**1. What is SOA?**

Service Oriented Architecture (SOA): “is an application architecture based on standards, design to achieve loose coupling among interacting software applications providing great flexibility in developing, integrating and managing enterprise applications and thus reduce costs”

**2. What is Service?**

A service is self contained business functionality. Services are not classes and components.

**3.What is web service?**

Web service as a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-process able format (specifically Web Services Description Language WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards.

**4.What is business service?**

It is a logical encapsulation of self contained business functionality.

**5.What is the difference between services and components?**

Services are logical grouping of components to achieve business functionality. Components are implementation approaches to make a service. The components can be in JAVA, C#, C++ but the services will be exposed in a general format like Web Services.

**6.Principles of SOA?**

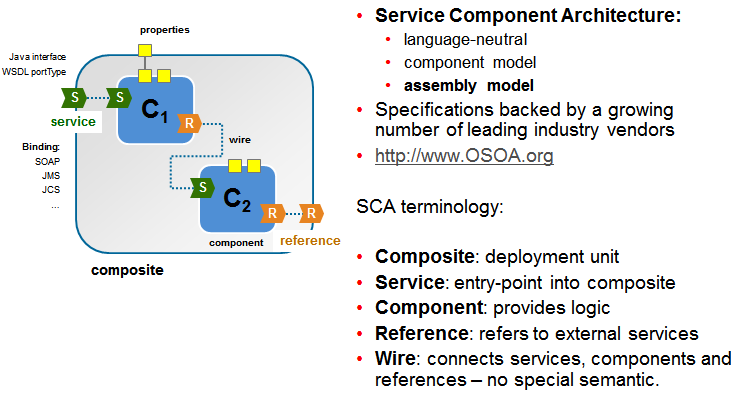
* Loose coupling
* Re-usability
* Interoperability
* Flexible

**7.What is SOA governance? What are its functions?**

SOA governance is a concept used for activities related to exercising control over services in a Service Oriented Architecture. Some key activities that are often mentioned as being part of SOA governance are:   
Managing the portfolio of services : This includes planning development of new services and updating current services.   
Managing the service lifecycle : This is meant to ensure that updates of services do not disturb current services to the consumers.   
Using policies to restrict behaviour : Consistency of services can be ensured by having the rules applied to all the created services.   
Monitoring performance of services : The consequences of service downtime or under performance can be severe because of service composition. Therefore action can be taken instantly when a problem occurs by monitoring service performance and availability.

**8.What is SCA?**

Service Component Architecture(SCA) provides a programming model for building applications and systems based on a Service Oriented Architecture. SCA is a model that aims to encompass a wide range of technologies for service components and for the access methods which are used to connect them.



**9.What are the SOA Suite 11g Components?**

* Oracle Adapters
* Oracle Mediator
* Business Events and Events Delivery Network
* Oracle Business Rules
* Human Workflow
* Oracle Business Activity Monitoring
* Oracle Enterprise Manager

**10.What are the different design patterns in SOA?**

* Synchronous
* Asynchronous
* Fire and Forget
* Asynchronous Delayed Response

**11.What is choreography? How does it differ from orchestration?**

In choreography there is no business process to control the integration between the systems; each system will directly integrate with one another in sequence where as in Orchestration there is a business process which controls all the services (source/Target) which is part of the integration.

**12.What is local service invocation in SOA 11g?**

By default SOA 11g tries to call the services through local service invocation by avoiding SOAP/HTTP instead it used java direct to call the services provided the service exist in the same soa infrastructure this will be checked based on the certain parameters like   
Server URL   
Front end URL   
To disable this following properties can be used in the composite.xml   
*<property name="oracle.soa.local.optimization.force">false</property>   
     <property name="oracle.webservices.local.optimization">false</property>*

**13.How to suppress ws-addressing header in SOA 11g?**

By Default in SOA 11g, WS-Binding component includes WS-Addressing Headers in both request (when calling external web services) and response (when external clients call Composite web services). This will result into errors as some service providers/clients doesn't understand/process these headers and as a result service invocation fails for both inbound and outbound. To overcome this, you can configure the following property in composite.xml to suppress Ws-Addressing headers.   
     **Request**: *<property name="oracle.soa.ws.outbound.omitWSA">true</property>*   
     **Response**: *<property name="oracle.soa.addressing.response.enabled">false</property>*   
**Note:** These are not part of property list in JDeveloper. You need to add manually and it works.

**14.Correlation vs WS-addressing?**

**WS-addressing** - By default SOA engine uses this. The main advantage of this is developer don't have to write the coding to correlate the message for the callback where as it has its dis-advantage that it adds the header to the SOAP header.   
**Correlation** - This is used when the calling service don't support ws-addressing. Also this does not overhead the message since it used content from the message rather than adding some headers to the request. Correlation sets provide another method for directing web service responses to the correct BPEL process service component instance. You can use correlation sets to identify asynchronous messages to ensure that asynchronous callbacks locate the appropriate client. Correlation sets are a BPEL mechanism that provides for the correlation of asynchronous messages based on message body contents. To use this method, define the correlation sets in your .bpel file. This method is designed for services that do not support WS-Addressing or for certain sophisticated conversation patterns.

**15.What are dspMaxThread and recieverThread properties? Why are they important?**

**ReceiverThreads** property specifies the maximum number of MDBs that process Async across all domains. Whereas the **dspMaxThread**are the maximum number of MDBs that process Async and threads that operate across a domain. So, we need to ensure that the dspMaxThread value is not greater than Receiver Threads.

**16.How to increase the transaction timeouts in SOA?**

For the transaction timeout needs to be increased, all the below settings timeout value needs to be changed to the expected Timeout value.

* JTA
* Engine Bean
* Delivery Bean

**17.Synchronous & Asynchronous web services?**

Whenever a synchronous web service is invoked from Oracle BPEL via a partnerlink, only one port is established for communication with the exposed web service which is used by both request & response messages.   
However, when an asynchronous web service is invoked, two ports are opened for communication: one for request & one for response messages.

**18.How does Oracle BPEL identify asynchronous responses?**

As response from an asynchronous web service is not guaranteed to be received within a specified time frame, and many instances of the same service might be invoked before even a response can be obtained, how does Oracle BPEL identify and relate the responses to the appropriate requests and proceed for completion of further activities that may be scheduled? The answer is "WS-Addressing".

**19.How does a Async request run in the backend?**

The sequences of events involved in the delivery of invoke messages is as follows:

* The client posts the message to the delivery service.
* The delivery service saves the invocation message to the dlv\_message table. The initial state of the message is 0 (undelivered).
* The delivery service schedules a dispatcher message to process the invocation message asynchronously.
* The dispatcher message is delivered to the dispatcher through the afterCompletion() call. Therefore, the message is not delivered if the JTA transaction fails.
* The dispatcher sends the JMS message to the queue. Places a very short JMS message in the in-memory queue (jms/collaxa/BPELWorkerQueue) in OC4J JMS.
* The small JMS message triggers the Worker Bean in the downstream step.
* This message is then picked up by a Worker Bean MDB, which requests the dispatcher for work to execute. If the number of Worker Bean MDBs currently processing activities for the domain is sufficient, the dispatcher module may decide not to request another MDB.
* MDB fetches the invocation message from the dispatcher.
* MDB passes the invocation message to Oracle BPEL Server, which updates the invocation message state to 1 (delivered), creates the instance, and executes the activities in the flow until a breakpoint activity is reached.

**20.What is Dehydration store?**

Oracle BPEL process manager utilizes a database to store metadata and instance data during runtime. The process of updating process state in the database is called Dehydration. The Dehydration Store database is used to store process status data, especially for asynchronous BPEL processes. A very important to remember if a BPEL process fails without reaching a dehydration point then the instance will not show up on the BPEL console. This instance never gets stored to the database.   
Below are the main Dehydration tables for BPEL:

* CUBE\_INSTANCE
* CUBE\_SCOPE
* AUDIT\_TRAIL
* AUDIT\_DETAILS
* DLV\_MESSAGE
* DLV\_MESSAGE\_BIN
* INVOKE\_MESSAGE
* INVOKE\_MESSAGE\_BIN
* DLV\_SUBSCRIPTION
* TASK
* WORK\_ITEM

