FieldServer Overview

2015.r2

Sierra Monitor Corporation

- Founded in 1979
- Listed on US Stock Exchange - SRMC
- HQ in Milpitas, Silicon Valley
- Sales offices around the world

CONNECT
Protocol Gateways

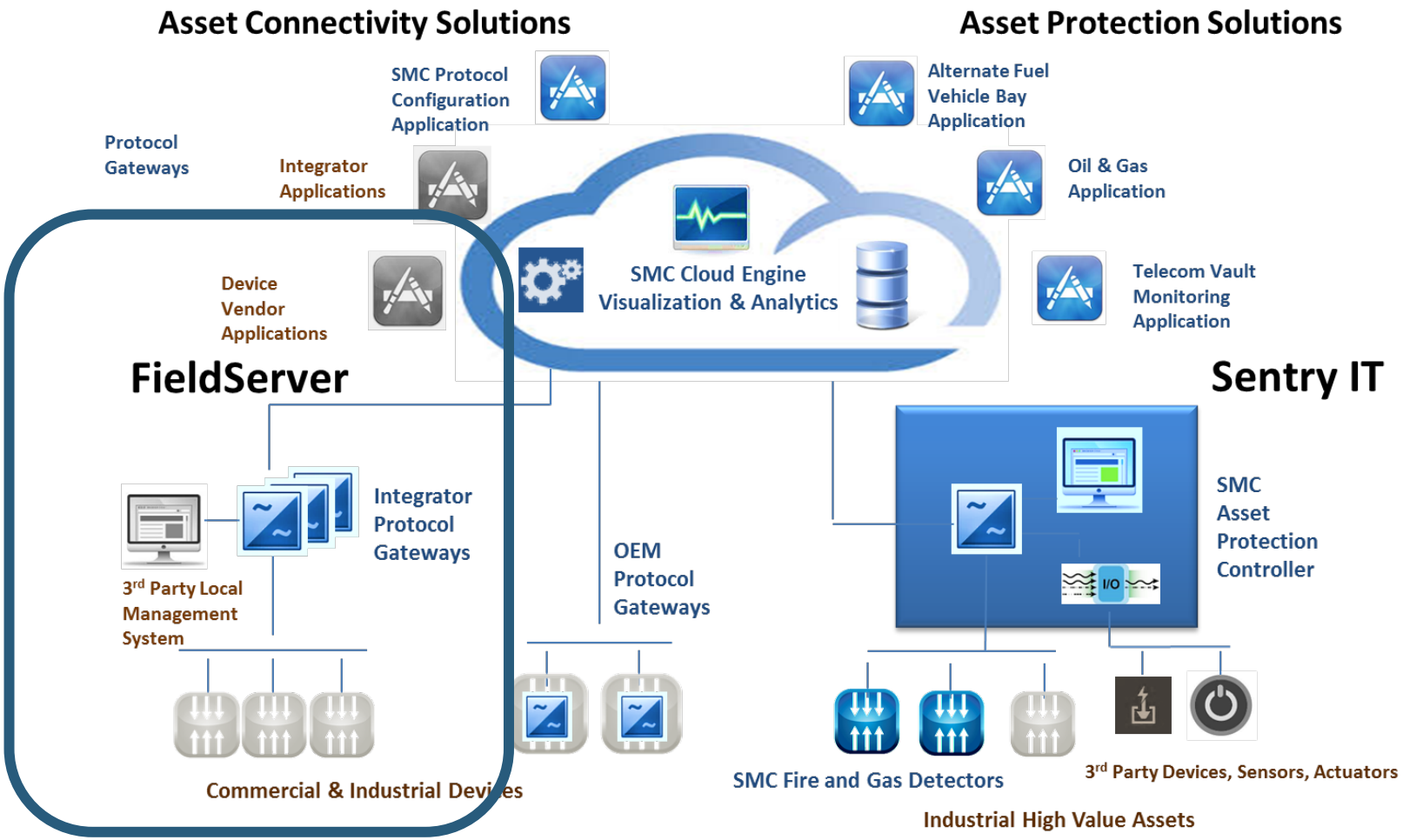
FieldServer

PROTECT
Fire & Gas Detection Solutions

SentryIT

SMC addresses the industrial and commercial *facilities management* market with *Industrial Internet of Things* (IIoT) solutions that *connect and protect* high-value infrastructure assets

