

Smart Contact Tracing System

Team name: 5Bugs

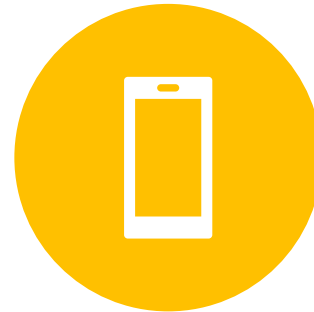
Pitfalls of current contact tracing system



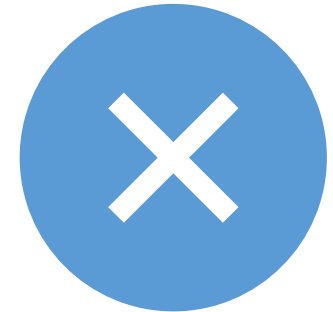
REQUIRES SMART DEVICES
(TRACETOGETHER) OR NRIC
(SAFEENTRY)



DIFFICULT FOR CERTAIN
GROUPS OF PEOPLE



BLUETRACE RUNS POORLY ON
OLDER SMARTPHONE MODELS
AND OPERATING SYSTEMS



SAFEENTRY IS EASY TO
EXPLOIT

Smart Identification Traceability (S.I.T)



Works together with SafeEntry



Leverage AWS technologies



Item-free check-in



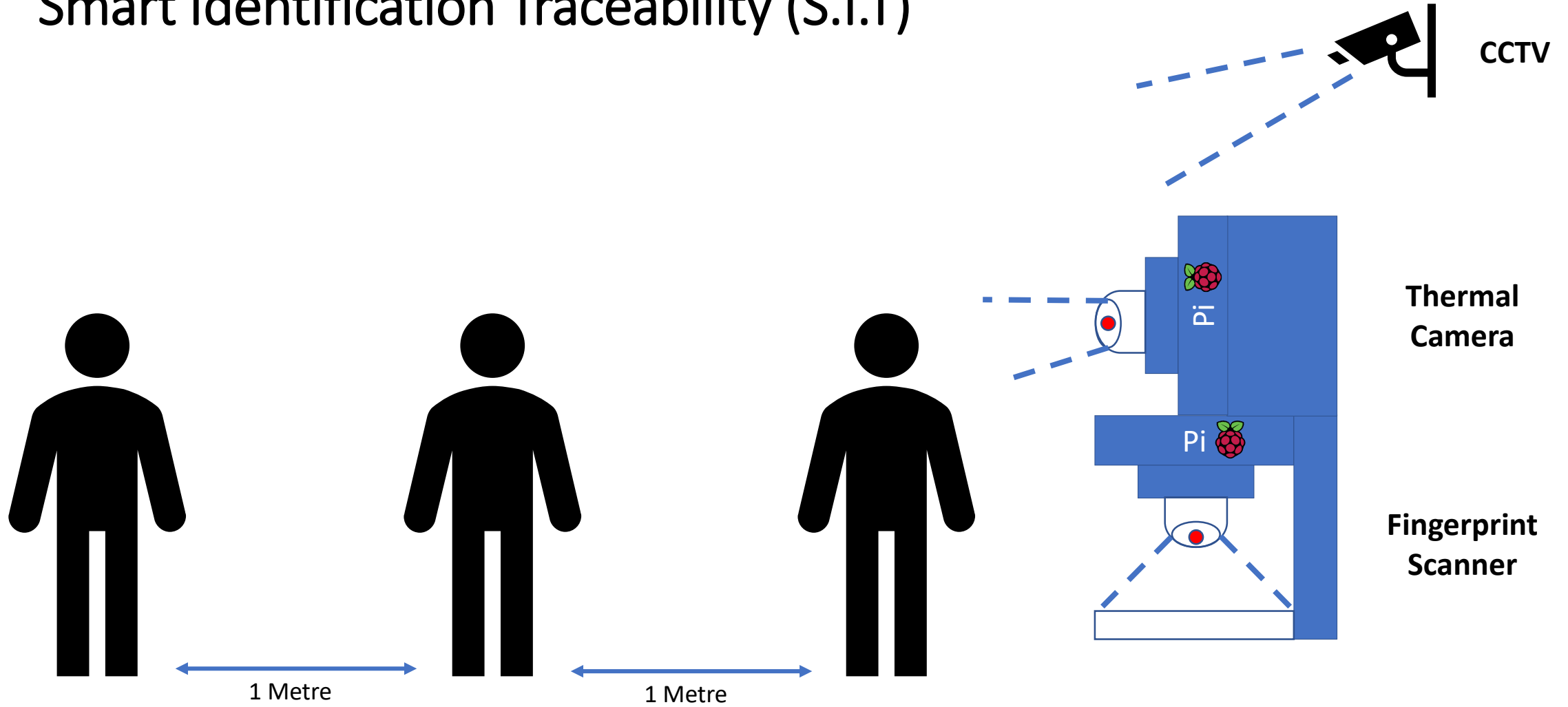
Automation of contact tracing and visiting of SafeEntry areas



