Welcome to
The ABCs of APIs

Presented by:
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Travelport
Redefining travel commerce

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Overview

This presentation will:

- Explain what APIs are and their benefits
- Show how APIs are growing and how that growth could benefit you
- List the information that good API documentation should provide
- Show API examples

What is an API?

- An **Application Programming Interface** (API) is a protocol for allowing one software program to communicate with another.
- APIs let the programs share information and influence each others' behavior.
- This presentation addresses web service APIs, which involve programs that communicate across the internet.

APIs = Access to data

Data is at the center of APIs. APIs provide access to data, both public and private.

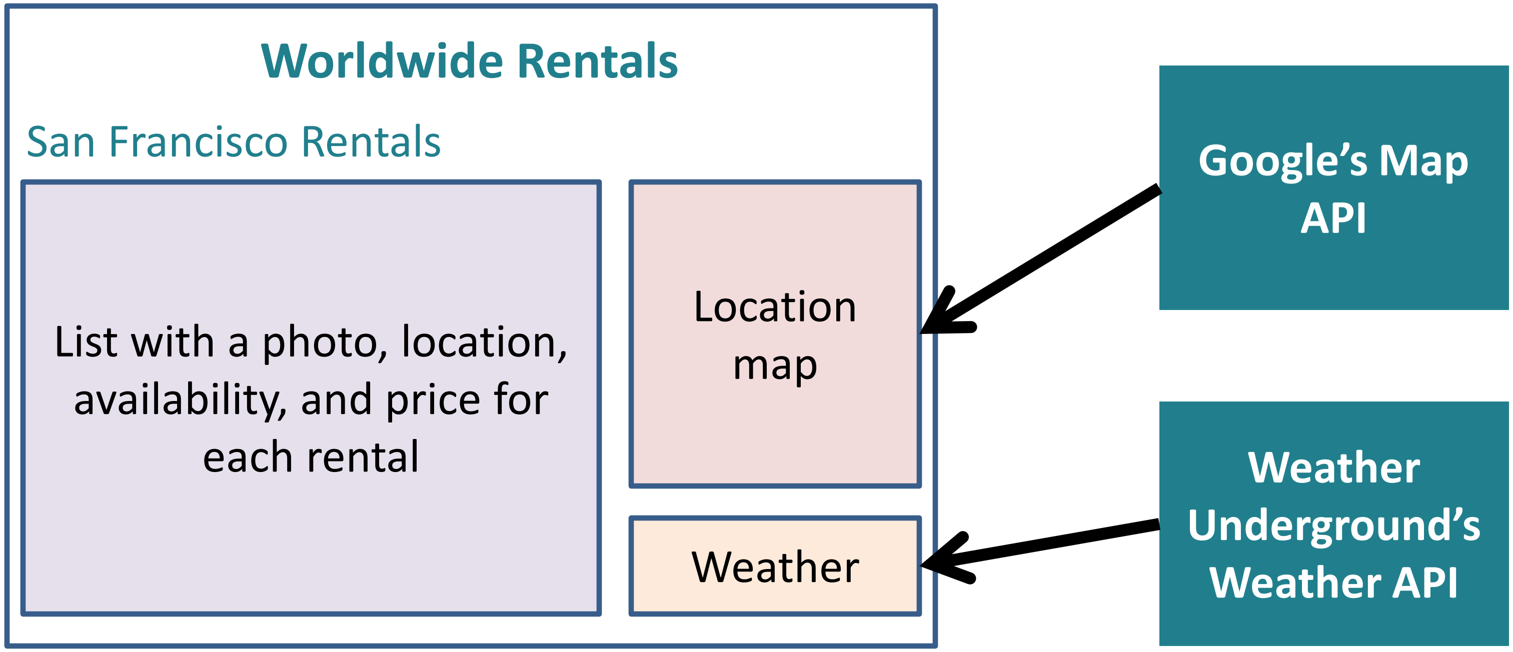
> 90% of the data in the world today has been created in the last two years alone.
>
> *IBM, 2012*

Companies create APIs to give others the opportunity to interface with their data and to broaden their audience.

Companies that develop APIs are not worried about how the data is presented; instead, they allow other developers to create the front-end that uses their data.

Why use an API?

By using data that other companies already have and maintain, your company's development resources can focus on your company's offerings.



Worldwide Rentals

San Francisco Rentals

List with a photo, location, availability, and price for each rental

Location map

Weather

Google's Map API

Weather Underground's Weather API

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How does an API work?

