



What is REST, how does it differ from SOAP and how can we benefit from it in BizTalk Server 2013?

Robin Hultman



Agenda

- **REST drivers**
- **HTTP, REST and Hypermedia**
- **REST vs RPC (SOAP)**
- **WCF, BizTalk and REST**
- **Demonstration**



REST drivers

The eight fallacies of distributed computing

- The network is reliable.
- Latency is zero.
- Bandwidth is infinite.
- The network is secure.
- Topology doesn't change.
- There is one administrator.
- Transport cost is zero.
- The network is homogenous.

- The network is homogenous.



REST drivers

REST Constraints

- **Client/server – Evolvability, scalability**
- **Stateless - Scalability**
- **Cacheable - Performance, scalability**
- **Layered system – Manageability, scalability**
- **(Code on demand) - Extensability**
- **Uniform interface – Evolvability, visibility**

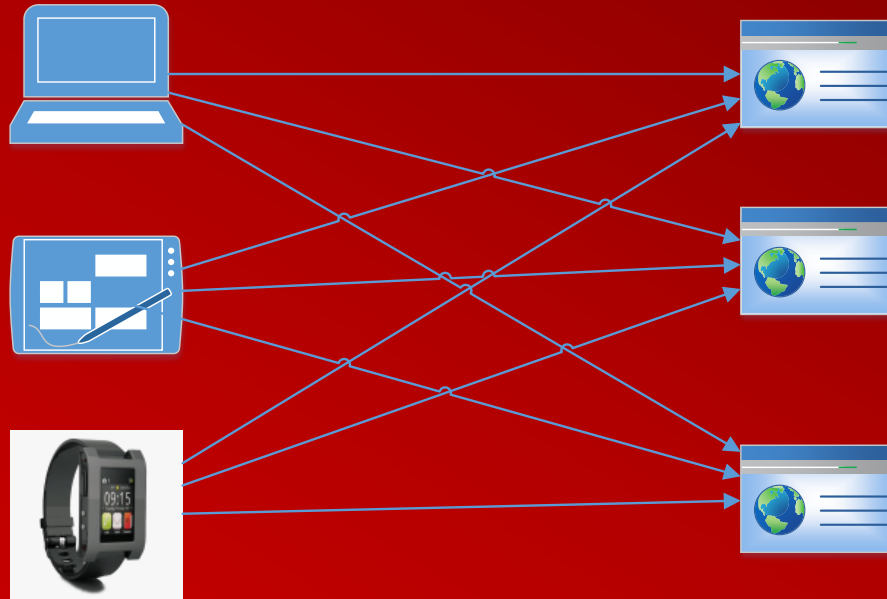


REST drivers

- **Caching**
- **Scale-out**
- **Side effects (GET)**
- **Idempotent (PUT, DELETE)**
- **Interoperability**
- **Simplicity**

