**WEB-SERVICES**

1. The distributed technologies are corba, RMI, EJB etc uses Binary format , hence the objects are serialized into stream of bytes.
2. Web services uses XML format instead of binary format .Hence in web services the data is exchanged as XML message.
3. The XSD(xml schema) supports data types. Hence validation can be done. In web services the objects are serialized into XML message.
4. The web services technologies such as SOAP ,WSDL , UDDI are represented in XML.
5. Web services makes distributed application easier . It makes implementation easier. It is the implementation of service oriented architecture. (SOA) concept.

Architecture :-

Service Requester 🡨-------🡪 Service Registry 🡨------------🡪 Service provider

1. Service provider creates web services .it is contains some business logic functionality in their organization .
2. Service Registry is central location where the service provider can list its web services .
3. Service Requester can invoke the central registry and use the services.

**SOAP:- simple object access protocol**

Soap is a standard messaging protocol in web services.

Soap messaging are represented in XML with additional features such as

1. Set of rules for sending message
2. Network protocol such as HTTP.
3. A way to represent protocol and application faults.
4. It is a standard format for messaging.
5. W3c vendor of soap.

**Structure of soap**

1)<SOAP :envelope> Root elements of soap message

2)<SOAP :Header>

It contains XML elements that describes security credentials , digital signatures, Transactions, routing instruction, debugging info.

3)<SOAP :Body>

Contains the actual application data in XML format.

1)XML document fragment

2)procedure call with parameters

3)fault message

**WSDL :- web service description language**

WSDL documents are represented in XML . It is used to provide interface name, method name, parameter types, return type etc in XML format.

It provides message format such as SOAP.

It provides messaging protocol such as HTTP.

Messaging style such as document or RPC.(remote procedure call)

Encoding style such as soap encoding.

End point address URL that client can communicate with a service.

It is well suited for code generation tools, which can read a WSDL document and generate a programmatic interfaces and network stubs.

The WSDL is a schema based document .It contains 7 important elements.

1)<wsdl :definitions>

2)<wsdl:types>

3)<wsdl:message>

4)<wsdl:portTypes>

5)<wsdl:operation>

6)<wsdl:binding>

7)<wsdl:service>

**JAXP :- Java API for XML processing**

1)it is specification from W3C.

2)It is a API from sun.

3)using JAXP API we can process XML documents in two methodologies .1)DOM 2)SAX

DOM :- Dom stands for document object model.

It is tree based model.

At a time total document will be loaded into the memory as a tree structure.

JAXB :- java architecture for XML binding

Jaxb is a java standard that defines how java objects are converted to XML.

Programmer does not have to deal with XML directly.

JAXB parser is faster than SAX parser.

JAXB also provides random access like DOM.

It provides compiler to compile XML schema to java class.

JAXB is high level language while JAXP/SAX/DOM are assembly language for XML document management.

**UDDI :- Universal description discovery and integration.**

UDDI is the registry where all the WSDL documents are registered.

It is also developed in XML.

It is also called XML Registry.

WSDL is the document which explains the services information. This WSDL documents has to be placed in some location from where consumer can access them.

SOAP🡨-------XML🡨------CONSUMER 🡨-------------HTTP,FTP, SMTP ---🡪PROVIDER ->WSDL ------->UDDI