3 component solution

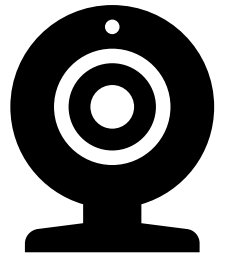
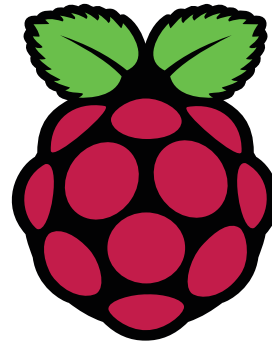
1. Biometrics Identity Tracker (B.I.T)
2. Level Imaging Thermology (L.I.T)
3. Human Identification and Tagging (H.I.T)

Smart Identification Traceability (S.I.T)



Biometrics Identity Tracker (B.I.T)

1. Fingerprint Capture
2. Fingerprint Process
3. Fingerprint Match
 - (99.75% accuracy)

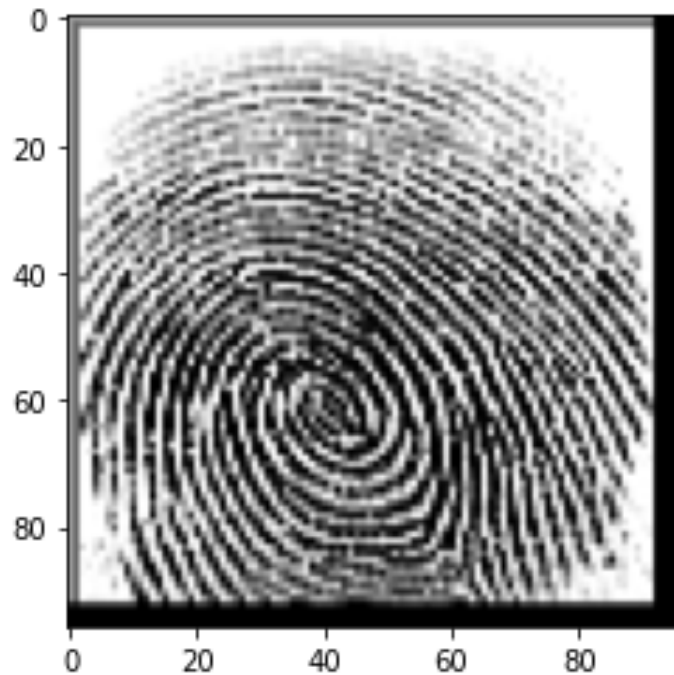


Fingerprint Capturing and Processing



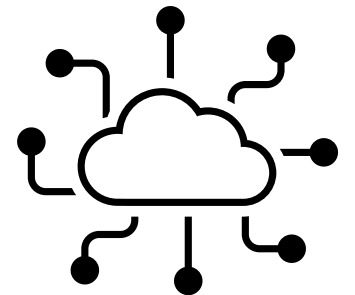
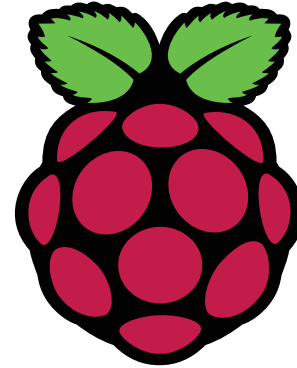
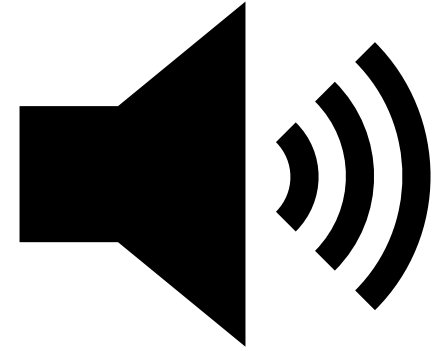
Fingerprint Matching