Following are processes state codes and their meaning

|  |  |
| --- | --- |
| **Code** | **State** |
| 0 | Initiated |
| 1 | Open and Running |
| 2 | Open and Suspended |
| 3 | Open and Faulted |
| 4 | Closed and (Pending or Cancel) |
| 5 | Closed and Completed |
| 6 | Closed and Cancelled |
| 7 | Closed and Aborted |
| 8 | Closed and Completed |
| 9 | Closed and Stale |

**21.Is it possible to use MS SQL Server as dehydration store with SOA Suite? if yes how?**

Yes it is possible. To automatically maintain long-running asynchronous processes and their current state information in a database while they wait for asynchronous callbacks, you use a database as a dehydration store. Storing the process in a database preserves the process and prevents any loss of state or reliability if a system shuts down or a network problem occurs. This feature increases both BPEL process reliability and scalability. You can also use it to support clustering and failover.

**22.How can we secure our web services using Oracle SOA Suite?**

When accessing the services should be restricted to the group, then service should be secured via OWSM (Oracle Web service Manager).

**23.What is Singleton property in SOA?**

In the clustered environment when the processing of the message should happen via only one SOA managed server, then the property singleton needs to be defined at the adapter level.

**24.What are transient and durable BPEL processes?**

The dehydration store is uses to maintain long-running asynchronous BPEL instances storing state information as they wait for asynchronous callbacks. This ensures the reliability of these processes in the event of server or network loss. Oracle BPEL Process Manager supports two types of processes; **transient** and **durable**.   
**Transient Processes**  
       Transient processes do not incur dehydration during their process execution. If an executing process experiences an unhandled fault or the server crashes, instances of a transient process do not leave a trace in the system. Thus, these instances cannot be saved in-flight regardless if they complete normally or abnormally. Transient processes are typically short-lived, request-response style processes. Synchronous processes are examples of transient processes.   
**Durable Processes**  
       Durable processes incur one or more dehydration points in the database during execution. Dehydration is triggered by one of the following activities:

* Receive activity
* OnMessage branch in a pick activity
* OnAlarm branch in a pick activity
* Wait activity
* Reply activity
* checkPoint() within a <bpelx:exec> activity

      Durable processes are typically long-living and initiated through a one-way invocation. Because of out-of-memory and system downtime issues, durable processes cannot be memory-optimized.   
Durable:- It is long running process and initiated through a one-way invocation and do incur one or more dehydration points in the database during execution   
Transient:- It is short-lived process, request-response style processes and do not incur dehydration during their process execution Ex: Synchronous.

**25.What are DVM's and how are they helpful in SOA?**

DVM-Domain Value Map is static mappings between a source and target system which can be used in transformations. The value can be changed via SOA composer.

**26.What is the difference between XREF and DVM?**

XREF- It is dynamic since the values to the XREF can be populated dynamically and it is stored in XREF\_DATA table in SOA Dehydration store.   
     DVM- Domain Value Map is static mappings between a source and target system which can be used in transformations.

**27.What is end point Virtualization?**

Generally a service bus is used for endpoint Virtualization and in 11g stack; Oracle Service Bus (OSB) is the primary service bus. In exposed proxy's message flow, it can route the request to any of your environment's actual (physical) service on the basis of whatever logic. Mediator can also be used to expose the service and in mediator routing rule, it can be routed to actual service.

**28.What is Decision service?**

Oracle SOA Suite provides support a Decision components that support Oracle Business Rules. Decision component is a mechanism for publishing rules and rule sets as reusable service that can be invoked from multiple business processes. These rules can be changed without redeploying the code.

**29.Why we use BPEL and OSB?**

OSB is the light-weight service bus wherever there is not much business logic involves and there is need to just get the message routed between the systems OSB is used where as when there is more business logic involves in the process, then BPEL will be used.

