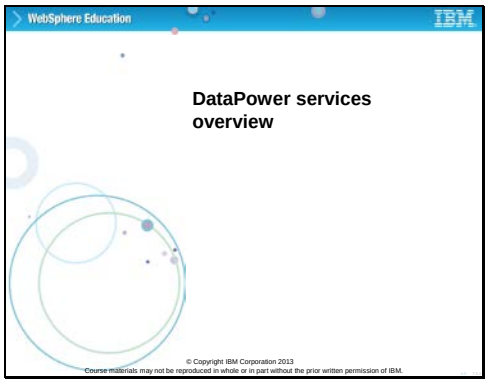
Slide 1


WebSphere Education
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DataPower services overview
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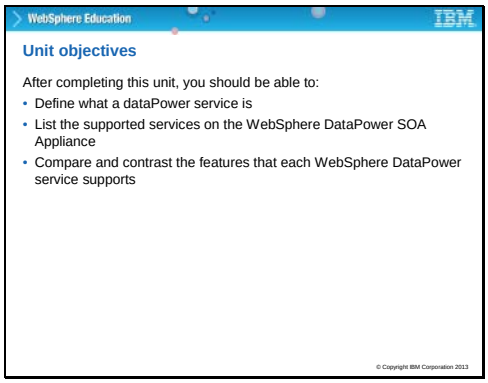
Slide 2


WebSphere Education
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Unit objectives
After completing this unit, you should be able to:
• Define what a dataPower service is
• List the supported services on the WebSphere DataPower SOA Appliance
• Compare and contrast the features that each WebSphere DataPower service supports
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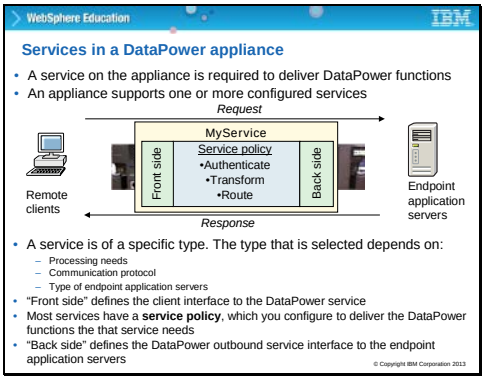
Slide 3



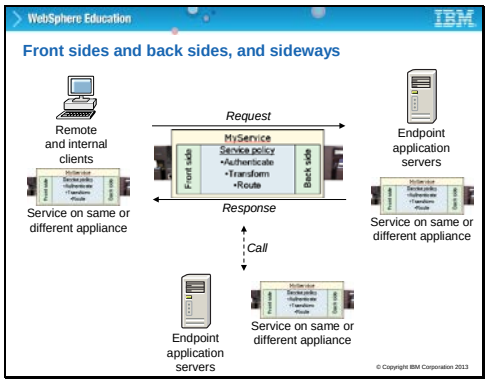
Services in the DataPower appliance

A service on the DataPower appliance is required to deliver custom functions. Services are written, or configured, by developers who write logic as to how DataPower is to function given a set of parameters on incoming traffic. A DataPower appliance supports one or more services.

These services are of a specific type, such as a service that accepts WDSLs, web services, SFTP, or an WebSphere MQ message just to name a few. The service type that is selected on the appliance depends on the processing needs, the communication protocol, and the type of endpoint applicant servers.

DataPower services operate in a client/server model. Therefore, each service has the client or front side, the service processing in the middle, and a server or back side. The front side in the inbound message, the service contains the process to occur while on the appliance, such as message transformation, and the backside includes the outbound message destination.

Slide 4



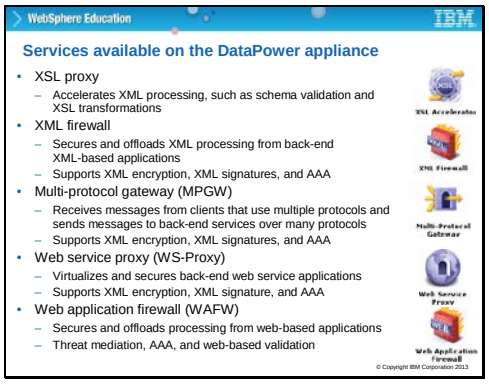
Front sides and back sides, and sideways

The front side of a service can receive requests from a remote client, an internal client, or from another service on the appliance.