Information confirm! Fingerprint matches: person Id 285 right ring



Level Imaging Thermology (L.I.T)

- Real-time detection of temperature
- Alert sounds off when temperature $\geq 37.5^{\circ}$
- Makes use of low cost hardware

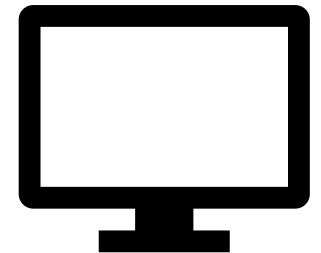
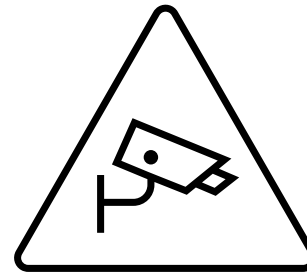
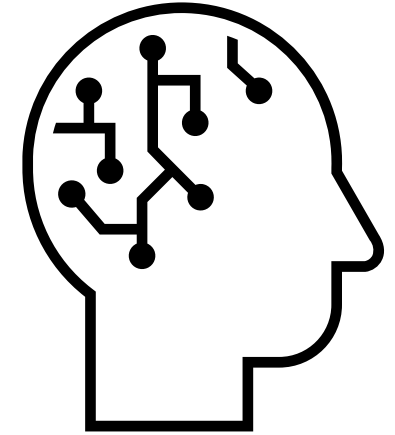


L.I.T Hardware

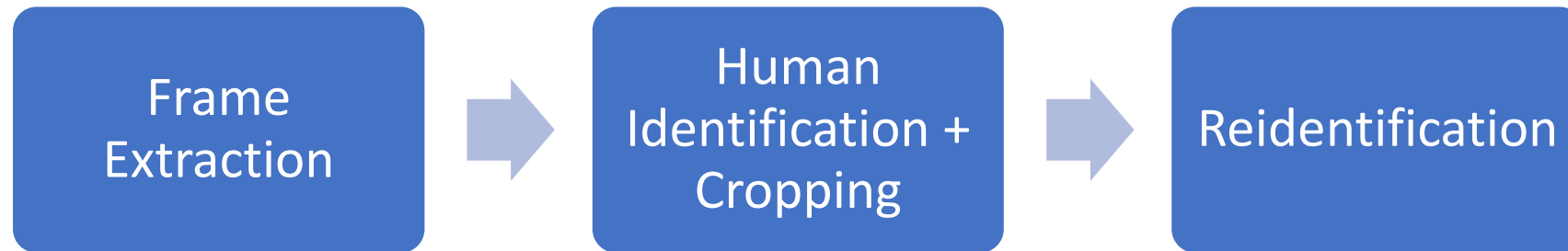


Human Identification and Tagging (H.I.T)

- Utilizes recorded CCTV footages
- Identify and tag humans based on various elements
- Dashboard for tracing affected person



