Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	18 October 2022
Team ID	PNT2022TMID01871
Project Name	Smart Famer – IoT Enabled Smart Farming Application
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2
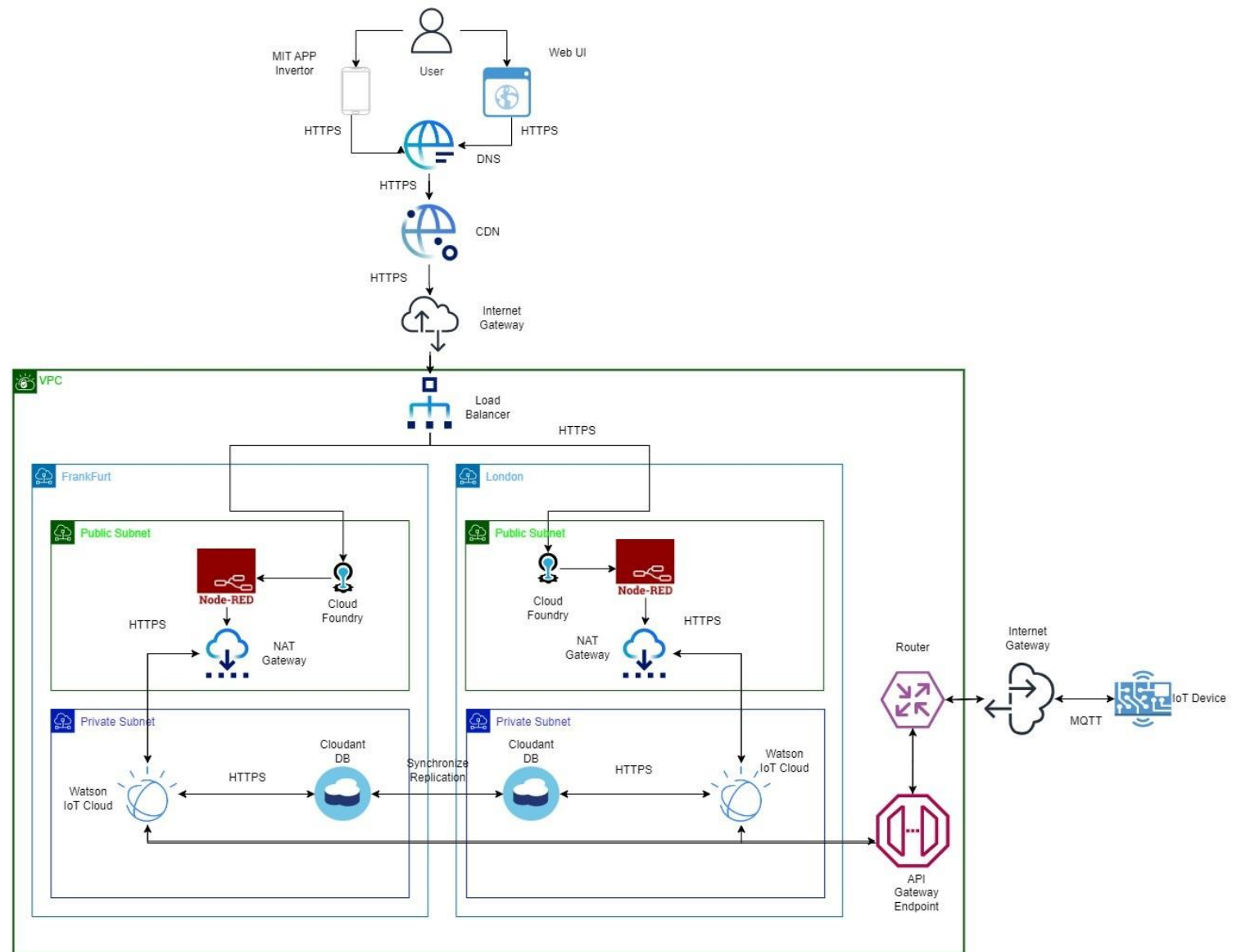
User

MIT APP Invertor

Web UI

HTTPS

HTTPS

DNS

HTTPS

CDN

HTTPS

Internet Gateway

VPC

Load Balancer

HTTPS

FrankFurt

London

Public Subnet

Public Subnet

Node-RED

Cloud Foundry

Cloud Foundry

Node-RED

HTTPS

NAT Gateway

NAT Gateway

HTTPS

Private Subnet

Private Subnet

Cloudant DB

Cloudant DB

Watson IoT Cloud

HTTPS

Synchronize Replication

HTTPS

Watson IoT Cloud

Router

Internet Gateway

IoT Device

MQTT

API Gateway Endpoint

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application Web UI and Mobile App	NodeRed
2.	Application Logic-1	Logic for a process in the IoT Device to sense	Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson Assistant
4.	Cloud Database	Database Service on Cloud	IBM Cloudant DB
5.	External API-1	Purpose of External API used in the application	IBM Weather API
6.	Infrastructure (Server / Cloud)	Application Deployment on Cloud Server Configuration	Cloud Foundry.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Python
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Use API Gateway and Internet Gateway as firewall Protection
3.	Scalable Architecture	Every Cloud Services are hosted separately and make is scalable separately	Public and Private Gateway
4.	Availability	Application is hosted on two regions for availability	London and Frankfurt Region Data Centres are used
5.	Performance	Used Content Delivery Network and API gateway to scale millions of users and IoT Devices as well	IBM CDN and IBM API Gateway are used