

## Elements of Service-Oriented Architecture

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- What is SOA?
- Services as building blocks
- Types of services
- Architectural roadmap

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## Service-oriented architecture :

- From “The new language of business : SOA and Web 2.0” by S. Carter, IBM Press, 2007
- Service-oriented architecture is a business driven IT architectural approach that supports integrating a business as linked, repeatable business tasks or services.
- It helps
  - innovation by assuring IT systems can adapt quickly.
  - increase flexibility of business processes
  - strengthen underlying IT architecture
  - reuse their existing IT investments by creating connections among disparate applications and information sources
- The above in turn help address increasing complexity, need for lowering development, integration and maintenance cost and obtain sustainable competitive edge through technology.

Service-oriented architecture :

Architecture 1:

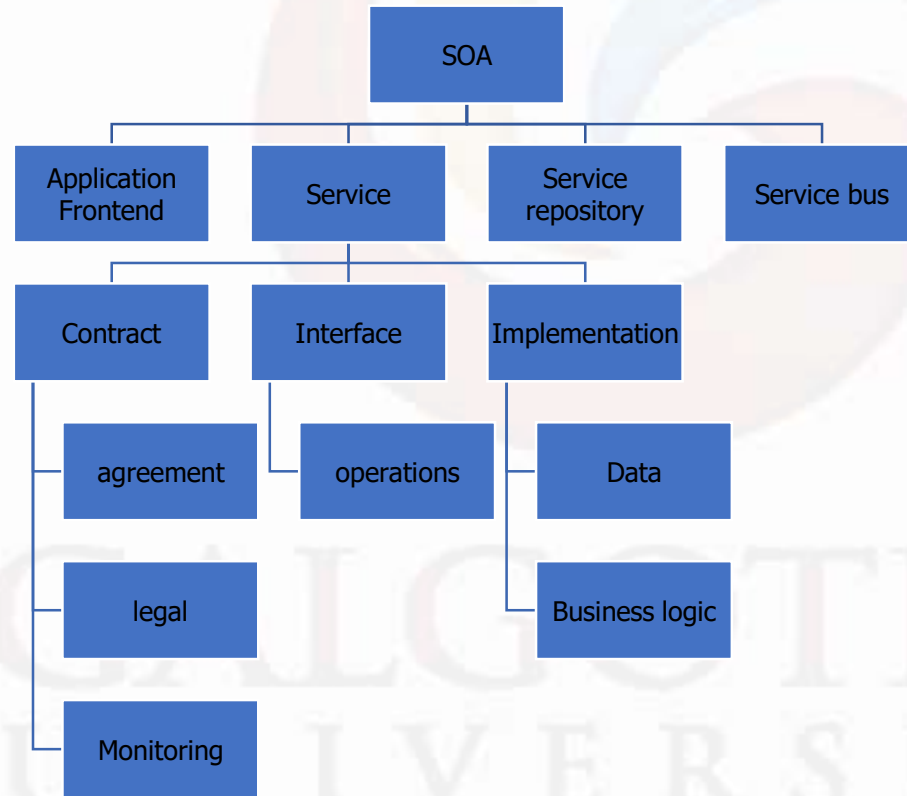
Internet  $\leftrightarrow$  Browser  $\leftrightarrow$  Web Server  $\leftrightarrow$  Order Processing  $\leftrightarrow$  Database server  $\leftrightarrow$  Database

Architecture 2: SOA?

Internet  $\leftrightarrow$  Browser  $\leftrightarrow$  Web Server  $\leftrightarrow$  Order Processing  $\leftrightarrow$  Database server  $\leftrightarrow$  Database

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## Elements of SOA:



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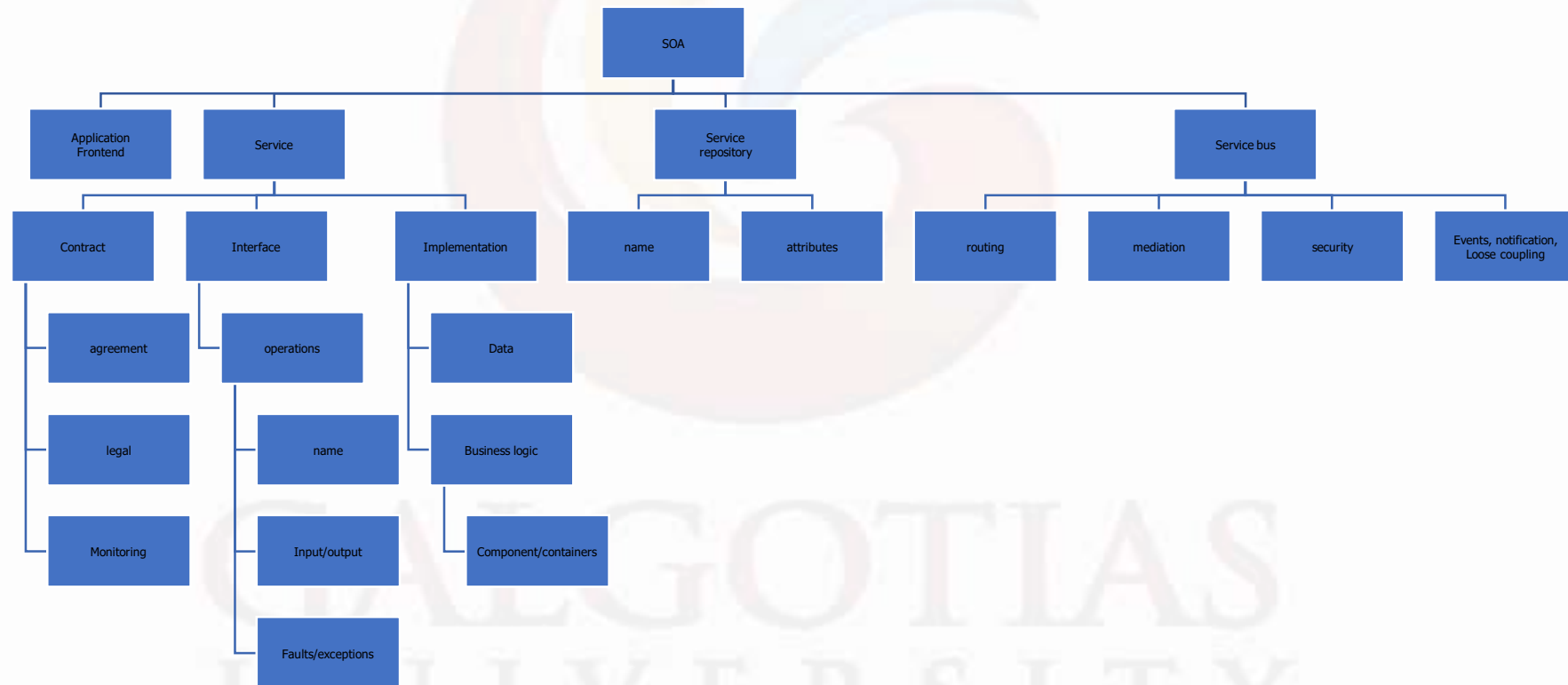
1. Application frontends: are active elements of the SOA, delivering the value of SOA to the end users.
  - They initiate and control all activity of the enterprise system.
2. Service: a software component that encapsulates a high level business concept.
3. Contract: provides a specification of the purpose, functionality, constraints, and usage of services.
4. Interface: functionality of the service exposed by the service to the clients that are connected to the service.
5. Implementation: the service implementation provides the required business logic and appropriate data. It contains one or more of the artifacts: programs, configuration, data and databases.
6. Business logic: business process represented by the service.
7. Data: data represented in the service/ used by the service.
8. Service repository: it registers the services and their attributes to facilitate the discovery of services; operation, access rights, owner, qualities, etc.

# School of Computing Science & Engineering

Course Code : CSCV4021

Course Name: Service Oriented Architecture

## Elements of SOA:



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Types of services:

1. Application frontend: GUI
2. Basic services: data and logic
3. Intermediary services: gateway, adapters
4. Process centric services: business operations
5. Public enterprise services: cross-enterprise: decoupling, security, governance

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2 : horizontal services

4 : vertical services (domain-specific)

3 + 5: ESB ?



Architectural roadmap:

