MIDDLEWARE

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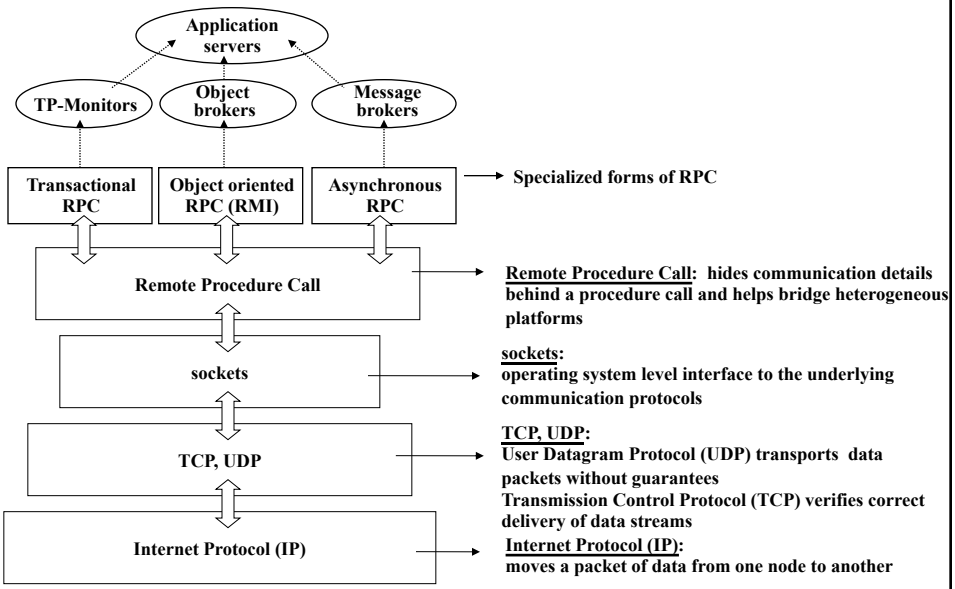
Middleware as Abstraction



