

5.– 8. September 2011
in Nürnberg



Herbstcampus

Wissenstransfer
par excellence

Klassenkampf

Enterprise IT vs. WWW

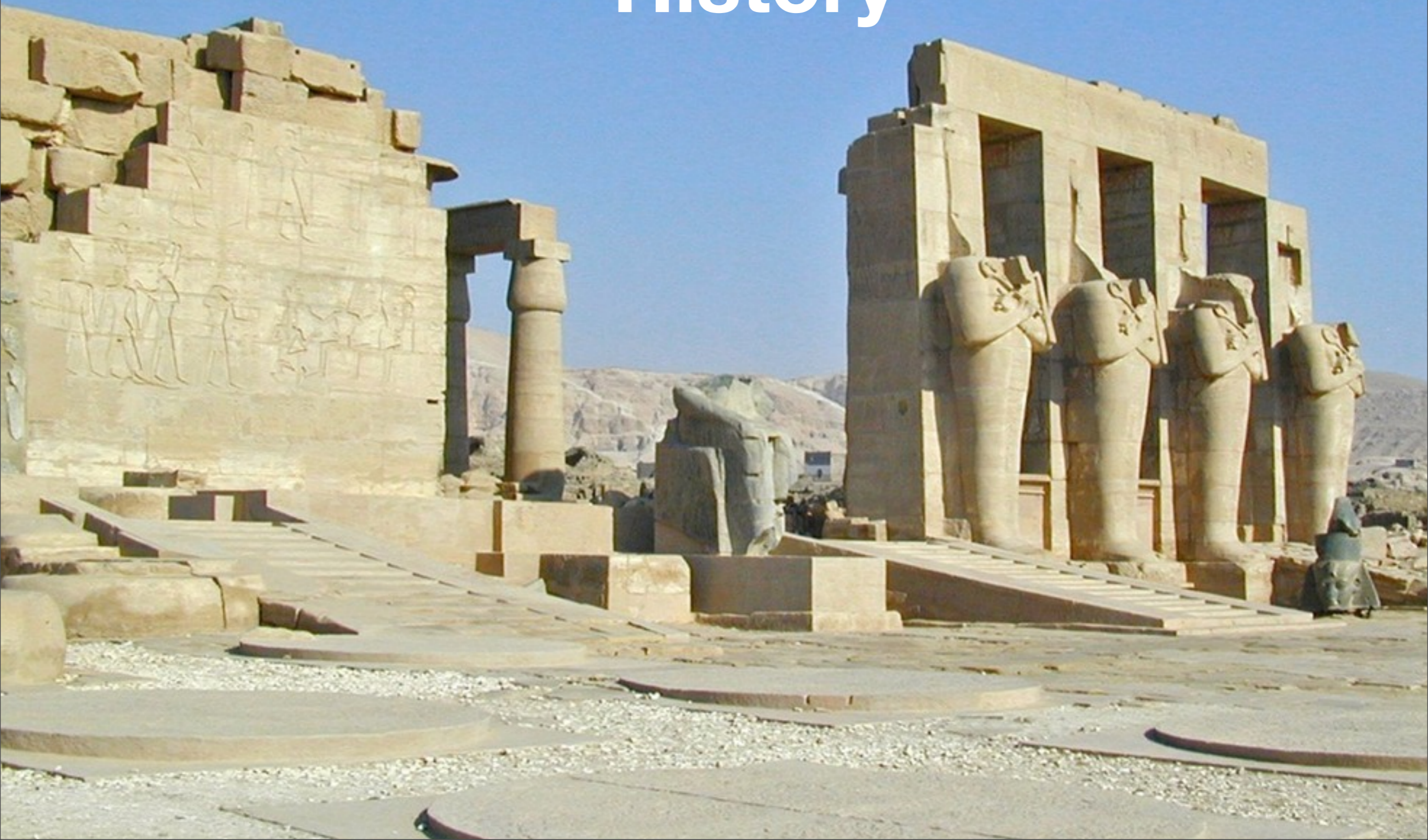
Stefan Tilkov

innoQ Deutschland GmbH

Stefan Tilkov | innoQ

Web vs. Enterprise IT

(Personal) History



Sockets

RPC

DCE

CORBA

RMI

MOM

WS-*



<http://www.loudthinking.com/arc/000585.html>

**“Add the missing
parts to the Web”**

Web Services Standards Overview

Interoperability Issues

Basic Profile 1.1
Final Specification

Basic Profile – The Basic Profile 1.1 provides implementation guidelines for the related set of non-proprietary Web Service specifications should be used together for best interoperability.

Basic Profile 1.2
Working Group Draft

Basic Profile – The Basic Profile 1.2 builds on Basic Profile 1.1 by incorporating Basic Profile 1.1 errata, requirements from Simple SOAP Binding Profile 1.0, and adding support for WS-Addressing and MTOM.

Basic Profile 2.0
Working Group Draft

Basic Profile – The Basic Profile 2.0 is an update of WS-1.0 that includes a profile of SOAP 1.2.

Attachments Profile 1.0
Final Specification

Attachments Profile – The Attachments Profile 1.0 implements the Basic Profile 1.1, and adds support for interoperable SOAP Messages with attachments-based Web Services.

Simple SOAP Binding Profile 1.0
Final Specification

Simple SOAP Binding Profile – The Simple SOAP Binding Profile consists of those Basic Profile 1.0 requirements related to the evaluation of the envelope and its representation in the message.

Basic Security Profile 1.0
Board Approval Draft

Basic Security Profile defines the WS-1 Basic Security Profile 1.0, based on a set of non-proprietary Web services specifications, along with clarifications and amendments to that specification which promote interoperability.

REL Token Profile 1.0
Working Group Draft

REL Token Profile is based on a non-proprietary Web services specification, along with clarifications and amendments to that specification which promote interoperability.

SAML Token Profile 1.0
Working Group Draft

SAML Token Profile is based on a non-proprietary Web services specification, along with clarifications and amendments to that specification which promote interoperability.

Conformance Claim

Business Process Specifications

Business Process Execution Language for Web Services 1.1 (BPEL4WS) 1.1
BEA Systems, IBM, Microsoft, SAP, Siebel Systems – OASIS-Standard

Business Process Execution Language for Web Services 1.1 (BPEL4WS) provides a language for the formal specification of business processes and business interaction protocols using Web Services.

Business Process Execution Language for Web Services 2.0 (BPEL4WS) 2.0
OASIS, BEA Systems, IBM, Microsoft, SAP, Siebel Systems – Committee Draft

Business Process Execution Language for Web Services 2.0 (BPEL4WS) provides a language for the formal specification of business processes and business interaction protocols using Web Services.

WS-Choreography Model Overview 1.0
W3C Working Draft

WS-Choreography Model Overview defines the formal and structural of the SOAP messages that are exchanged, and the sequence and conditions of which the Web services participate.

Business Process Management Language (BPML) 1.1
BPML.org Final Draft

Business Process Management Language (BPML) defines a meta-language for expressing business processes and supporting entities.

Web Service Choreography Interface (WSCI) 1.0
W3C Sun Microsystems, SAP, BEA Systems and Initial Draft

Web Service Choreography Interface (WSCI) describes how Web Service operations can be choreographed in the context of a message exchange in which the Web services participate.

XML Process Definition Language (XPDL) 2.0
Final

XML Process Definition Language (XPDL) provides an XML for formal that can be used to interchange process models between tools.

Web Service Choreography Description Language (CCL4WS) 1.0
W3C Candidate Recommendation

Web Service Choreography Description Language (CCL4WS) is a security declaration, XML-based language that defines how a Web Service can be used to describe the behavior and when the jointly agreed ordering rules are satisfied.

Metadata Specifications

WS-Policy 1.1
W3C Working Draft

WS-Policy describes the capabilities and constraints of the policies in interoperations and endpoints (e.g. business rules, required security labels, supported encryption algorithms, privacy rules).

WS-PolicyAttachment 1.2
W3C Member Submission

WS-PolicyAttachment defines a general-purpose mechanism for associating policies with the subjects to which they apply; the policies may be defined as part of existing metadata about the subject or the policies may be defined independently and associated through an external binding to the subject.

WS-MetadataExchange 1.1
BEA Systems, Computer Associates, IBM, Microsoft, SAP, Sun Microsystems and webMethods Public Draft

WS-MetadataExchange enables a service to provide metadata in exchange with a Web Service. Users only a reference to a Web Service, a user can access a set of WS-MetadataExchange operations to retrieve the metadata that describes the service.

Web Service Description Language 2.0 SOAP Binding 2.0
W3C Working Group Draft

Web Service Description Language SOAP Binding 2.0 (WS-2002-04) defines the SOAP binding for WS-2002-04.

Web Service Description Language 1.1
W3C Note

Web Service Description Language 1.1 is an XML-based language for describing Web services and how to access them. It specifies the location of the service and the operations for methods the service exposes.

WS-PolicyAssertions 1.1
BEA Systems, IBM, Microsoft, SAP Public Draft

WS-PolicyAssertions provides an initial set of assertions to address some common needs of Web Services applications.

WS-Discovery 1.0
Microsoft, BEA Systems, Canon, Intel and webMethods Draft

WS-Discovery defines a metadata discovery protocol for dynamic discovery of services on ad-hoc and managed networks.

Universal Description, Discovery and Integration (UDDI) 3.0.2
OASIS-Standard

Universal Description, Discovery and Integration (UDDI) defines a set of services supporting the description and discovery of businesses, organizations, and other Web services providers. The Web services they make available, and the technical interfaces which may be used to access these services.

Reliability Specifications

WS-ReliableMessaging 1.1
OASIS Committee Draft

WS-ReliableMessaging defines a protocol that allows Web services to communicate reliably in the presence of software component, system, or network failure. It defines a SOAP binding that is required for interoperability.

