

Accelerating waste management

Create value with Internet of Things solutions



Europe-wide waste management stats:

- 300 metric tons of waste per year¹
- 200 kilograms of waste per year, per capita²
- 1 million+ people employed³
- €45 billion EUR in costs for European countries

Reduce cost, improve service

For municipalities and local councils, waste management is an area targeted for improvement. With new technologies and the Internet of Things (IoT), cities have new ways to optimize waste management processes, while reducing costs and delivering better services to citizens.

Gain efficiency

Today, the status of street waste containers is unknown, thus cities have regular, scheduled collection routes that don't necessarily correlate to the full levels or how often containers need to be emptied. This leads to inefficient route schedules collecting waste from containers that are less than half-full or ones that are overflowing with garbage.

This creates many inefficiencies:

- Labor, trucks, and other equipment are inefficiently used raising operation costs.
- Containers' useful life is reduced from unnecessary emptying.
- Waste bins that are overflowing can discourage users from using them.

IoT provides new way

The joint HPE and BH Technologies IoT solution allows you to measure most waste container levels and disposal processes for collection. Container capacity status is collected in real time, which enables routes that are dynamic and optimized. Organizing waste collection routes based on a container's capacity leads to greater efficiency. You can let containers fill up to 90 percent capacity, while making sure they don't become overfilled. The results are less frequent emptying cycles, reducing time devoted to collections by up to 40 percent, and this reduces the distance traveled by garbage trucks up to 20 percent. This is a sizeable operational savings for the waste collecting teams and wear on equipment. Container maintenance and lifetime are significantly improved with fewer container lifts required. In addition, the quality of service (QoS) to citizens is visible and measurable—with noise reductions, less carbon dioxide emissions, and the reduction of overfull containers.

HPE and SYREN IoT solution reduces inefficiencies

BH Technologies' SYREN solution, powered by HPE IoT, lets local communities reduce inefficiencies of traditional waste collection processes.

With special sensors that monitor waste container statuses, the HPE Universal IoT platform collects and preprocesses information. It leverages sophisticated algorithms—established from years of field experience—that generate alerts and dynamic, more efficient collection rounds, including estimates for distance, time, or volume and tonnage forecasts.

¹ "Managing municipal solid waste," European Environment Agency, No. 2, 2013

² "Sustainable development in the European Union," Eurostat Statistical Books, 2015 Edition

³ "Waste Management in Europe: trends and issues," Public Services International Research Unit (PSIRU), David Hall, 2012

Understand the solution

The joint solution combines unique monitoring devices, domain algorithms, and use by BH Technologies, and a robust, versatile IoT environment from Hewlett Packard Enterprise.

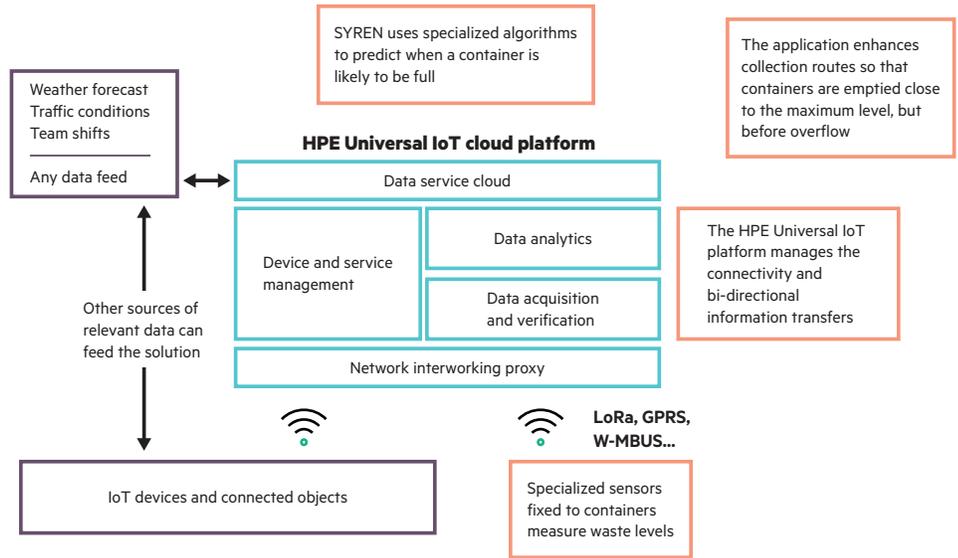


Figure 1: The architecture

How it works

New equipment investments are unnecessary when existing containers are fitted with special sensors developed for waste management. Using various connectivity options—GPRS, LoRa, or W-MBUS—HPE Universal IoT platform reports capacity levels for each waste container.

When data is received, the SYREN application mines information in real time to predict when containers will reach a predefined level. Based on the data, it creates a customized collection route each day. Furthermore, by collecting and analyzing historical data, the city can better understand usage patterns to improve the distribution of waste receptacles and collection points across the city.

The HPE Universal IoT platform provides a unified environment to manage connectivity and assets of this specific example, and alerts generated by the system. It also provides a secure and sophisticated platform for application and data management. The HPE Universal IoT platform is a multipurpose design and can be applied to other use cases. For example, the city can use the same infrastructure to consolidate smart parking, smart lighting, traffic lights, and more.

Benefits of SYREN solution on HPE Universal IoT platform⁴

- 90 percent container capacity with no overflow
- 42 percent reduction in lifts per year
- 32 percent savings in annual collection time
- 20 percent fewer kilometers driven by collection trucks

These figures are an observed average from actual BH Technologies facilities.

⁴ bh-technologies.com/331-2

“Local communities have been looking at smart city scenarios for some time, and very often actual implementations have been limited from a lack of relevant use cases, suitable business models, or to integration complexity. By combining forces, HPE and BH Technologies provide an answer to those concerns.”

Hewlett Packard Enterprise partners with BH Technologies

Our partnership with BH Technologies brings a unique combination of skills and capabilities to the market. BH Technologies is recognized as a domain expert, and combined with our complementary, flexible, and robust IoT platform, we help define new standards and create new business models for smart cities.

BH Technologies highlights

For more than 15 years, BH Technologies has developed innovative technology products and global solutions for government entities. Its driving philosophy is to develop sustainable offerings through environmental transitions. Company objectives include reducing environmental footprint, decreasing operational costs, and improving performance and service quality to users.

Its clients include many communities in France and abroad. They combine industry expertise with easy-to-use technology to offer strong solutions with a global approach to the market. After a successful public lighting management solution, BH Technologies launched its waste management solutions in 2005 with the SYREN sensor, which received the innovation award at the 2005 Mayors and Local Authorities Exhibition.

BH Technologies is a pioneer in the smart cities market with its global optimization solutions for communities, and is positioned as the partner of choice for smart cities.

HPE value proposition for the IoT

Benefit from HPE IoT solutions. We're a leading supplier of communications solutions with more than 20 years of experience managing devices, networks, data, analytics, provisioning, business support systems, and cloud. By engaging with Hewlett Packard Enterprise, you get a proven technology solutions provider that offers IT infrastructure services globally. We invent, engineer, and deliver technology solutions that drive business value, create social value, and improve customers' lives.

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