IIoT Solutions Architecture



Market Leader

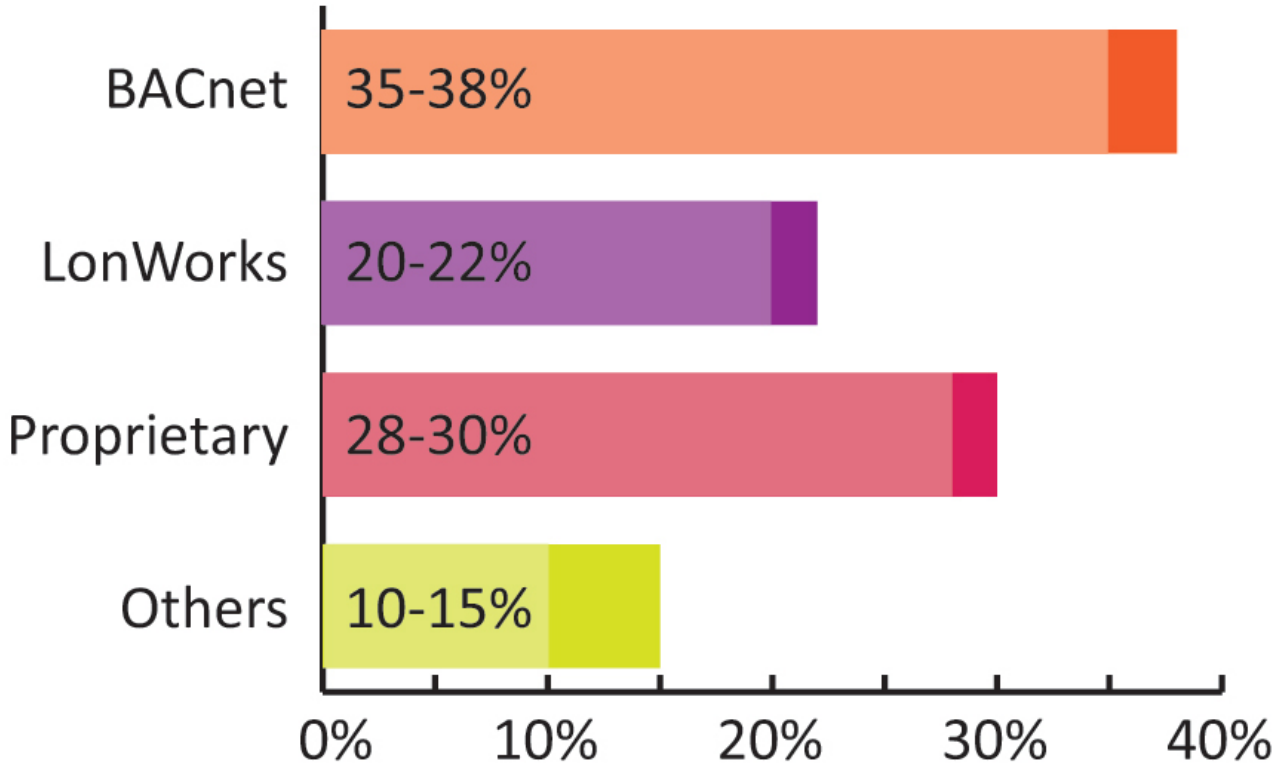
>150,000
Gateways
INSTALLED

smc sierra monitor

Trusted Supplier

GE
YASKAWA
TOSHIBA
ALERTON
STULZ Air Technology Systems, Inc.
NOTIFIER by Honeywell
Rockwell Automation
KAUST King Abdullah University of Science and Technology
Schneider Electric
Rockwell Automation Encompass Product Partner Americas
tyco
Department of the Navy United States of America
BALDOR BALDOR • DODGE • RELIANCE
SimplexGrinnell
LUTRON
EATON Powering Business Worldwide
AutomatedLogic United Technologies
Cleaver Brooks
SIEMENS
Delta Controls
CONVIA A Herman Miller Company
KOHLER
Honeywell
Technology and Tradition Gamewell FCI Fire Control Instruments by Honeywell
Johnson Controls
TRANE
Certified Crestron Integrated Partner
CAT
Russelectric
Tek-Air

Building Automation Protocols



Source: Frost and Sullivan

Real-world Protocol "Soup"

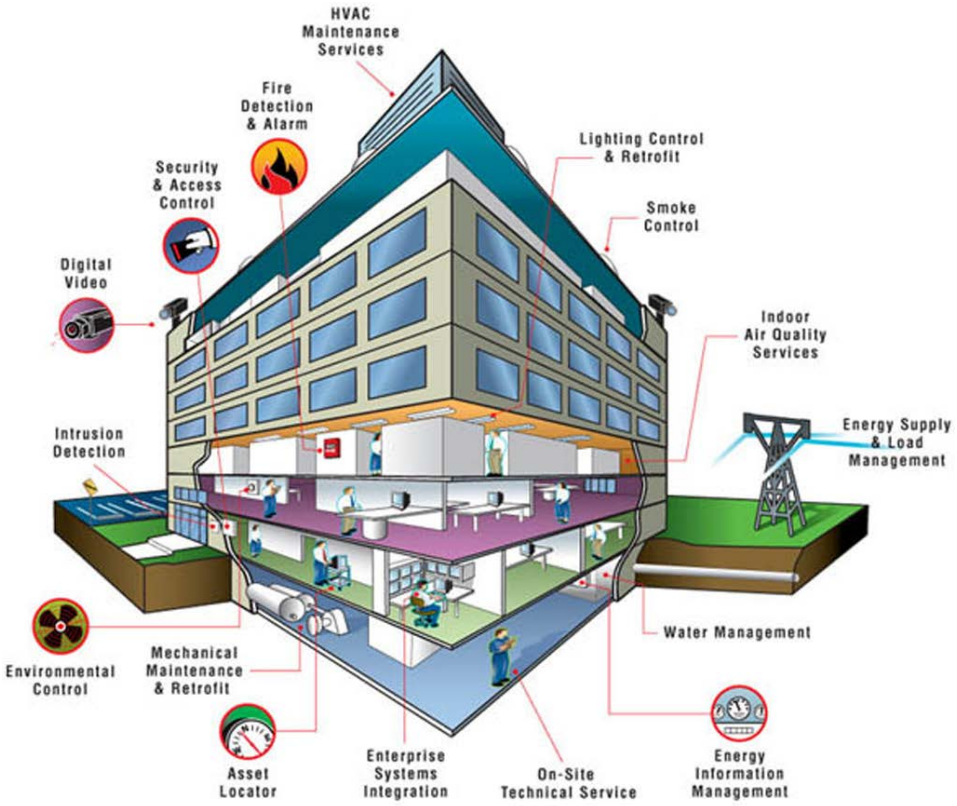
Building Automation	Industrial Automation	Proprietary	Fire Alarms	Utility/Energy
BACnet MS/TP	Modbus RTU	CresNet	Siemens	EnergyWise
BACnet/IP	Modbus TCP/IP	Siemens	Edwards	DNP 3.0
LonWorks	Modbus +	Canatal	Notifier	DNP Ethernet
KNX	PROFIBUS	Weightronics	Vesda	SNMP
Metasys N2	GE-EGD	Russelectric	Simplex	XML
Carrier	EtherNet/IP	Honeywell	Fike	M-Bus
McQuay	DF1	…….	Gamewell	…….
……	……..		…….	