WS-Reliable Messaging Policy Assertion (WS-1M Policy) 1.1
OASIS Committee Draft

WS-Reliable Messaging Policy Assertion (WS-1M Policy) defines a domain-specific policy assertion for WS-ReliableMessaging that can be specified within a policy assertion as defined in WS-Policy Framework.

WS-Reliability 1.0
OASIS-Standard

WS-Reliability is a SOAP-based protocol for exchanging SOAP messages with guaranteed delivery, no duplication, and the underlying protocol. This specification contains a binding to WS-1.

Security Specifications

WS-Security 1.1
OASIS-Standard

WS-Security is a communications protocol providing a means for applying security to Web Services.

WS-Security: SOAP Message Security 1.1
OASIS Public Review Draft

WS-Security: SOAP Message Security describes extensions to SOAP messaging to provide message integrity and confidentiality. Specifically, this specification provides support for multiple security token formats, trust domains, signature formats and encryption technologies. The token formats and semantics for using them are defined in the associated profile documents.

WS-Security: Kerberos Binding 1.0
Microsoft, IBM, OASIS Working Draft

WS-Security: Kerberos Binding defines how to encode Kerberos tickets and attach them to SOAP messages. As well, it specifies how to add signatures and encryption to the SOAP message, in accordance with WS-Security, which uses and references the Kerberos tokens.

WS-Security: SAML Token Profile 1.1
OASIS Public Review Draft

WS-Security: SAML Token Profile defines the use of Security Assertion Markup Language (SAML) v1.1 assertions in the context of WS-Security SOAP Message Security including the use of WS-Security SOAP Message Security.

WS-Security: X.509 Certificate Token Profile 1.1
OASIS Public Review Draft

WS-Security: X.509 Certificate Token Profile describes the use of the X.509 authentication framework with the WS-Security: SOAP Message Security specification.

WS-SecurityPolicy 1.1
IBM, Microsoft, RSA Security, VeriSign Public Draft

WS-SecurityPolicy defines how to describe policies related to various features defined in the WS-Security specification.

WS-Security: Username Token Profile 1.1
OASIS Public Review Draft

WS-Security: Username Token Profile describes how a Web Service consumer can sign a Username Token as a means of identifying the requestor by username, and optionally using a password for shared secret, etc. to authenticate that identity to the Web Service producer.

WS-Federation 1.0
IBM, Microsoft, BEA Systems, RSA Security, VeriSign Initial Draft

WS-Federation defines how to manage and broker the trust relationships in a heterogeneous federated environment including support for federated identities.

WS-Trust 1.0
BEA Systems, Computer Associates, IBM, Layer 7 Technologies, Microsoft, Netegrity, OASIS, OpenNetwork, Ping Identity Corporation, RSA Security, VeriSign and WebMethods Technology – Initial Draft

WS-Trust defines a framework for trust models that enables Web Services to securely integrate. It uses WS-Security base mechanisms and defines additional protocols and extensions for security token exchange to enable the issuance and dissemination of credentials within different trust domains.

WS-SecureConversation 1.1
BEA Systems, Computer Associates, IBM, Layer 7 Technologies, Microsoft, Netegrity, OASIS, OpenNetwork, Ping Identity Corporation, RSA Security, VeriSign and WebMethods Technology Public Draft

WS-SecureConversation specifies how to manage and authenticate message exchanges between parties including security context exchange and establishing and deriving session keys.

Transaction Specifications

WS-Coordination 1.1
OASIS Working Draft

WS-Coordination describes an extensible framework for providing protocols that coordinate the activities of distributed applications.

WS-Business Activity 1.1
OASIS Working Draft

WS-Business Activity provides the definition of the business activity coordination type that is to be used with the extensible coordination framework described in the WS-Coordination specification.

WS-Atomic Transaction 1.1
OASIS Committee Draft

WS-Atomic Transaction defines protocols that enable existing transaction processing systems to wrap their proprietary protocols and interoperate across different hardware and software vendors.

WS-Composite Application Framework (WS-CAF) 1.0
Ariana Technologies, Fujitsu, IONA, Oracle and Sun Microsystems Committee Specification

WS-Composite Application Framework (WS-CAF) is a collection of three specifications aimed at solving problems that arise when multiple Web Services are used in combination. It proposes standard, interoperable mechanisms for managing shared context and ensuring business processes achieve predictable results and recovery from failure.

WS-Context (WS-CTX) 1.0
Ariana Technologies, Fujitsu, IONA, Oracle and Sun Microsystems Committee Draft

WS-Context (WS-CTX) is intended as a lightweight mechanism for allowing multiple Web Services to share a common context.

WS-Coordination Framework (WS-CF) 1.0
Ariana Technologies, Fujitsu, IONA, Oracle and Sun Microsystems Committee Draft

WS-Coordination Framework (WS-CF) allows the management and coordination in a Web Services interaction of a number of activities related to an overall application.

WS-Transaction Management (WS-TM) 1.0
Ariana Technologies, Fujitsu, IONA, Oracle and Sun Microsystems Committee Draft

WS-Transaction Management (WS-TM) defines a core infrastructure service consisting of a Transaction Service for Web Services.

Presentation Specifications

Web Services for Remote Portlets (WSRP) 2.0
OASIS Committee Draft

Web Services for Remote Portlets (WSRP) defines a set of interfaces and related services which standardize interactions with components providing user-facing markup, including the processing of user interactions with that markup.

Dependencies

Messaging Specifications

SOAP 1.1
SOAP 1.2
SOAP Message Transmission Optimization Mechanism (MTOM)
WS-Notification
WS-BasicNotification
WS-Topics
WS-BrokeredNotification
WS-Addressing – Core
WS-Addressing – SOAP Binding
WS-Eventing
WS-Enumeration

Resource
Security
Metadata

Metadata Specifications

WS-Policy
WS-PolicyAssertions
WS-PolicyAttachment
WS-Discovery
WS-MetadataExchange
Universal Description, Discovery and Integration
Web Service Description Language 1.1
Web Service Description Language 2.0 Core
Web Service Description Language 2.0 SOAP Binding

Security
Messaging

Security Specifications

WS-Security
WS-Security: SOAP Message Security
WS-Security: Kerberos Binding
WS-Security: X.509 Certificate Token Profile
WS-Security: Username Token Profile
WS-SecurityPolicy
WS-Trust
WS-Federation
WS-SecureConversation

Reliability
Messaging
Metadata

Reliability Specifications

WS-ReliableMessaging
WS-Reliability
WS-Reliable Messaging Policy Assertion

Transaction
Basic Profile
Security
Metadata

Resource Specifications

Web Service Resource Framework
WS-BasicFaults
WS-ServiceGroup
WS-ResourceProperties
WS-ResourceLifetime
WS-Transfer
Resource Representation SOAP Header Block (RSHB)

Transaction
Security
Messaging

Management Specifications

WS-Management
Management Of Web Services
Management Using Web Services
Service Modeling Language

Resource
Security
Messaging

Business Process Specifications

Business Process Execution Language for Web Services
Web Service Choreography Description Language
Web Service Choreography Interface
WS-Choreography Model Overview
Business Process Management Language
Business Process Execution Language for Web Serv. 2.0
XML Process Definition Language

Reliability
Security
Messaging
Transaction

Transaction Specifications

WS-Business Activity
WS-Atomic Transaction
WS-Coordination
WS-Composite Application Framework
WS-Transaction Management
WS-Context
WS-Coordination Framework

Metadata
Reliability
Security

Presentation Specifications

Web Services for Remote Portlets

Reliability
Security
Messaging

Specifications

WS-Notification is a family of related documents and specifications that define a standard Web services approach to notification using a topic-based publish/subscribe pattern.

WS-Enumeration describes a general SOAP-based protocol for enumerating a sequence of XML elements that is suitable for browsing lists, message queries, or other linear information models.

WS-BrokeredNotification 1.1
OASIS-Standard

WS-BrokeredNotification defines a publish/subscribe pattern for Web services. A BrokeredNotification is an intermediary which, among other things, allows publication of messages from entities that are not themselves service providers.

WS-Topics defines three basic operations that can be used as sub-protocols for publishing and subscriber request messages and other parts of the WS-Notification system.

WS-BaseNotification 1.1
OASIS-Standard

WS-BaseNotification standardizes the terminology, concepts, operations, WSOL, and XML needed to express the basic rules involved in Web services publish and subscribe for notification message exchange.

WS-Eventing 1.0
W3C Public Draft

WS-Eventing defines a family of operations that allow Web services to provide asynchronous notifications to interested parties.

WS-Addressing – WSDL Binding defines how the abstract properties defined in WS-Addressing – Core are described using WSDL.

WS-Addressing – Core 1.0
W3C Recommendation

WS-Addressing – Core provides transport-neutral mechanisms to address Web services and messages. This specification defines XML elements to identify Web service endpoints and to secure end-to-end recipient identification in messages.

WS-Addressing – SOAP Binding provides transport-neutral mechanisms to address Web services and messages.

WS-Addressing – SOAP Binding 1.0
W3C Recommendation

WS-Addressing – SOAP Binding provides transport-neutral mechanisms to address Web services and messages.

SOAP

SOAP 1.2
W3C Recommendation

SOAP is a lightweight, XML-based protocol for exchanging information in a distributed environment.

SOAP Message Transmission Optimization Mechanism (MTOM) 1.0
W3C Recommendation

SOAP Message Transmission Optimization Mechanism (MTOM) describes an abstract Profile for optimizing the transmission and wire format of a SOAP message.

SOAP 1.1
W3C Note

Specifications

Extensible Markup Language (XML) is a general-purpose language for describing documents. It allows one to create new customized tags, tag the definition, content, validation, and other parts of the XML document, and other parts of the XML document.

XML 1.0
W3C Recommendation

Namespaces in XML provides a simple method for qualifying content and attributes within XML documents by associating them with namespaces identified by URI references.

XML Information Set 1.0
W3C Recommendation

XML Information Set is an abstract data set for providing a consistent set of definitions for use in other specifications that need to refer to the information in a well-formed XML document.

