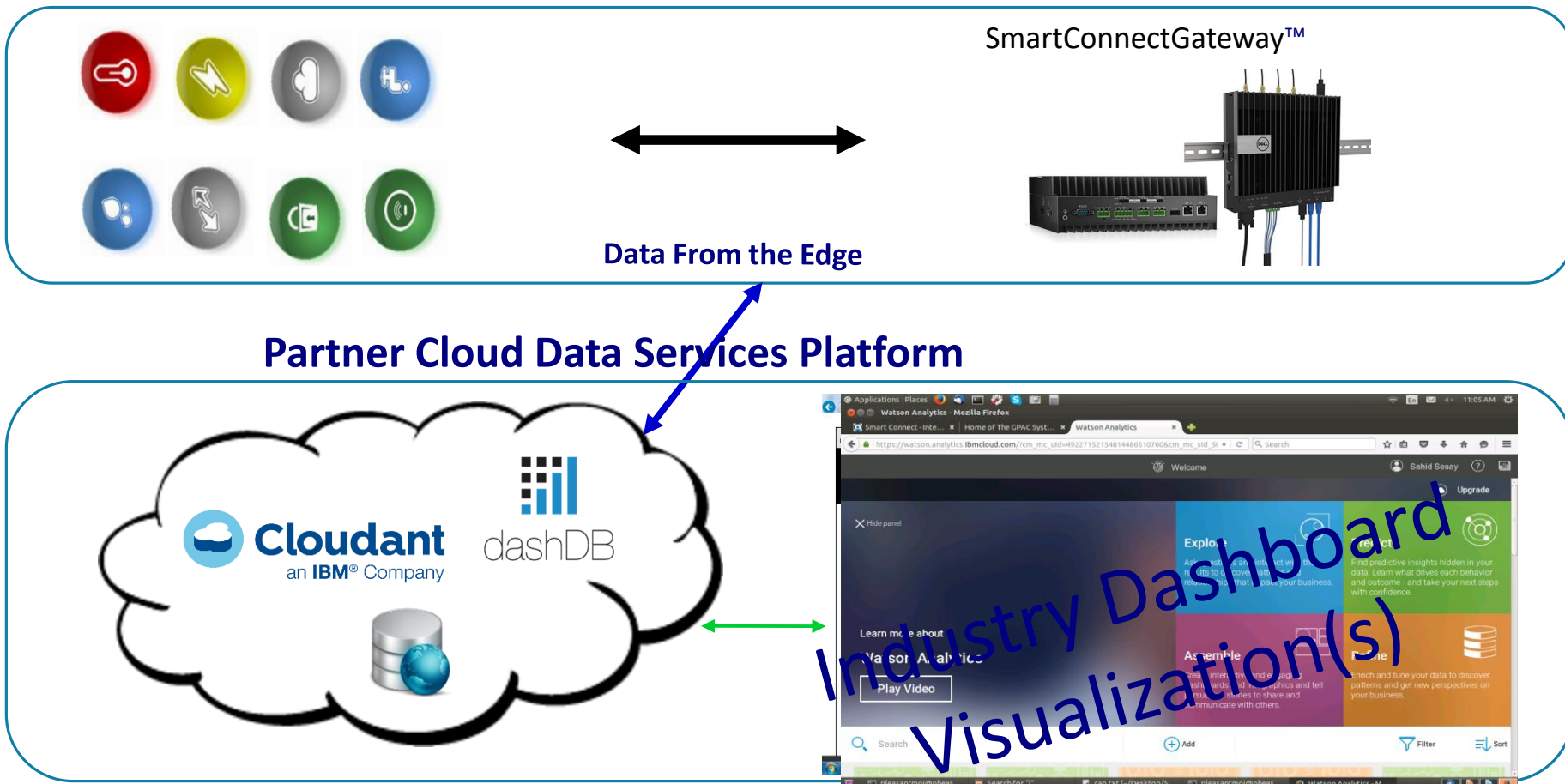**Cleanse data** - clean data for analysis; Hunt for outliers etc.
Correlate data - use tools like BI tools e.g. Watson Analytics, SPSS display which sensors have effect
Build web services and dashboards - analyzing data in real time across enterprise for operational insights and access for public, private, researchers, health care professionals, scientists

Use Case: Air Quality
Cloud-Based Sensor Data Collection

SmartConnectGateway™

Data From the Edge

Partner Cloud Data Services Platform

Industry Dashboard Visualization(s)