FieldServer "speaks and converts" more than 140 protocols

Unlocking information from valuable devices and assets

Buildings - "A Connectivity Dilemma"

- Multiple Devices
- AC Controls – HVAC Roof Top units
- Boiler Controls – Steam – Hot Water
- Energy BTU Flow Meters
- Energy Electricity Demand Metering
- Energy Management Systems - Panels
- Commercial Dehumidifiers
- Chillers
- Lighting Control Systems
- Fire Alarm Panels
- Fume Hood Controllers
- Security Panels
- Air Handlers
- Motorize Window Shading
- Variable Frequency Drives
- Control Systems
- Distributed Control Systems
- Gas Panels
- Power Managers
- Programmable Logic Controllers
- Temperature Controllers



Why FieldServer?

- Industry leading implementation of 140+ different protocols
  - "Swiss Army knife" for an integrator
- Robust certified protocols
  - BACnet BTL Certified, LonMark, ODVA, KNX, M-Bus…
- Multi-protocol support in any gateway
  - Cost-effective implementation
- Intuitive and flexible configuration tools
  - Fast start-up – minimal commissioning time
- Real-time network diagnostics
  - Commissioning "tool box" – rapid troubleshooting
- "On-ramp" to the Industrial Internet of Things (IIoT) cloud
  - Integration with dash boards, analytics and other cloud applications
- World class technical support
  - Best practices from over 140,000 installed gateways

FieldServer Protocol Gateways

- FieldServer 35XX Gateway:

Most flexible and versatile Gateway

  - Largest capacity with 10,000+ points
  - Supports all 140+ FieldServer protocols
  - Ability to run several protocols simultaneously
  - 8 configurable ports (2 Ethernet, RS-485/RS-232/RS-422/LonWorks)
  - BACnet BTL Certified, LonMark Certified, TUV and CE approved

- QuickServer 12XX Gateway:

Most cost-effective Gateway

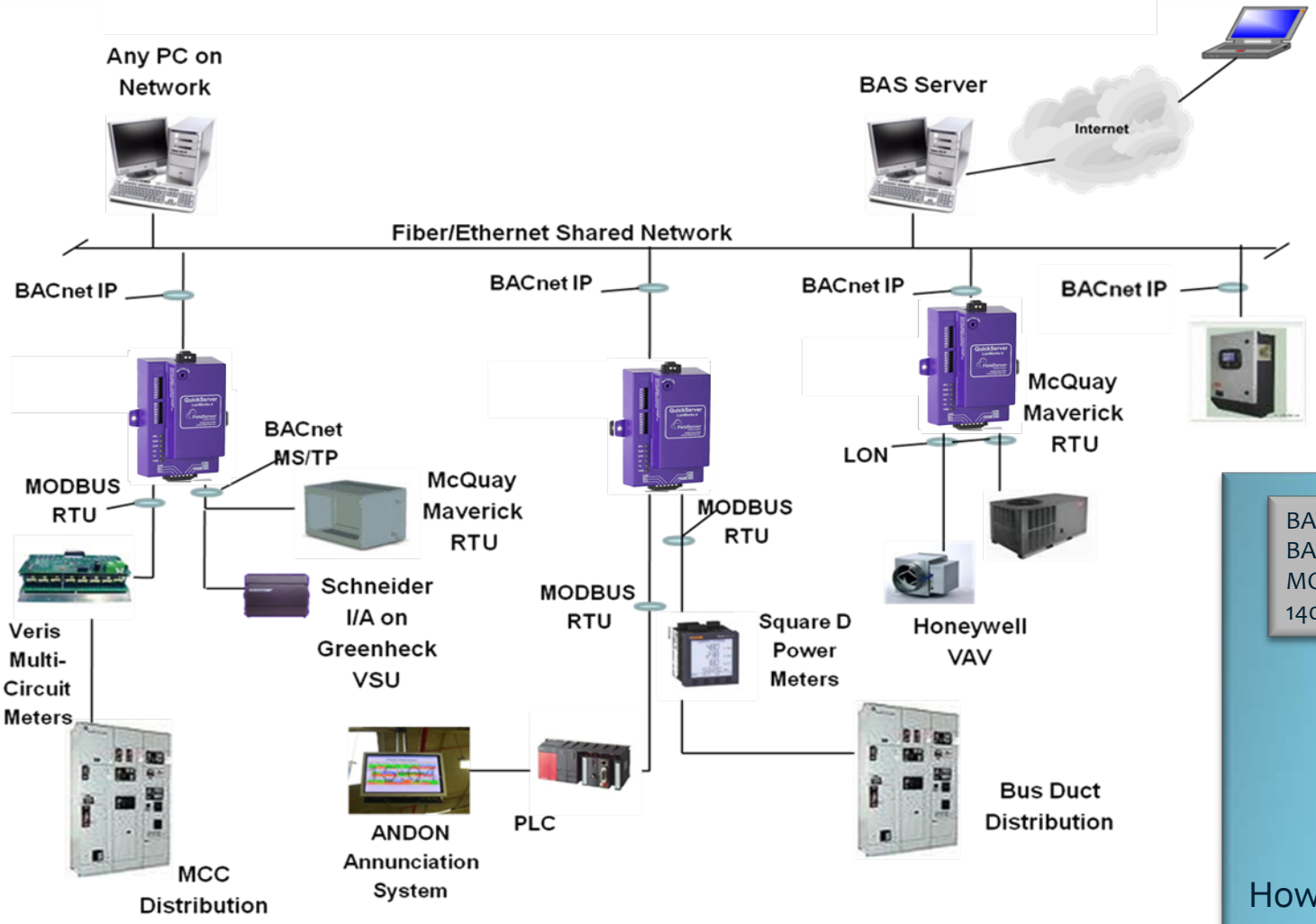
  - Medium capacity with 500 points
  - Supports most FieldServer protocols
  - Ability to run several protocols simultaneously
  - 3 selectable ports (1 Ethernet, Rs-485/RS-232/RS-422/LonWorks)
  - BACnet BTL certified, LonMark Certified, TUV and CE approved