XML Schema 1.0
W3C Working Draft

XML Schema – XML Schema Definition Language is an XML language for describing and constraining the content of XML documents.

XML binary Optimized Packaging (xop) 1.0
W3C Recommendation

XML binary Optimized Packaging (XOP) is an XML language for describing and constraining the content of XML documents.

Describing Media Content of Binary Data in XML (DIME) 1.0
W3C Note

Describing Media Content of Binary Data in XML (DIME) specifies how to indicate the content type associated with binary data in an XML document and to specify the content type associated with binary data in an XML document.

innoQ

innoQ Deutschland GmbH
Halskestraße 17
D-40880 Ratingen
Phone +49 21 02 77 162-100
info@innoq.com · www.innoq.com

innoQ Schweiz GmbH
Gewerbestrasse 11
CH-6330 Cham
Phone +41 41 743 01 11

<http://www.innoq.com/resources/ws-standards-poster/>



Show me the interoperable, full and free implementations of WS- in Python, Perl, Ruby and PHP. You won't see them, because **there's no intrinsic value in WS-* unless you're trying to suck money out of your customers.** Its complexity serves as a barrier to entry at the same time that it creates "value" that can be sold.*

Mark Nottingham, formerly BEA,
former chair of the WS-Addressing WG
<http://www.mnot.net/blog/2006/05/10/vendors>



