Streetline and IBM: smarter parking supports business, drivers and environment

Analyzing parking systems to maximize revenue while reducing environmental impact

Highlights:

- Reduces citizen frustration by improving availability

- Supports small businesses by increasing accessibility by consumers

- Optimizes revenue by improving enforcement productivity and filling vacancies

- Reduces environmental impact of vehicle traffic

- Contributes to building Smarter Cities® for a Smarter Planet™

As the percentage of people living in cities continues to grow, parking remains an unsolved problem affecting citizens, businesses, governments and the environment. Prolonged searches for parking impact traffic congestion, waste hours of time and increase carbon emissions, while abandonment of the search results in lost revenue for businesses and municipalities.

Streamlining the parking process aligns with the goals of mass transit: reducing emissions and traffic congestion, while making life more convenient for people and stimulating local economies. For some drivers, public transportation is not currently a viable option, so spending less time circling city blocks in search of parking is an effective and convenient way of helping to reduce their negative impact.

Streetline and IBM have partnered to provide advanced parking analytics solutions for cities and major facilities to reinvent parking. Parking sensors, networks and applications from Streetline, combined with IBM's business intelligence and analytics, help match drivers with available parking to minimize traffic, improve quality of life, reduce environmental impact and maximize revenue.

Solution overview

Experts estimate that motorists looking for parking cause 30 percent of urban traffic, with a dramatic contribution to overall vehicle emissions. A yearlong study in Los Angeles found drivers in a fifteen-block district drove an excess of 950,000 miles searching for a space, producing an extra 730 tons of carbon dioxide. The problem is international, as identified by IBM's Global Parking Survey. Over one year in 20 international cities, the survey found nearly six of 10 drivers abandoned their search for a parking space at least once, and drivers spent an average of nearly 20 minutes in pursuit of a coveted spot.

From an economic perspective, cities and businesses suffer most. Patrons are lost when they abandon the search for parking or avoid a business because of anticipated parking challenges. Cities and parking garages lose revenue when meters go unpaid and experience rising costs when enforcement requires broad coverage. One Streetline implementation found 45 percent of parking sessions were unpaid, resulting in lost revenue for the city and ineffective supply-and-demand cycles for motorists.

IBM and Streetline help cities deal with some of the toughest transportation challenges they face around parking. Insight from the historical and real-time data gathered can help cities become more proactive in anticipating how parking and their transportation network interact with other city services. The analysis helps cities plan accordingly, including economic development, scheduling mass transit, infrastructure projects, and special events.

It all starts with sensors

The Streetline Integrated Smart Parking Platform from IBM and Streetline brings together all aspects of parking management technology in one integrated system — from street-level sensors to mobile applications, analytics and system management software — to help people understand and manage a city's parking to make changes for the better.

Ultra-low power sensors detect the status of parking spaces and communicate through a wireless mesh network that offers extraordinary reliability. This mesh network is built using a series of unobtrusive and easily installed repeaters, placed on locations like streetlights and telephone poles, to form a canopy above the targeted area. These repeaters then relay data from the sensors and meters via the Internet to mirrored data centers. Meter Monitors™ can be installed in legacy single-space meters to detect payment and wirelessly integrate the meter into the network.

Cities can offer citizens the Parker™ application, which provides hands-free functionality through smartphones, tablets and GPS devices to assist drivers in determining the most likely location of available parking. The application shows parking in ranges of available spaces (<2, 2+, 4+), not specific numbers of open spaces or guidance to a specific spot. Parker can help drivers:

- Find open parking spaces on the street and in garages
- View parking policy, pricing and payment information
- Set reminder messages for parking expiration time
- Pay for parking by phone

ParkSight™ is the comprehensive parking revenue-optimization solution for cities. From the sensors in the ground to the integrated analytics systems, it provides everything a city needs to understand and take action to enhance, enforce and manage its parking ecosystem. The integration of IBM business intelligence allows cities to gain insight about ways to optimize traffic patterns, then apply dynamic pricing rules to create incentives or penalties to influence customers' choice of parking locations — balancing demand while increasing satisfaction and revenue.

The Parker application provides hands-free functionality through smartphones, tablets and GPS devices to assist drivers in locating available parking.

To encourage economic development, cities can provide local businesses access to a range of functionality through their websites, including parking searches and reservations, and even digital parking validation.

Through ParkEdge™ inventory management for private parking providers, citizens can gain even more access to available parking.

Streetline and IBM: a closer look

While Streetline delivers data and domain expertise, IBM brings the capabilities of strong, advanced analytics skills and optimization services.

Together, IBM and Streetline have jointly developed the Smarter Parking Revenue Optimization Starter Kit — a low-cost, low-risk, turnkey, entry-point solution. Initial investment has significant recovery potential through improved enforcement operations. This six-month pilot includes:

- **Hardware:** 200 - 500 sensors, meter monitors, low-power mesh network, repeaters and gateways from Streetline
- **Software:** data model and analytics integration jointly developed with IBM, powered by Cognos® 10
- **Streetline Smart Parking platform:** enforcement, management and mobile applications, as well as the consumer application Parker (available on Apple and Android smartphones), delivered as a hosted service
- **IBM services:** business analytics and optimization consulting by IBM to help cities develop implementation plans, including public outreach, financial and business models, and revenue-management process improvements to position the city to broaden their implementation of parking revenue optimization programs.