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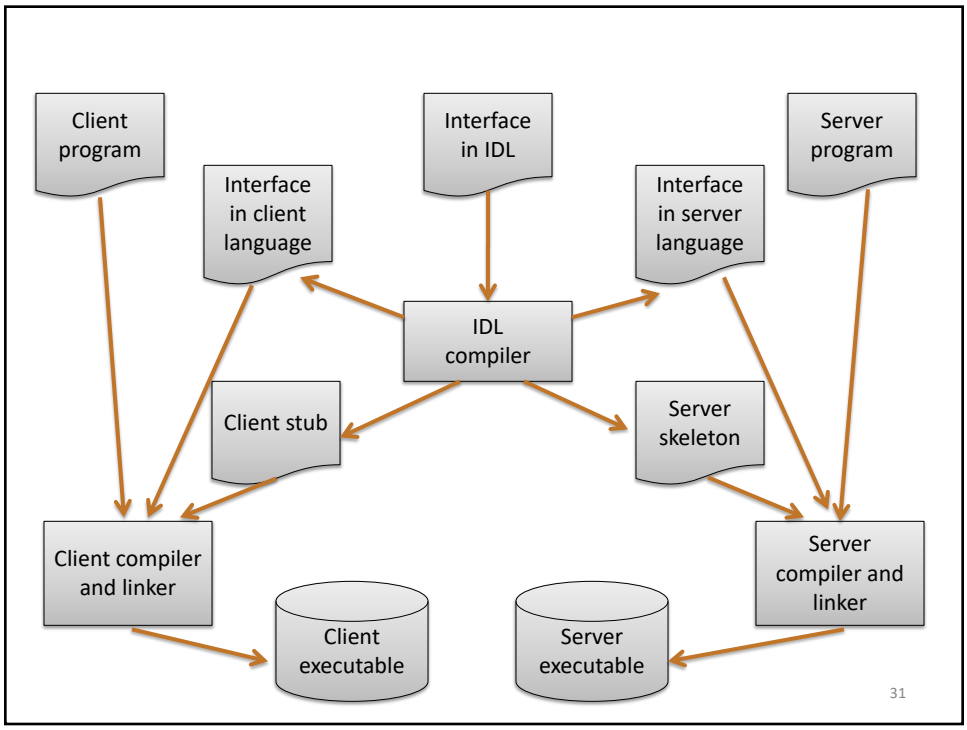
Client program
Interface in client language
Interface in IDL
Interface in server language
Server program
IDL compiler
Client stub
Server skeleton
Client compiler and linker
Server compiler and linker
Client executable
Server executable
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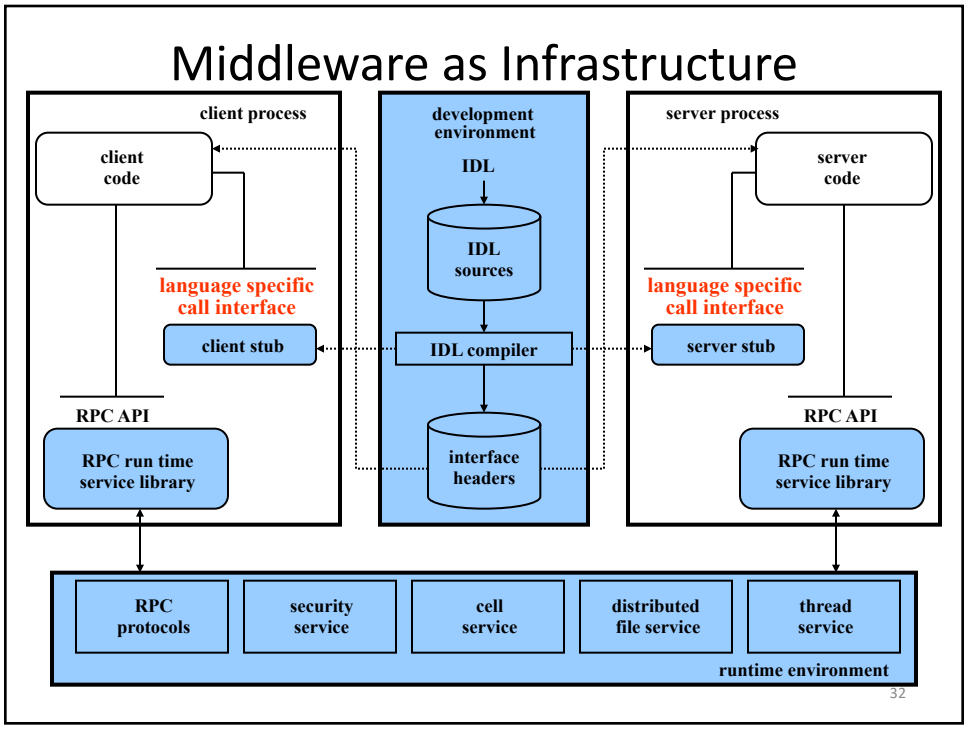
Middleware as Infrastructure
client process
client code
language specific call interface
client stub
RPC API
RPC run time service library
development environment
IDL
IDL sources
IDL compiler
interface headers
server process
server code
language specific call interface
server stub
RPC API
RPC run time service library
RPC protocols
security service
cell service
distributed file service
thread service
runtime environment
32

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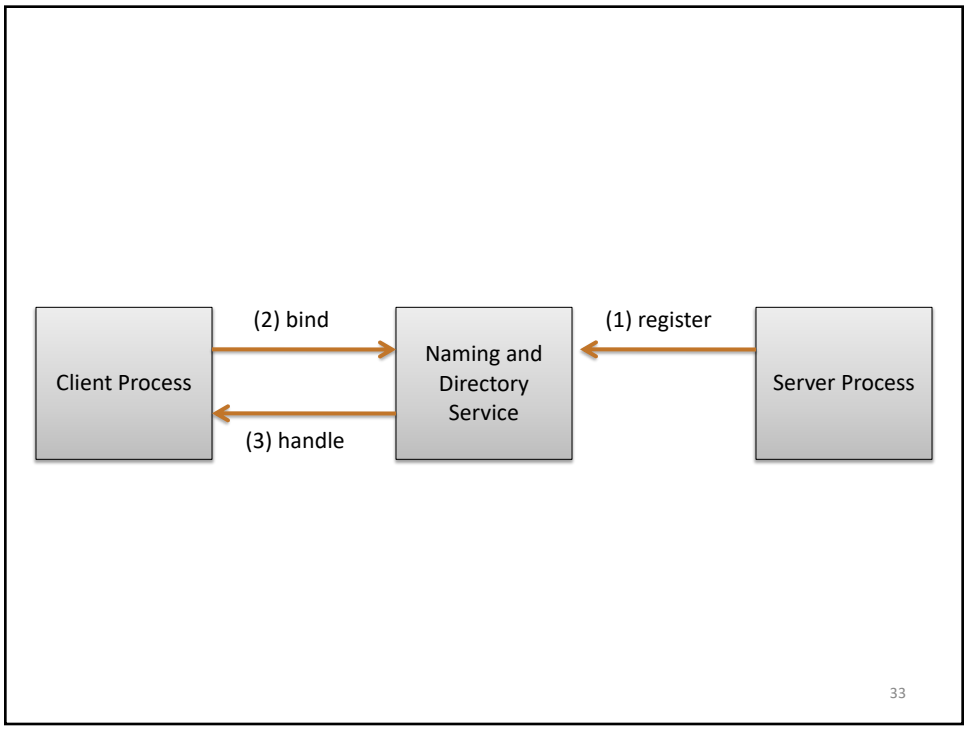
Client Process
(2) bind
(3) handle
Naming and Directory Service
(1) register
Server Process
33