<http://soa-expertenwissen.de>

REST

RESTful HTTP

URIs Identifies Resources

`http://example.com/orders?year=2008`

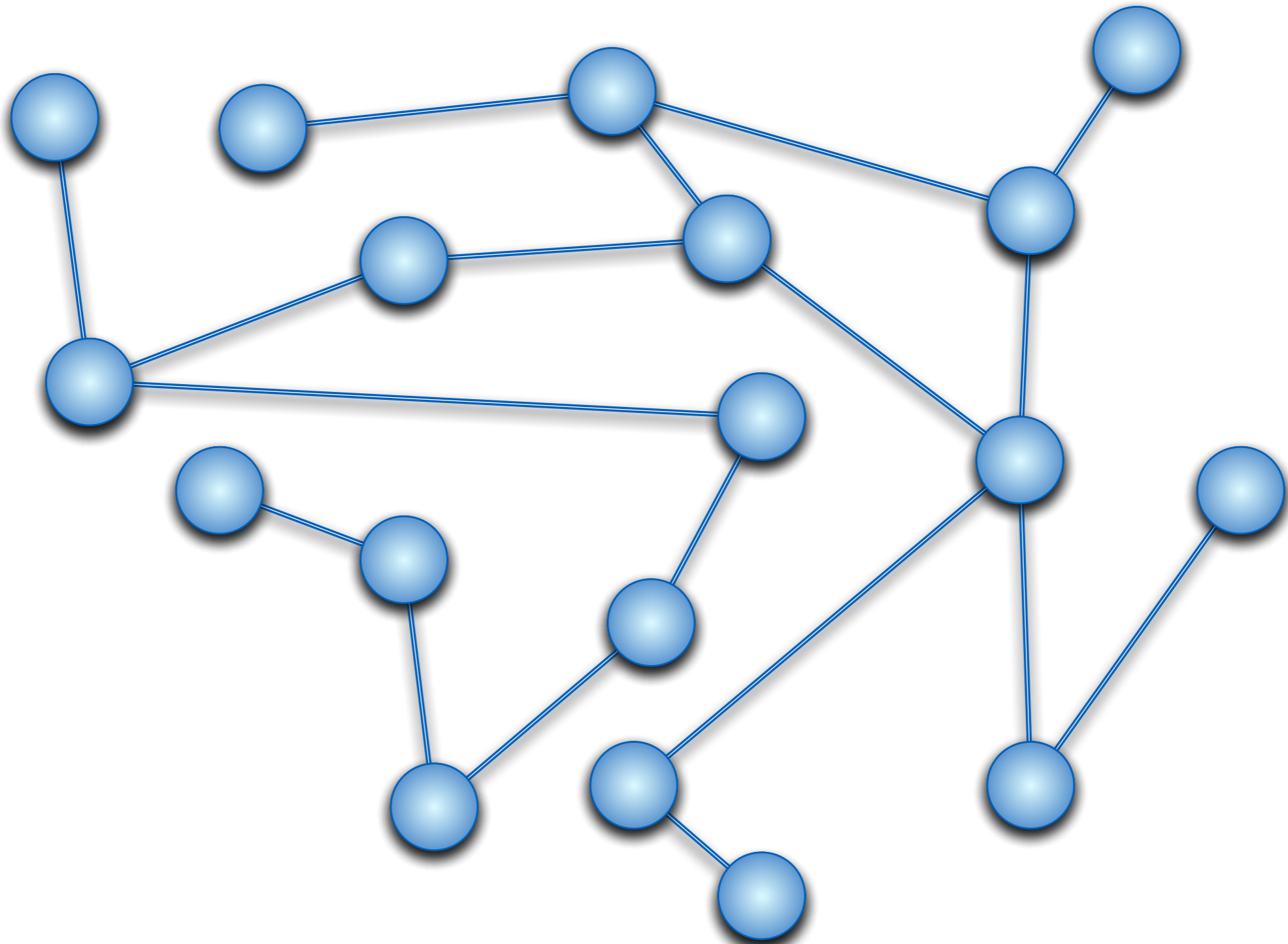
`http://example.com/customers/1234`

`http://example.com/orders/2007/10/776654`

`http://example.com/products/4554`

`http://example.com/processes/sal-increase-234`

Resources are Linked



Representations in different Formats

XML

JSON

YAML

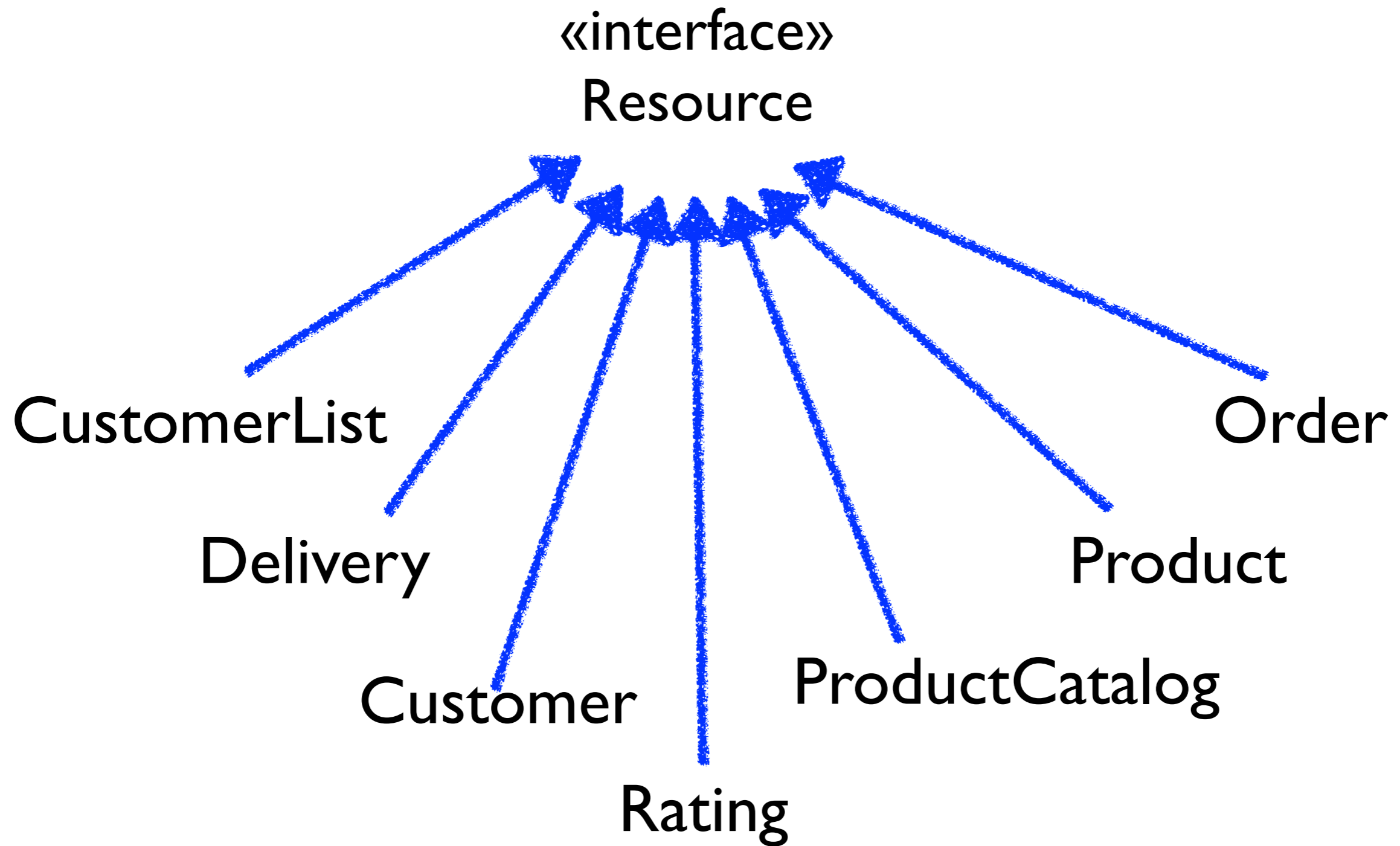
HTML

XHTML

PDF

Plain Text

Binary



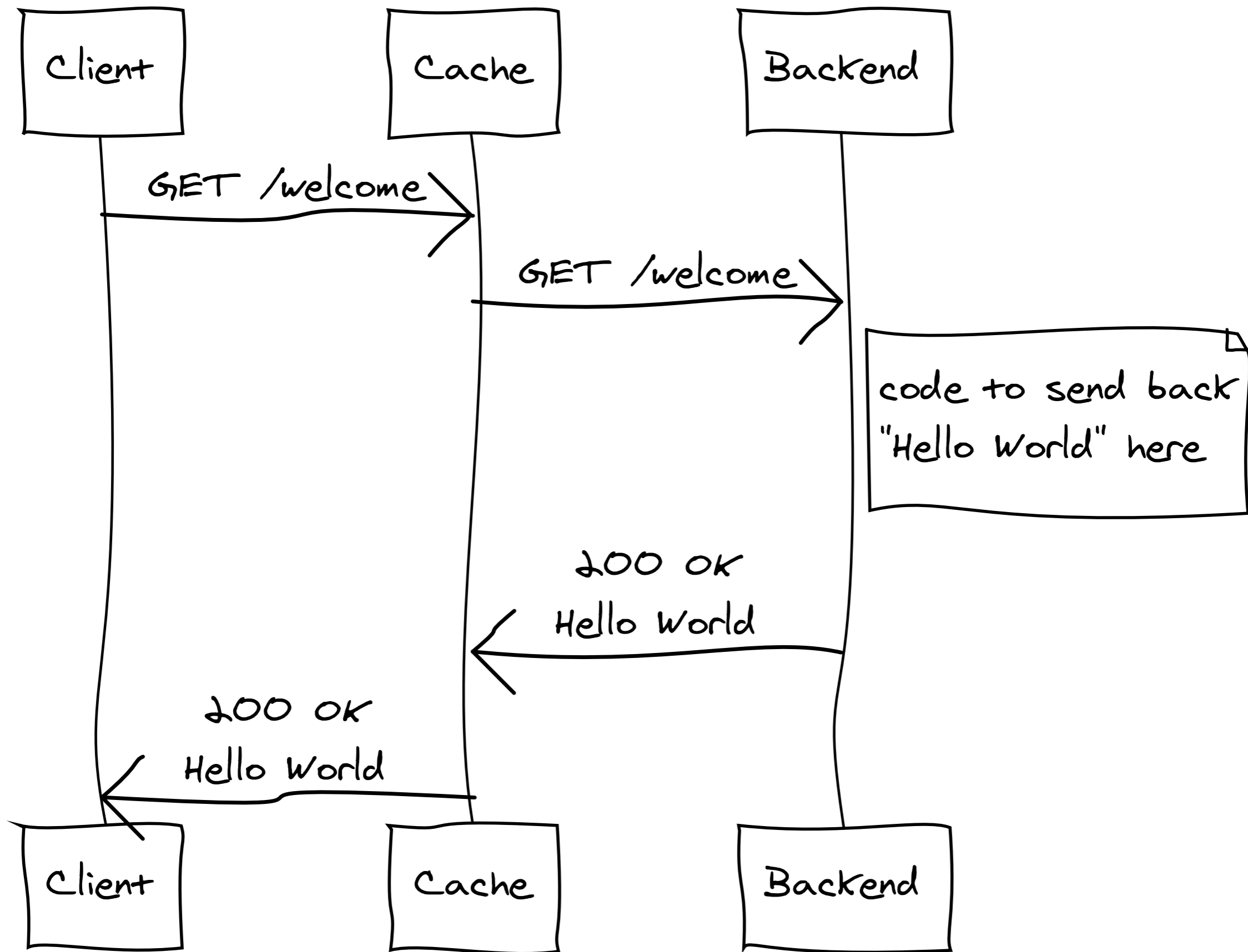
«interface»
Resource

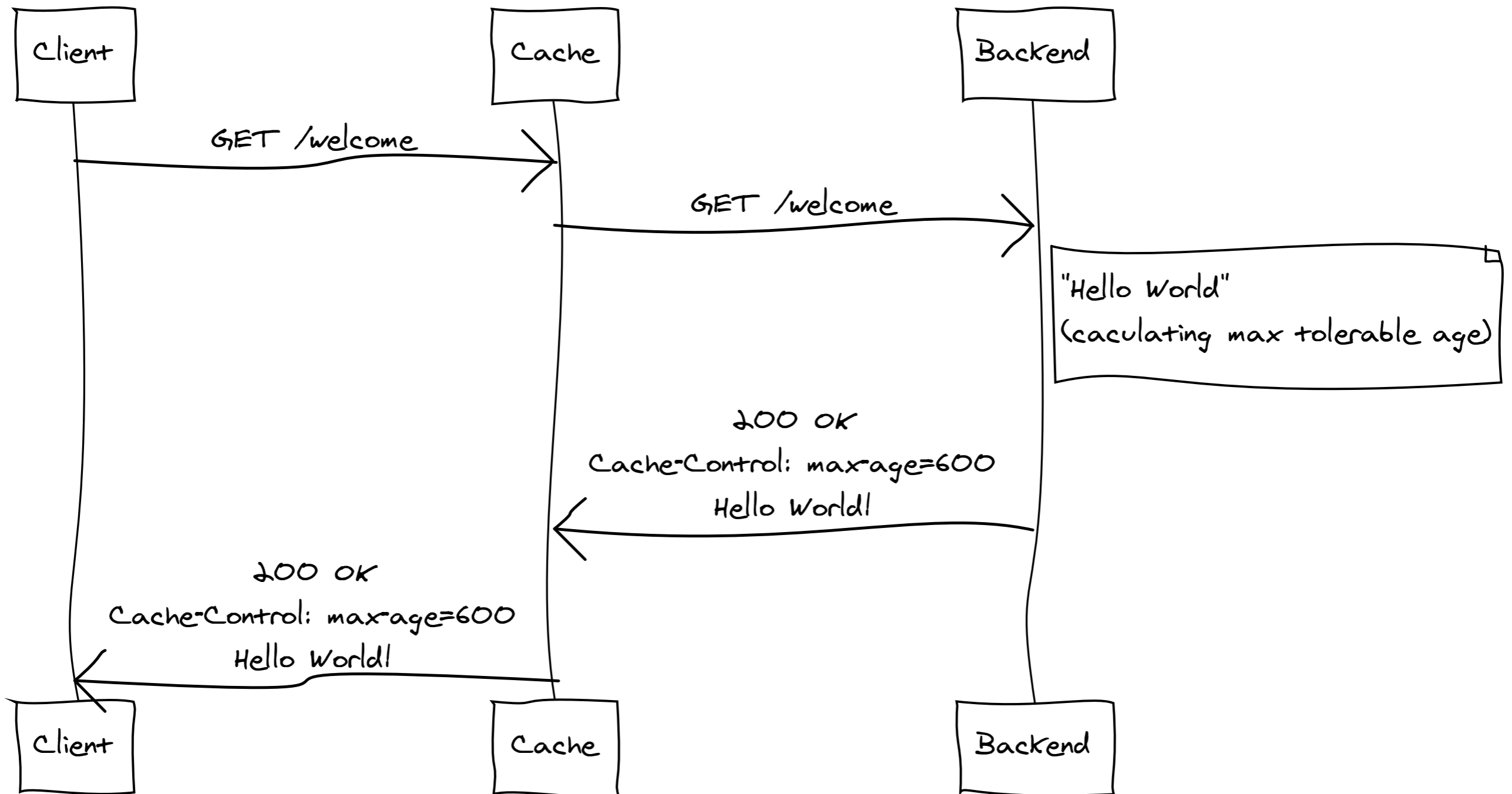
GET
PUT
POST
DELETE

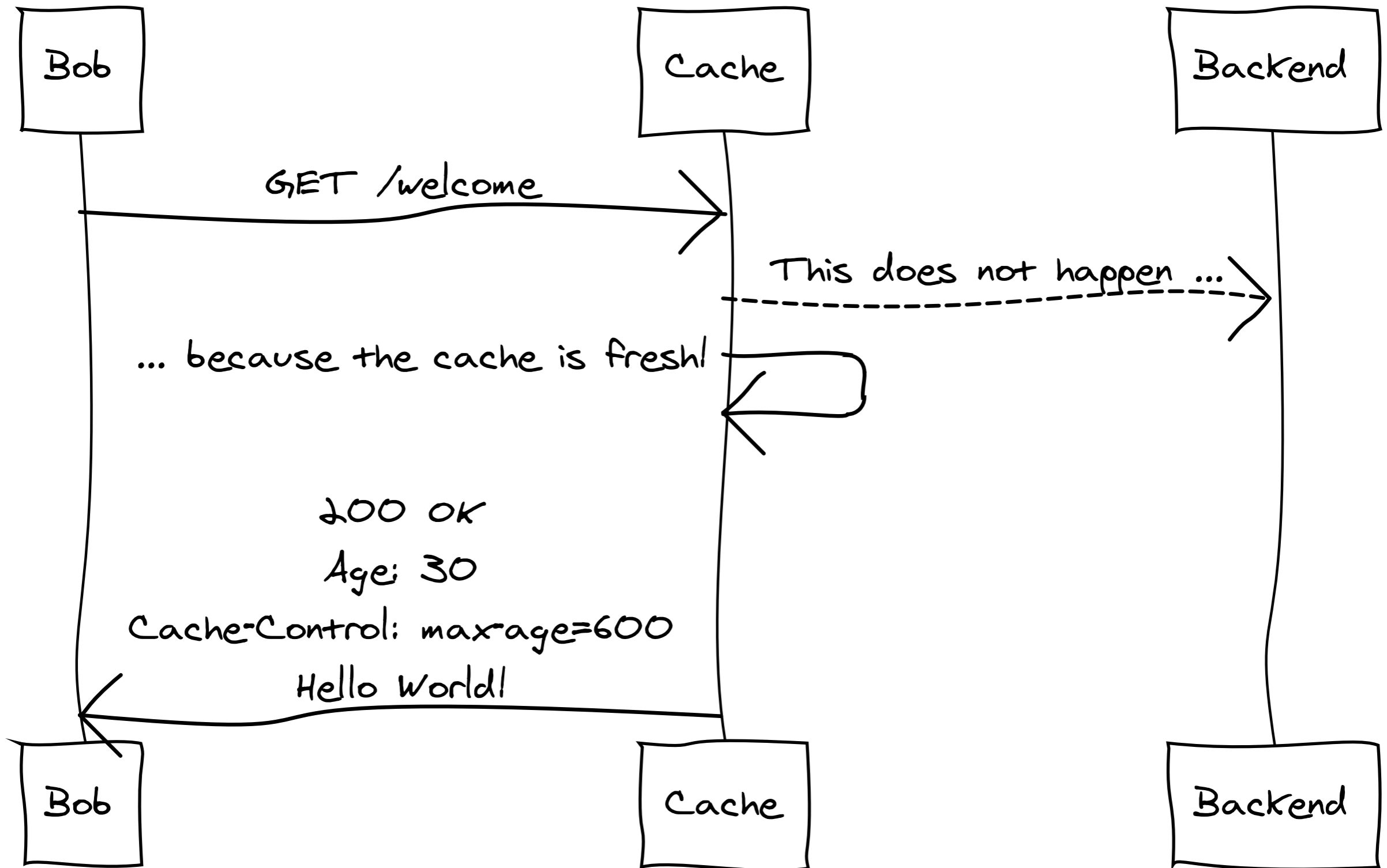
HTTP GET & Caching

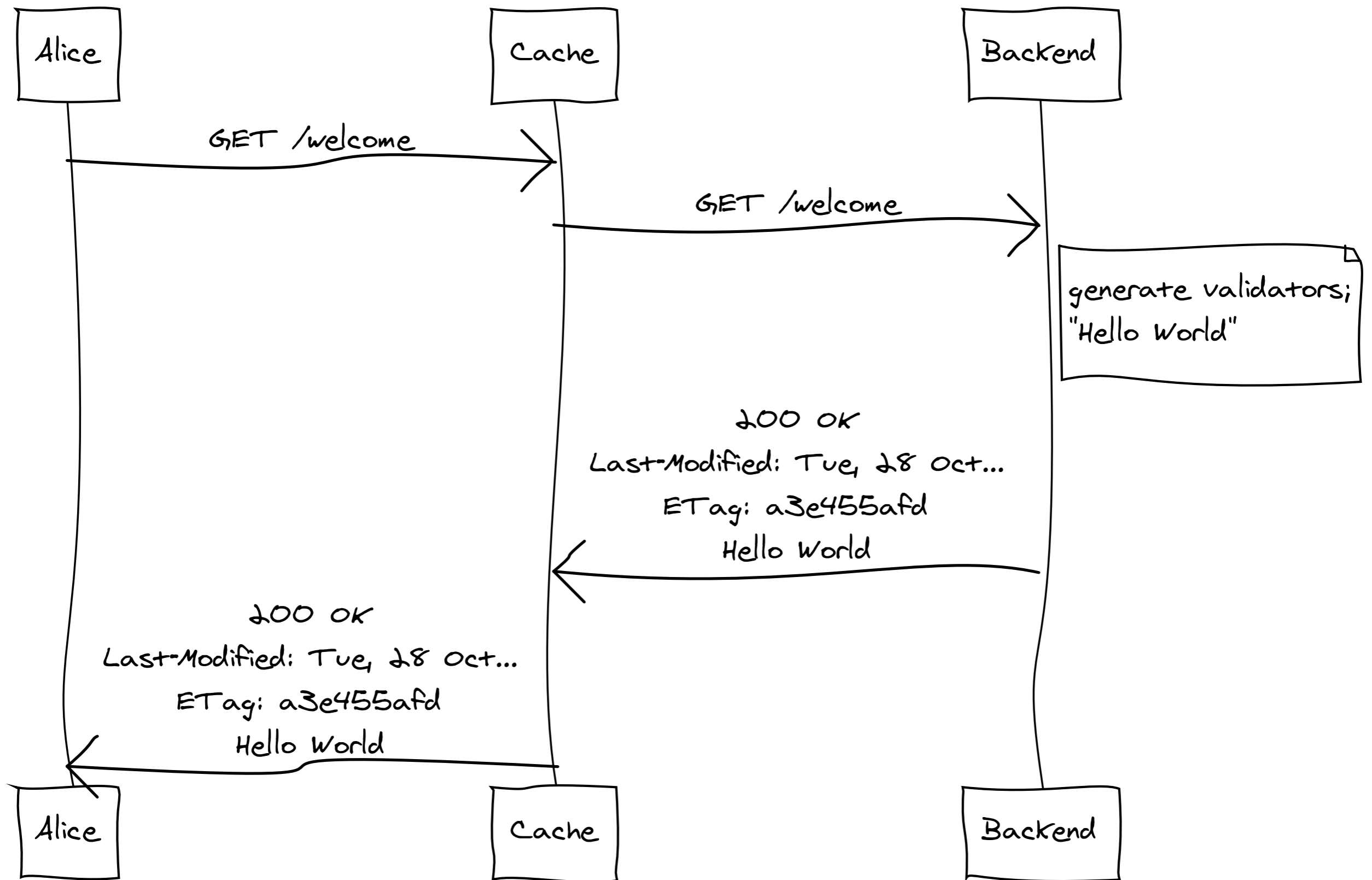
