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Integration Styles

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In this segment

Integration Styles

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- Application Integration Options
  - File Transfer
  - Shared Database
  - Remote Procedure Invocation
  - Messaging

Integration Styles

Introduction – Application Integration Criteria

- Enterprise integration is the task of making (possibly heterogenous) applications work together to produce a unified set of functionality.
- Integration Criteria
  - Application integration –need to reuse, interact and integrate other applications
  - Application coupling – Minimum dependency /
  - Integration simplicity – Minimize customization needed to integrate applications
  - Integration technology – Reduce the need for specialized hardware/software for integration
  - Data format – Agreement on data format / translation
  - Data timeliness – Reduce staleness of data due to integration nuances
  - Data or functionality – Ability to share both data and functionality
  - Asynchronicity – Ability to proceed without being blocked for complex batch transactions

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Application Integration Options

- No one fit for all methodology – option chosen depends on context
- Major integration options:
  - File Transfer – applications communicate via files
  - Shared Database – applications share common data using shared database
  - Remote Procedure Invocation – Applications expose procedures to be invoked by integrating applications
  - Messaging – applications connect/communicate via common messaging system

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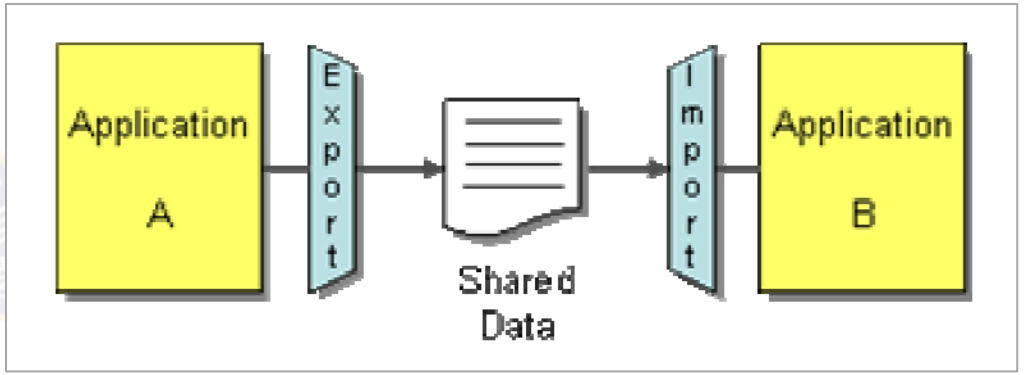
File Transfer

- Each application produces files with data that it needs to share with others
- Integrators (middleware) handle transforming files into various formats and access aspects
  - Legacy file formats (Mainframe)
  - Text format (Unix variants)
  - CSV format (Windows based systems)
  - XML/JSON formats (Web based systems)
- Files are produced/consumed at a frequency demanded by business
  - Hourly, Nightly, Weekly etc.
  - Ex: Batch processing applications like medical insurance claims (nightly)
- Less work on integration side, more work for application developers
- Staleness of data, in the generation of real time processing



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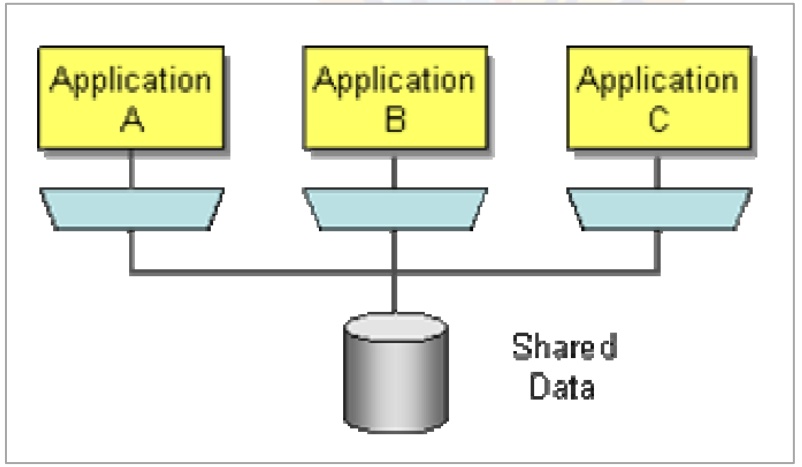
Shared Database

- Integrate applications by having them store their data in a single Shared Database
- Consistency in data format and ease of access
- Challenges
  - Deciding on a unified schema that fits all applications' needs
  - External packages that do not conform to enterprise schema
  - Performance bottlenecks on database
    - Distributed database locking / deadlock issues



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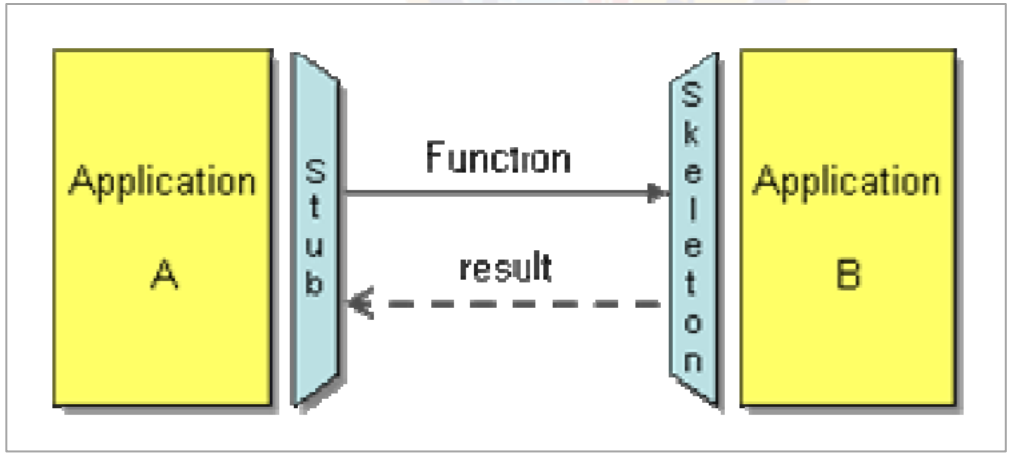
Remote Procedure Invocation

- Applies the principle of encapsulation to integrating applications
- Applications provide interface for the methods/data they want to expose to other applications to integrate with
- Each application maintains its own encapsulation/integrity of data
- Promotes certain degree of (tight) coupling between applications
- Examples: CORBA, COM, .NET Remoting etc.



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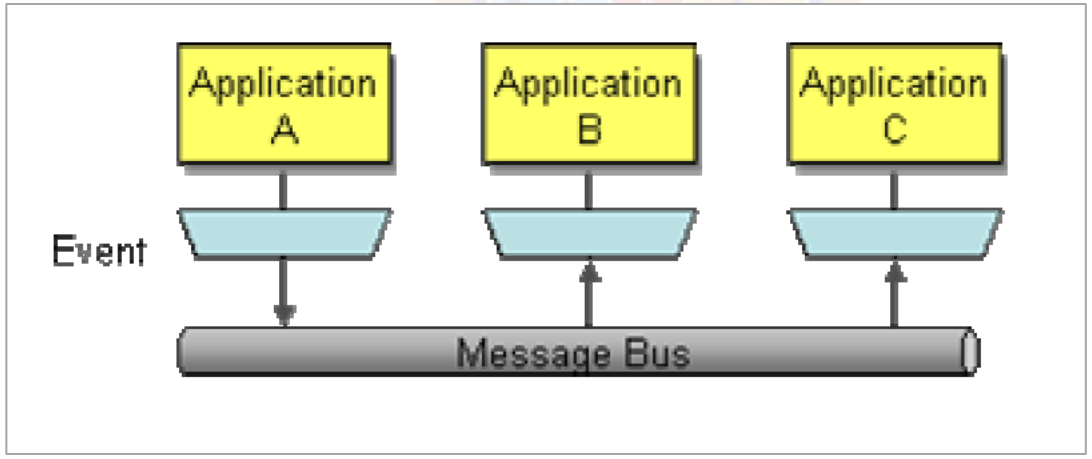
Messaging

- Transfers packets of data frequently, immediately, reliably, and asynchronously, using customizable formats
- Supports asynchronous communication seamlessly
- Allows loose coupling of applications
- Supports behavioral collaboration of applications with event based communication



Thank You!

In our next session:

Messaging Systems