

SOAP & REST

Their differences



Intro

- ▶ SOAP (Simple Object Access Protocol) and REST (Representational State Transfer)
 - are both web service communication protocols.
- ▶ SOAP was long the standard approach to web service interfaces,
 - although it's been dominated by REST in recent years
- ▶ REST now representing more than 70% of public APIs [according to stormpath.com in 2016].

Primary Differences

- ▶ **SOAP** was originally created by Microsoft in 2000, this gives it the advantage of being an established, legacy protocol.
- ▶ **REST** has been around for a good time now, as well, since 2006.
- ▶ **REST** operates through a solitary, consistent interface to access named resources.
- ▶ **REST** is most commonly used when you're exposing a public API over the Internet.
- ▶ **SOAP**, on the other hand, exposes components of application logic as services rather than data.

Primary Differences

- ▶ SOAP operates through different interfaces. To put it simply, REST accesses data while SOAP performs operations through a more standardized set of messaging patterns.
- ▶ In most cases, either REST or SOAP could be used to achieve the same outcome (and both are infinitely scalable), with some differences in how you'd configure it.
- ▶ REST entered the scene as a way to access web services in a much simpler way than possible with SOAP by using HTTP.

Benefits of REST over SOAP

- ▶ REST allows a variety of data formats, whereas SOAP only allows XML.
- ▶ Coupled with JSON (which typically works better with data and offers faster parsing), REST is generally considered easier to work with.
- ▶ Considering JSON, REST offers better support for browser clients.
- ▶ REST provides superior performance, particularly through caching for information that's not altered and not dynamic.

Benefits of REST over SOAP

- ▶ REST is the protocol used most often for major services such as Yahoo, eBay, Amazon, and even Google.
- ▶ REST is generally faster and uses less bandwidth. It's also easier to integrate with existing websites with no need to refactor site infrastructure.
- ▶ This enables developers to work faster rather than spend time rewriting a site from scratch. Instead, they can simply add additional functionality.
- ▶ REST is the typically preferred protocol unless there's a convincing reason to use SOAP

Benefits of SOAP over REST

- ▶ For robust security, SOAP offers some additional assurances for data privacy and integrity.
 - It also provides support for identity verification
- ▶ SOAP offers built-in retry logic to compensate for failed communications.
 - REST, on the other hand, doesn't have a built-in messaging system. If a communication fails, the client has to deal with it by retrying.
- ▶ SOAP's standard HTTP protocol makes it easier for it to operate across firewalls and proxies

Benefits of SOAP over REST

- ▶ If you need ACID-compliant transactions, SOAP is the way to go.
 - It provides greater transactional reliability than REST.
- ▶ In some cases, designing SOAP services can actually be less complex compared to REST (when security complexity is involved)
- ▶ SOAP is highly extensible through other protocols and technologies.

ACID-compliant

الذرية Atomicity

الذرية تعني ان تعاملات قاعدة البيانات اما ان يتم تنفيذ جميع عملياتها بشكل كامل، أو لا يتم تنفيذ أي منها، بمعنى أنه لا مكان لحلول وسط. ففي مثال **التحويل البنكي**، إما ان تتم عمليتي الخصم والايذاع ككتاهما أو لا يتم أي منهما. أما ان يتم أحدهما ويفشل الآخر فينتج عنه خلل في صحة البيانات.

الاتساق Consistency

و هو أن تظل قاعدة البيانات ملتزمة بقوانين تكامل البيانات (كما حددها مصمم قاعدة البيانات) بعد تنفيذ التعامل. مثلا: إذا كان مصمم قاعدة البيانات قد حدد الحد الأدنى للرصيد بمبلغ معين، يجب أن ترفض قاعدة البيانات أي تعامل قد ينتج عنه في النهاية إخلال بهذا القانون.

العزل Isolation

و هو أن تتم التعاملات المختلفة بمعزل عن بعضها البعض. ويختص هذا الشرط بقواعد البيانات التي تقوم بإجراء عدة تعاملات متزامنة. مثلا: إذا قام العميل بالكشف عن رصيده أثناء اجراء تعامل التحويل يجب أن تمنحه قاعدة البيانات اما البيانات التي سبقت التحويل أو التي نتجت عنه (بفرض أنه تم بنجاح) لكن من الخطأ أن يحصل العميل على قراءة لبيانات يتم بتعديلها حاليا بواسطة تعامل معين ولم يتحدد مصيرها بعد (فربما لا يتم التعامل بنجاح في آخر الأمر).

الدوام Durability

و معناه أنه إذا حصل مستخدم قاعدة البيانات على نتيجة مفادها أن التعامل قد تم بنجاح، فإن ذلك يعني أن التعامل لن يتم الرجوع فيه مهما حدث، حتى في حالة حدوث أي أعطال لاحقة في قاعدة البيانات.