# SAP

**✅ 1) Design Microservices, Monitoring Microservices, Operation Microservices**

These are the **three types of services (tools)** inside SAP CPI.

* **Design Microservices**  
  👉 Used by developers to **build integration flows (iFlows)**  
  🛠 Like the "blueprint builder" or "recipe maker"
* **Monitoring Microservices**  
  👉 Used to **track message status, errors, performance**  
  🔍 Like CCTV cameras and dashboards showing what’s working and what’s failing
* **Operation Microservices**  
  👉 Responsible for **running the actual integration flows**  
  ⚙️ Like the engine that processes and delivers the data

**✅ 2) Design Data**

* This is the **blueprint or logic** of the integration.
* It includes things like:
  + Start point
  + What data to transform
  + Where to send the data

🎨 It's the **iFlow configuration**, made by the integration developer.

**✅ 3) Monitoring Data**

* This is the **log or tracking info** of what happened.
* It shows:
  + Message status (Success, Failed, In Progress)
  + Time taken
  + Errors, if any

📊 Think of it like an **order tracking system** for your data.

**✅ 4) Workers**

* These are **background processes** that actually carry out the integration tasks.
* They **run the flows, process messages**, apply transformations, and so on.

🧑‍🔧 Think of them like **delivery workers** carrying packages between systems.

**✅ 5) Message Content and Runtime Data**

* **Message content** = The actual **data** being sent (like a customer order).
* **Runtime data** = Info about how the message is being processed (like message ID, time sent, etc.)

📦 It’s like:

* Message content = What’s inside the box
* Runtime data = The delivery slip

**✅ 6) Sender**

* The system or app **sending the data** into SAP CPI.
* Examples: Shopify, Salesforce, File System

📤 Think of it as the **"From" address** on an envelope.

**✅ 7) Receiver**

* The system or app **receiving the data** from SAP CPI.
* Examples: SAP S/4HANA, email server, database

📥 This is the **"To" address** on the envelope.

**✅ 8) Admin**

* The person who **manages the platform**:
  + User permissions
  + Security
  + System availability

👮‍♂️ Think of this person as the **security guard and manager** of the SAP CPI building.

**✅ 9) Integration Developer**

* The person who **creates and configures the integration flows (iFlows)** using design microservices.

👨‍💻 They are the **main builders** of the system’s logic.

**✅ 10) Load Balancer**

* Distributes incoming traffic **evenly across multiple workers** or servers.
* Prevents overload on one system and improves performance.

⚖️ Like a traffic police officer who makes sure no road is too crowded.

**✅ 11) Tenants**

* A **tenant** is a separate environment or workspace in SAP CPI.
* Examples:
  + **Design Tenant** → Used to build integrations
  + **Runtime Tenant** → Used to run integrations

🏢 Think of each tenant as a **separate office floor** in a company building.

🔄 **How They All Work Together (Simple Flow):**

**🎯 Real-Life Example: Sending a Parcel from One Shop to a Warehouse**

Let’s say:

* **Shopify** = A shop that has a parcel (order data)
* **SAP ERP** = A warehouse that should receive the parcel
* **SAP CPI** = The courier service in between

**🔄 Step-by-Step Explanation (Very Simple)**

**1. 👨‍💻 Integration Developer**

Like a person who writes the **delivery instructions**:

* Where to pick the parcel (Shopify)
* What to do with it (maybe gift-wrap it)
* Where to send it (SAP ERP)

➡️ This is done in **Design Microservices**  
➡️ The instructions are saved as **Design Data**

**2. 🧑‍💼 Admin**

Like the **courier service manager** who:

* Gives access to workers
* Makes sure everything is secure

**3. 📨 Sender = Shopify**

The **shop** that gives the parcel to the courier service (SAP CPI)

**4. 🧱 Operation Microservices**

The **courier system** that starts the process:

* Accepts the parcel
* Follows the delivery instructions

**5. 🧑‍🔧 Workers**

The **actual delivery guys** who:

* Pick up the parcel from Shopify
* Maybe repack it (data transformation)
* Deliver it to the warehouse (SAP ERP)

**6. 📦 Message Content & Runtime Data**

* **Message Content** = The parcel (order data)
* **Runtime Data** = Delivery details like:
  + Tracking ID
  + Time sent
  + Sender and receiver info

**7. ⚖️ Load Balancer**

If too many parcels (messages) come in, the courier system **divides the work among many delivery guys (workers)**.

**8. 🔍 Monitoring Microservices**

They **track every delivery**:

* Was it successful?
* Did it fail?
* How long did it take?

➡️ This tracking info is saved as **Monitoring Data**

**9. 📊 Monitoring Data**

This is shown on a dashboard:

* Like a **live tracker** showing which messages went through, which failed, etc.