**30.What is MDS?**

MDS -Metadata Store : Wsdl and Schemas to be used in the process can be published to the MDS and get it used in the code by referring the artifacts from the MDS   
**Advantages:**  
   JAR (Deployment unit) size will be reduced.  
   Duplication of the artifacts can be avoided between the services.

**31.What is the use of Pick Activity?**

This activity waits for the occurrence of one event in a set of events and performs the activity associated with that event. The occurrence of the events is often mutually exclusive (the process either receives an acceptance or rejection message, but not both). If multiple events occur, the selection of the activity to perform depends on which event occurred first. If the events occur nearly simultaneously, there is a race and the choice of activity to be performed is dependent on both timing and implementation.

**32.Difference between XA & Non-XA transaction?**

**Non-XA (Local Transaction):** It involves only one resource. When you use Non-XA transaction then you can't involve multiple resources (different databases, Queues, application servers etc), you can rollback or commit transaction for only one resource. There is not transaction manager for this transaction as we are dealing with only one resource at a time.   
**XA (Global Transaction):** It involves more than one resource (different databases, queues, application servers) all participate in one transaction. It uses two-phase commit to ensure that all resources either all commit or rollback any particular transaction. When you have scenario like you need to connect to two different databases, JMS Queue and application server, in this case you will use XA transaction that means all resource participate in one transaction only.

**33.How to deploy an XSL file without deployment of BPEL Process?**

We will directly deploy the XSLT, options: -   
     Using ANT script by file replacement in TMP folder.   
     By creating a folder in BPEL PM Installation folder and specifying its location in our BPEL code with http call and replacing our xslt to that location.

**34.How to change the archive file name in SOA 11g?**

By default filename will be written in the format filename\_digest\_timetamp in archive location.   
Setting the below property in jca file will change the format to filename\_timetamp.   
<property name="UseDigest" value="false"/>

**35.What is HA File and FTP Adapters?**

In the clustered environment, File and FTP adapters should be used as HA (High-Availability)   
**Inbound :** It is controlled by Control Files and avoids the race between the manages servers in reading the files where the reference of the files read by the managed servers will be maintained in the control directory.   
**Outbound :** It is controlled by DB Mutex table exist in the SOA dehydration store and this avoids duplicated been written to the same file when all the managed servers in the clusters process the same messages.

**36.What is a pick activity? Can I have a pick activity with no onMessage branch?**

Pick activity picks the messages from service (Source) which has multiple operations or the BPEL process needs to receive the messages from multiple source system. Pick activity should have at least on Message branch.

**37.What is a flow activity? What is a flowN activity and how does it leverages the flow activity?**

Flow activity is used, when parallel execution of the flow is needed and to use this property non blocking invoke should be set as true at the partner link level and no.of execution of parallel flow is defined and static. Where as in FlowN the no.of execution of parallel flow is not static and it is determined during run time.

**38.What do you mean by non-idempotent activity? Which all activities are non-idempotent by default?**

Activities like Pick, Wait, receive, reply and checkpoint() are called non-Idempotent activity and during the execution of the process whenever these activities are encountered then it gets dehydrated to the dehydration store.

**39.How can we embed or use a java code in BPEL?**

Using JAVA embedding activity in BPEL, Java code can be embedded in BPEL and can be used.

**40.How does pick activity differ from a receive activity?**

Pick activity can act as a multiple receive activity in some business scenarios. If we have two inbound operations and both can trigger the bpel process then we will go with pick activity as we can't have two receive activity with create Instance box checked.

**41.How can we make a partner link dynamic?**

If we have to send the request to different service which has the same wsdl then dynamic partner link will be used and using addressing schema we can set the endpoint dynamic to send the request to the desired service.

**42.What is a nonBlockingAll property?**

Non- blocking invoke is used when Parallel flow needs to be executed where new thread will be created for each invoke a activity and which will execute simultaneously.

**43.What is getPreference property? How do we set it and what advantage it provides?**

Hard coding is not a good practice, so to avoid hard coding preference variable can be used and the value of the preference variable is accessed using getPreference().The preference variable value can be changed without re-deploying the code via em console MBean property.

