

***#8 - In about 200 words, outline the difference between the Simple Object Access Protocol (SOAP) and the Representational State Transfer (REST) principle as they are used in the creation of Web services. In your answer, discuss the advantages and disadvantages of each***

SOAP and REST are two different approaches to building web services, each with its own forms of advantages and disadvantages. SOAP, stands for Simple Object Access Protocol, works as a protocol used for structured information exchange within web services. It uses XML as its primary format, which can lead to wordiness in communication. SOAP operates on a request/response model, with well-defined methods for operations. Even though it's complex and high overhead, SOAP offers strong standards, including built-in error handling and security features, making it better for scenarios requiring flexibility across different systems. However, its wordy nature and strict requirements can lead to performance issues and increased complication in implementing and maintenance.

The other approach is REST, or Representational State Transfer, is a style that focuses on simplicity, scalability, and flexibility in web service design. REST services normally use lightweight data formats like JSON and operate on a stateless communication model, where each request contains all the needed information for processing without relying on server-side state. This helps for better scalability and performance, as well as easier caching. REST gives a simpler and more natural approach to building web services compared to SOAP, but it doesn't have built-in standards for error handling and security, which makes developers having to implement these features. Lastly, while REST is widely used and supported, it may not be the best idea for all scenarios, especially those requiring complex operations beyond basic functionalities or alternative communication protocols. The choice between SOAP and REST depends on things such as performance requirements, interoperability needs, and how complex the application is.

Sources:

<https://aws.amazon.com/compare/the-difference-between-soap-rest/>

<https://smartbear.com/blog/soap-vs-rest-whats-the-difference/>

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