

# Access Point 4.5



## Enhanced, flexible network connectivity:

- » Lowers overall cost of ownership by managing thousands of network-enabled electricity, water, and gas endpoints
- » Supports a variety of WANs to leverage both existing utility networking infrastructure and low-cost public carrier networks
- » Reduces installation costs by mounting easily on existing assets
- » Enables remote upgrades to reduce expenses and allow advanced, value-added services to be added
- » Leverages System-on-Chip (SoC) security to defend against advanced threats

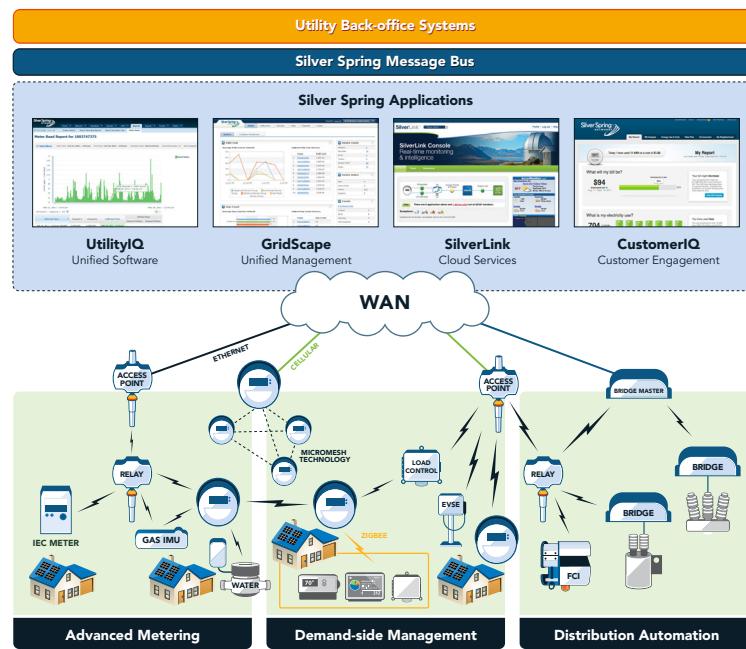
## Smart Grid Flexibility

The Silver Spring® Smart Energy Platform combines network infrastructure, software, and professional services to enable a range of smart grid applications. The Silver Spring Access Point provides the central link between endpoint devices and your utility's mission-critical systems, systems, delivering standards-based secure communications over an IPv6 network. Its flexible communication features extend the reach and coverage of the network to thousands of customer premises, and its support for up to 5,000 endpoints per Access Point dramatically lowers ownership costs.

The Access Point provides a highly reliable connection to electricity, water, and gas meters over a Neighborhood Area Network (NAN). It communicates with Silver Spring intelligent

endpoints, including meters and Bridges, either directly or through Silver Spring Relays. It offers multiple paths to each endpoint, through sophisticated mesh network routing that ensures greater reliability and redundancy.

The Access Point also provides Wide Area Network (WAN) connectivity to your utility's mission-critical applications through digital cellular and Ethernet connections. This flexibility enables your utility to leverage low-cost public carrier networks or existing utility WAN infrastructure. You can also opt to enable automatic WAN failover. In addition, the Access Point is available with a Broadband Global Area Network (BGAN) satellite terminal. The Satellite Access Point provides connectivity for isolated areas that are beyond the reach of other WAN options.



The Silver Spring Smart Energy Platform supports a range of smart grid applications on a single open standards-based network.

## About Silver Spring Networks

Silver Spring Networks is a leading networking platform and solutions provider for smart energy networks. Our pioneering IPv6 networking platform, with 16.5 million Silver Spring enabled devices delivered, is connecting utilities to homes and business throughout the world with the goal of achieving greater energy efficiency for the planet. Silver Spring's innovative solutions enable utilities to gain operational efficiencies, improve grid reliability, and empower consumers to monitor and manage energy consumption. Silver Spring Networks is used by major utilities around the globe including Baltimore Gas & Electric, CitiPower & Powertech, Commonwealth Edison, CPS Energy, Florida Power & Light, Jemena Electricity Networks Limited, Pacific Gas & Electric, Pepco Holdings, Inc., and Progress Energy, among others. For more information please visit [www.silverspringnet.com](http://www.silverspringnet.com).