**44.How can we improve the performance of an XSL file?**

By avoiding use of various if statements and using choose, and by using for-each group in place of for-each.

**45.How do we handle transactions in BPEL?**

Property needs to be defined to start the new transaction/to continue with the same transactions  
Property Name: Transaction and if this has value as required then the BPEL process will be continued in the same transaction where as if the value is defined as requiresnew then it will start the new transaction.

**46.When you will go for Sync process?**

Whenever the services returns the response in few seconds, it is recommended to go for synchronous BPEL process if not the BPEL process should be Asynchronous. The reason is calling application can't proceed further in case of synchronous process.

**File Adapter :**

**47.What is the behaviour of Inbound File Adapter when it is deployed in single-node environment and cluster node environment?**

For Inbound File Adapter in single-node, it picks(reads) the file and single instance is created for each file read. Where as it is quite opposite, in cluster environment. Both nodes of the cluster processes the same file, causing duplicate records in final system  
  
**Resolution**: this issue could be resolved by two ways:

**1)Use Singleton property for the inbound endpoint for SOA composite.**  
In the clustered environment when the processing of the message should happen via only one SOA managed server, then the property singleton needs to be defined at the adapter level. To enable this just add singletom property to composite.xml.  
  
*<service name="CustomerInfo" ui:wsdlLocation="CustomerInfo.wsdl">  
<interface.wsdl interface="http://xmlns.oracle.com/ht/soa/jcaadapter/fileadapter/customerinfo#wsdl.interface(Read\_ptt)"/*  
*<binding.jca config="CustomerInfo\_file.jca">****<property name="singleton">true</property>*** *</binding.jca>*  
*</service>*   
  
**2)To use HAFileAdapter for File Adapter.** In the .jca file of Inbound File Adapter change **location** attribute value from**eis/FileAdapter**to **eis/HAFileAdapter**.  
  
*<adapter-config name="CustomerInfo" adapter="File Adapter" wsdlLocation="CustomerInfo.wsdl" xmlns="http://platform.integration.oracle/blocks/adapter/fw/metadata">  
  <connection-factory UIexcludeWildcard="\*.tif;\*.lock"****location="eis/HAFileAdapter"***  
*UIincludeWildcard="\*.\*"/>  
   <endpoint-activation portType="Read\_ptt" operation="Read">  
     <activation-spec className="oracle.tip.adapter.file.inbound.FileActivationSpec">  
       <property name="DeleteFile" value="false"/>  
       <property name="MinimumAge" value="0"/>  
       <property name="PhysicalDirectory" value="/u01/shared/einvoice"/>  
       <property name="Recursive" value="true"/>  
       <property name="PollingFrequency" value="10"/>  
       <property name="IncludeFiles" value=".\*\..\*"/>  
       <property name="UseHeaders" value="false"/>  
       <property name="ExcludeFiles" value=".\*\.tif;.\*\.lock"/>  
     </activation-spec>  
   </endpoint-activation>  
 </adapter-config>*  
  
Behind HAFileAdapter is the database used as mutex to ensure the one file is only handled by one instance. By default it uses jdbc/SOADataSource. When using HAFileAdapter in OSB this jdbc/SOADataSource should also target the OSB server nodes as well. This also involves some configuration changes for File Adapter.   
You need to set Deployments->File Adapter->Configuration->Outbound Connection Pools->javax.resource.cci.ConnectionFactory->eisHAFileAdapter->controlDir to some shared localtion.  
To my understanding the first way is to force to serialize the inbound file processing, which means only one File Adapter is processing a file at one time. HAFileAdapter is using some mutex to ensure one file is only processed by one FileAdapter instance. But the multiple HAFileAdapter can process the different file at the same time. So this is the real solution for high availability environment.