While executing a service policy, the service can call to other services on the appliance or to other application servers.

The back side of the service calls the target application server, or perhaps another service on the appliance.

Slide 5

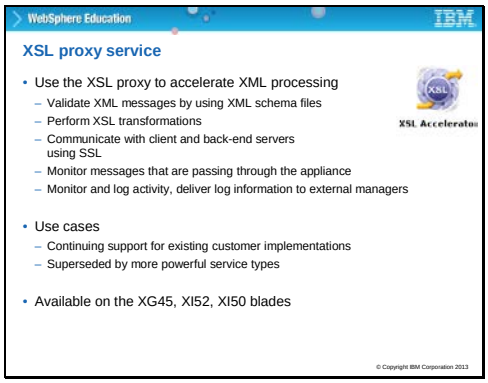


Services available on the DataPower appliance

There are five primary services available on DataPower. This slide shows the list, together with the icon you find on the control panel for each service. The next few slides look at each service.

Not all services are available on all appliances. You might see the restrictions in the next few slides.

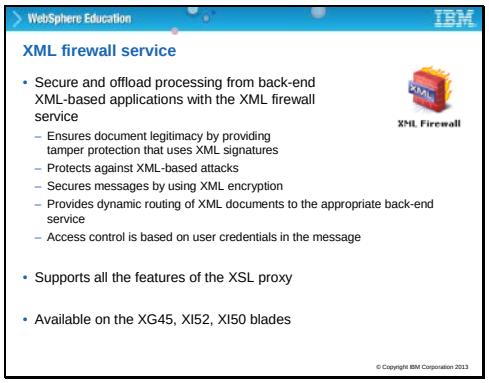
Slide 6



XSL proxy service

The XSL proxy service is the fundamental service of DataPower. Its one task is to accelerate various forms of XML processing, including validation, transformation, and monitoring. It can be created as a loopback proxy, or you can provide a static address, or single hardcoded address, for the back server. The best use case for this service is a portal scenario. In a portal server, the different pieces of data are assembled as SOAP messages from diverse web services or any other source, and now are aggregated to create a single web page. The basic DataPower service and is available on all of the appliances.

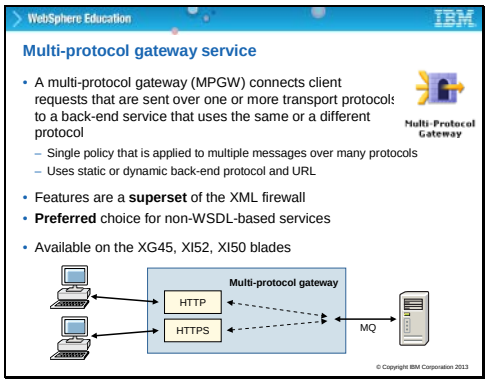
Slide 7



XML firewall service

The XML firewall service is probably the simplest of the services that are used in enterprise environments. The XML firewall server is similar to the XSL proxy service, but adds support for security features such as XML signatures, encryption, triple A, and threat protection. It also provides for dynamic routing, where the back server address is decided at run time from information available with the request. In other words, it is an accelerator and a security service. These features are not available on the XA35 appliance.