APIs use a “request and response” method of conversation. APIs function much like a conversation between people but with defined rules about the type of communication allowed.

1. Greetings
2. Ask for information
3. Information is provided

An API conversation

1. Greetings
2. Ask for information
3. Information provided

What's t

in San

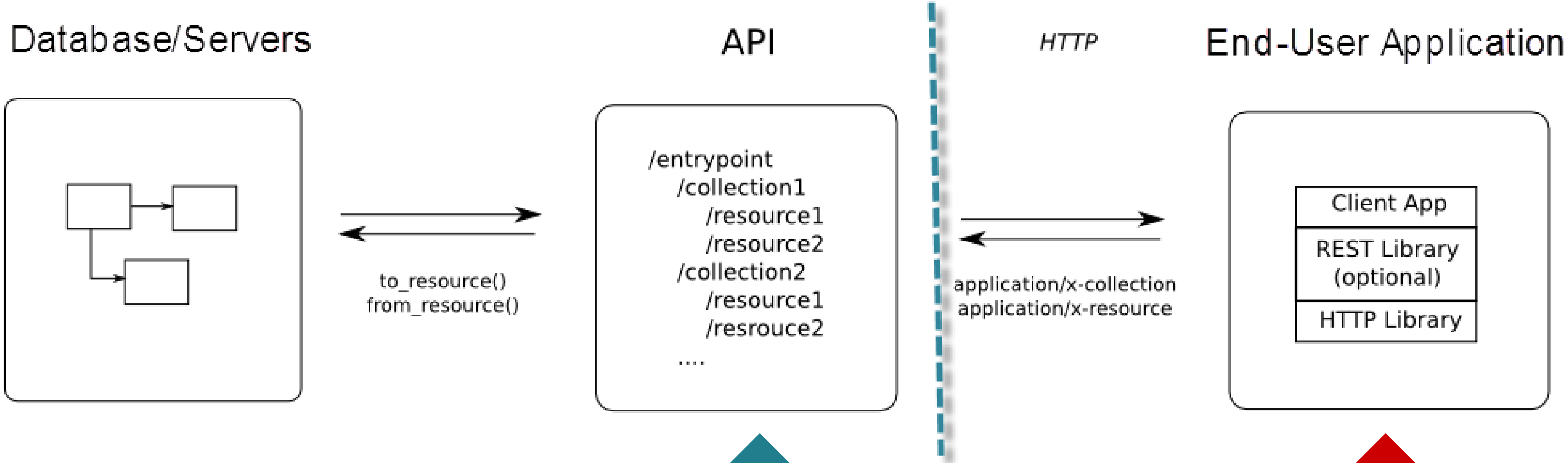
He

Partly cloudy, 66.3F (19.1C), 65% humidity.

p://api.wunderground.com/api/Your_Key/conditions/q/CA/San_Francisco.json

```
{
  "response ": {
  "version": "0.1",
  "display_location": {
  "city": "San Francisco",
  "state": "CA",
  },
  "weather": "Partly Cloudy",
                                     )",
}
```

API informational flow



Database/Servers

to_resource()
from_resource()

API

```
/entrypoint
   /collection1
      /resource1
      /resource2
   /collection2
      /resource1
      /resrouce2
   ....
```

HTTP

application/x-collection
application/x-resource

End-User Application

Client App

REST Library (optional)

HTTP Library

You document here.

You do not document here.

API web services

SOAP (Simple Object Access Protocol)

SOAP is an XML-based (Extensible Markup Language) communication protocol for accessing web services that often uses HTTP (Hypertext Transfer Protocol).

REST (Representational State Transfer)

REST is an architectural style that often relies on a URL to make a request. REST does not rely on XML responses.

API terminology

XSD (XML Schema Definition) describes what an XML document can contain, the structure of the XML document, and the rules for data content. Also referred to as *schema*.

Elements are the main building blocks of all XML documents, containing the data and determining the structure of the instance document. Elements are defined within the XSD.

Attributes provide extra information within an element. Attributes have name and type properties and are defined within an XSD.

WSDL (Web Service Definition Language) is an XML-based interface definition language that is used for describing the functionality offered by a web service.

Liquid Technologies (http://www.liquid-technologies.com) has an XML Schema Tutorial for learning about how schemas work.