REST drivers

Devices

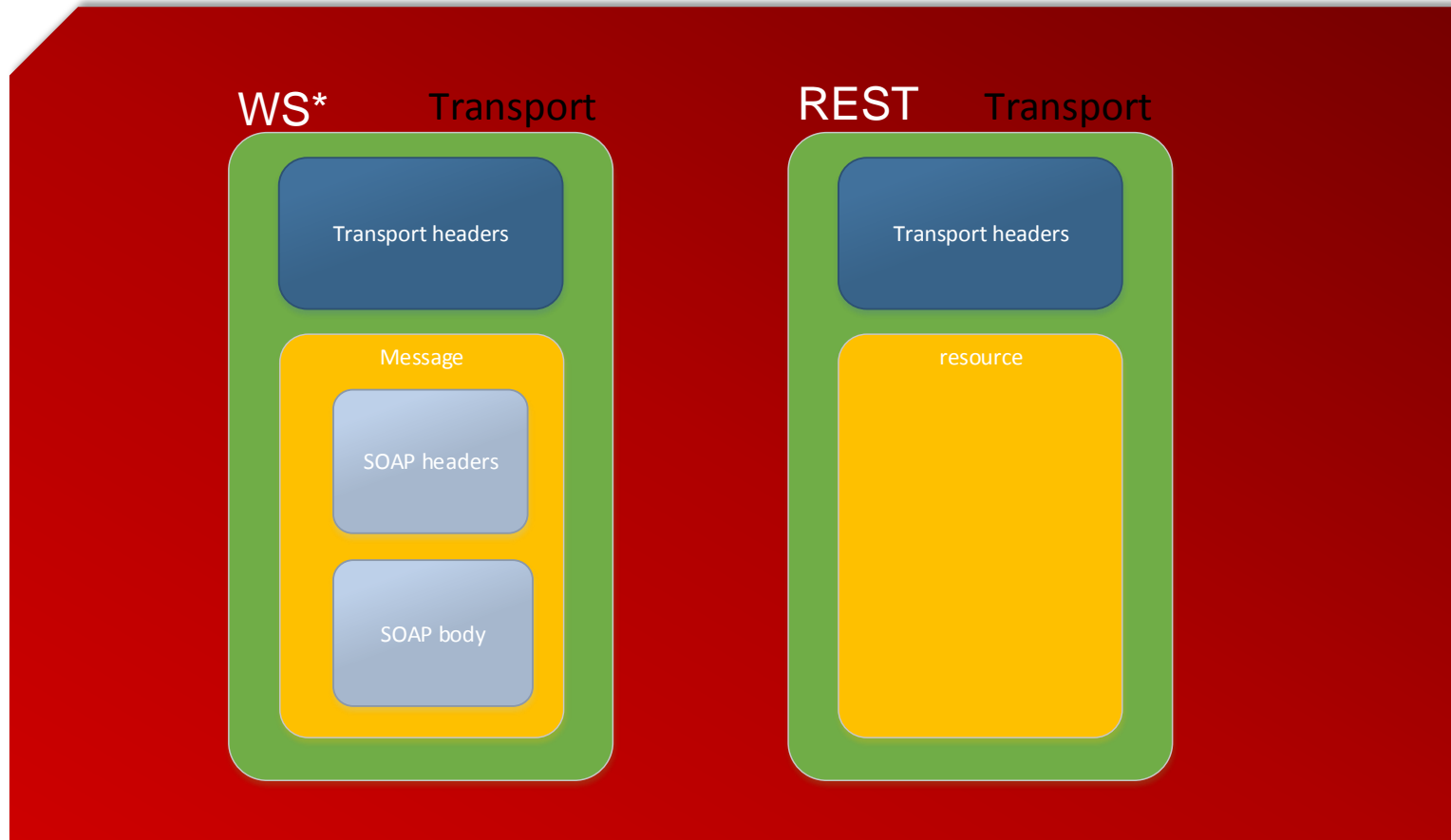




HTTP, REST and Hypermedia

- **HTTP**
 - **A resource is anything that can be uniquely identified by a URI.**
 - `http://localhost/ProductService/Service1.svc/Products/680`
 - **Verbs defines operations of a resource**
 - `GET http://localhost/ProductService/Service1.svc/Products/680`
 - **Status Codes**
 - `HTTP/1.1 200 OK`
 - **Media types**
 - `XML, JSON, PNG`

REST vs SOAP





REST vs SOAP

SOAP	REST
Transport neutral	Depend on underlying transport
Always uses HTTP POST (if HTTP transport)	Takes advantage of HTTP verbs
Limited caching support	Cacheable
XML	XML, JSON etc
Contract for services and it's operations	Contract is the uniform interface
Error semantics are specified out of band.	Error semantics are specified by the uniform interface.