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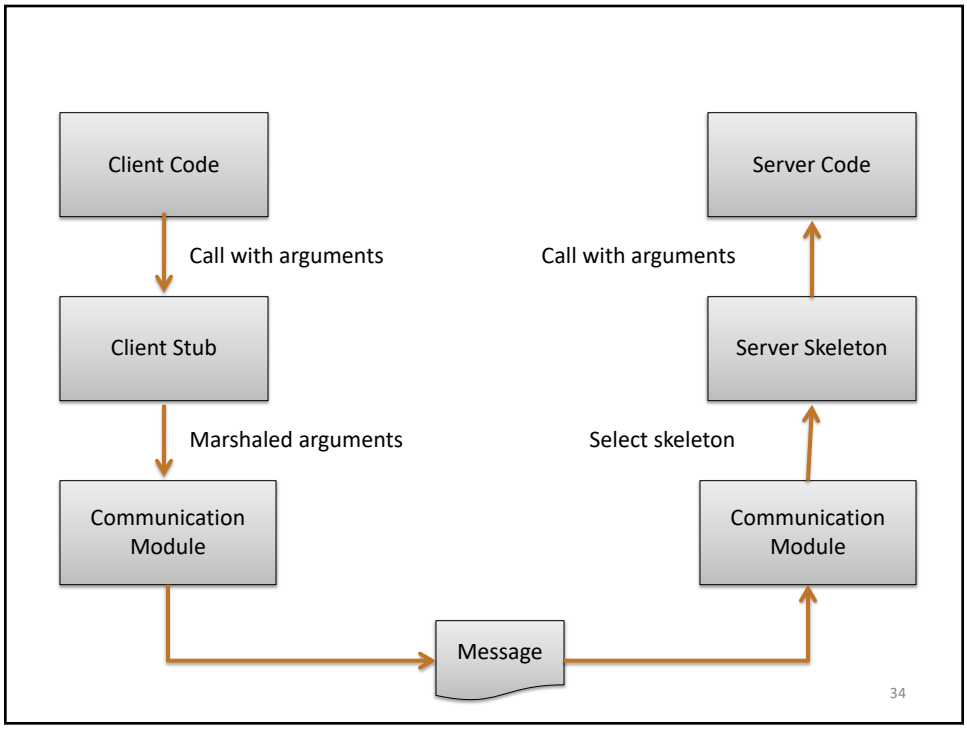
Client Code
Call with arguments
Client Stub
Marshaled arguments
Communication Module
Message
Server Code
Call with arguments
Server Skeleton
Select skeleton
Communication Module
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MESSAGE-ORIENTED MIDDLEWARE