**48.What is HA File and FTP Adapters?**

In the clustered environment, File and FTP adapters should be used as HA(High-Availability)   
     **Inbound:** It is controlled by Control Files and avoids the race between the manages servers inreading the files where the reference of the files read by the managed servers will be maintained in the control directory.   
     **Outbound:** It is controlled by DB Mutex table exist in the SOA dehydration store and this avoids duplicated been written to the same file when all the managed servers in the clusters process the same messages

**49.What are the different operations in file Adapter?**

The File Adapter supports four operations. They are:

* **Read File**: Polls a file directory for files to retrieve and process (inbound direction).
* **Write File**: Creates files in a file directory (outbound direction).
* **Synchronous Read File**: Synchronously reads an outbound file using an invoke activity. If the specified file does not exist, then the read invoke activity returns nothing.
* **List Files**: Lists file names in specified locations.

**50.What is a syncFileRead operation? Is a inbound or a outbound operation? Can my process begin with syncFileRead operation?**

When file has to be read in the mid of the BPEL process, then we will use syncFileRead Operation, means some process should initiate the file read process. It is an outbound operation and process can't begin with Sync File read.

**51.Can we use a File Adapter to get a file without reading its content?**

Yes, by selecting the Do not read file content check box in the JDeveloper wizard while configuring the "Read operation".

**52.How to increase performance in BPEL DB and file adapters?**

We can increase the performance by writing indexes and sequences. (Or) Go to application server --> Configurations --> Change Xml file

**Exception Handling :**  
**53.Explain exception handling in BPEL and what is a error handling framework? How does a error handling framework better than simple error handling in BPEL?**

EHF -Whenever any error thrown by the BPEL process/Mediator then EHF will check whether exist in Fault-Bindings.xml files and if so then the action in the Fault-Policy.xml file will be taken and if the action is not found then the fault will the thrown and it will be handled in the catch block.

**54.How do we resubmit a faulted process?**

Scenario A: The BPEL code uses a fault-policy and a fault is handled using the "ora-human-intervention" activity, then the fault is marked as Recoverable and the instance state is set to "Running".  
Scenario B: The BPEL code uses a fault-policy and a fault is caught and re-thrown using the "ora-rethrow fault" action, then the fault is marked as Recoverable and the instance state is set to "Faulted"; provided the fault is a recoverable one (like URL was not available).

**55.What are the Predefined errors in BPEL?**

* Custom errors
* Timed out errors
* BPM errors
* Validation Errors

**56.What are the Fault Variable Types?**

* assertFailure
* bindingFault
* conflictingReceive
* conflictingRequest
* conflictingFault
* correlationFault
* entityInternalNestedError
* forcedTermination
* globalRetry
* invalidReply
* invalidVariables
* joinFailure
* maxLoopCountExceeded
* mismatchedAssignmentFailure
* owsmPolicyFault
* remoteFault
* repeatedCompensation
* rollback
* selectionFailure
* timeout
* uninitializedVariable

**57.Unable to find Fault variable in RemoteFault**

If you are placing a catch block in your service invocation and trying to catch a system remotefault/bindingfault, you can have following issues :   
1. First, your faultVariable is not having any child element like code, summary and detail which are part of the RuntimeFault.   
2.Second, when you try to compile the composite, you get below error:   
   **Error(76): WSDL messageType "{http://schemas.oracle.com/bpel/extension}bindingFault" of variable "" is not defined in any of the WSDL files**   
Reason for above issues and solution:   
The reason why you get this is because when you select the system->RuntimeFault as type of fault in your fault handler, JDeveloper copies a wsdl named RuntimeFault.wsdl from your <JDEVELOPER\_HOME%\\integration\seed\soa\shared\bpel directory to your project and this wsdl contains following msg :   
  
<?xml version="1.0" encoding="UTF-8"?>   
<definitions name="RuntimeFault"   
             targetNamespace="http://schemas.oracle.com/bpel/extension"   
             xmlns:xsd="http://www.w3.org/2001/XMLSchema"   
             xmlns="http://schemas.xmlsoap.org/wsdl/">   
  
**<message name="RuntimeFaultMessage">**   
        <part name="code" type="xsd:string"/>   
        <part name="summary" type="xsd:string"/>   
        <part name="detail" type="xsd:string"/>   
    </message>   
</definitions>   
  