“I do think the REST-afarians are missing an opportunity by not driving home the secret sauce that is HTTP GET. [...] **GET is one of the most optimized pieces of distributed systems plumbing in the world.**

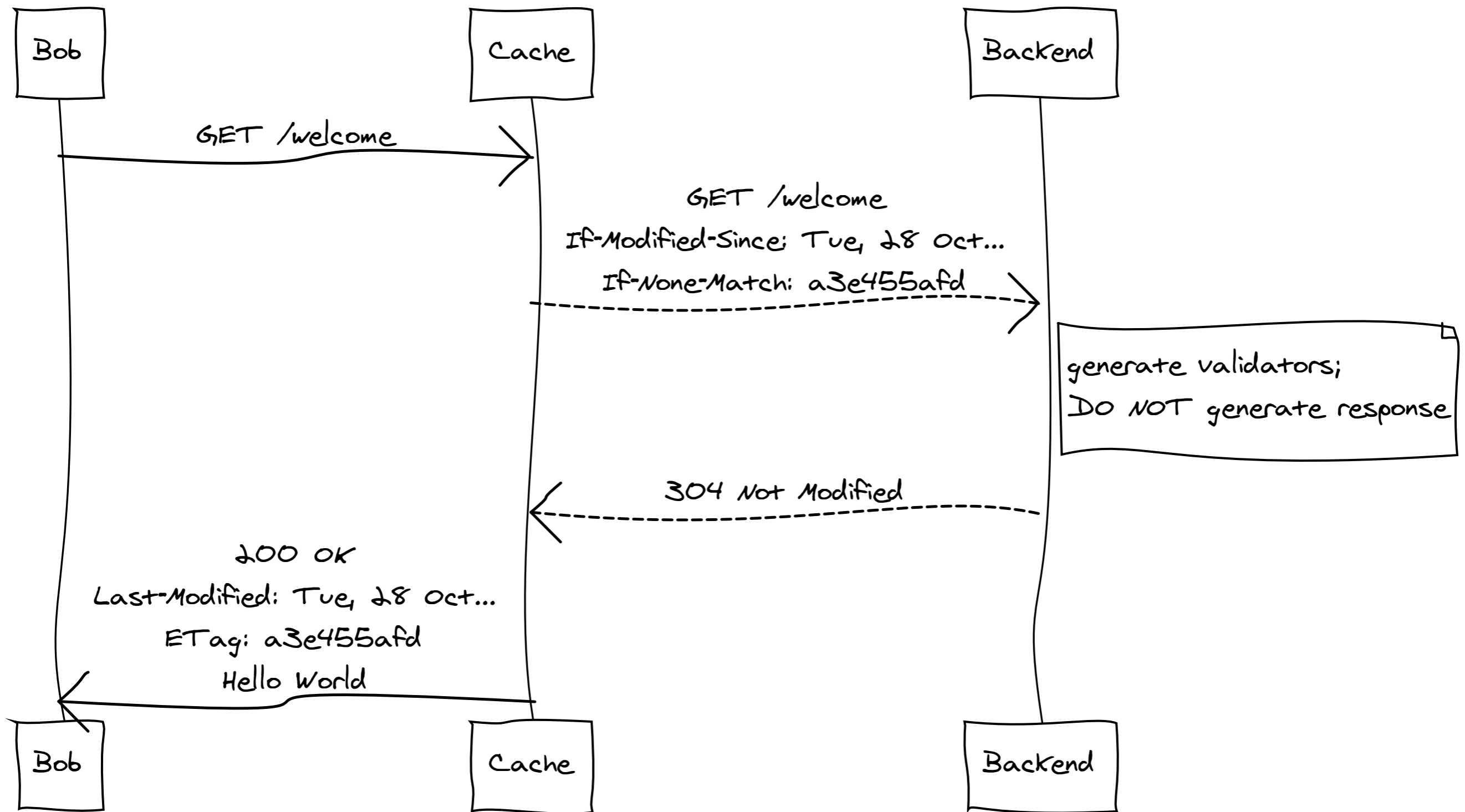
Don Box, Co-inventor of SOAP











Tunneling

A photograph of a tunnel entrance. The tunnel is constructed with brickwork, featuring a series of arches that recede into the distance. The walls are illuminated with a mix of warm and cool light, creating a dramatic effect. A bright light source is visible at the far end of the tunnel, casting a beam of light onto the ground. The ground is uneven and appears to be covered in dirt or gravel. The overall atmosphere is mysterious and industrial.