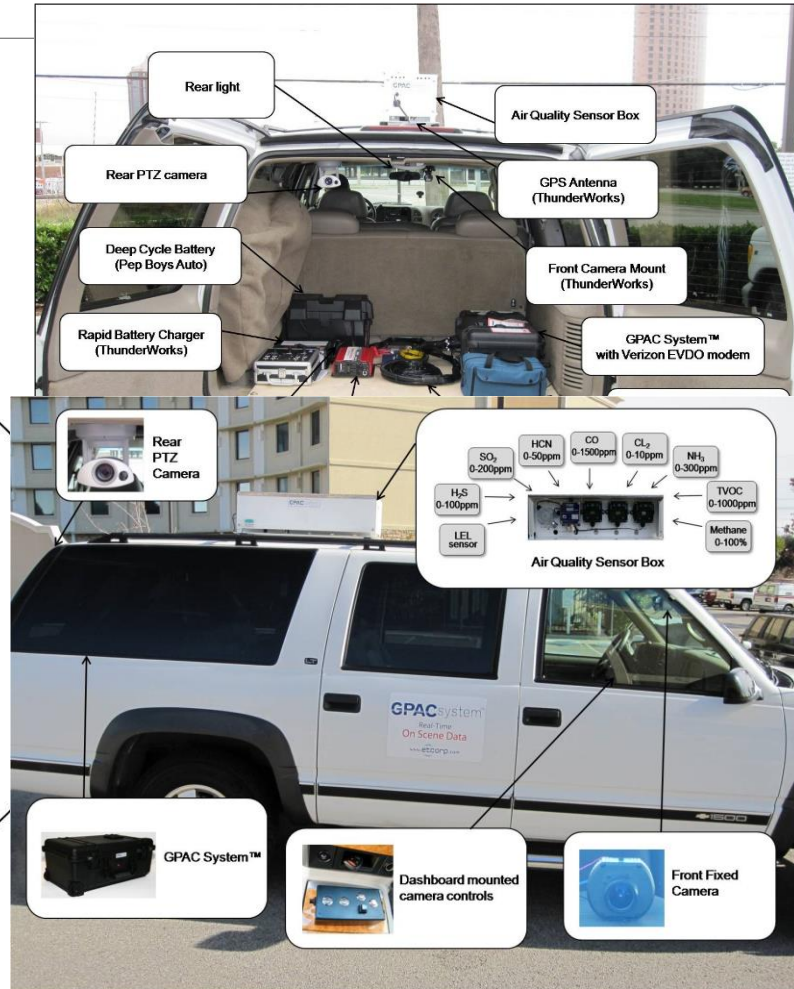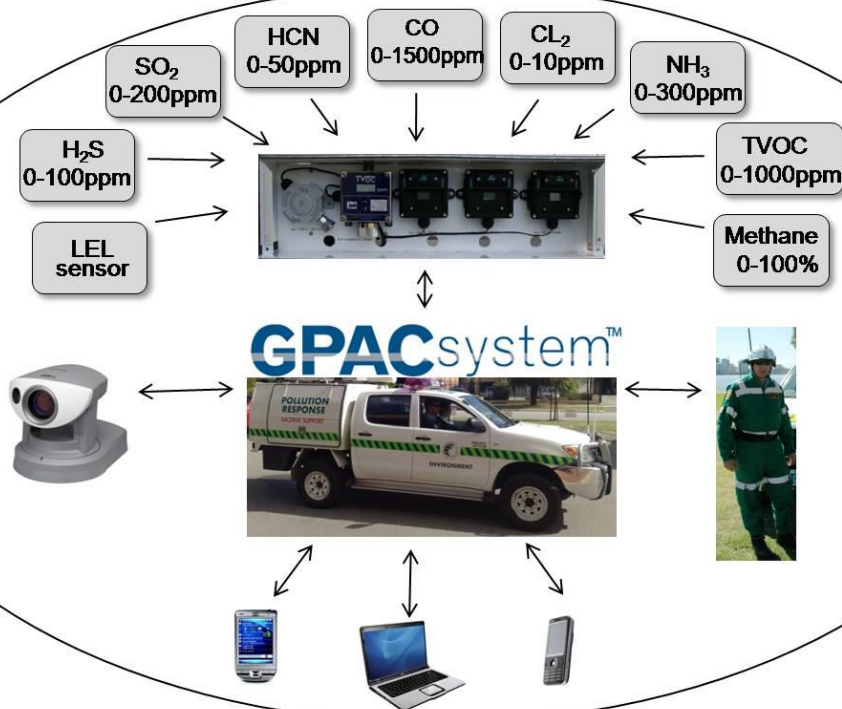# SmartConnect Gateway™ Deployment

