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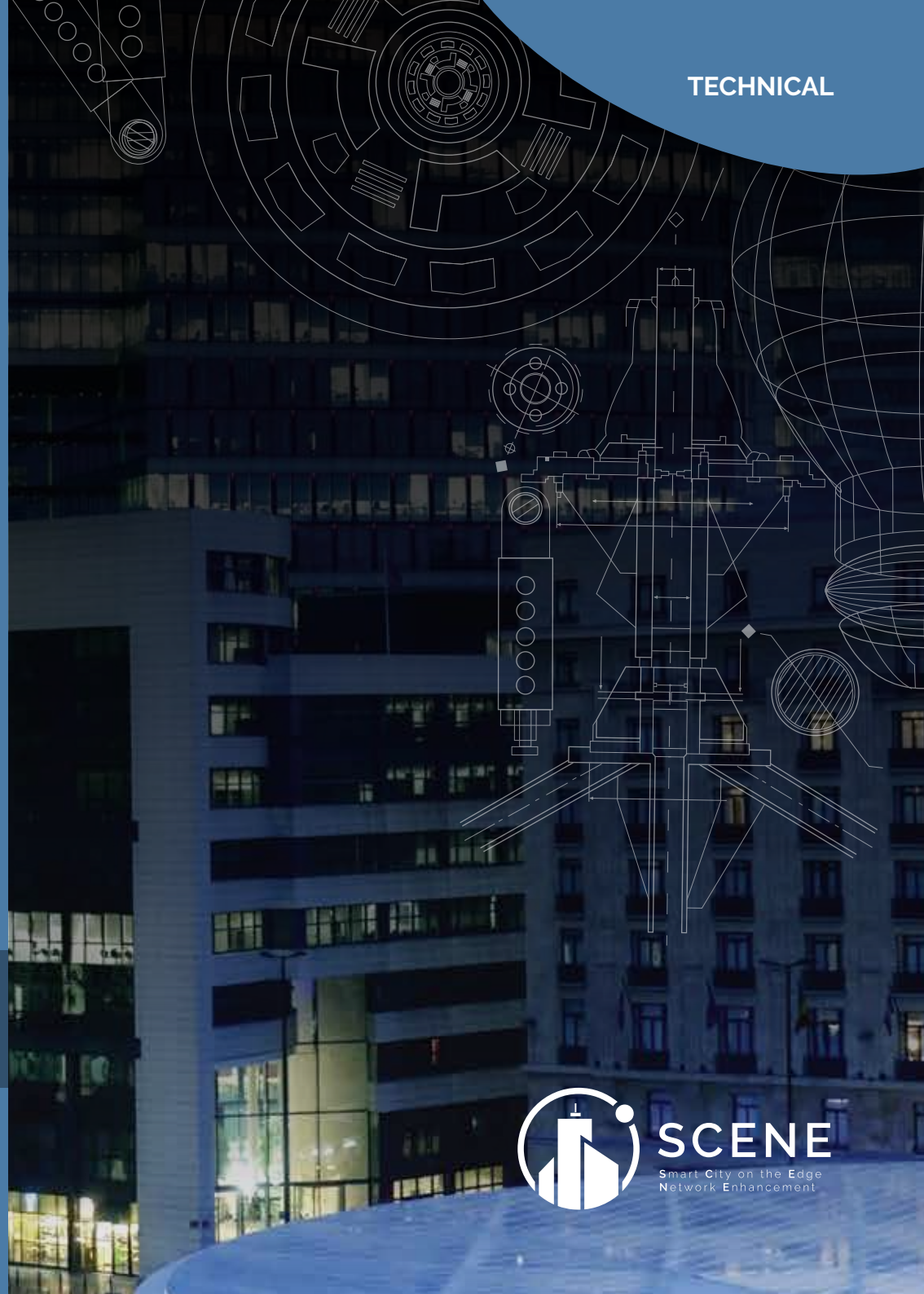
TECHNICAL



SCENE

Smart City on the Edge Network Enhancement

Why SCENE?