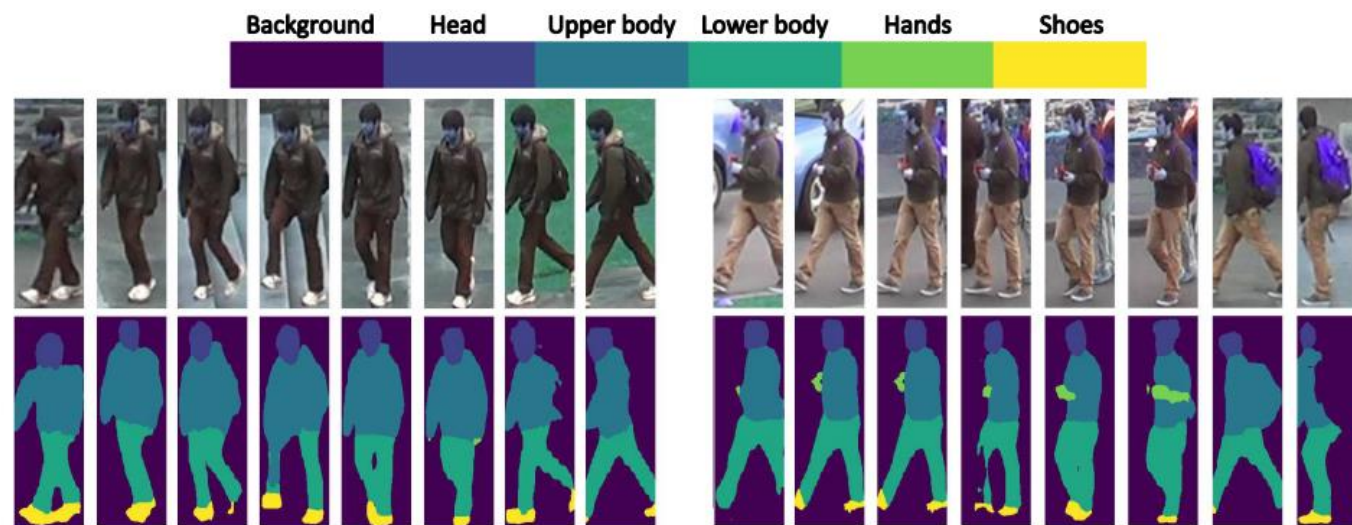
Model Flow



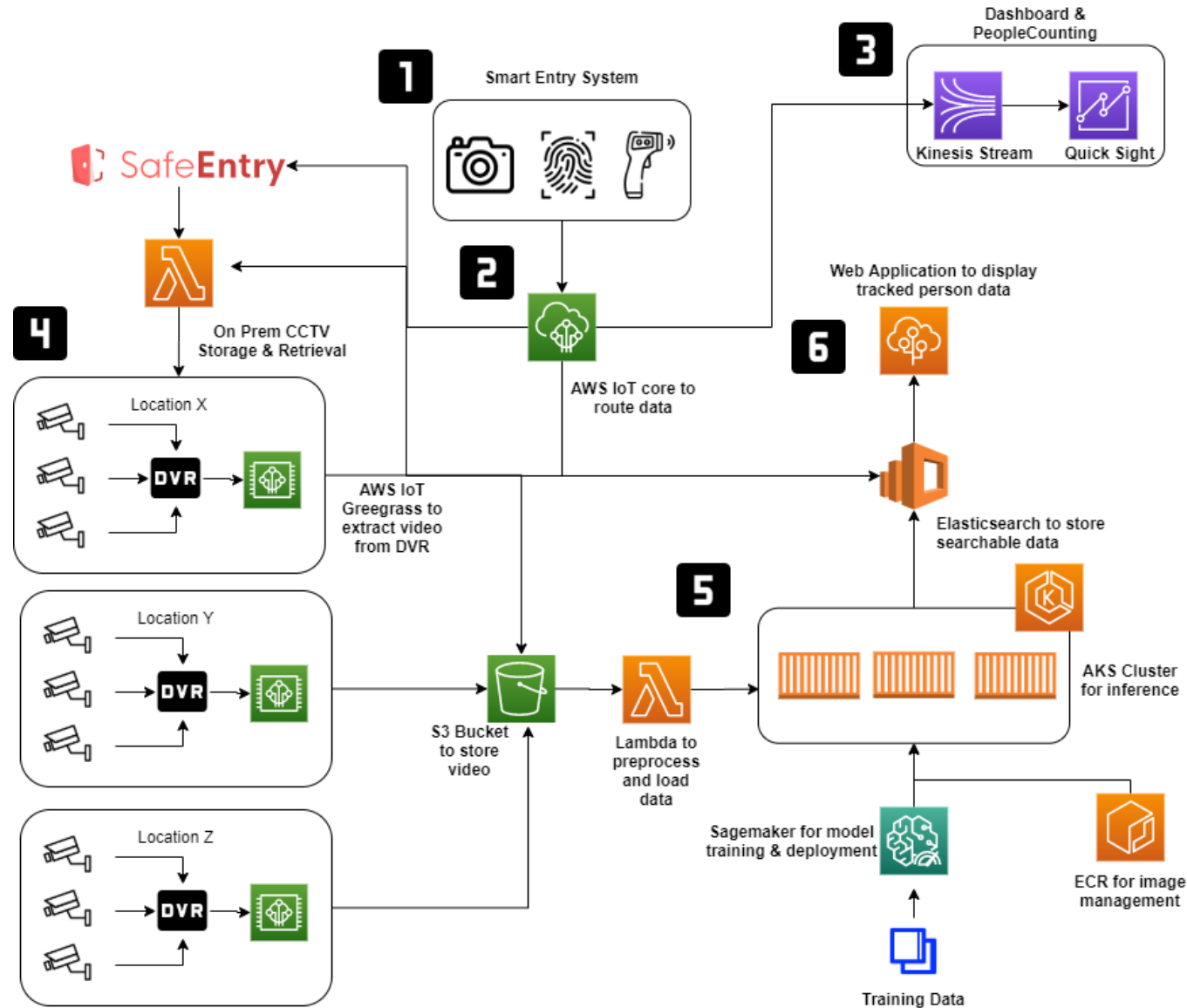
Human Identification



Reidentification



How does it work together?

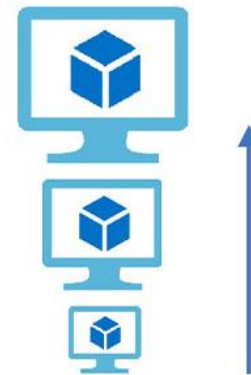


- 1** Smart entry system collects biometrics & initial image and forwards data to IoT Core
- 2** IoT Core routes the data to the SafeEntry System for automatic check in, Kinesis Streams & Elastic search
- 3** Kinesis Streams does people counting and updates the quick sight dashboard for live occupancy metrics
- 4** Once COVID-19 patient is identified, safe entry is triggers an lambda function to retrieve CCTV footage.
Greengrass devices extract relevant CCTV footage and deposit them in an S3 Bucket
- 5** Video footage is processed in an AKS cluster and inference results are generated and inserted into an AWS Elasticsearch Service