- BACnet Router:

Most easy to install BACnet Router

  - Only BTL Certified BACnet router
  - 3 ports (1 Ethernet, 2 RS-485) – 2 RS-485 offers twice the speed or half the cost
  - Multiple BACnet routing options (e.g. BACnet MS/TP to BACnet/IP)
  - One page “set and forget” easy to use configuration
  - DeviceFind™ - unique feature allowing discovery of network devices

BACnet/IP Backbone Example

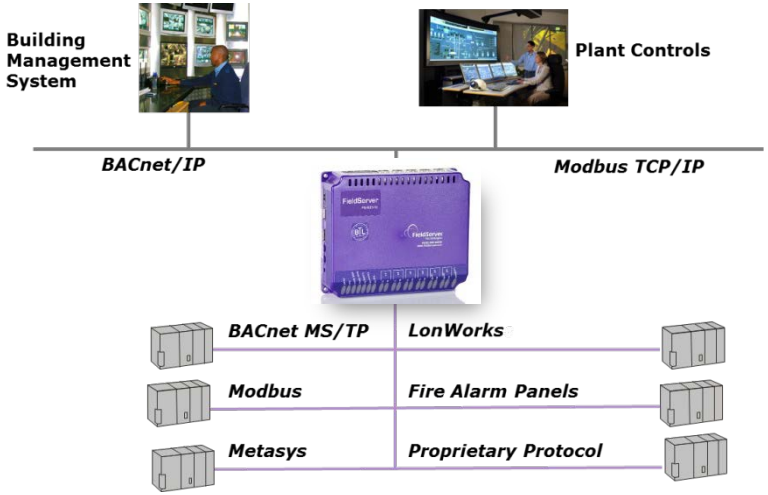


Gateway Connectivity Options

One-to-one protocol
e.g. Device to Controller

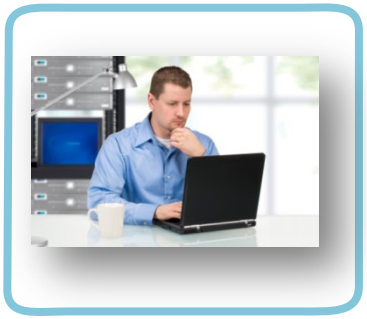
One-to-many protocols
e.g. Multi IP communication

Many-to-many protocols
e.g. Complex integration



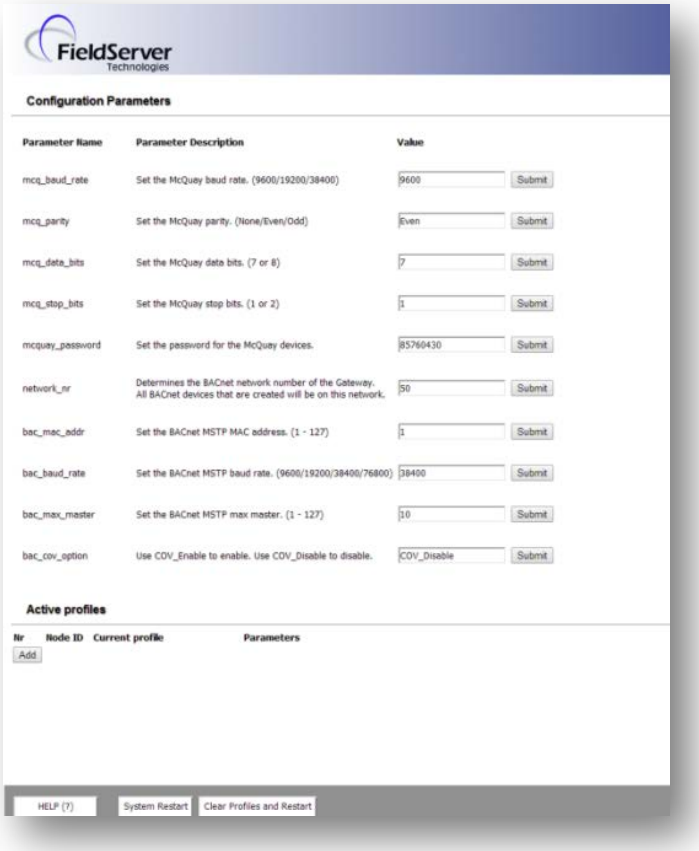
Intuitive and Flexible Configuration

- Easy-to-use Web Configurator
  - For selected protocols
- Customer self configuration
  - Using simple CSV files and Excel spreadsheet
  - Requires only basic technical skills
- Out-of-the-box Profiles for common protocol combinations
  - Rapid deployment using tested field-selectable configurations
- Fee based custom configuration service
  - FieldServer technical team implements the configuration based upon customer definition