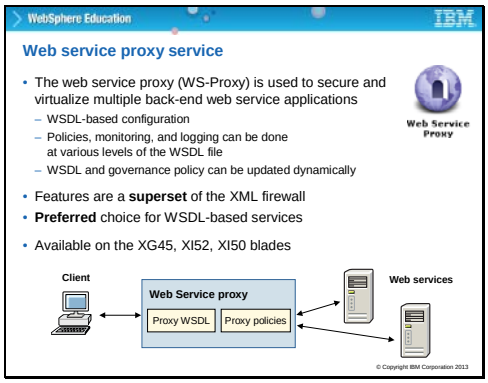
Slide 8



Multi-protocol gateway service

The multi-protocol gateway (MPGW) is similar to the XML firewalls. The MPGW has the added capability of accepting requests over multiple protocols and forwarding the requests to back servers that might not be on the same protocol. Thus, the back server might be static, pre-defined as a specific protocol to a specific address, or dynamic, where both the protocol and the destination are decided at run time. The diagram on the slide shows http requests, either secure or non-secure, being forwarded to an WebSphere MQ back-end.

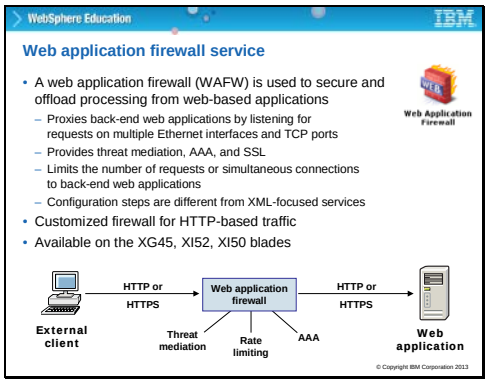
Slide 9



web service proxy service

A more powerful service is the web service proxy (WSP). The WSP is based on a WSDL document, or Web Service Definition Language (WSDL) document. What the WSDL provides is information about the interface for the web service, including the operations and parameters, in addition, the URL of the web service. The DataPower appliance therefore becomes the proxy URL that the client knows about, and the proxy policy defines where the actual service is located. It is an XML firewall, together with the WSDL capabilities. Again, this service is not available on the XA35 appliance.

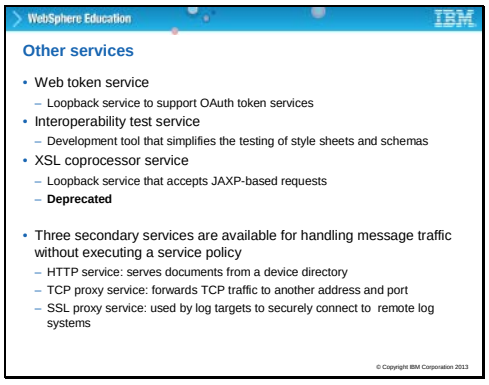
Slide 10



Web application firewall service

Slightly aside from what you see is the web application firewall service. The WAF includes some of the capabilities of the XML firewall; however it is intended not for XML traffic, but rather for HTTP traffic. As with the XML firewall, it can be a proxy for web applications, and it provides some level of security with threat mediation, triple A and SSL. It can also limit the number of simultaneous connections to the back end, thus improving performance.

Slide 11



Other services.

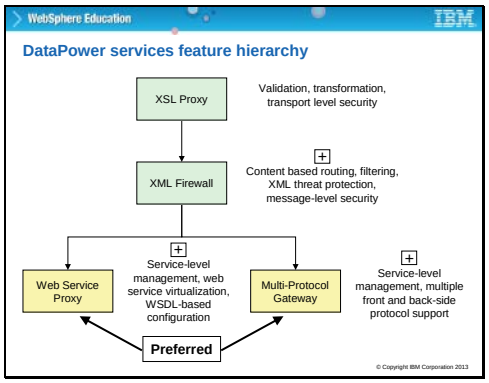
Web token service and interoperability test service are covered in other units.

XSL coprocessor service is a variant of the XSL proxy service. It is deprecated, and should not be used. In the past, this service was commonly used to test style sheets. This capability is now available in the interoperability test service. Although this service supported JAXP-based requests, there is no Java running in the firmware. It conforms to the JAXP interface.

By default, the appliance does not create an HTTP service on port 80. It must be explicitly created. This service is meant for low-volume or testing purposes; there is not much room for the disk requirements of a typical web server.

The TCP and SSL Proxy services listen for requests on the specified port number and forward the requests to a remote host address and port.