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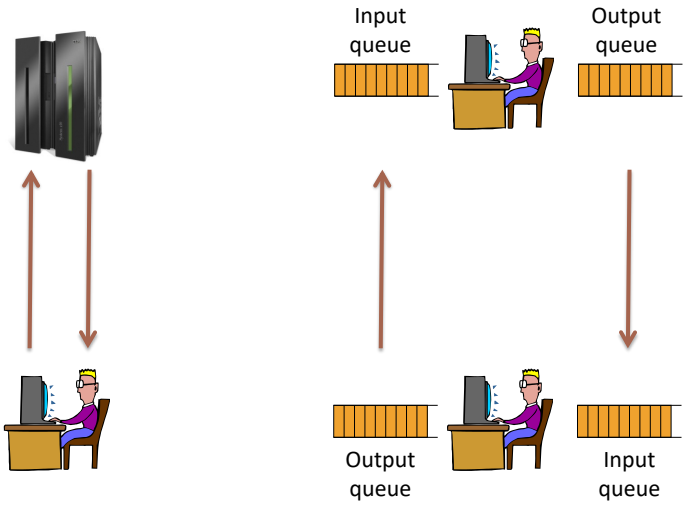
RPC vs Queues



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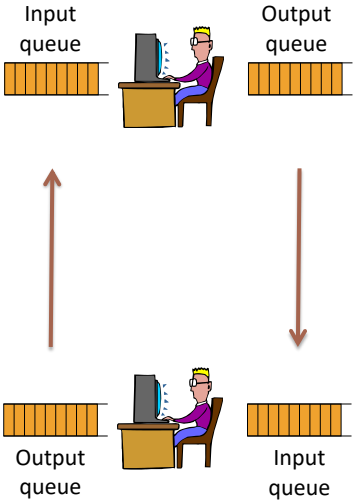
RPC vs Queues

- Reliable queues
  - Persistent
  - Transactional
- Loose coupling
- Ex: IBM MQSeries, Tuxedo/Q



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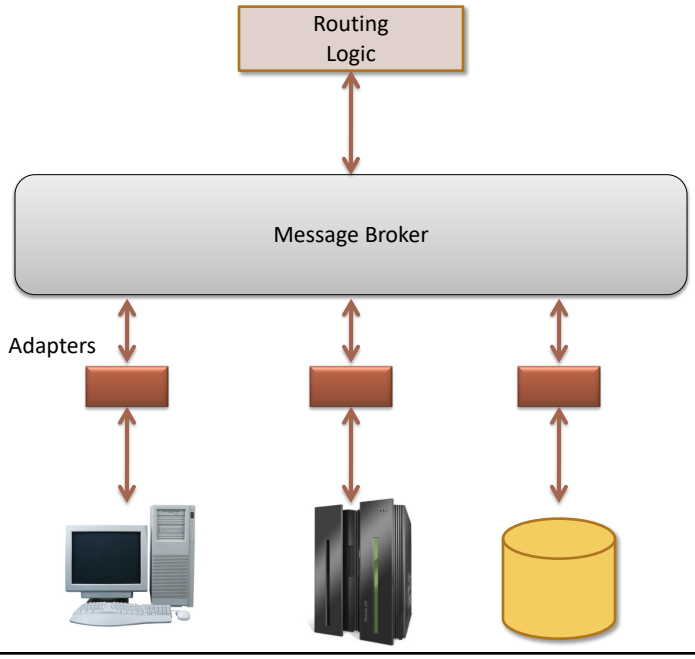

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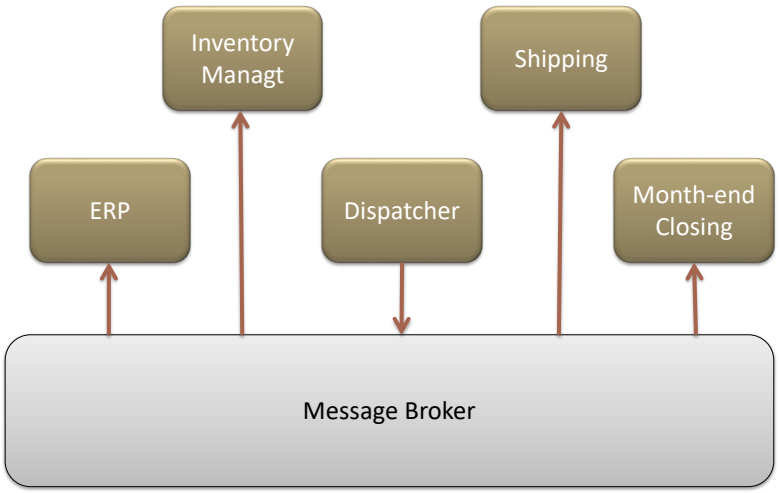
Publish-Subscribe



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