FieldServer Profiles

- Multiple field-selectable configuration and protocol-pairing combinations in a single gateway
  - Ease of use
  - Installation time minimized
  - Predefined points list
  - Virtual nodes
    - BACnet/IP
    - BACnet MS/TP
    - Modbus RTU
    - Modbus TCP/IP
    - Metasys N2



FieldServer Differentiation

Gateway Vendor	Protocols supported	Industrial protocols	Point Count	Profiles
FieldServer	140+	Yes	10 000	Yes
Tridium	55	No	5 000	Yes
Control Solutions	8	No	1 000	No
ALC	30	No	1 000	No
Red Lion	140	Yes	1 000	No
S4 Group	4	No	5 000	No
HMS	27	Yes	1 000	No
Loytec	6	No	1 000	No

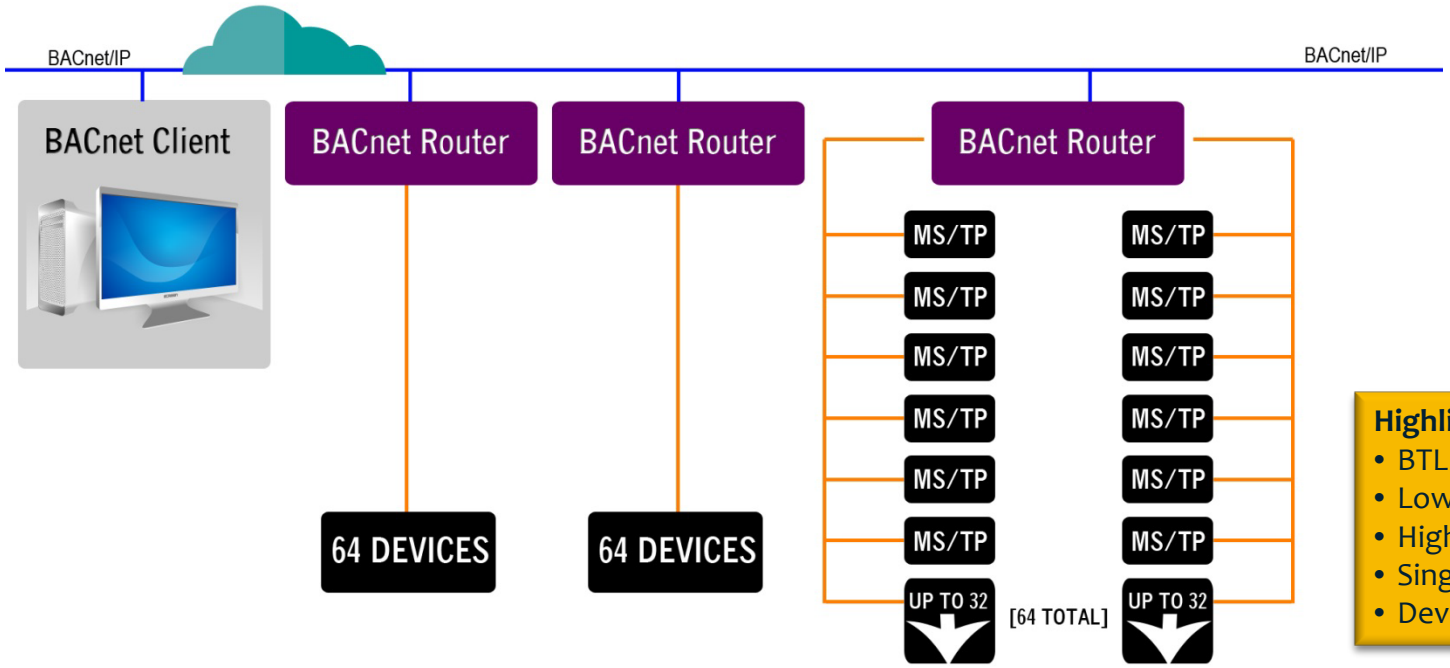
NEW: FieldServer BACnet Router

- Multiple BACnet Routing Connections
  - BACnet/IP & BACnet MS/TP
  - BACnet MS/TP & BACnet Ethernet
  - BACnet MS/TP & BACnet MS/TP
  - BACnet/IP & BACnet/IP
  - BACnet/IP & BACnet Ethernet
- Ease of Use
  - Web Based configuration: one page set and forget
  - NAT support with secondary BACnet/IP connection for routing between public and private IP networks
  - Foreign Device Registration (FDR)
  - BACnet Broadcast Management Device (BBMD) for a connection between different subnets
- Ease of Installation
  - DeviceFind™ discovery feature for automatically finding connected devices
  - MDIX to use any Ethernet cable for commissioning & installation
  - DHCP to automatically obtain IP setting from the network
  - ToolBox to find and diagnose Routers on your network
  - Wide range of input power requirements AC or DC