- 6** Results of detection is displayed by a web application running on elastic beanstalk

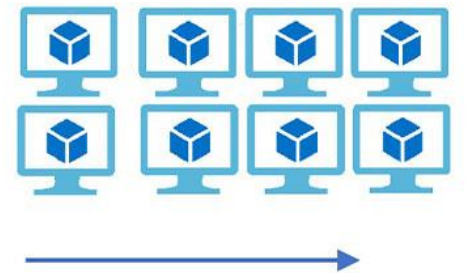
Scalability

- Able to build the solution with low cost as compared to the market.
- Leverage on AWS Cloud services to scale
 - Horizontal scaling – Able to add on more AWS instances
 - Vertical scaling – Scale up the instance

Vertical Scaling
(Increase size of instance (RAM , CPU etc.))

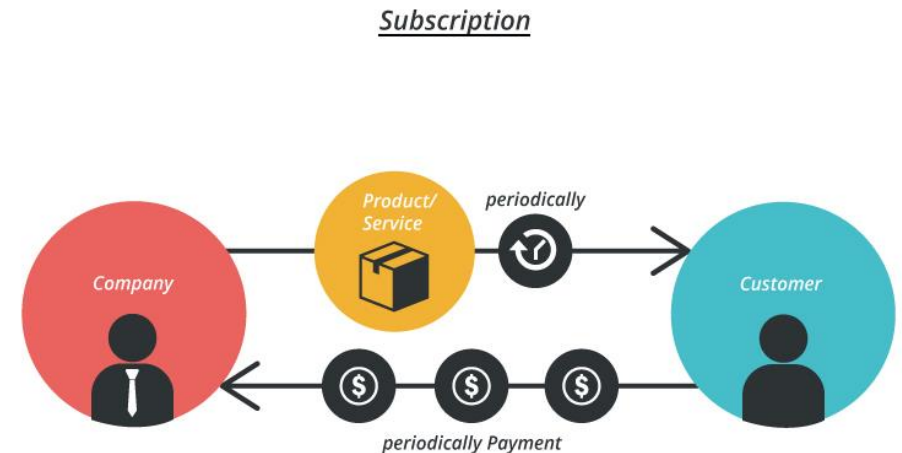


Horizontal Scaling
(Add more instances)



Business Model

- Product and Service model
- Model 1 – Subscription service, provide technical assistance to deploy and maintain the components. (Periodic payment)
- Model 2 – Product, package and sell the different components (Revenue based on Units sold)





Thank you