REST vs SOAP

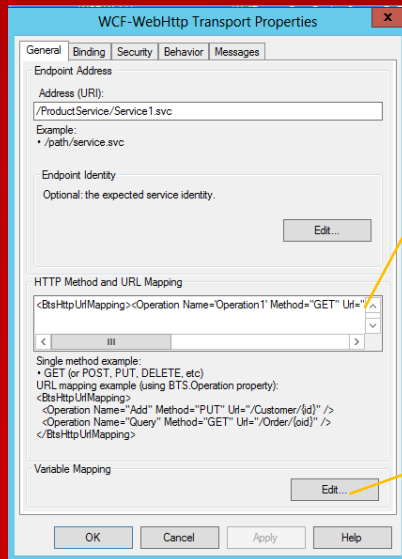
	SOAP (over HTTP)	REST
Create product	CreateProduct(string name) HTTP METHOD: POST	/products HTTP METHOD: POST
Update product	UpdateProduct(string id) HTTP METHOD: POST	/products/{id} HTTP METHOD: PUT
Get product by id	GetProduct(string id) HTTP METHOD: POST	/products/{id} HTTP METHOD: GET
Get products	GetProducts() HTTP METHOD: POST	/products/ HTTP METHOD: GET
Delete product	DeleteProduct(string id) HTTP METHOD: POST	/products/{id} HTTP METHOD: DELETE



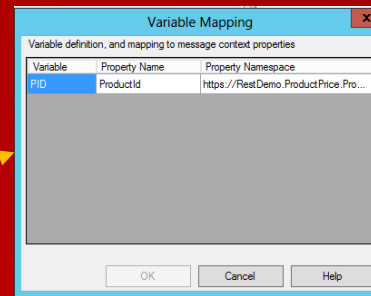
"Service Calling made easy" by Geek and Poke

BizTalk (WCF) and REST

- WebHttpBinding
- WebHttpBehavior
- WCF-WebHttp



```
<BtsHttpUrlMapping>
  <Operation Name='Operation1' Method="GET" Uri="/Products/{pid}" />
  <Operation Name='Operation1' Method="GET" Uri="/Products" />
</BtsHttpUrlMapping>
```



Case scenario – minimizing amount of data sent over the wire

- **B:** Hi, can you give me a copy of ~/document.aspx?
- **WS:** Of course. Here you are: 200Kb of code. Thanks for coming, 200 OK.
- **B:** Hi again, can you give me a copy of ~/another-document.aspx?
- **WS:** Yes, we're here to serve. Here you are: 160Kb. Thanks for coming, 200 OK.
- (Now the user clicks on a link that points to ~/document.aspx or goes back in his browsing history)
- **B:** Sorry for disturbing you again, can I have another copy of ~/document.aspx
- **WS:** No problem at all. Here you are: 200Kb of code (the same as before). Thanks for coming, 200 OK

- **B:** Hi can you give me a copy of ~/document.aspx?
- **WS:** Of course. Here you are: 200Kb of code. ISBN is 55511122 (ETag) and this is the 2009 edition (Last-Modified). Thanks for coming, 200 OK.
- **B:** Hi again, can you give me a copy of ~/another-document.aspx?
- **WS:** Yes, we are here to serve. Here you are: 160Kb. ISBN is 555111333 (ETag) and it is the 2007 edition (Last-Modified). Thanks for coming, 200 OK.
- (Now the time passes and the user goes back to ~/document.aspx, maybe it was in his favorites, or arrived to the same file after browsing for a while)
- **B:** Hi again, I already have a copy of ~/document.aspx, ISBN is 555111222 (If-None-Match), dated 2009 (If-Modified-Since). Is there any update for it?
- **WS:** Let me check... No, you are up to date, 0Kb transferred, 304 Not modified.

<http://jagbarcelo.blogspot.se/2009/03/conditional-get-and-etag-implementation.html>

- **WS:** Let me check... No, you are up to date, 0Kb transferred, 304 Not modified.
- **B:** Hi again, I already have a copy of ~/document.aspx, ISBN is 555111222 (If-None-Match), dated 2009 (If-Modified-Since). Is there any update for it?