BACnet BTL Testing Laboratories

Certified

BACnet Router Options



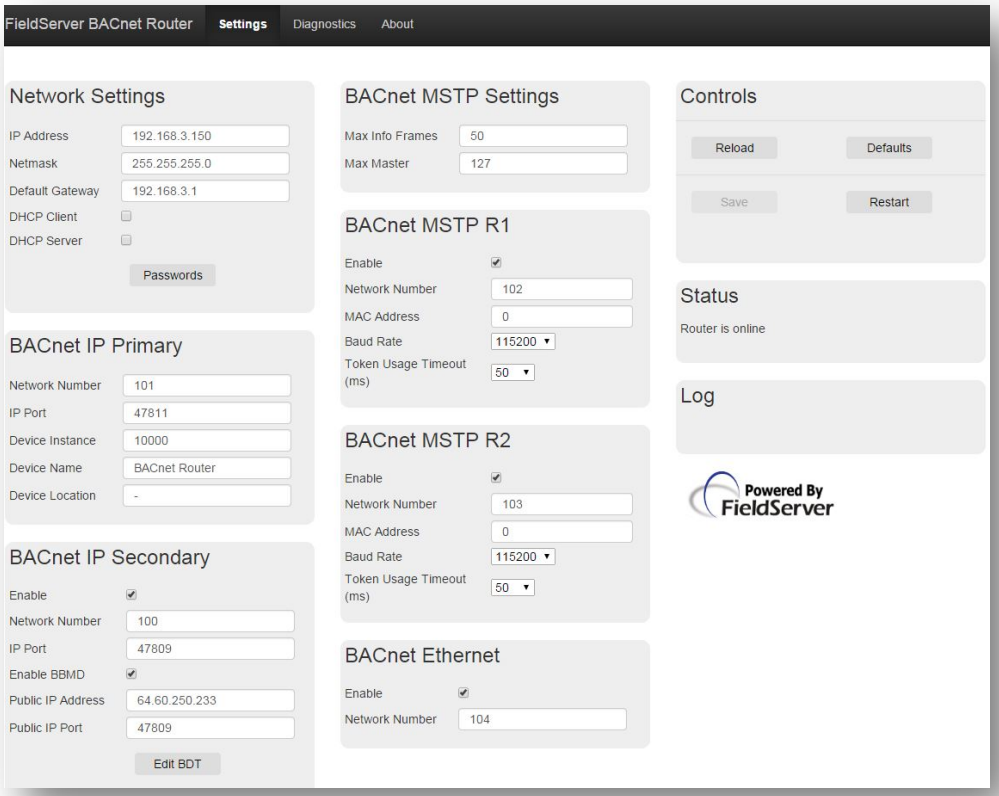
Highlights
- BTL Certified
- Lowest cost per node
- Highest speed
- Single page configuration
- DeviceFind™ discovery

With BBMD the FieldServer BACnet Router can move data from the RS-485 trunk through firewalls and different subnets to the BACnet Client

The FieldServer BACnet Router can have up to 32 devices per RS-485 port. With two RS-485 ports 64 devices can be connected without the use of a line driver

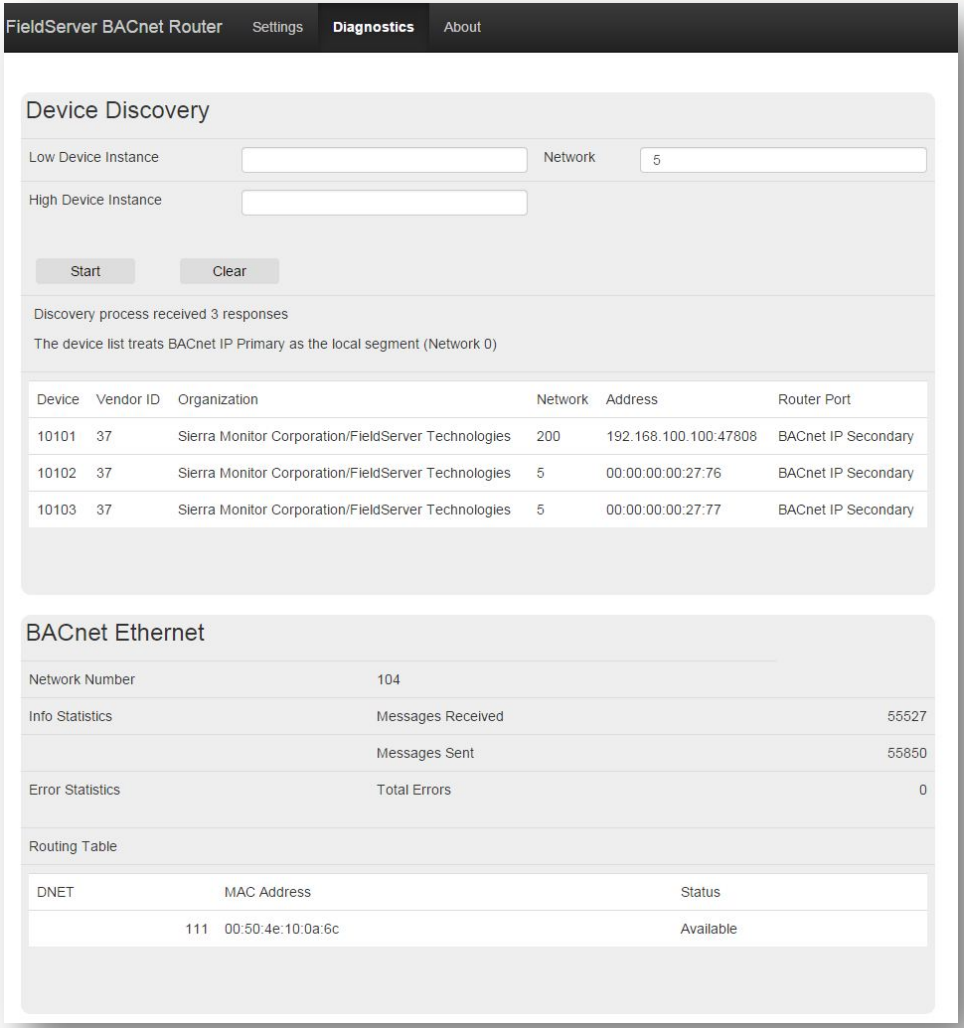
BACnet Router Configuration

- Easy to use
- One page configuration
- Fast start-up
  - Up running "out of the box"



