

Transform energy-efficient streetlights into revenue-generating, renewable assets that deliver a smarter city through mobile voice and mobile data offload.

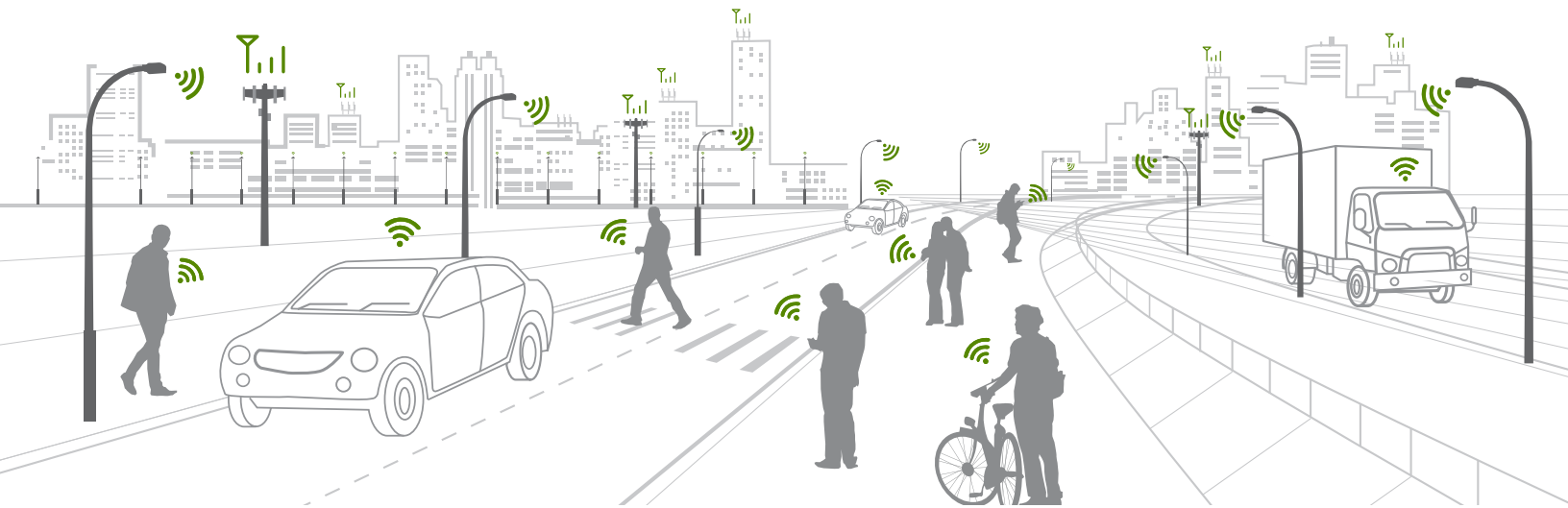


## Data Services

### Extend coverage. Increase capacity. Improve quality.

To grow and maintain profitability, carriers must continuously improve network performance, invest wisely in infrastructure and maximize revenue per user. Improving coverage and capacity has traditionally meant adding towers and other capital-intensive infrastructure. **The Petra Small Cell Streetlight Network™** enables carriers to leverage streetlights to improve network reach, quality and performance.

Petra Systems also provides advantaged acquisition of pole siting rights, simplifying the complexity of managing interactions with multiple streetlight owners and enabling you to increase capacity and coverage with high density, high bandwidth, small cell offload services—all without additional capital investment.



## Quickly expand network coverage and capacity.

The Petra Small Cell Streetlight Network expands networks without costly infrastructure deployment. The system combines high-density, unlicensed-spectrum small cells with high-efficiency, long-life, intelligent LED luminaries, transforming streetlights into extensions of the carrier network.

With Petra's highly-scalable solution, every retrofit can simultaneously reduce streetlight energy consumption and ongoing maintenance expenses while improving network coverage and capacity. The result for carriers: enhanced performance and lowest-cost routing.

