VIMOC Smart Parking Solutions

Parking Garage Occupancy Management

Parking Garages offer urban environments a way to direct vehicles to a dedicated structure, resulting in a reduction of on-street congestion as drivers often precariously look for spaces close to their destinations. Garages form an integral part of cleaner and more pleasant urban spaces. The biggest hurdle to direct drivers to parking garages is the perceived risk of entering a full garage without the guarantee of a quick exit.

The capital cost of parking spaces in multi-level garages can cost anywhere between $25k-$100k per space! Leveraging smart parking technologies is the key to increasing occupancy, parking revenue, and customer satisfaction.

VIMOC has implemented a detection system using image sensors that leverages Landscape Computing's powerful software architecture. Image sensors are positioned in view of entry/exit lanes and the feeds are sent to the neuBox installed on site. The neuBoxs process the live feed, applying advanced computer vision and classification algorithms which detect vehicles entering and exiting the garage, after which the raw images are discarded. The live results of these algorithms are available via VIMOC's API, which can be used by any apps that are granted access to the data stream.

Vital to this counting system is the ability to present this information to drivers in real time in order for them to make the decision about entering the parking garage. Our parking garage solution therefore includes smart digital signage, which is updated in real time on the local Landscape Computing Network. As more spaces become available in the garage, the signs will update in real time. As with all sensors on the Landscape Computing network, any disruptions in LTE or internet connectivity do not affect the operation of the local network or the collection and storage of data.

Landscape Computing enables this method of sensing in that it does not require live streaming of high-data video feeds, and it avoids a single point of failure and high latency issues.
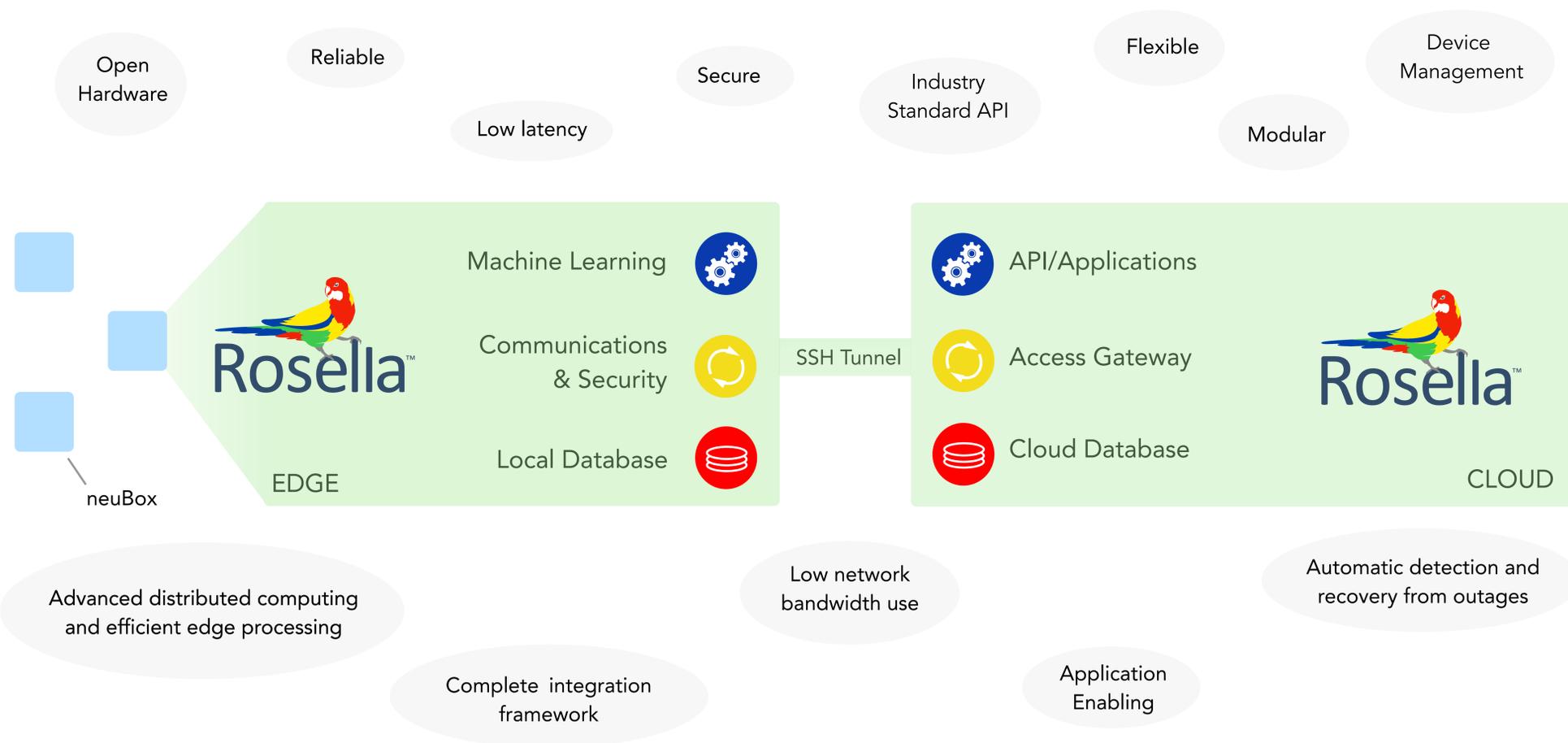

Application-Enabling API

VIMOC has a developer API based on industry standard technologies, which allows third party vendors to integrate live information from VIMOC's Landscape Computing platform in order to enrich and enable new applications such as enforcement, mobile parking availability and guidance apps.

Rosella™ Landscape Computing Software

VIMOC's Rosella™ IoT software stack is an end-to-end solution from the edge of the network to the cloud. This solution creates a seamless and robust link that allows intelligent infrastructure to drive intelligent applications.

Rosella Embedded is a distributed software solution performing sensory data capture and processing at the edge of the network, while efficiently cooperating with other Rosella Embedded computing nodes and the Rosella Cloud. Each embedded software node performs data normalization, message parsing, edge processing pipeline and storage, with an extended framework for machine learning, vision processing etc.

Rosella Cloud is the software component which communicates with the Rosella Embedded computing nodes to authenticate and collect the intelligence produced by this network. This intelligence is presented via the Rosella API to enable advanced applications and services, including visualization, data mining/ analytics etc.

Open Hardware   Reliable   Low latency   Secure   Industry Standard API   Flexible   Modular   Device Management

Machine Learning   Communications & Security   Local Database   EDGE   SSH Tunnel   API/Applications   Access Gateway   Cloud Database   CLOUD

neuBox

Advanced distributed computing and efficient edge processing   Complete integration framework   Low network bandwidth use   Application Enabling   Automatic detection and recovery from outages

Enabling a new generation of services & applications

The Rosella platform will enable a new generation of applications to enhance customer convenience, lower labor costs, improve cash management and increase overall productivity. This is thanks to the Rosella Embedded machine learning framework, consisting of a library of deep learning machine vision algorithms for detection and classification tasks. The Rosella Embedded software can also connect to a variety of sensors that are commonly used in parking infrastructure. This feature enriches the data available to Rosealla API developers to design new applications and enhance existing services such as valet parking and wayfinding.