Homework 8 Solution
1.264, Fall 2013
XML and Web services

A. Assignment

Steps 1-5: See zip file with the XML, DTD, aspx and asmx files

6. List the Web services you would include in your aircraft parts Web site. These would be registered (as you did for your parts service in step 5) and available for your customers to use in their systems that check your catalog, place orders, check status, and make payments. Most, if not all, will essentially be database queries.

1. Service: OrderFulfillmentService(OrderHeader, OrderDetail, Carrier, Mode)
Returns: OrderID, OrderStatus
Logic: OrderDetail as defined in OrderDetail table. OrderStatus gives detail on items in stock or back-ordered, whether carrier/mode are available, expected ship date, etc.

2. Service: CheckOrderStatusService(OrderID)
Returns: OrderStatus
Logic: Same as response to PlaceOrder

3. Service: CancelOrderService(OrderID)
Returns: OrderStatus, CancelID
Logic: Cannot cancel if order has been shipped.

4. Service: CheckShipmentStatusService(OrderID)
Returns: ShipmentStatus
Logic: Returns tracing information from carrier

5. Service: GetReplacementPartsService(OriginalPartNumber, QuantityNeeded).
Returns: ReplacementPartNumber, PMAHolder, QuantityAvailable, Price.
Logic: QuantityAvailable is maximum of QuantityNeeded, QuantityInStock. Service may return all part detail (approval, PMA holder, etc.)

6. Service: GetReplacementPartListService(AircraftModel, PartType)
Returns: ReplacementPartNumber, PMAHolder, QuantityAvailable, Price
Logic: PartType is your catalog classification/grouping system

7. Service: SubmitPaymentService(OrderID)
Returns: PaymentConfirmationID
Logic: Your customer uses this to pay for its order/invoice

8. Service: InvoiceSubmissionService(OrderID)
Returns: InvoiceID from customer
Logic: Your parts distributor sends this to your customer to get paid

9. Service: GetOrderHistoryService(CustomerID, StartDate, EndDate)

Returns: List of Orders (OrderHeader, OrderDetail)
Logic:

    10. Service: GetInvoiceHistoryService(CustomerID, StartDate, EndDate)
Returns: List of Invoices
Logic:

    11. Service: Get PaymentHistoryService(CustomerID, StartDate, EndDate)
Returns: List of Payments
Logic:

    12. Service: GetCarriersService(State, Mode)
Returns: List of Carriers by State and/or Mode
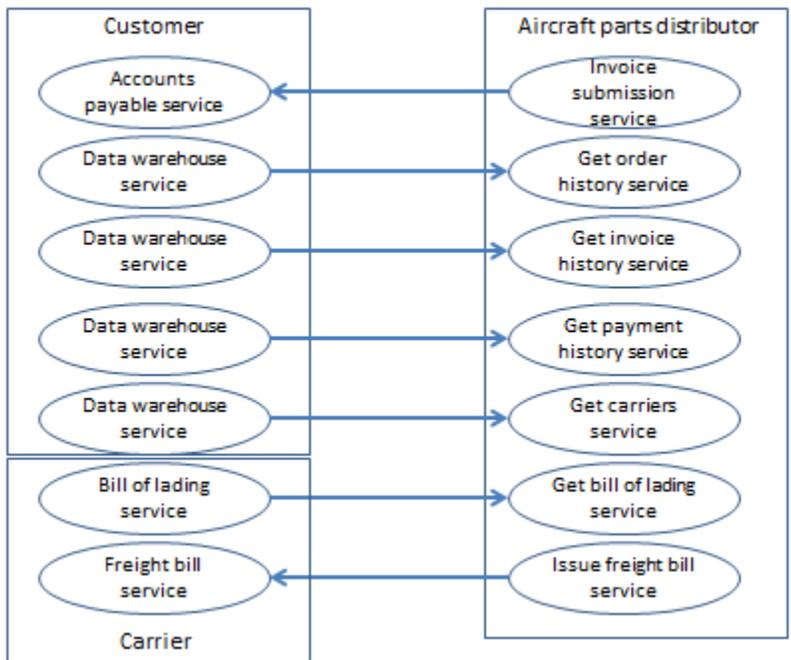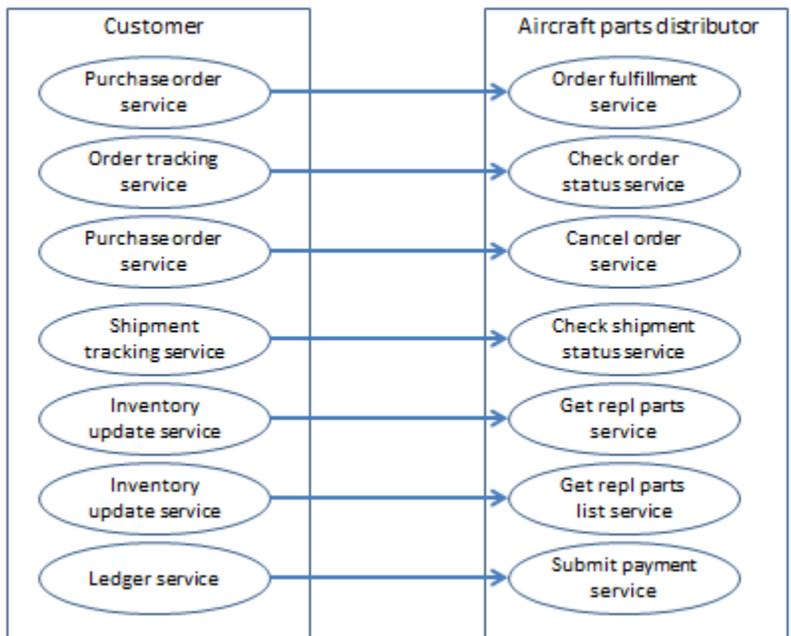Logic:

    13. GetBillofLadingService(Carrier, OrderID)
Returns: BillNumber, Status

    14. IssueFreightBillService(Carrier, Mode, OrderID, OrderHeader, OrderDetail)
Returns: FreightBillNumber, Status

7. Draw the SOA diagram (similar to Figure 5.4 and/or Figure 5.15 in lecture 24) for your aircraft parts system. Decide how you would structure your catalog browsing and order systems. Draw your Web services, and draw the Web services an aircraft maintenance company that buys parts would use to communicate with your Web services. Use the last 6 slides of lecture 24, which describe the core components of an Enterprise Resource Planning (ERP) system, as a framework: make your Web services consistent with the ERP framework, as much as possible. Your drawing may be in PowerPoint or other fairly standard drawing tool, or you may draw on paper and hand it in as hardcopy.

Customer — Aircraft parts distributor

Customer	Aircraft parts distributor
Purchase order service	→ Order fulfillment service
Order tracking service	→ Check order status service
Purchase order service	→ Cancel order service
Shipment tracking service	→ Check shipment status service
Inventory update service	→ Get repl parts service
Inventory update service	→ Get repl parts list service
Ledger service	→ Submit payment service

Customer	Aircraft parts distributor
Accounts payable service	← Invoice submission service
Data warehouse service	→ Get order history service
Data warehouse service	→ Get invoice history service
Data warehouse service	→ Get payment history service
Data warehouse service	→ Get carriers service

Carrier

Carrier	Aircraft parts distributor
Bill of lading service	→ Get bill of lading service
Freight bill service	← Issue freight bill service

3

1.264J / ESD.264J Database, Internet, and Systems Integration Technologies
Fall 2013