

TESTING TRAFFIC ON SMART PARKING APPS

Smart Parking Apps is a software solution created by Smart Building Apps that connects people seeking a parking space with commercial and residential property managers or owners offering available parking spots. In preparation to expand their business development efforts, Smart Building Apps tested the performance of their parking solution as large-scale traffic is generated through their application.

SMART BUILDING APPS

Smart Building Apps creates software applications to help virtualize recurring tasks property managers handle on a day to day basis. Their software packages are available to both commercial and residential property managers and offer services such as amenity notices, maintenance requests, and parking management. These solutions are accessed through an all-in-one communication and tenant management application for property managers. The Smart Building Apps team is an accomplished group in the property and parking management sector previously rolling out the widely adopted ParkandPay, Visitors Parking, and Response Group Canada application services. The focus of their project at CENGN was on their Smart Parking App in which they tested the processing abilities that would be required of their solution as the number of users were scaled.

TYPICAL PARKING WOES

Traditional parking management solutions can be costly for the property managers and time consuming for the people parking their cars. To keep proper security, owners are forced to invest in the physical infrastructure of their lot, buying and implementing things like gates and machine terminals. Visitors of tenants parking their car in residential and commercial parking lots can also raise complexity. Registering as a visitor in most lots requires using a parking machine or signing in at a desk. Wouldn't it be great if you could just register your car from your phone in under 30 seconds? Smart Parking Apps lets you do that and more.

EFFICIENT AND MANAGEABLE PARKING

Smart Parking Apps is connecting people wanting to rent out their parking lot, whether it is commercial or residential, to other people seeking parking. Users find parking spaces at a Smart Parking Apps registered lot, enter their information through the app and carry on with their day.

Smart Parking Apps lets users view lot availability, register their vehicle for a specified time, add their vehicles to a waiting list, and pay for parking all through their smartphone app. Property managers can control parking rates and availability, search vehicles and users, receive notifications of expired parked vehicles, give VIP privileges, and add trespassers to a banned list. The system also has a console that allows guards to manage ticketing right on the app, saving them time and making it easier to view all the related information from the user. With Smart Parking Apps the supervisors will finally be able to ensure there's no more abuse of parking spaces and users will be able to find available locations before leaving their house.

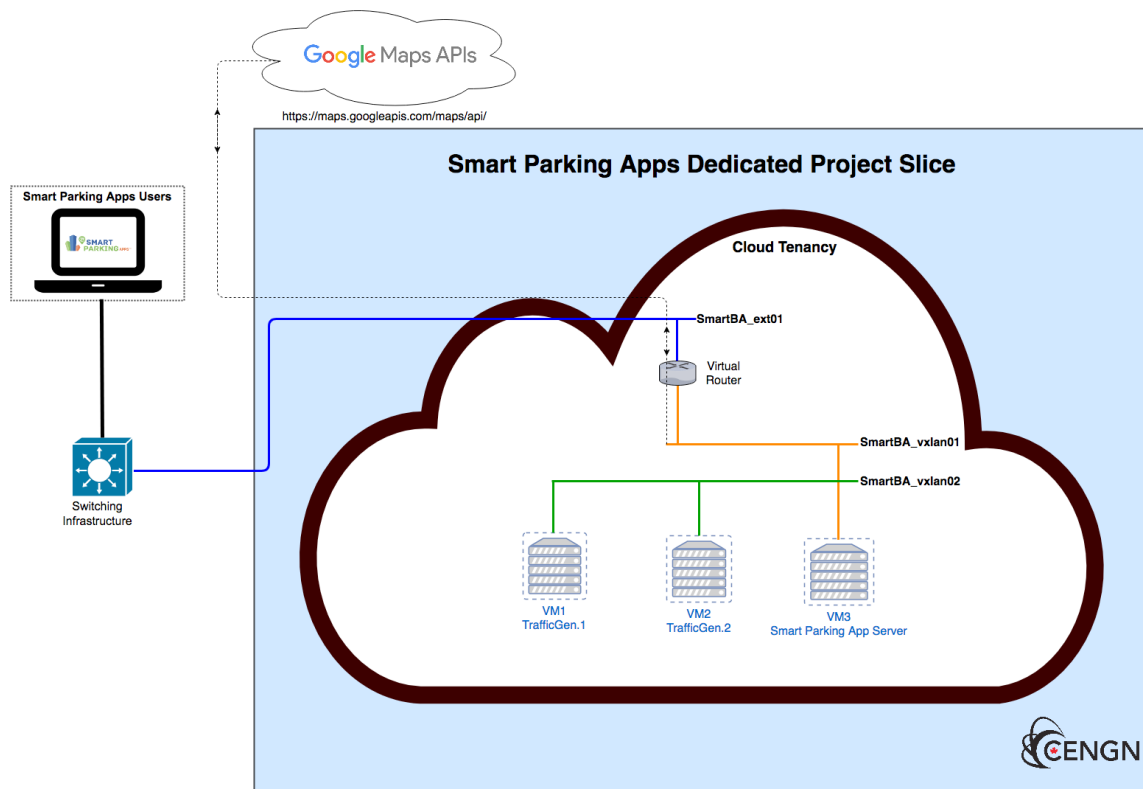


PROJECT SETUP

For this project, Smart Building Apps was provided a secure cloud tenancy within a dedicated CENGN project slice. To configure the testing environment for Smart Building Apps, they deployed their Smart Parking server and two traffic generators in a dedicated cloud tenancy on the CENGN Testbed. The project objective is to determine the processing ability of Smart Parking Apps.

CENGN MEMBERS





RESULTS

Smart Parking Apps went through the following test cases where traffic was generated at different parts of their web application ensuring the requests could be processed on a large scale.

1. User registers an account, resets their password, and changes personal information
2. User is able to manage their vehicles and register for both a free and paid parking pass
3. Property manager can create a parking lot and add users to the waiting list as well as send out invites and announcements.
4. Property manager can add a banned list, add users to lots, and review revenue reports.
5. Security guards can issue tickets

Through these different test cases, metrics were observed on the number of HTTP requests from certain actions, average response time from the app, error percentages, throughput, and kilobytes of data transmitted. Smart Building Apps was able to surpass all expected outcomes including observing 4.5 times the number of targeted HTTP requests (30k requests).

CONCLUSION

As Smart Building Apps continues to expand their Smart Parking App to municipalities and large commercial property managers, their solution needs to be adaptable to heavier traffic loads. As they pursue to expand their business development efforts, Smart Parking Apps will be testing the scalability of their solution at CENG. Large scale clients want validation that the parking solution can perform under the stress of a multitude of users simultaneously accessing the application. In addition to receiving validation of the performance of their solution, Smart Building Apps was able to modify their code to remove any bottlenecks in traffic, uncover errors when running at large scale, and gain exposure to an OpenStack environment and other tools such as JMeter and Nmap.