(a.k.a. The SOAP Way)

POST **http://example.com/Customermgmt**

```
<soap:Envelope
  xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <deleteCustomer xmlns="http://example.com/ns1">
      <customerId>13</customerId>
    </ns:deleteCustomer>
  </soap:Body>
</soap:Envelope>
```

Method

ID

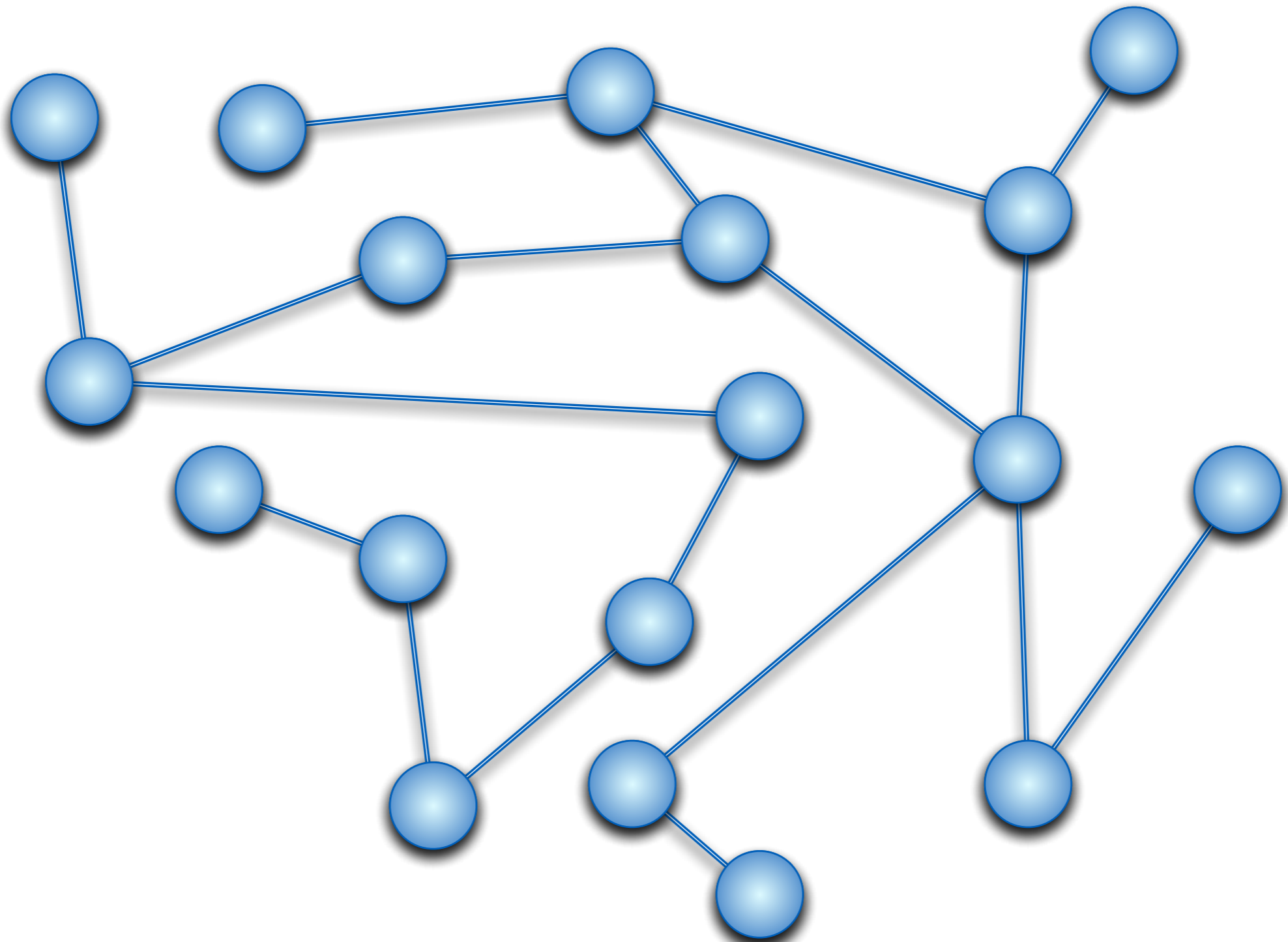
Endpoint

“Endpoint”?

ENTER

**DEAD
END**





Enterprise

Web

***"Here are the
missing parts
of the Web!"***



***"Thank you for
nothing."***





<http://rest-http.info>

The Human Web

amazon.com®

YAHOO!®

twitter



ebay

facebook®

XING®

Google™

Microsoft®

Resources and URIs

Pretty URLs

Bookmarks

Collaboration

Caching

Links/Hypermedia

Notification via Feeds

Web Sites vs. Web Applications

Using the Web vs. Abusing the Web

**There should be no
applications**

OrderEntryForm

ProductMaintenanceForm

CustomerView

Order

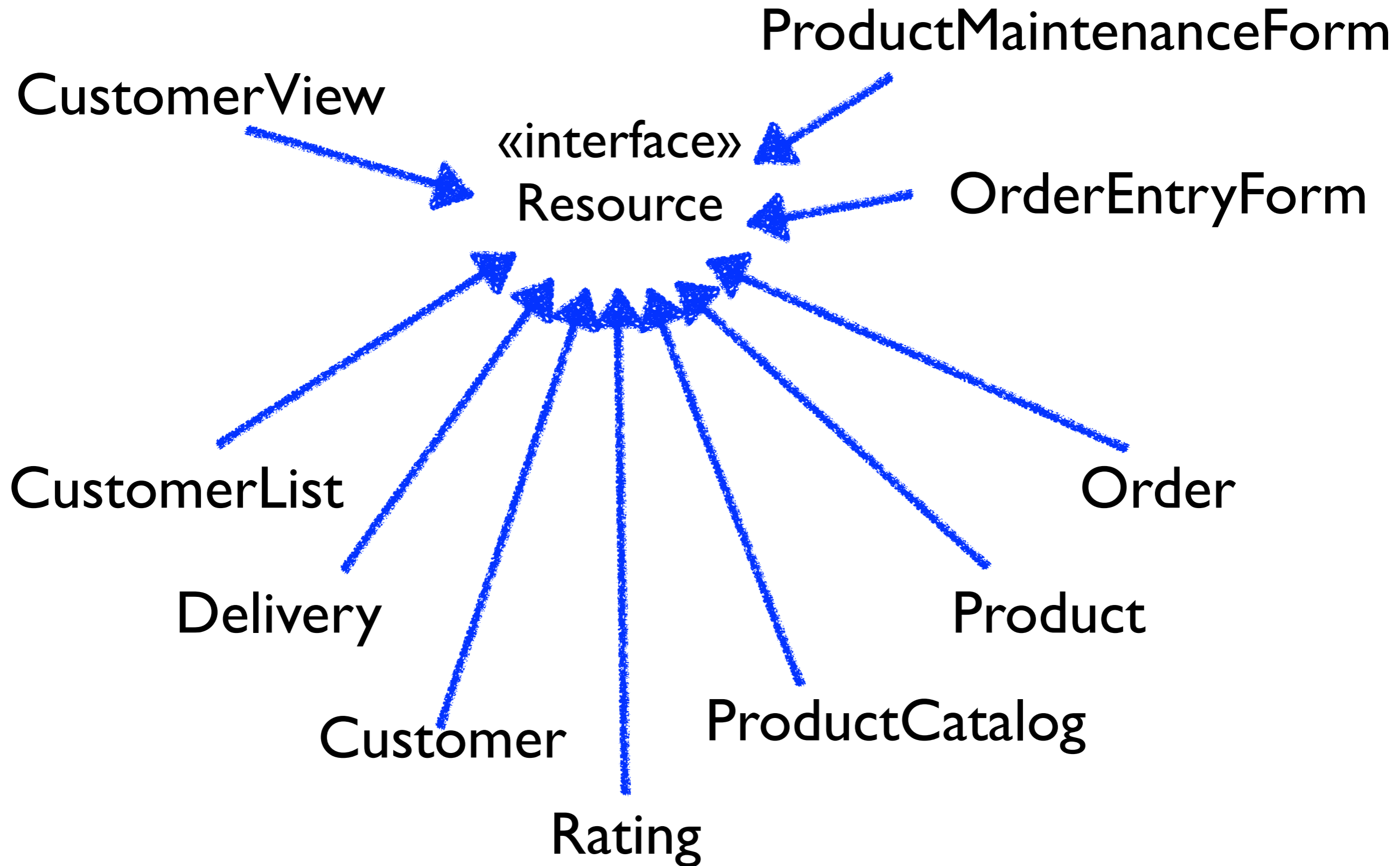
Delivery

CustomerList

Customer

Product

ProductCatalog



Internet vs. Enterprise

One is a gigantic, uncontrollable anarchy of heterogeneous systems with varying quality that evolve independently and constantly get connected in new and unexpected ways.

The other is a worldwide, publicly accessible series of interconnected computer networks that transmit data by packet switching using the standard Internet Protocol (IP).

