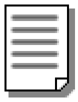
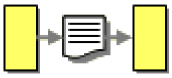
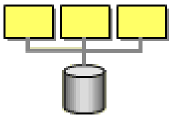
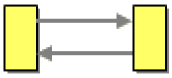
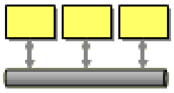
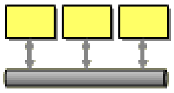
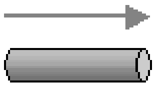
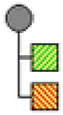
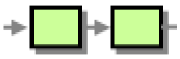
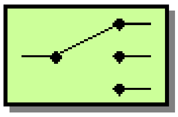
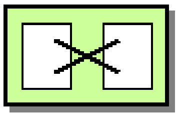
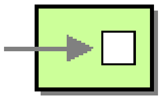
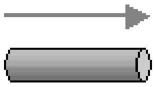
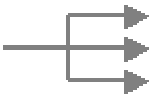
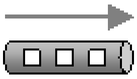
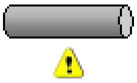
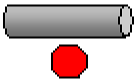
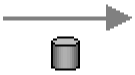
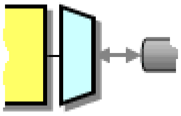
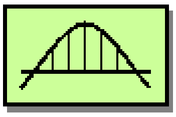
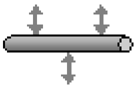
Enterprise
Integration
Patterns

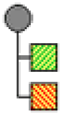
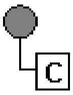
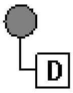
Messaging Patterns

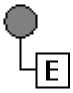
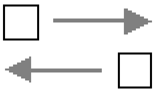
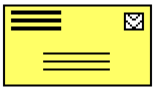
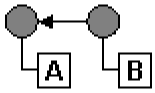
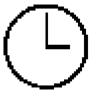
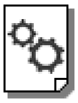
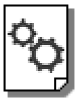
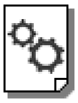
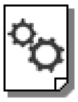
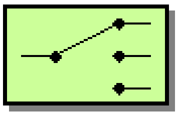
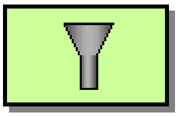
Integration Styles		
	Introduction to Integration Styles	
	File Transfer	How can I integrate multiple applications so that they work together and can exchange information?
	Shared Database	How can I integrate multiple applications so that they work together and can exchange information?
	Remote Procedure Invocation	How can I integrate multiple applications so that they work together and can exchange information?
	Messaging	How can I integrate multiple applications so that they work together and can exchange information?
Messaging Systems		
	Introduction to Messaging Systems	
	Message Channel	How does one application communicate with another using messaging?
	Message	How can two applications connected by a message channel exchange a piece of information?
	Pipes and Filters	How can we perform complex processing on a message while maintaining independence and flexibility?
	Message Router	How can you decouple individual processing steps so that messages can be passed to different filters depending on a set of conditions?
	Message Translator	How can systems using different data formats communicate with each other using messaging?
	Message Endpoint	How does an application connect to a messaging channel to send and receive messages?

Messaging Channels

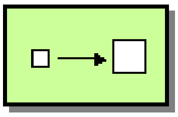
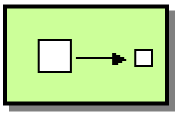
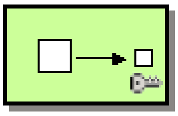
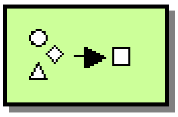
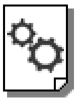
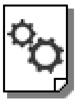
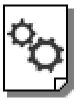
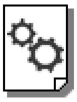
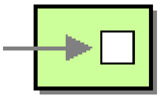
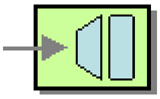
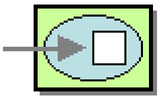
	Introduction to Messaging Channels	
	Point-to-Point Channel	How can the caller be sure that exactly one receiver will receive the document or perform the call?
	Publish-Subscribe Channel	How can the sender broadcast an event to all interested receivers?
	Datatype Channel	How can the application send a data item such that the receiver will know how to process it?
	Invalid Message Channel	How can a messaging receiver gracefully handle receiving a message that makes no sense?
	Dead Letter Channel	What will the messaging system do with a message it cannot deliver?
	Guaranteed Delivery	How can the sender make sure that a message will be delivered, even if the messaging system fails?
	Channel Adapter	How can you connect an application to the messaging system so that it can send and receive messages?
	Messaging Bridge	How can multiple messaging systems be connected so that messages available on one are also available on the others?
	Message Bus	What is an architecture that enables separate applications to work together, but in a decoupled fashion such that applications can be easily added or removed without affecting the others?

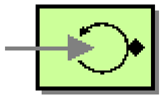
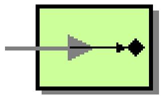
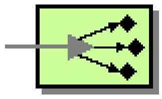
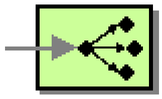
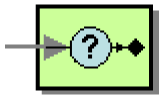
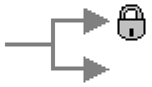
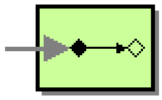
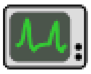
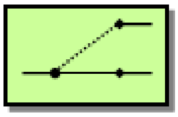
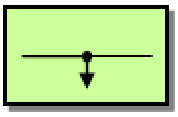
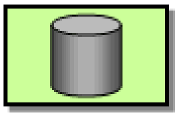
Message Construction

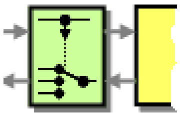
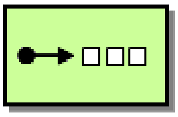
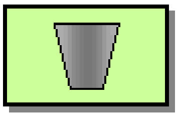
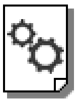
	Introduction to Message Construction	
	Command Message	How can messaging be used to invoke a procedure in another application?
	Document Message	How can messaging be used to transfer data between applications?