DeviceFind™ Discovery

- Unique DeviceFind™ feature
- BACnet router automatically detects all devices connected
  - No more "missed" devices
- Shortened start-up time



BACnet Router Differentiation

BACnet Router Vendor	BTL	Serial ports	Device discovery	BACnet Ethernet	Devices supported
FieldServer	Yes	2	Yes	Yes	254
Contemporary Controls	No	1	No	Yes	127
Loytec	No	1	No	No	127
Control Solutions	No	1	No	No	127
Cylon	No	1	No	No	127
ADF Web	No	1	No	Yes	127
Cimetrics	No	1	No	No	127

On-ramp to the IIoT

Cloud

FieldServer connect any asset to the cloud

XML HTTP REST JSON

DNP3 Ethernet BACnet IP

IP Connectivity

FieldServer connect any asset to IP

SNMP XML

KNX

LonWorks®

Secutron

Fike Cheetah

Allen Bradley DH+

Modbus RTU

Device Level

FieldServer connect any asset to any asset

Veeder-Root

M-Bus

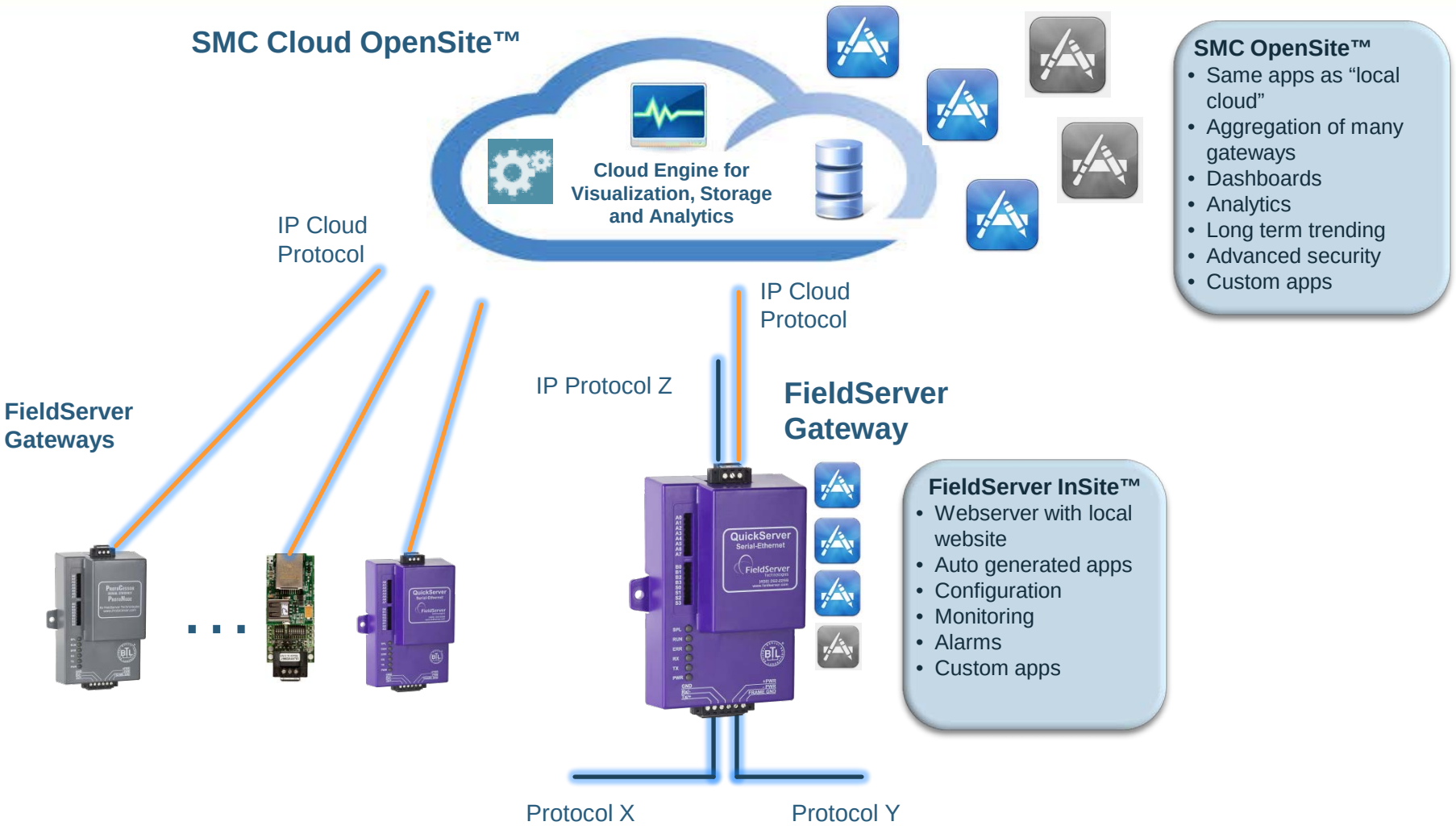
Metasys N2

Carrier DataLink

BACnet MS/TP

Profibus DP Slave

FieldServer Cloud Solution



SMC OpenSite™
- Same apps as "local cloud"
- Aggregation of many gateways
- Dashboards
- Analytics
- Long term trending
- Advanced security
- Custom apps

FieldServer InSite™
- Webserver with local website
- Auto generated apps
- Configuration
- Monitoring
- Alarms
- Custom apps