- Deploy sensors and devices

- Set up SmartConnect Gateway™ server

- Pairing and Configure sensors and devices

- Perform Alert Tests

- Audit and Adapt

- Go Live

- Respond to Alerts/Alarms

SmartConnect Gateway™ detects, captures and alerts

Real World Deployment
Emergency Response Units

Emergency Response Solution – total cost of $75,000

Real World Deployment
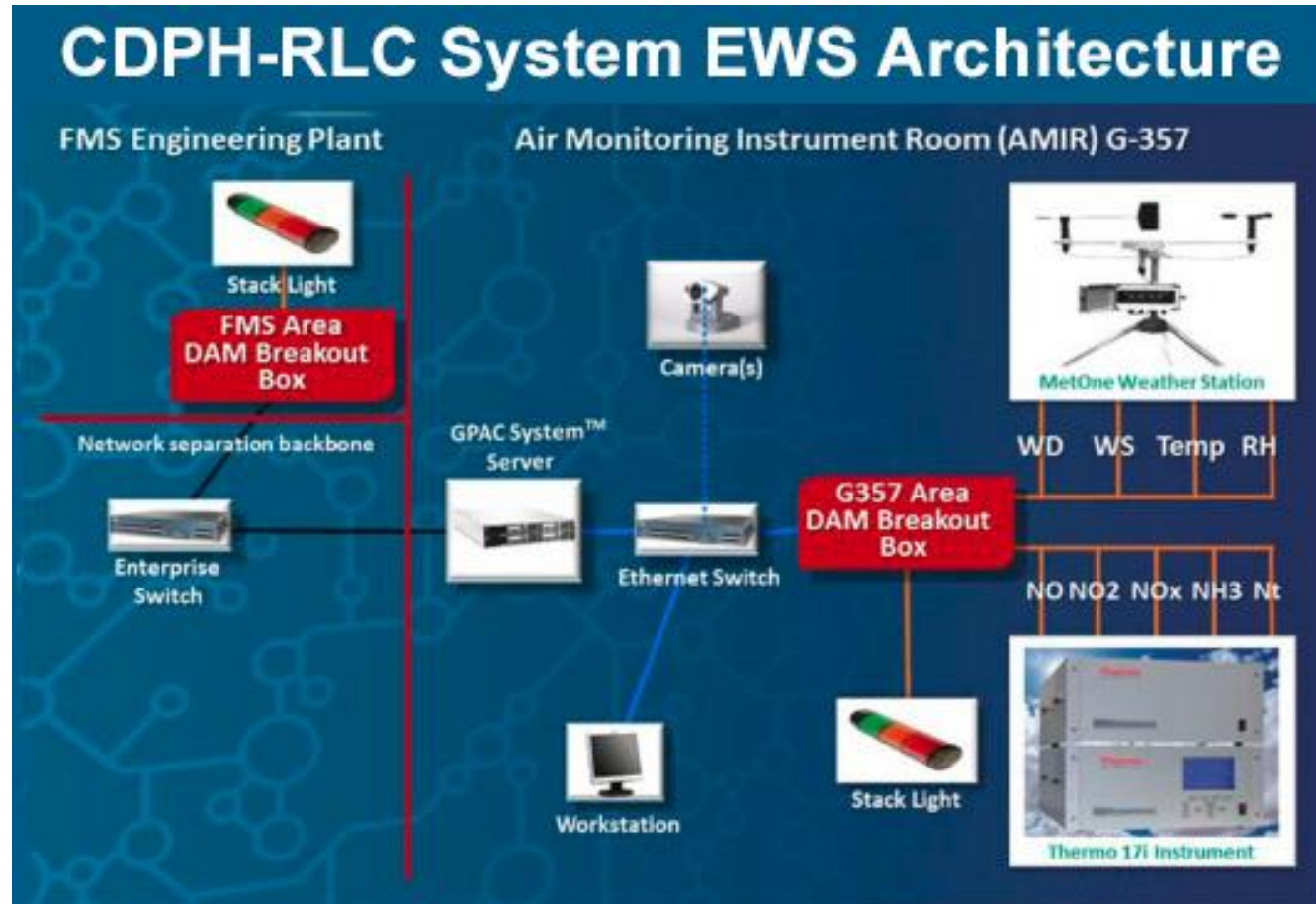## National Lab solves political headache

Chemistry Laboratory seaside project – total cost of $55,000; solved years of political issues

Real World Deployment
California Dept. of Primary Health(CDPH)

CDPH Early Warning System – total cost of $30,000; state govt. deployment, utilized by Federal and other state agencies, local govt. (fire department) and private industry (hospital) for local community, state and national research, emergency response and department facility management and operational efforts

CDPH-RLC System EWS Architecture

Thank you!

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Summary

SmartConnect Gateway™

- ✓ **Integrated approach to monitoring and control**
- ✓ **Incorporates Next Generation PAC Technology**
- ✓ **Works with Generic Hardware**
- ✓ **Easily Configured**
- ✓ **Enterprise-wide Connectivity**
- ✓ **Highly Scalable and Flexible**
- ✓ **Integrates Video and other sub-systems**
- ✓ **Intelligent Process Management**
- ✓ **5 software components into 1**
- ✓ **Multiple Awards and Recognition**
- ✓ **Proven Track Record – Worldwide Installations**

Key Features

- ✓ COTs Camera and sensor array
- ✓ Sensor interface — signal receivers
- ✓ Secure Internet facing and local access
- ✓ The SmartConnect Gateway™ is used to define the characteristic monitoring baseline and notifies the appropriate responder of any breach in real-time
- ✓ Capable of storing years of forensic data
- ✓ Entire system accessed via the net including configuration, diagnostics and logged data from a laptop, PC, tablet computer or smart phone