Slide 12



DataPower services feature hierarchy

This diagram illustrates the object relationship between the different services that are covered in this course.

The **XSL proxy** provides XML schema validation, XML transformation, and support for transport level security (SSL connections).

The **XML firewall** provides security features for XML applications, at the message header and payload level.

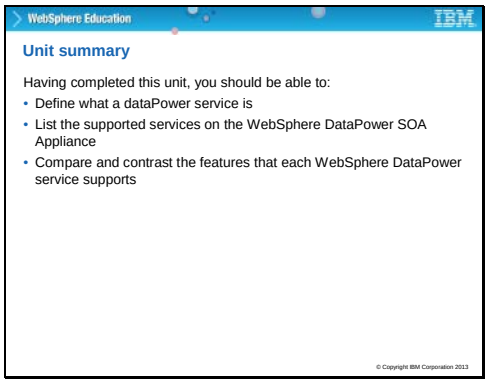
The **web service proxy** inherits all of the abilities of the XML firewall and adds features specific to web services. Web service virtualization allows a web service proxy to support many back server web service applications. In addition, the WSDL-based configuration feature allows developers to set processing rules at a service, portType (interface), or operation level. Although this level of granularity is possible when using an XML firewall, it is up to the developer to apply a processing policy to an element of a web service by using custom XPath expressions.

Finally, the **multi-protocol gateway** allows any-to-any mapping of connections, by using a set of front- and back-server protocol handlers.

Both the web service proxy and multi-protocol gateway services support service level management policies.

The **web application firewall**, which is not shown on this diagram, is a service that has a feature set similar to the XML firewall, but it is designed for non-XML traffic.

Slide 13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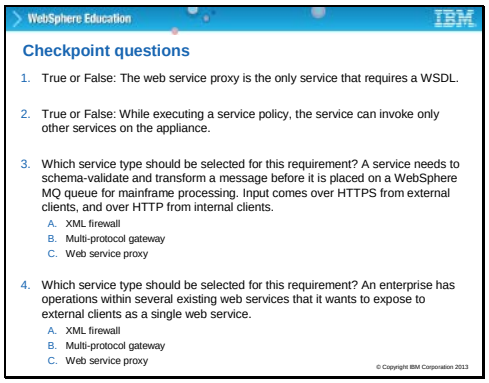
Slide 14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Checkpoint questions
1. True or False: The web service proxy is the only service that requires a WSDL.
2. True or False: While executing a service policy, the service can invoke only other services on the appliance.
3. Which service type should be selected for this requirement? A service needs to schema-validate and transform a message before it is placed on a WebSphere MQ queue for mainframe processing. Input comes over HTTPS from external clients, and over HTTP from internal clients.
A. XML firewall
B. Multi-protocol gateway
C. Web service proxy
4. Which service type should be selected for this requirement? An enterprise has operations within several existing web services that it wants to expose to external clients as a single web service.
A. XML firewall
B. Multi-protocol gateway
C. Web service proxy
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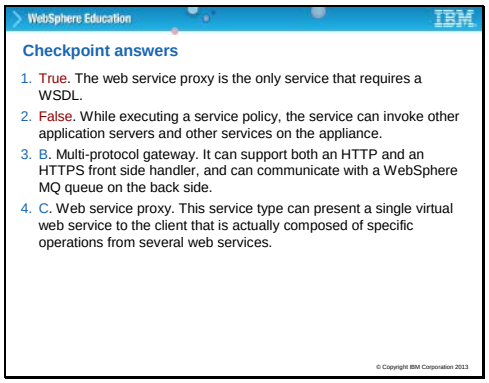
Slide 15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Checkpoint answers
1. True. The web service proxy is the only service that requires a WSDL.
2. False. While executing a service policy, the service can invoke other application servers and other services on the appliance.
3. B. Multi-protocol gateway. It can support both an HTTP and an HTTPS front side handler, and can communicate with a WebSphere MQ queue on the back side.
4. C. Web service proxy. This service type can present a single virtual web service to the client that is actually composed of specific operations from several web services.
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