**Orchestration**

**Introduction**:-

Orchestration is Composing several existing fine-grained components into a single higher order composite service. This can be done to achieve appropriate "granularity" of services and promote reuse and manageability of the underlying components. Orchestration is how Mule facilitates the process of moving data through a Mule implementation based on flow. Orchestration can be seen as combining service calls to create higher-level, more useful composite services, and implies implementing business-level processes combining business-specific services across applications and information systems.

Orchestration involves decoupling point-to-point integration in favor of chains of messages sent to endpoints that can be reused or changed as systems or business needs change. It involves moving beyond patterns into a service-based framework, where you wrap multiple components with endpoints to decouple them from protocols and routing requirements, enabling multiple services to work as one when implementation requirements demand it.

Flow enables new ways to orchestrate service mediation—for example, you can combine an arbitrary number of endpoints, routers, transformers, and components that work in concert to achieve implementation requirements. Flow enables you to orchestrate new forms of data movement based on flow-specific routers. Orchestration enables you to create and reuse subflows, chain together multiple components in one flow, and integrate endpoints or connectors anywhere in a flow.

Use of Orchestration:-

we use orchestration when we need to combine existing services to meet business requirements. For example, use orchestration when we’re adding a new employee who needs to be entered in both the payroll system and the HR system. In another example of when to use orchestration, we might use it when we accept an order, make sure the order is in the inventory system, use the credit check system to ensure we trust the customer’s credit, then put the order in the billing system, and finally, put the order in the shipping system

Application / Service Orchestration

Application or service orchestration is the process of integrating two or more applications and/or services together to automate a process, or synchronize data in real-time. Often, point-to-point integration may be used as the path of least resistance. However, point-to-point integration always leads to a complex tangle of application dependencies (often referred to as "spaghetti code") that is very hard to manage, monitor and maintain. Application orchestration provides a) an approach to integration that decouples applications from each other, b) capabilities for message routing, security, transformation and reliability, and c) most importantly, a way to manage and [monitor our integrations centrally](https://www.mulesoft.com/platform/anypoint-management-center).

Making SOA Work:-

Similar to an organizational workflow, service orchestration is the coordination and arrangement of multiple services exposed as a single aggregate service. Developers utilize service orchestration to support the automation of business processes by loosely coupling services across different applications and enterprises and creating “second-generation,” composite applications. In other words, service orchestration is the combination of service interactions to create higher-level business services. Service orchestration works through the exchange of messages in the domain layer of enterprise applications. Since individual services are not programmed to communicate with other services, messages must be exchanged according to a predetermined business logic and execution order so that the composite service or application can run as it is demanded by the end-user. This is usually accomplished through [enterprise application integration](https://www.mulesoft.com/resources/esb/enterprise-application-integration-eai-and-esb) (EAI), which enables data integration, and the use of a central messaging engine such as an [enterprise service bus](https://www.mulesoft.com/resources/esb/eliminating-point-point-integration-pain-mule-esb-use-cases) (ESB), which routes, transforms and enriches messages.

## Summary

Most software development efforts today require some sort of application orchestration. Being able to quickly integrate with different applications, manipulate data and mediate message flow is hugely important as organizations are required to do more with less. Application orchestration is a better approach than point-to-point integration because the integration logic is decoupled from the applications themselves and instead is managed in a container that provides security, transaction management, reliability patterns and crucial monitoring and tracking capabilities. Application orchestration with Mule makes it easy to start a project and add to it over time.