And secondly, JDeveloper create the faultVariable in your BPEL file (.bepl) like this :   
<variable **messageType="bpelx:bindingFault"** name="FaultVar"/>   
Now if you observe, the RuntimeFault.wsdl is having the message name as "RuntimeFaultMessage" where as the variable's messageType is **messageType="bpelx:bindingFault"**and it is this mismatch which is causing the above mentioned two issues.   
To get rid of it, simply change the variables msg type from "bpelx:bindingFault" to "bpelx:RuntimeFaultMessage" and you are good to go with your composite:   
 <variable messageType="bpelx:RuntimeFaultMessage" name="FaultVar"/>

**58.What is a throw activity? What it is ?**

Throw activity will explicitly throw the fault and this fault will get caught by the catch block and the corresponding actions will get executed.

**59.What is a difference between assign and transform activities in BPEL?**

|  |  |
| --- | --- |
| **Assign** | **Transform** |
| Assign activity is generally used to assign values to variables or initializing the variable values or for transforming small payloads. | Transform is used for complex and huge payload transformations. |
| When you use assign the variables reside in the memory | where as transformations invoke the use of XSL engine. |
| Assign activity is really used for straight to straight mapping, it cannot do any validation before mapping. | We use the transformation to change the data from one format to another format. In Transform, we can validate the data or check for existence of nodes before doing any assignment through the XSLT constructs like if, choose, for-each which prevents errors at runtime |

**60.What is the difference between 10g and 11g?**

* SCA architecture was followed in 11g and not in 10g
* In 11g you can put all your project SOA components in composite.xml file and deploy as a single deployment unit to single server, where in 10g you have to deploy each component to the respective server (i.e. ESB to ESB server, BPEL to BPEL Server)
* Basically all the SOA components like BPEL, ESB (Called Mediator in 11g), & OWSM are brought into one place in 11g using SCA composite concept.
* The major difference between lOg & llg would be the app server container.
* lOg by default runs on 0C4J while llg runs on Web logic Server.
* In 10g every BPEL is a separate project, but in llg several components can make 1 project as SCA.
* In lOg consoles are separate for BPEL and ESB, but in llg Enterprise Manager contains all.
* In 10g BAM and business rules are outside SOA Suite, but in llg they are in SOA Suite.

**61.What are the activities you have used while developing your BPEL component?**

|  |  |
| --- | --- |
| **Activity** | **Description** |
| Assign | This activity provides a method for data manipulation, such as copying the contents of one variable to another. Copy operations enable you to transfer information between variables, expressions, endpoints, and other elements. |
| Compensate | Use to compensate a scope of activities that has successfuIly completed. Compensation occurs when a process cannot complete several operations after completing others. The process must return and undo the previously completed operations |
| Check Point | Enables you to explicitly specify a dehydration point, used for forced dehydration. |
| Empty Activity | Used to specify empty action (i.e no execution), can be used as place holders. |
| Flow Activity | This activity enables you to specify one or more activities to be performed concurrently(parallel flow) |
| FlowN | This activity enables you to create multiple parallel flows equal to the value of N, which is defined at runtime based on the data available and logic within the process |
| Invoke | Used to invoke an operation in the partner link service. |
| Pick Activity | This activity waits for the occurrence of one event in a set of events and performs the activity associated with that event. The pick activity works as receive activity and it can be used to receive messages from different operations. You can also specify the onAlaram branch to time out while waiting to receive a message. |
| Receive | This activity used to receive a message from the partner link. |
| Reply | This activity allows the process to send a message in re ply to a message that was received through a receive activity. |
| Rethrow | This activity enables you to rethrow a fault originally captured by the immediately enclosing fault handler. |
| Scope | This activity consists of a collection of nested activities that can have their own local variables, fault handlers, compensation handlers, and soon. A scope activity is analogous to a {} block in a programming language |
| Switch | Used to perform conditional processing. |
| Terminate | A terminate activity enables you to end the tasks of an activity (for example, the fault handling tasks in a catch branch) |
| Throw | This activity generates a fault from inside the business process and throws the fault. |
| Transform | This activity enables you to create a transformation that maps source elements to target elements. Transform activities generated the XSLT file. |
| Wait | This activity allows a process to specify a delay fora certain period |
| While | This activity supports repeated performance of a specified iterative activity |