The core benefits of the Streetline solution are extended by the underlying IBM Cognos 10 business intelligence (BI) platform:

• Cognos 10 delivers a revolutionary new experience and expands traditional BI with planning, scenario modeling, real-time monitoring and predictive analytics.
• Cognos 10 is a proven technology platform that allows for seamless upgrades and cost-effective scalability for the broadest deployments.
• Cognos 10 provides exploration of any data, in any combination and over any time period, with a broad range of analytics capabilities.

The parking analytics system from IBM and Streetline allows cities to create and implement equitable and effective parking policies by diagnosing the root causes of parking unavailability, and optimize parking availability using demand-based pricing and focused enforcement.

Helping cities create Smarter Transportation systems

IBM's Smarter Transportation strategy recognizes that today's transportation system is enabled by interconnecting sensor and device data to allow translation of raw data into information, leading to valuable insights about the system. A transportation system becomes intelligent when we can utilize information and insights to improve citizen services, optimize the entire network, and reduce the environmental impact from traffic, transit and parking operations.

The IBM and Streetline partnership helps cities meet the three key criteria of a Smarter Planet:

• **Instrumented:** Streetline's system of sensors, networks and devices enable critical data collection
• **Interconnected:** Applications from Streetline enable communication between drivers, municipalities and businesses
• **Intelligent:** Information management and advanced analytics from IBM combined with data gathered from Streetline's parking sensors and applications provide cities a proactive system for:
  – Increasing revenue and capacity without adding services or real estate
  – Reducing congestion, waste and carbon emissions

For these reasons, in 2010 Streetline was named IBM Global Entrepreneur of the Year at IBM SmartCamp, an exclusive global program bringing together entrepreneurs, investors and experienced mentors who want to build a Smarter Planet.

Solution benefits

The IBM and Streetline solution provides the only end-to-end system, combining infrastructure, analytics and applications, that:

• Brings visibility to parking occupancy trends and consumer behavior across an entire city
• Provides critical analytics for improving cost and resource models for occupancy, pricing, maintenance and enforcement
• Provides a single solution to address the needs of all stakeholders: motorists, businesses and municipalities
• Fulfills a critical component of a city's overall transportation strategy
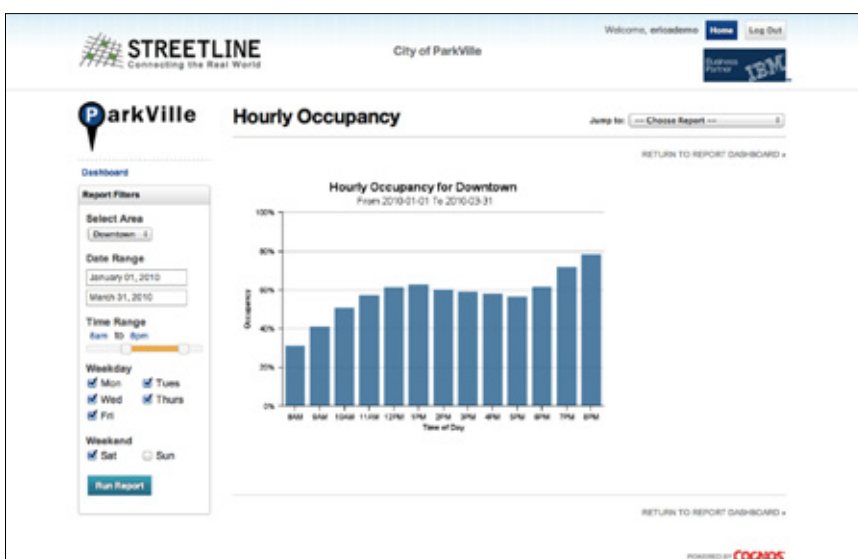
Streetline's applications use IBM Cognos to provide cities the best in analytics capabilities. For example, the Hourly Occupancy report displays when parking is in highest demand at a given time and location, helping to inform pricing and optimize the usage of parking spaces.

Rely on Streetline and IBM experience

Streetline

- **Industry leadership** — Streetline is the leading provider of smart parking solutions to cities, garages, airports, universities and other private parking providers.
- **Comprehensive solution** — Streetline is the only company offering an end-to-end, interconnected, real-time solution for complete, centralized analysis and management of parking for cities and major facilities.
- **Proven performance** — Streetline has recorded more than 40 million parking sessions and implemented solutions in major cities across the US.

IBM

- **Global reach** — IBM works with some of the most advanced operators of transportation networks in the world, from municipal governments to railway operators to airlines.
- **Broad portfolio** — IBM offers a comprehensive portfolio of services, software and hardware to transform the transportation industry by collecting data, analyzing it and making smarter decisions.
- **Strategic vision** — IBM works with cities, governments and others around the world to make their transportation systems smarter, so they can help traffic and public transit systems flow more smoothly, anticipate and improve congestion in advance, reduce emissions and increase the capacity of infrastructure.

For more information

To learn more about IBM and Smarter Transportation contact your IBM sales rep or visit: **www.ibm.com**/smarterplanet/traffic

To learn more about Streetline, please visit:
www.streetline.com

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