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Pro.Name:Serverless IOT Data Processing

Set up IBM Cloud Functions:

- Run your code snippets, or actions, on Cloud Functions. ...

- Create triggers and rules to enable your actions to respond to events. ...

- Bundle actions and configure external events sources. ...

- Explore the catalog of packages and enhance your applications with external services.

Set Up IoT Device Integration

- ## IBM Cloud IoT Platform:

  This service is the hub of all things IBM IoT, it is where you can set up and manage your connected devices so that your apps can access their live and historical data.

- ## Authentication:

  For servers, the answer is to program their firmware with an endpoint to which IoT devices will connect and a public certificate for either the server itself or an appropriate CA. The IoT devices are then programmed to trust this server certificate.

- ## Data Ingestion:

  Data ingestion involves procuring events from sources (applications, IoT devices, web and server logs, and even data file uploads) and transporting them into a data store for further processing.

Data Collection and Forwarding:

Data Collection:

IoT data collection is the process of using sensors to track the conditions of physical things. Devices and technology connected over the Internet of Things (IoT) can monitor and measure data in real time.

Forward Data to Cloud Functions:

The IoT device should be able to connect to the internet to send data to the cloud. This can be achieved through a variety of wireless or wired network technologies such as Wi-Fi, cellular, ZigBee, Bluetooth, or Ethernet.

Testing and Monitoring:

Test Your Setup:

Especially in IoT device testing, environment setup is crucial as it involves several devices. Here our goal is to set up a test environment with the latest application version and all the devices associated with it.

Monitoring and Scaling:

❑ Monitoring your Internet of Things (IoT) inventory is the process of discovering, evaluating, monitoring, and managing your connected devices.

❑ IoT scalability refers to the ability to go from prototype to production in a seamless way.

Data Processing and Storage:

Data Processing::

In order to make sense of the massive amount of data our IoT sensors collect, we need to process it. Wikipedia explains data processing as "the collection and manipulation of items of data to produce meaningful information."

Data Storage:

Data is captured at the source through sensors (which are either inbuilt like in a robot or through external sensors installed on the connected device being monitored). Data is then transmitted to a system for storage and organization purposes.

Security and Compliance:

Security:

Smart home systems should use strong authentication such as multi-factor authentication, to ensure that only authorized users can access the system. This includes ensuring that devices are properly authenticated before being added to the system.

Compliance:

There are two ways that law firms interact with IoT.
- ❏ One way is during eDiscovery when lawyers can look at devices like Fitbit and voice speakers to gather necessary digital evidence.
- ❏ The second way IoT makes its way into law practices is through the use of it by the law firm itself. For example, they may have a video doorbell at the front door, or a lawyer may dictate notes into a voice assistant through the stereo in their car.

Scalability and Optimization:

Scalability

A scalable network infrastructure can support the growth of IoT devices over time. This can be achieved by using cloud computing, which allows for elastic scaling of computing resources, or by using software-defined networking (SDN), which allows for the dynamic allocation of network resources.

Optimization:

In integrating smart devices, optimization means enhancing the efficiency and performance of the entire system. This includes improving data processing, minimizing latency, reducing power consumption, and ensuring secure data handling. By optimizing the system, you can make the most of your smart devices, ensuring they work seamlessly and cost-effectively in the IoT ecosystem.

THANK YOU