**Mediator :**

**62 What is Mediator?**

Oracle Mediator is a service component of the Oracle SOA Suite that provides mediation capabilities such as selective routing, transformation, and validation capabilities, along with various message exchange patterns, such as synchronous, asynchronous, and event publishing or subscriptions.  
Oracle Mediator provides a lightweight framework to mediate between various components within a composite application. Oracle Mediator converts data to facilitate communication between different interfaces exposed by different components that are wired to build a SOA composite application.  
For example, Oracle Mediator can accept data contained in a text file from an application or service, transform it into a format appropriate for updating a database that serves as a customer repository, and then route and deliver the data to that database.

**63 Difference between ESB and Mediator?**

In 10g for routing, separate router need to keep along with ESB for routing and filter expressions. Where as in l1g mediator contains routing rules and filter expressions itself.

**64 Difference between Mediator & OSB?**

OSB is all together different tool which is used for integration like SOA but the main purpose of OSB is to route the information and same we can do with mediator. The main difference two is, we go for Mediator when we want to route information between different components inside composite and go for OSB when we want to route the information between composites. Mediator is used light weight mediation and OSB is used for heavy weight mediation.

**65 What is echo in Oracle Mediator?**

The purpose of the echo option is to expose all the Oracle Mediator functionality as a callable service without having to route it to any other service. For example, you can call an Oracle Mediator to perform a transformation, a validation, or an assignment, and then echo the Oracle Mediator back to your application without routing it anywhere else. For synchronous operations with a conditional filter, the echo option does not return a response to the caller when the filter condition is set to false. Instead, it returns a null response. The echo option is available for asynchronous operations only if the Oracle Mediator interface has a callback operation. In this case, the echo is run on a separate thread.

**66 What is resequencing in Mediator?**

The resequencing feature of the Oracle Mediator reorders sets of messages that might arrive to the Oracle Mediator in the wrong sequence. You can define resequencing for all operations in an Oracle Mediator or for a specific operation.

**67 Resequencing options available in mediator?**

Standard (based on input Id) FIFO(based on time) Best Efforts

**68 Types of routing exist in Mediator?**

Static & Dynamic Routing.

**69 Types of Static Routing rules?**

Sequential & Parallel

**70 Which static routing rule support fault policy?**

Parallel rules only.

**71 How many faults can Oracle Mediator service engine throw?**

Only One

**72 What is Dynamic Routing in Mediator?**

A dynamic routing rule lets you extemalize the routing logic to an Oracle Rules Dictionary, which in turn enables dynamic modification of the routing logic in a routing rule. When you choose to create dynamic routing rule then it creates a new business rule service component that is wired to the Oracle Mediator service component within the SOA composite of the Oracle Mediator service component. The business rule service component includes a rule dictionary. The rule dictionary is a metadata container for the rule engine artifacts, such as fact types, rulesets, rules, decision tables and so on. Inside routing rules, you need to set endpoint URI.

**73 What are the features in Mediator?**

Oracle Mediator provides the following features:

* Content-Based and Header-Based Routing
* Synchronous and Asynchronous Interactions
* Sequential and Parallel Routing of Messages
* Transformations
* Validations
* Java Callouts
* Event Handling
* Dynamic Routing
* Error Handling
* Echo
* Multiple Part Messages

**74 What is the difference between Service component, Service binding and reference binding?**

Service components are the building blocks that you use to construct a SOAcomposite application.  
Examples -BPEL, Human Task, Business Rules, Mediators, Spring.  
Binding component establish a connection between a SOA composite and the external world. They are categorized as Service binding component and Reference binding components.  
Service binding components provide the entry point to the composite  
Reference binding components provides access to the external service in the outside world.Examples include JCA adapters, HTTP binding, Direct binding etc.

**75 What is difference between services & references?**

Services are which are self dependent. service is an entry point into the composite from external world.  
References are those which are dependent on other services. References are those which are given to the external world.

**76 Can a composite have multiple service bindings?**

Yes, there can be multiple service bindings for a composite