[Advanced Search](#)
[Preferences](#)**Web**Results **1 - 10** of about **61****[Basel II – Wikipedia](#)** - [[Translate this page](#)]

Der Terminus **Basel II** bezeichnet die Gesamtheit der Eigenkapitalvorschriften, die vom **Basler** Ausschuss für Bankenaufsicht in den letzten Jahren ...

de.wikipedia.org/wiki/Basel_II - 72k - [Cached](#) - [Similar pages](#) -

[Bundesbank - Bankenaufsicht - Basel II](#) - [[Translate this page](#)]

Basel II - Die neue Baseler Eigenkapitalvereinbarung ... Während der im Jahr 1998 begonnenen Entwicklung des **Basel II** Regelwerkes standen die Aufsicht und ...

www.bundesbank.de/bankenaufsicht/bankenaufsicht_basel.php - 27k -

[Cached](#) - [Similar pages](#) -

[Bundesbank - Bankenaufsicht - Basel II - Säule 2: Aufsichtliches ...](#) - [[Translate this page](#)]

Die drei Säulen von **Basel 2** Im Rahmen dieser so genannten zweiten Säule, die als integraler Bestandteil des neuen Kapitalakkords gleichberechtigt neben den ...

www.bundesbank.de/bankenaufsicht/bankenaufsicht_basel_saeule2.php - 17k -

[Cached](#) - [Similar pages](#) -

[More results from www.bundesbank.de »](#)

[Basel-II.info - Steuerkanzlei Christian Reichling, Köln](#) - [[Translate this page](#)]

Dipl.-Kfm.(FH) Christian Reichling, Steuerberater aus Köln (Cologne) berät Sie gerne in allen Fragen der Bilanzierung und Besteuerung von Gesellschaften ...

www.basel-ii.info/ - 12k - [Cached](#) - [Similar pages](#) -

[Definition Basel 2, Basel II](#) - [[Translate this page](#)]

Ausführliche Informationen zum Thema **Basel II** – neue Bedingungen für Firmenkredite, Rating und Tipps.

www.foerderland.de/353.0.html - 48k - [Cached](#) - [Similar pages](#) -

[Deutscher Industrie- und Handelskammertag / Homepage](#) - [[Translate this page](#)]

Der Deutsche Industrie- und Handelskammertag (DIHK) ist die Spitzenorganisation der 80 Industrie- und Handelskammern (IHKs) in Deutschland.

www.dihk.de/inhalt/informationen/news/schwerpunkte/rating/basel.html - 6k -

[Cached](#) - [Similar pages](#) -

Web

Results 1 - 10 of about 1

[Versicherungsnehmer: Hans Müller](#) - [[Translate this page](#)]

Hans Müller, 40880 Ratingen, Kunde seit dem 1.3.2001, letzte Aktualisierung 1.1.2009 ...
[crm.example.com/customers/4711](#) - 72k - [Cached](#) - [Similar pages](#) -

[Kfz-Haftpflicht Hans Müller](#) - [[Translate this page](#)]

Kfz.-Haftpflicht für ME-HM 123, abgeschlossen 1.1.2005, Halter: **Hans Müller**, Audi A4 ...
[bestand.example.com/lv/26621](#) - 72k - [Cached](#) - [Similar pages](#) -

[Risiko LV Anne Müller](#) - [[Translate this page](#)]

Risiko LV Anne Müller, 40880 Ratingen, abgeschlossen 1.1.2004, Begünstigter: **Hans Müller**,
Versicherungssumme: €200.000 ...
[bestand.example.com/lv/26621](#) - 72k - [Cached](#) - [Similar pages](#) -

Stop hiding the truth



URIs

HTTP

HTML

CSS

Javascript

Clients

Web Servers

Caching Proxies

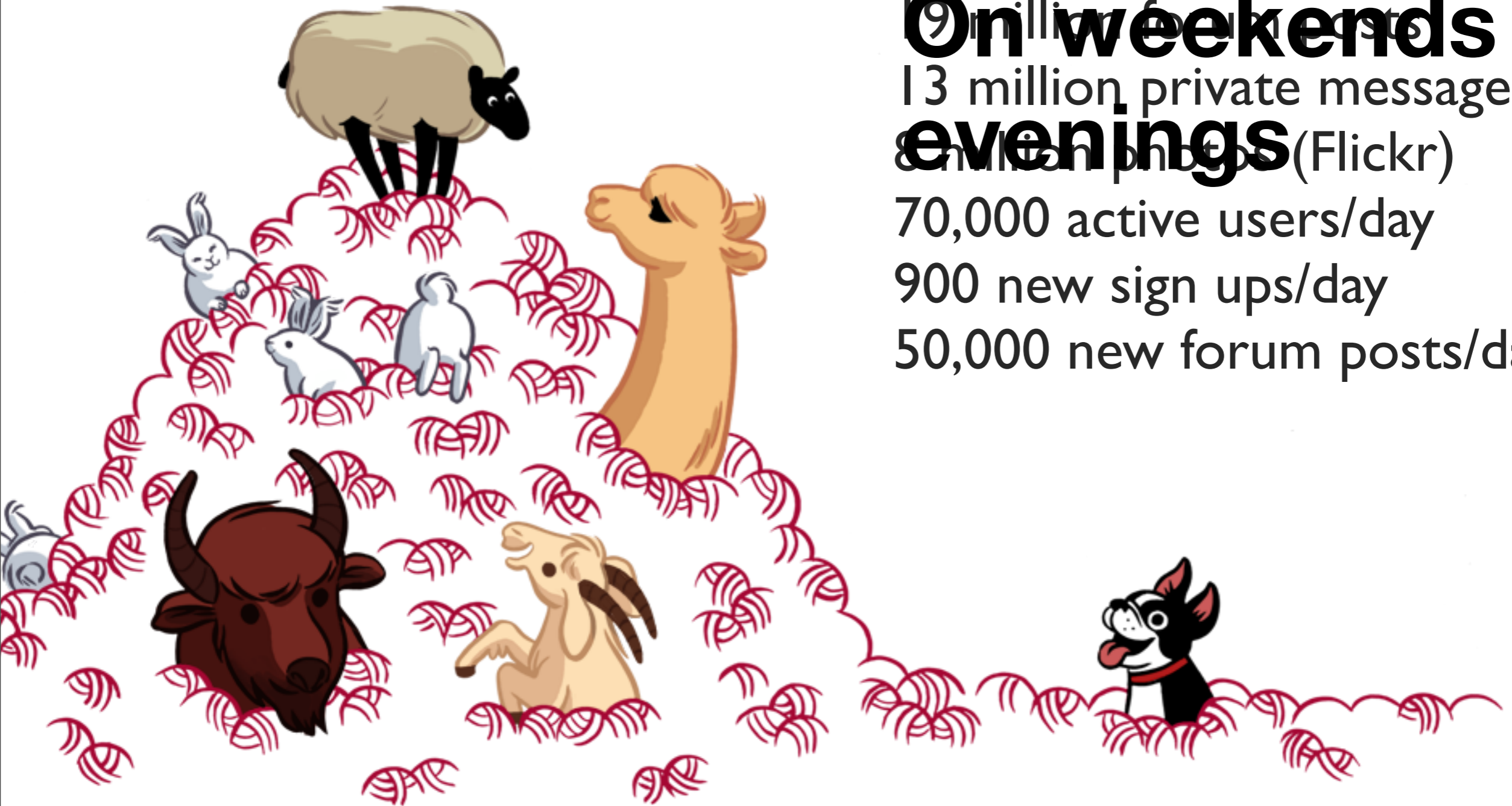
CDN

Syndication





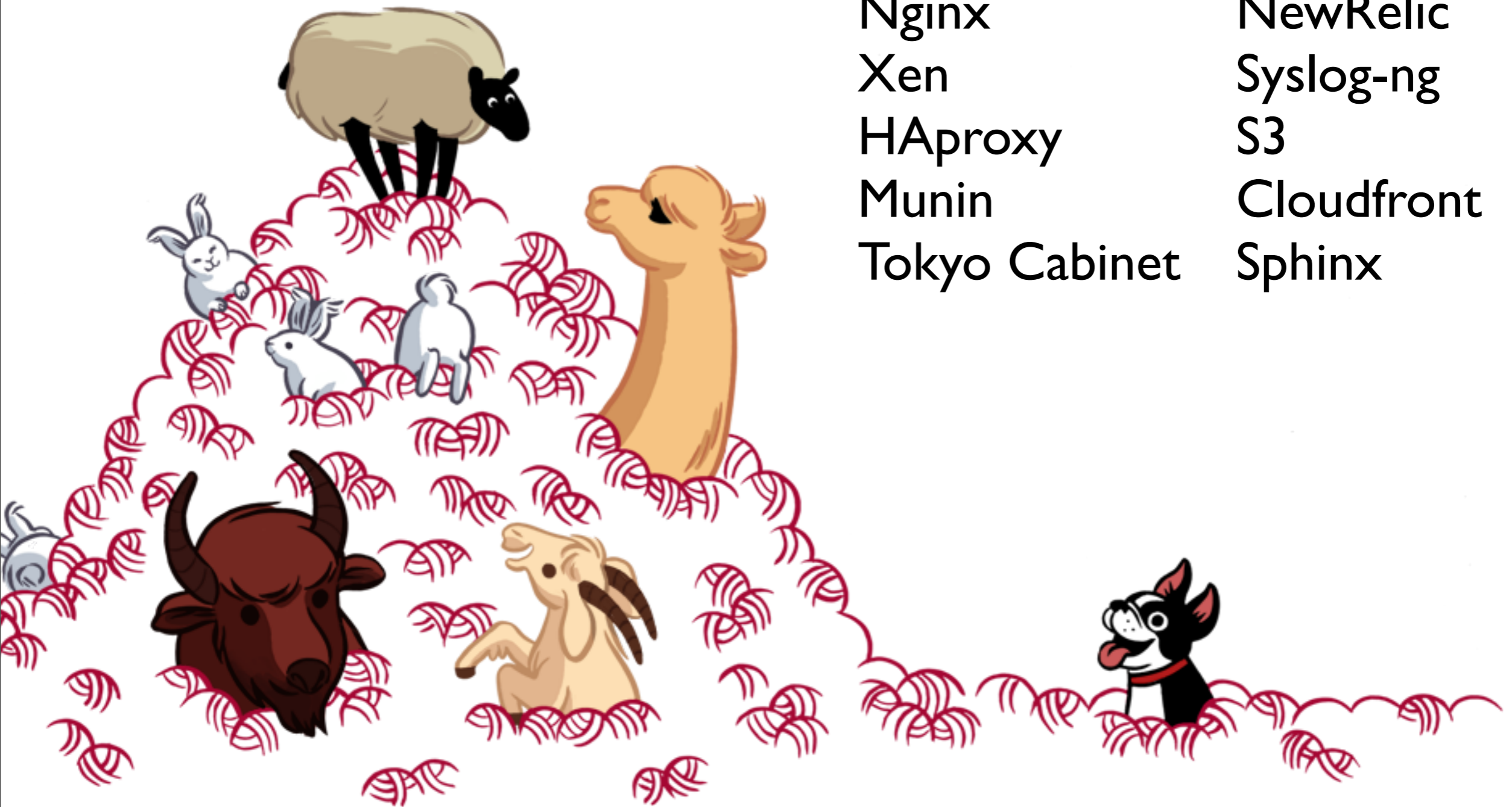
10 million requests/day
4 Months
3.6 million pageviews/day
430,000 registered users
1 Developer
2.3 million projects
19 million forum posts
**On weekends &
evenings**
13 million private messages
& million photos (Flickr)
70,000 active users/day
900 new sign ups/day
50,000 new forum posts/day