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## Flexible deployment options

Utilities can deploy Access Points on a broad array of existing assets. Mounting kits are available for installing Access Points on distribution poles, street lights, walls, and inside pad-mounted enclosures. Multiple external antenna options are available to further extend the Access Point's range and coverage levels.

## Features

- » Full two-way, 900 MHz FHSS
- » One-watt transmitter
- » Dynamic network discovery and self healing
- » Robust System-on-Chip (SoC) security
- » Robust security from the endpoint through to the wide area network
- » Gen4-based networking technology and gear shifting to optimize range and performance
- » Over-the-air network firmware upgrades
- » Sophisticated routing functions, for multiple paths to each endpoint
- » Additional device memory for upgrade headroom
- » Long-reach, multi-hop networks, providing high endpoint-to-Access Point deployment ratios
- » Cellular and Ethernet options available to provide backhaul flexibility and redundancy
- » Weather-resistant outdoor enclosure, for longer life and greater durability
- » Battery backup option for fault-tolerant operation with enhanced monitoring
- » Mounting kits for pole-top and other above-ground installations

## Specifications:

Communications	Data rate: 50 kbps to 300 kbps Frequencies: 902-928 MHz (USA) 915-928 MHz (AUS) Spread spectrum technology: FHSS Transmitter output: 30 dBm Output impedance: 50 ohms Receive sensitivity: <table border="1"> <thead> <tr> <th>Data Rate (kbps)</th><th>Receive Sensitivity (dBm for 10% PER)</th></tr> </thead> <tbody> <tr> <td>50</td><td>-101</td></tr> <tr> <td>100</td><td>-98</td></tr> <tr> <td>150</td><td>-96</td></tr> <tr> <td>200</td><td>-95</td></tr> <tr> <td>300</td><td>-93</td></tr> </tbody> </table> WAN: Cellular, Ethernet, and Satellite		Data Rate (kbps)	Receive Sensitivity (dBm for 10% PER)	50	-101	100	-98	150	-96	200	-95	300	-93			
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Protocols/Security	Addressing: Internet Protocol version 6 (IPv6) Security: Secure Hash Algorithm 256 bit (SHA-256) RSA-1024 and/or ECC-256 Encryption: Advanced Encryption Standard (AES-128 or AES-256)																
Physical Interfaces	Antenna connector: N Type, Female																
Power	Power Input range: 96 to 277 VAC, 50 to 60 Hz <table border="1"> <thead> <tr> <th>Power consumption:</th><th>Idle</th><th>Maximum</th></tr> </thead> <tbody> <tr> <td>Ethernet AP 4.5</td><td>5.4W</td><td>6.4W</td></tr> <tr> <td>Ethernet AP 4.5 w/ Battery</td><td>7.3W</td><td>8.4W</td></tr> <tr> <td>Cellular AP 4.5</td><td>6.4W</td><td>8.1W</td></tr> <tr> <td>Cellular AP4 .5 w/ Battery</td><td>8.1W</td><td>9.9W</td></tr> </tbody> </table>		Power consumption:	Idle	Maximum	Ethernet AP 4.5	5.4W	6.4W	Ethernet AP 4.5 w/ Battery	7.3W	8.4W	Cellular AP 4.5	6.4W	8.1W	Cellular AP4 .5 w/ Battery	8.1W	9.9W
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Environmental	Operating temperature: -30°C to +70°C (-22°F to +158°F) Humidity: 0% to 95%, non-condensing																
Mechanical	Cellular/Ethernet: Dimensions: 34 cm (13.5") L x 20 cm (8") W x 13 cm (5.2") H Weight: 2.5 kg (5.5 lb) Enclosure: IP65, white, aluminum																
Mounting Kit Options	Wooden pole Concrete pole Light pole Wall																
Approvals	FCC: Part 15.247 Industry Canada: RSS-210																