SOAP and REST examples

SOAP

```
<?xml version="1.0"?>
  <soap:Envelope xmlns:soap="http://www.w3.org/2001/12/soap-
envelope" soap:encodingStyle="http://www.w3.org/2001/12/soap-
encoding">
    <soap:body weather="http://www.acme.com/weather">
      <weather:GetLocalTemp>
        <weather:ZipCode>12345</weather:ZipCode>
      </weather:GetLocalTemp>
    </soap:Body>
</soap:Envelope>
```

REST

```
GET http://www.acme.com/weather/LocalTemp/12345
```

REST example

This REST example uses the Photobucket API to retrieve the URL of an album for a particular user (AllisonLori).

Request

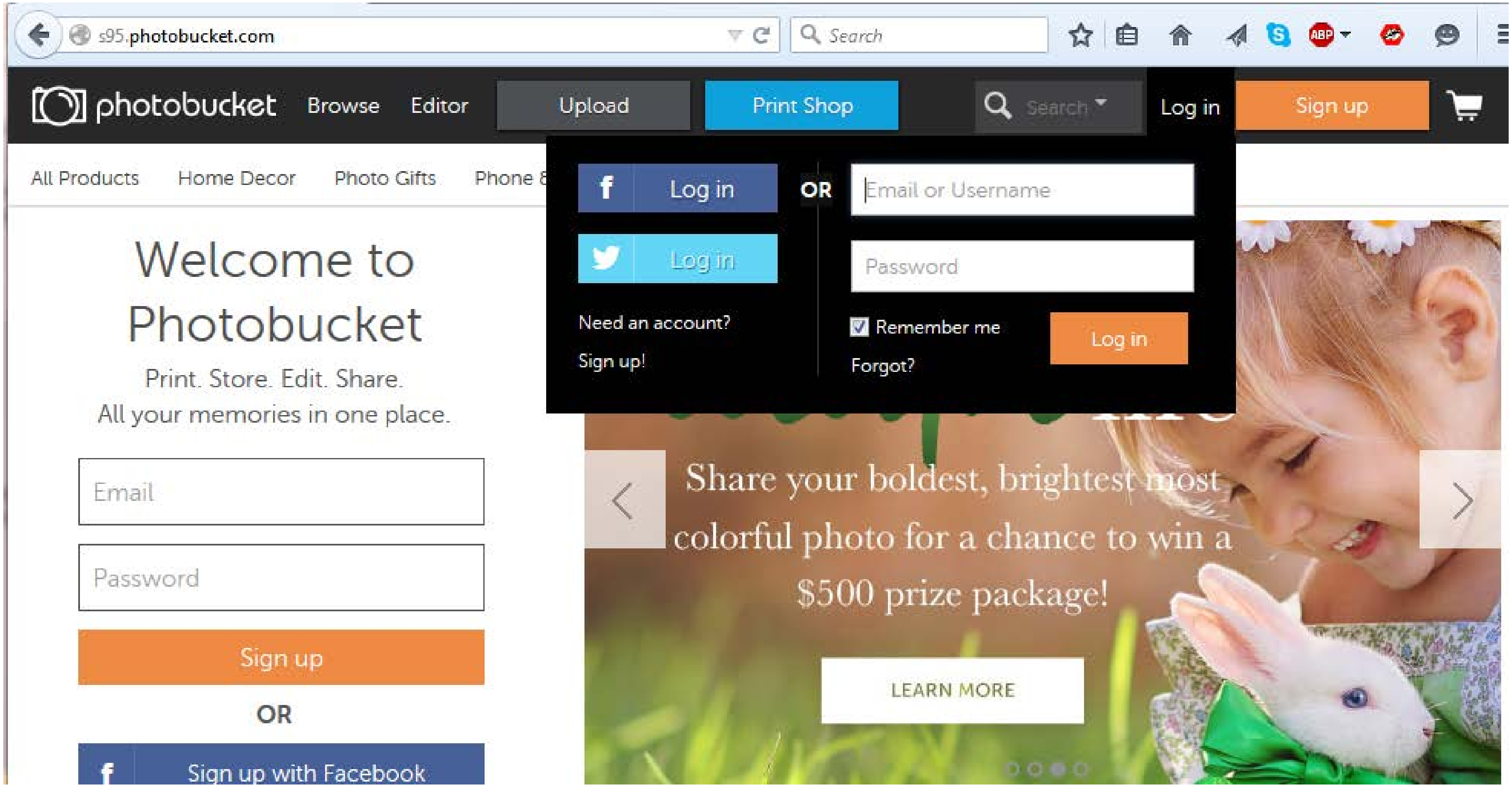
The GET operation tells the web service to retrieve data.