Ruby on Rails
MySQL
Gentoo Linux
Capistrano
Nginx
Xen
HAproxy
Munin
Tokyo Cabinet

Memcached
Tyrant
Nagios
HopToad
NewRelic
Syslog-ng
S3
Cloudfront
Sphinx

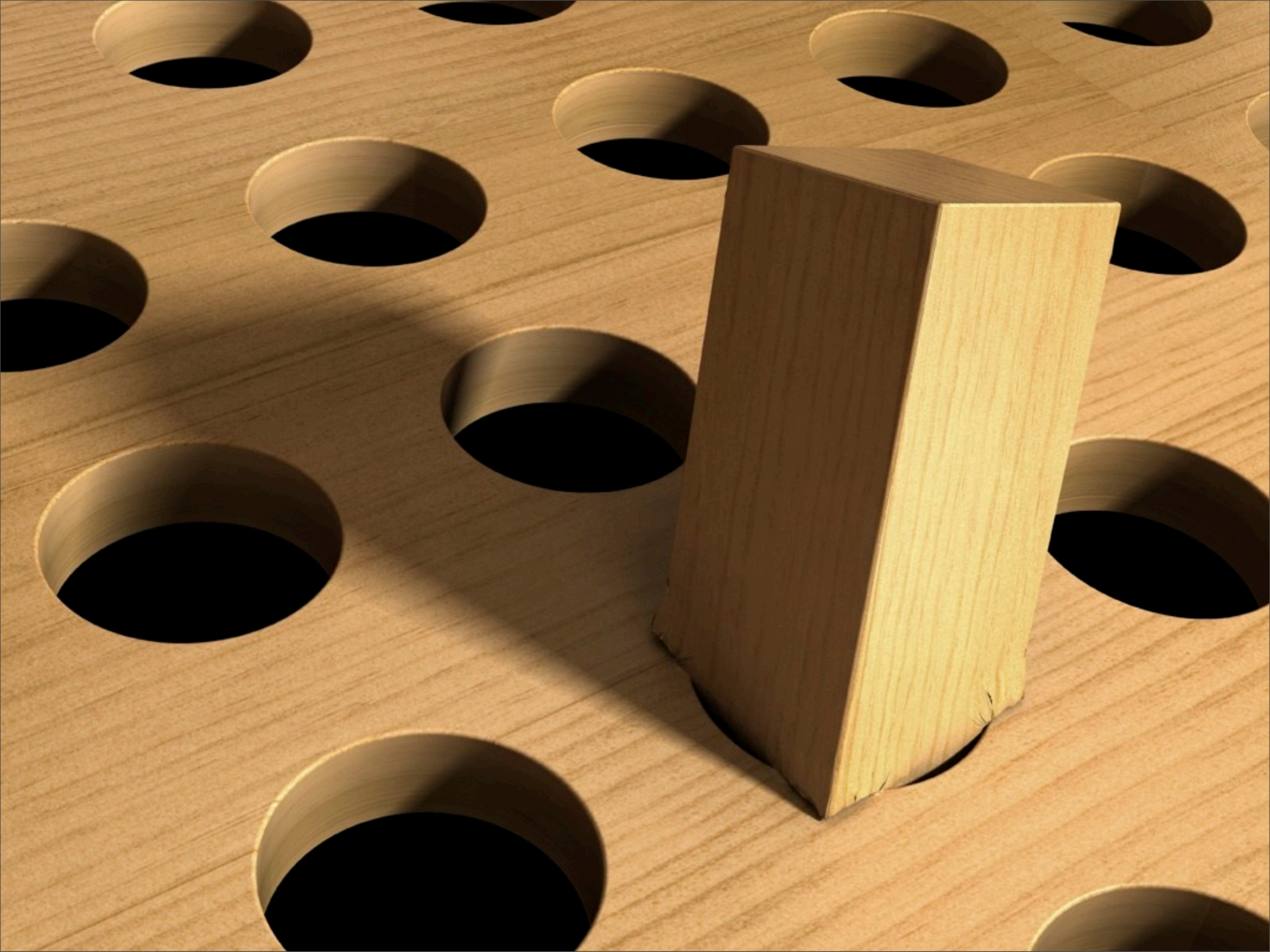




What I'm writing here is the single most important take-away from my Sun years, and it fits in a sentence: The community of developers whose work you see on the Web, who probably don't know what ADO or UML or JPA even stand for, deploy better systems at less cost in less time at lower risk than we see in the Enterprise.

Tim Bray

<http://www.tbray.org/ongoing/When/201x/2010/01/02/Doing-It-Wrong>



“My Internet is bigger than your enterprise.”

Paraphrasing Dare Obasanjo,
see <http://tinyurl.com/dare-enterprise>

Scale vs. Complexity

Incidental Complexity
vs.
Accidental Complexity

Portal Server

Portlets

Web Framework

Transfer Objects

Session Beans

JAXB Java Beans

XML Stock Quotes



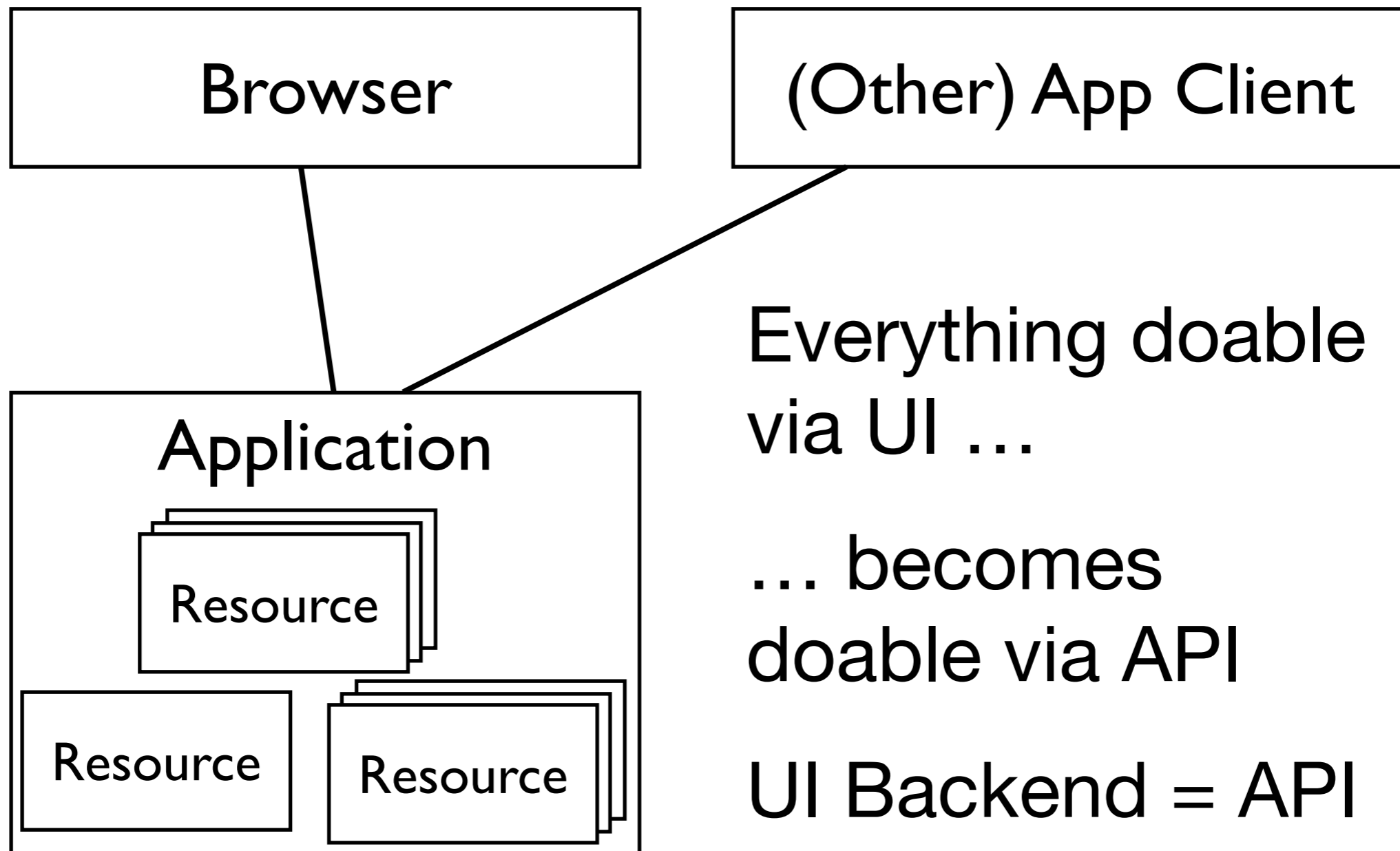
Users don't want fancy UIs

You are not your users

Adobe Flash/Air
Microsoft Silverlight
Java FX

Client Applications (RCP & Native)

Single Resource Model



Summary

We've been there before ...



**Embrace the Web,
Don't fight it**

**Web UIs first,
Client apps second**

**Standardize on the outside,
not on the inside**

Create playgrounds

**If you can't link to it,
does it exist?**

**If you can't build *real* Web
apps with it, is it worth your
time?**

Vielen Dank!

Q&A



innoQ Deutschland GmbH

Halskestr. 17

D-40880 Ratingen

Phone: +49 21 02 77 172-100

www.innoq.com

innoQ Schweiz GmbH

Gewerbestr. 11

CH-6630 Cham

Phone: +41 41 02 743 01 11

info@innoq.com

Stefan Tilkov

stefan.tilkov@innoq.com

<http://www.innoq.com/blog/st/>

@stilkov

Phone: +49 170 471 2625