	**Event Message**	How can messaging be used to transmit events from one application to another?
	**Request-Reply**	When an application sends a message, how can it get a response from the receiver?
	**Return Address**	How does a replier know where to send the reply?
	**Correlation Identifier**	How does a requestor that has received a reply know which request this is the reply for?
	Message Sequence	How can messaging transmit an arbitrarily large amount of data?
	**Message Expiration**	How can a sender indicate when a message should be considered stale and thus shouldn't be processed?
	Format Indicator	How can a message's data format be designed to allow for possible future changes?
Interlude: Simple Messaging		
	**Introduction to Simple Messaging Examples**	
	**JMS Request/Reply Example**	
	**.NET Request/Reply Example**	
	**JMS Publish/Subscribe Example**	
Message Routing		
	Introduction to Message Routing	
	**Content-Based Router**	How do we handle a situation where the implementation of a single logical function (e.g., inventory check) is spread across multiple physical systems?
	**Message Filter**	How can a component avoid receiving uninteresting messages?

	Dynamic Router	How can you avoid the dependency of the router on all possible destinations while maintaining its efficiency?
	Recipient List	How do we route a message to a list of dynamically specified recipients?
	Splitter	How can we process a message if it contains multiple elements, each of which may have to be processed in a different way?
	Aggregator	How do we combine the results of individual, but related messages so that they can be processed as a whole?
	Resequencer	How can we get a stream of related but out-of-sequence messages back into the correct order?
	Composed Message Processor	How can you maintain the overall message flow when processing a message consisting of multiple elements, each of which may require different processing?
	Scatter-Gather	How do you maintain the overall message flow when a message needs to be sent to multiple recipients, each of which may send a reply?
	Routing Slip	How do we route a message consecutively through a series of processing steps when the sequence of steps is not known at design-time and may vary for each message?
	Process Manager	How do we route a message through multiple processing steps when the required steps may not be known at design-time and may not be sequential?
	Message Broker	How can you decouple the destination of a message from the sender and maintain central control over the flow of messages?
Message Transformation		
	Introduction to Message Transformation	
	Envelope Wrapper	How can existing systems participate in a messaging exchange that places specific requirements on the message

		format, such as message header fields or encryption?
	Content Enricher	How do we communicate with another system if the message originator does not have all the required data items available?
	Content Filter	How do you simplify dealing with a large message, when you are interested only in a few data items?
	Claim Check	How can we reduce the data volume of message sent across the system without sacrificing information content?
	Normalizer	How do you process messages that are semantically equivalent, but arrive in a different format?
	Canonical Data Model	How can you minimize dependencies when integrating applications that use different data formats?
Interlude: Composed Messaging		
	Introduction to Composed Messaging Examples	
	Synchronous Implementation using Web Services	
	Asynchronous Implementation with MSMQ	
	Asynchronous Implementation with TIBCO ActiveEnterprise	
Messaging Endpoints		
	Introduction to Messaging Endpoints	
	Messaging Gateway	How do you encapsulate access to the messaging system from the rest of the application?
	Messaging Mapper	How do you move data between domain objects and the messaging infrastructure while keeping the two independent of each other?
	Transactional Client	How can a client control its transactions with the messaging system?

	**Polling Consumer**	How can an application consume a message when the application is ready?
	**Event-Driven Consumer**	How can an application automatically consume messages as they become available?
	**Competing Consumers**	How can a messaging client process multiple messages concurrently?
	**Message Dispatcher**	How can multiple consumers on a single channel coordinate their message processing?
	**Selective Consumer**	How can a message consumer select which messages it wishes to receive?
	**Durable Subscriber**	How can a subscriber avoid missing messages while it’s not listening for them?
	Idempotent Receiver	How can a message receiver deal with duplicate messages?
	**Service Activator**	How can an application design a service to be invoked both via various messaging technologies and via non-messaging techniques?
System Management		
	Introduction to System Management	
	**Control Bus**	How can we effectively administer a messaging system that is distributed across multiple platforms and a wide geographic area?
	**Detour**	How can you route a message through intermediate steps to perform validation, testing or debugging functions?
	**Wire Tap**	How do you inspect messages that travel on a point-to-point channel?
	Message History	How can we effectively analyze and debug the flow of messages in a loosely coupled system?
	**Message Store**	How can we report against message information without disturbing the loosely coupled and transient nature of a messaging system?

	Smart Proxy	How can you track messages on a service that publishes reply messages to the Return Address specified by the requestor?
	Test Message	What happens, though, if a component is actively processing messages, but garbles outgoing messages due to an internal fault?
	Channel Purger	How can you keep 'left-over' messages on a channel from disturbing tests or running systems?
Interlude: Systems Management Example		
	Loan Broker System Management	