DATA MESH**:** The concept of data mesh presents a modern architectural strategy for overseeing data within expansive organizations, particularly those operating on a large scale. It addresses issues encountered with conventional centralized data structures, such as congestion, inefficiency, and scalability obstacles. By decentralizing data ownership and management, the data mesh model empowers individual teams or domains to manage their data autonomously.

PRINCIPLES OF DATA MESH:

**Domain-oriented decentralized data ownership**: Domain-oriented decentralized data ownership refers to a system where individuals or entities have control and ownership over their data within specific domains or areas of interest, without relying on a central authority. In this setup, data is distributed across various nodes or entities, allowing for greater privacy, security, and autonomy over personal information.

**Data as a product:** In an organization, data is considered a commodity that undergoes production and consumption cycles internally. This entails data producers dedicating efforts to generate high-quality, meticulously documented datasets tailored to fulfill the requirements of data consumers**.**

**Self-serve data infrastructure:** Domain teams are empowered with self-service platforms encompassing data infrastructure and tools, facilitating seamless access, analysis, and extraction of insights from data. This setup eliminates the dependence on central IT teams, allowing domain-specific groups to efficiently leverage data resources for their purposes.

**Federated data governance**: Rather than depending on centralized data governance teams, data governance is decentralized across various domains. Each domain assumes responsibility for establishing and enforcing its own governance policies, while still adhering to broader organizational standards.

DATA MESH ARCHITECTURE: The architecture of a data mesh consists of several key components:

**Domain data teams**: Each domain operates with its own specialized data team tasked with overseeing its data assets, encompassing activities such as data collection, storage, processing, and analysis.

**Data products:** Data generated by individual domains functions as a product that can be accessed and utilized by other domains within the organization. These data products are thoroughly documented and accompanied by metadata, aiding in their discovery and comprehension by other teams.

**Data platforms and infrastructure:** The organization offers self-service data platforms and infrastructure, empowering domain teams to efficiently handle and analyze their data. This encompasses a range of technologies such as data lakes, data warehouses, analytics tools, and other relevant resources.

**Data mesh governance:** In a data mesh architecture, governance is distributed across domains, with each domain tasked with establishing and implementing its own governance rules. This approach maintains adherence to organizational standards while granting flexibility and independence to individual domains.

**Cross-domain data exchange:** In a data mesh architecture, data exchange between different domains is made possible through standardized interfaces and protocols. This means that various parts of the organization can collaborate and share data easily, while still retaining control and ownership within their respective domains. Essentially, it's like having a common language and set of rules that allow different teams to communicate and share information effectively, while each team maintains its own sovereignty over its data assets.

Overall, the data mesh approach seeks to tackle the shortcomings of conventional centralized data architectures by decentralizing data ownership. It promotes a culture of collaboration and innovation around data and empowers organizations to enhance their data capabilities more efficiently as they grow.