

Proposed Pilot for IoT Inventory + Risk Mitigation

Problem Statement:

One of the primary Guidelines for Internet of things set forth by NYC government is to accumulate IOT inventory database and support citywide coordination of IOT deployments. [1] It is highly essential and critical to establish this database as any unauthorized or illegal device could pose a serious cyber threat to the citywide network. This can also be utilized to avoid duplication of device types in the same location and to monitor and control the installations on city infrastructure. Once the inventory is identified, the city agencies should create and maintain a database in a standard format containing the information pertaining to privately and publicly owned assets including the device type, device installation location, Network type, Security Protocol, Service Level agreements and contact information for the network and system operator. It would be challenging and laborious task to identify the devices in the street and their owning city agencies by manual surveying. Hence, a device that could identify a IOT enabled device based on the Radio frequency they operate and the device characteristics can be very helpful in mapping the inventory.

Current use of Bastille:

Bastille has developed a technology that scans the entire radio spectrum, identifying devices on frequencies from 60 MHz to 6 GHz. This data is then gathered and stored, and mapped so that it can be used to understand what devices are transmitting data, and from where in the corporate airspace. [2] This provides improved situational awareness of potential cyber threats and post-event forensic analysis. Bastille networks device has been successfully tested for stationary indoor environment, and the device has a capability to detect device in 9 different bands.

Proposed Pilot:

NYC Scout vehicles maneuver over the city limits covering the whole city limits of over 6000 miles of street each month [3]. It is proposed to install the Bastille devices on the NYC Scout vehicles, so that the device could pick up the RF signals on the way and tag it with GPS data to create an inventory of wireless IOT devices.

Bastille sensors have proven results on stationary installations. It is still doubtful if these sensors could sense the device signals when in motion. The other key challenge could be mapping of GPS signal data with the RF signals and interference from millions of privately owned devices in the region.

If the pilot succeeds it would not only enable the city to keep track of IOT enabled infrastructure inventory in the city but also would help to identify and remove the illegal devices installed on the city infrastructure and protect the city from potential cyber threats.

[1] "NYC IoT Guidelines : Infrastructure," 2017. [Online]. Available: <https://iot.cityofnewyork.us/infrastructure/>.

[2] "Bastille Networks," 2017. [Online]. Available: (<https://www.bastille.net/>).

[3] NYC, "NYC Scout," NYC Mayors office of operations, 2017. [Online]. Available: (<https://www1.nyc.gov/site/operations/performance/scout-street-condition-observations.page>) .