### How It Works

The heart of the system is a high-efficiency LED luminary complete with an adaptive streetlight controller. Designed for easy installation and low visual impact, each streetlight becomes a node in a city-wide high-bandwidth network fully integrated to carriers' core networks through the Petra Data Center.



*A Petra-enabled high-efficiency LED luminary*



### **Gain access to valuable infrastructure**

Get on-demand access to increased capacity and coverage with carrier-grade Wi-Fi with throughput and uptime guarantees, seamless SIM-based authentication and authorization, billing synchronization and support for subscriber's non-SIM devices.



### **Provide better coverage at a reduced cost**

Provide the highest levels of coverage, service and quality to your customers at a fraction of the cost of traditional towers with small-, pico- and micro-cell high-density, distributed systems on existing infrastructure.



### **Improve overall performance of your network**

Increase network performance and coverage and reduce latency with a curated, AAA secure carrier-grade streetlight Wi-Fi network.



### **Futureproof your network**

Densifying your network not only helps you meet today's demand but ensures your ability to meet tomorrow's as well.

## PETRA DATA SERVICES

With Petra Data Services, carriers get access to a ubiquitous and untapped network, increasing capacity and coverage while improving overall network quality. Streetlight owners get access to uncapped revenue potential that can grow in proportion to utilization and a city-wide communication network for Smart City applications.



### CARRIER DATA OFFLOAD

Strengthen and augment your network with streetlight integrated small cells, fully integrated to your core network with throughput and uptime guarantees, seamless SIM-based authentication and authorization, billing synchronization and support for subscriber's non-SIM devices.



### HOTSPOT CONNECTIVITY

Connect with more customers with infrastructure for onboarding, authentication and authorization, data usage records, network management and customer usage related analytics—all for any Wi-Fi device IoT



### WI-FI CONNECTIVITY

Service 3rd parties with segregated, secure private networks, authentication of 3rd party devices, and support for services requiring high bandwidth/high availability as well as low bandwidth.



### IoT SERVICES INTEGRATION

Deliver access to backhaul and extend coverage to 3rd party IoT network technologies, provide custom authentication methods for devices, aggregation networks for services and integration with IoT core networks.

## CHALLENGES

- Constant need to expand coverage and capacity
- Increasing data congestion interfering with network performance
- Intensifying competition for client acquisition and retention
- Continuous demands to protect and improve margins and profitability with lowest-cost routing

## KEY BENEFITS

- Leverage streetlights to rapidly increase coverage and capacity
  - No costly infrastructure buildout—integrates into existing network
  - Reduce CapEx network demands
- Improve service and performance
  - Maintain competitive advantage with increased capacity in an established service territory and increased coverage in new territories
  - Provide optimized carrier experience even in the most remote areas
- Achieve lowest-cost routing
  - Highly optimized small-cell data offloading to improve voice traffic capacity and network performance
  - Preserve margin, optimize cost structure on roaming contracts

For more information about the latest Petra Solutions, go to [petrasystems.com](http://petrasystems.com)

**PETRA SYSTEMS EAST (HQ)**  
 Petra Systems, Inc.  
 One Cragwood Road Suite 303  
 South Plainfield NJ 07080  
 Tel: 908-462-5200  
 Fax: 908-462-5300  
[info@petrasystems.com](mailto:info@petrasystems.com)

**PETRA SYSTEMS WEST**  
 Petra Systems, Inc.  
 225 Canyon Blvd  
 Boulder CO 80302  
 Tel: 720-638-8593

**PETRA SYSTEMS MIDDLE EAST**  
 Queen Zain Alsharaf Street  
 Amman Gate Building,  
 2nd Floor-Deir Ghbar  
 P.O. Box 17587  
 Amman 11195, Jordan  
 Tel: +962 6 586 8490  
 Fax: +962 6 586 8590