Technical Tools and Support

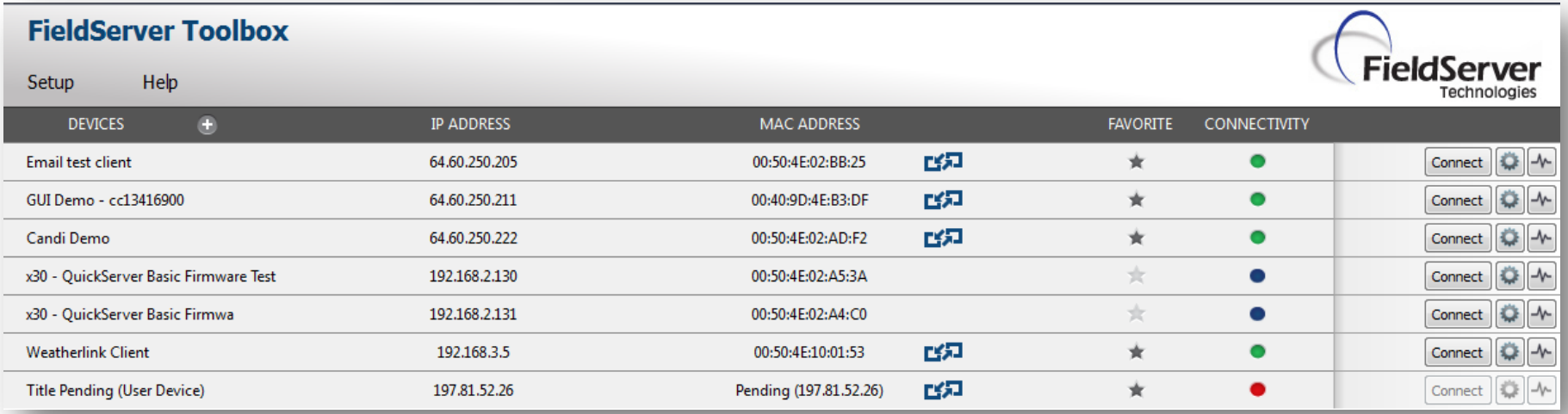
- Complete on-line documentation
  - Comprehensive library of manuals to ensure fast configuration and commissioning

- Free FieldServer Toolbox Utility
  - Contains all of the tools you need to Detect, Connect and Configure your FieldServer

- Technical Support – phone or e-mail
  - FieldServer provides both fee based and free support
  - E-mail support is always free
  - Extensive experience with over 140,000 installed gateways

FieldServer Toolbox Utility

- Find your FieldServer on the network
- Set IP address of FieldServer
- Set the Time of the FieldServer
- Diagnostic Capture for troubleshooting
- Download files



FieldServer Summary

- Most flexible and versatile protocol gateway
  - "Swiss Army Knife" for any situation
  - 140+ protocols available
- Multiple configuration options
  - Low-risk "finishing job on-time"
- Overall support
  - Extensive experience with 140,000+ gateways installed
  - Never leave a customer stranded

FieldServer Use Cases

Empire State Building

Application

- Energy Monitoring

Problem

- Johnson Controls needed to monitor individual tenant energy use in major $500 Million retrofit.

Solution

- FieldServer's connected over 200 sub meters to central Metasys front end.

Results

- Multiport capabilities of the FieldServer made for cost effective, successful implementation with integration to Johnson Controls BAS.

University of Arizona

Application

- Campus wide energy management integration

Problem

- 435 buildings utilizing devices/systems from over 35 vendors utilizing multiple protocols need to interface to BACnet system.

Solution

- Multiple FieldServers brought together almost 40,000 points into system from HVAC, fire alarm, utility services and more.

Results

- Customer reports great decrease in energy usage and states that FieldServer outperformed all other solutions.

THE UNIVERSITY OF ARIZONA

South Africa World Cup Stadiums

Application

- Integration of power, fire panel and HVAC equipment in 10 stadiums

Problem

- As World Cup host, South Africa constructed 10 stadiums. Each needed integration of various Modbus and Fire Panels to SNMP control system.

Solution

- Each stadium utilized a FieldServer to bring in data from power meters, fire panels, diesel generators and chillers to NetBotz control system.

Results

- Customer very pleased to find a single gateway that can handle the multiple devices needed to interface to the control system.

Shands Hospital, University of Florida

Application

- Integration of temperature and humidity sensors to central management system

Problem

- Temperature and humidity must be tightly controlled in refrigerators containing valuable, life-saving pharmaceuticals.

Solution

- FieldServer with XML was able to integrate AeroScout MobileView controls to Johnson Controls network.

Results

- With FieldServer customer was able to select the best temperature/humidity system for their needs yet still interface to existing network.

King Abdullah University

Application

- Integration of lighting, fire alarm, window shades, motion sensors, water flow for over 2,500 homes/buildings

Problem

- Wide range of devices and multiple protocols needed to feed data to central BACnet/IP control system

Solution

- FieldServer was only gateway manufacturer with the full compliment of protocol drivers to meet their needs.

Results

- FieldServer had the experience and capabilities to meet the customers needs and delivered the custom solution on time

DDG-1000 Zumwalt-class Destroyer

Application

- Newest advanced-tech U.S. Navy destroyer integrates fire suppression system

Problem

- Need to integrate advanced damage-control system that included Meggitt flame and VESDA smoke detectors to LonWorks fire system.

Solution

- QuickServer based compact gateways provided the simple, reliable integration of the detectors to central control system.

Results

- System met the needs of the vendors and the U.S. Navy for reliable integration necessary to protect personnel and equipment.