The format=xml section defines that the response should be returned in XML format.

GET
http://api.photobucket.com/album/**AllisonLori**/url?**format=xml**&oauth_consumer_key=000000000&oauth_nonce=b7d2041c21c050fee2e59de6ae4f5528&oauth_signature=bRkAwoTWOAryM49%2FKwzUbw%3D&oauth_signature_method=HMAC-SHA1&oauth_timestamp=1236628744&oauth_version=1.0

Authorization information is required to ensure that only an authorized user is accessing the data.

Photobucket GUI



Welcome to Photobucket

Print. Store. Edit. Share.
All your memories in one place.

Share your boldest, brightest most colorful photo for a chance to win a $500 prize package!

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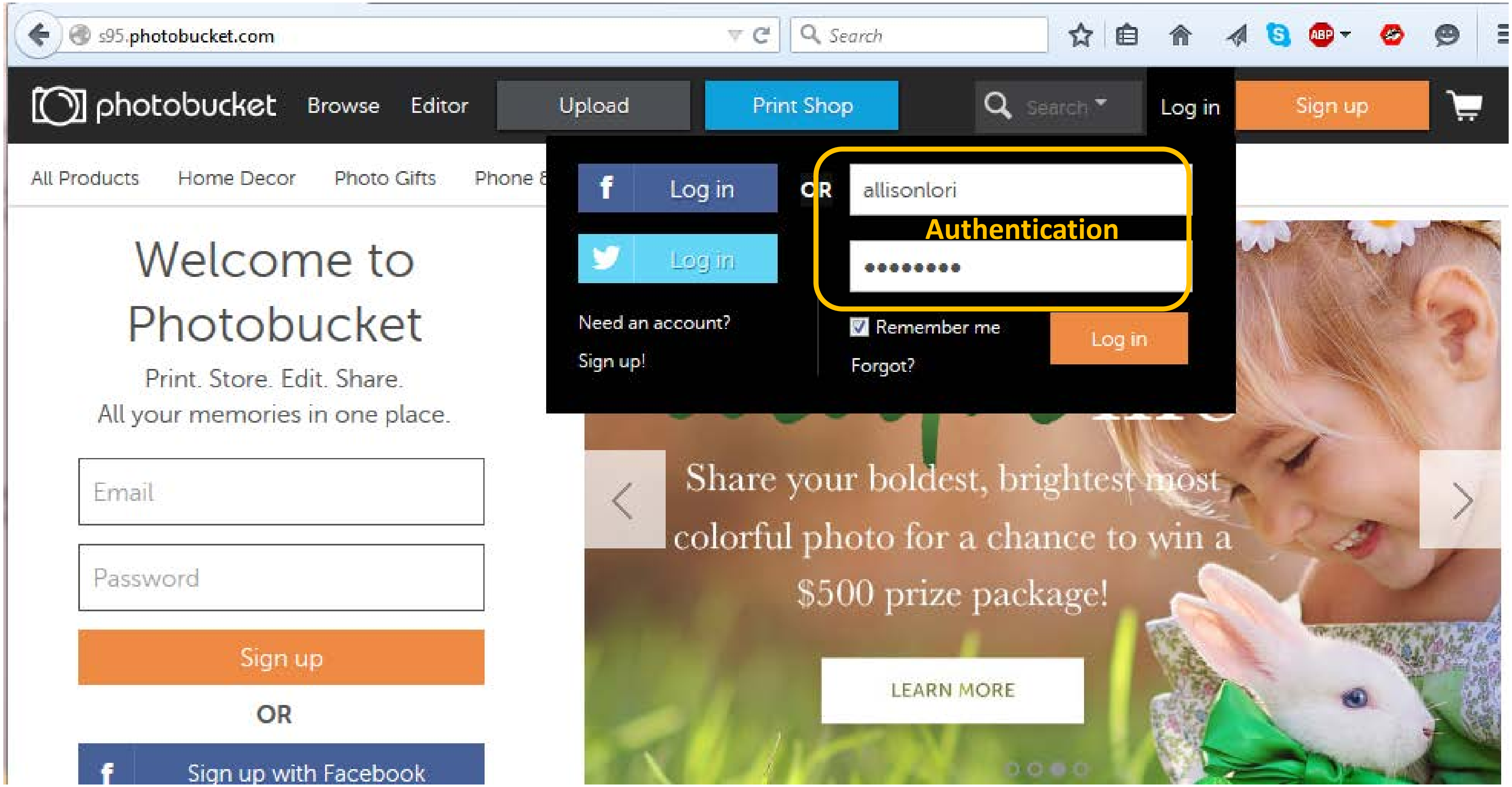
Photobucket GUI