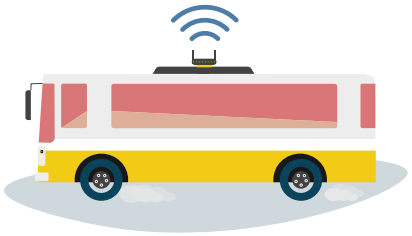
Communication systems and infrastructures that allows to collect data for smart environments (cities, communities, groups, services, etc.) usually require high initial investments, which are heavy to support for small and mid-sized cities.
To overcome this challenge, the SCENE project is offering a low-cost IoT and Smart City Services infrastructure solution.

What is the concept of SCENE?

SCENE (Smart City on the Edge Network Enhancement) is proposing an integrated solution based on vehicular networks for a secure **IoT infrastructure** that collects data from IoT Sensors deployed citywide and delivers them to our customers. The collected data can also be analysed through **SCENE Central Service Platform** advanced services. In addition, a **Content Delivery Solution** is offered in the vehicular segment of our platform: the passengers can view downloaded content and experience Internet access even during network disconnections, thanks to content caching and prefetching techniques.

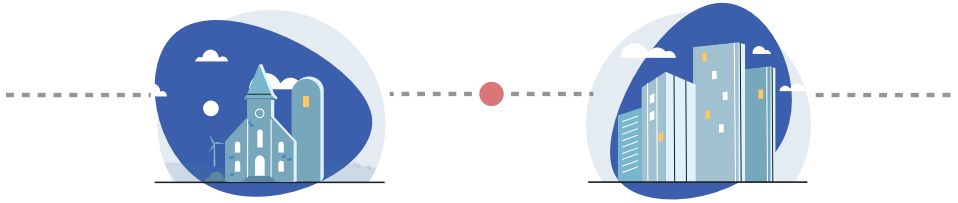
Security is one of the main goals of SCENE, starting from the design of all its components based on the highest available security standards.

One of the key components of SCENE platform is the **Intelligent Gateway** (IGW), a device that installed on moving vehicles periodically scans the city collecting IoT data from deployed wireless sensors. The IGW is equipped with communication capabilities to access Internet and forward sensor data to another key element of SCENE platform, the **Central Service Platform**, to be further forwarded to the sensors' owners. The Service Platform is the central core of SCENE. It securely collects all the incoming data, stores them in safe data layer and performs advanced analytics on it. Il also exposes a standard API layer to let customer to access their data.



This scenario enables the exploitation of low-cost sensors that will not need to have long range communication functionalities embedded, they just need to have a short-range wireless communication system in order to talk with IGW when it is in range. It means, low sensor costs, less energy needed to power a sensor and in turn this implies a longer duration sensor battery life.

Additionally, short range communication will enable high bit rate sensors to be used, as the SCENE platform can extend to any IoT traffic capacity.



All the IGWs moving in town on Buses or other vehicles, constitute a powerful scalable mobile interconnection infrastructure that enables saving costs of a fixed infrastructure. An IGW can even be able to reach remote areas far from town, i.e. rural regions, and bring IoT connectivity there.

Let's imagine a drone equipped with an IGW following water pipes to gather sensors data or following a river path to check humidity or water level or exploring a forest in order to get data from specific environmental remote sensors. In other words, SCENE platform has the potential to reach remotes sites not covered by a fixed communication infrastructure.

The Service Platform is also equipped with the **Dashboard**, the main web user interface to allow our customers to exploit SCENE advanced functions at their best. They can register new sensors, create and manage new Smart City Services, show their data, and have general analysis on them. Our Customers will use the SCENE Platform as infrastructure for collecting data from their IoT sensors deployed citywide by accessing with standard technology (API) to the central SCENE Service Platform and manage their Smart City service with the SCENE Dashboard.

In addition, as an important innovation element of SCENE Platform, our Customers will have the important feature to deliver their APPs directly inside the IGW, following an **Edge approach** to the computation of their sensors data and therefore significant reduction of the upstream traffic, by eliminating potential redundancy of information.

SCENE added-value for cities

Low-cost, open and interoperable, the SCENE solution fosters the development of the local ecosystem. With SCENE, local SMEs and start-ups can build advanced smart city services to be integrated in the Central Service Platform, which thus continuously evolves to provide new services to citizens.