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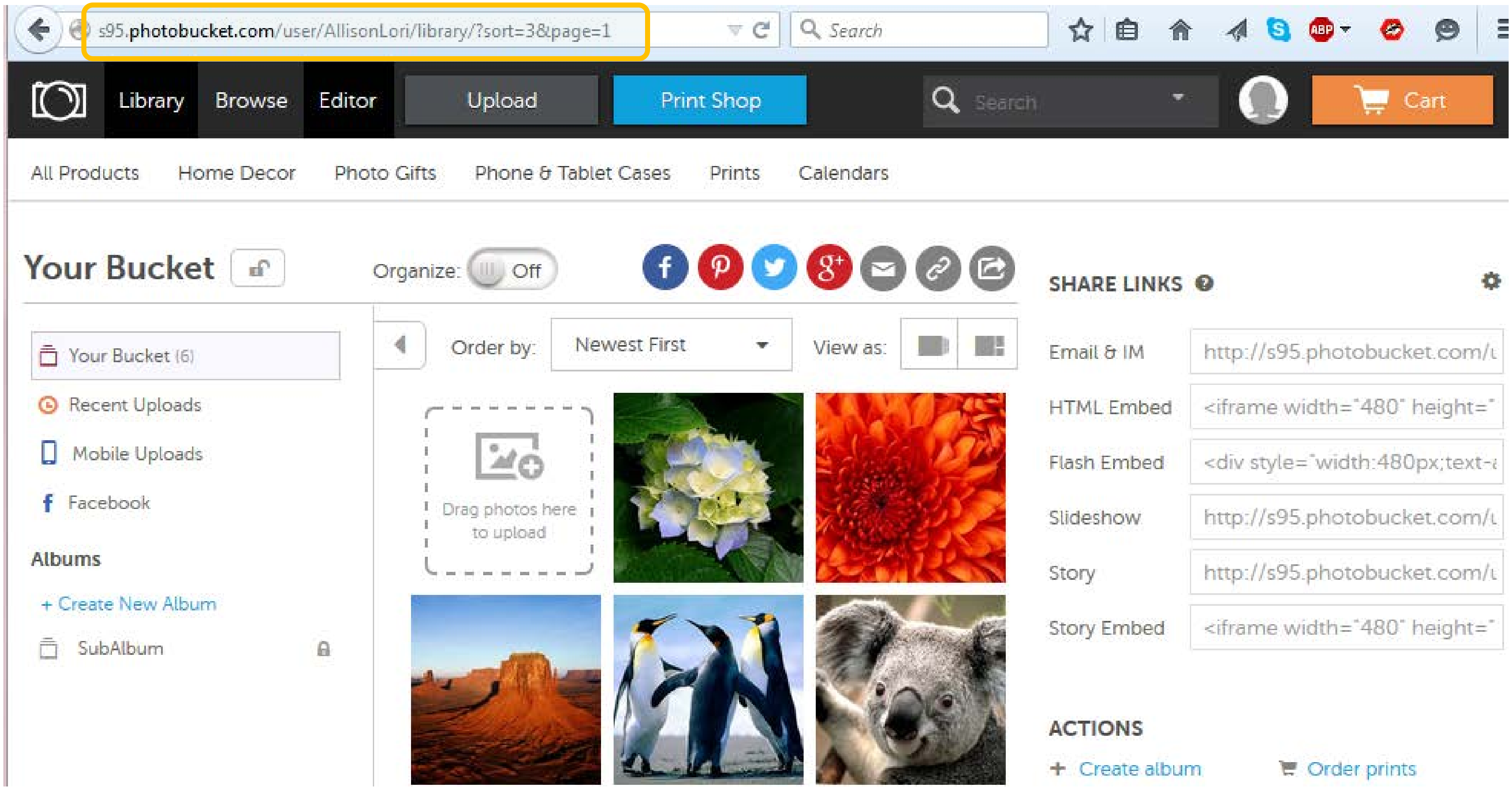
Photobucket GUI



s95.photobucket.com/user/AllisonLori/library/?sort=3&page=1

Email & IM: http://s95.photobucket.com/u

HTML Embed: <iframe width="480" height="

Flash Embed: <div style="width:480px;text-a

Slideshow: http://s95.photobucket.com/u

Story: http://s95.photobucket.com/u

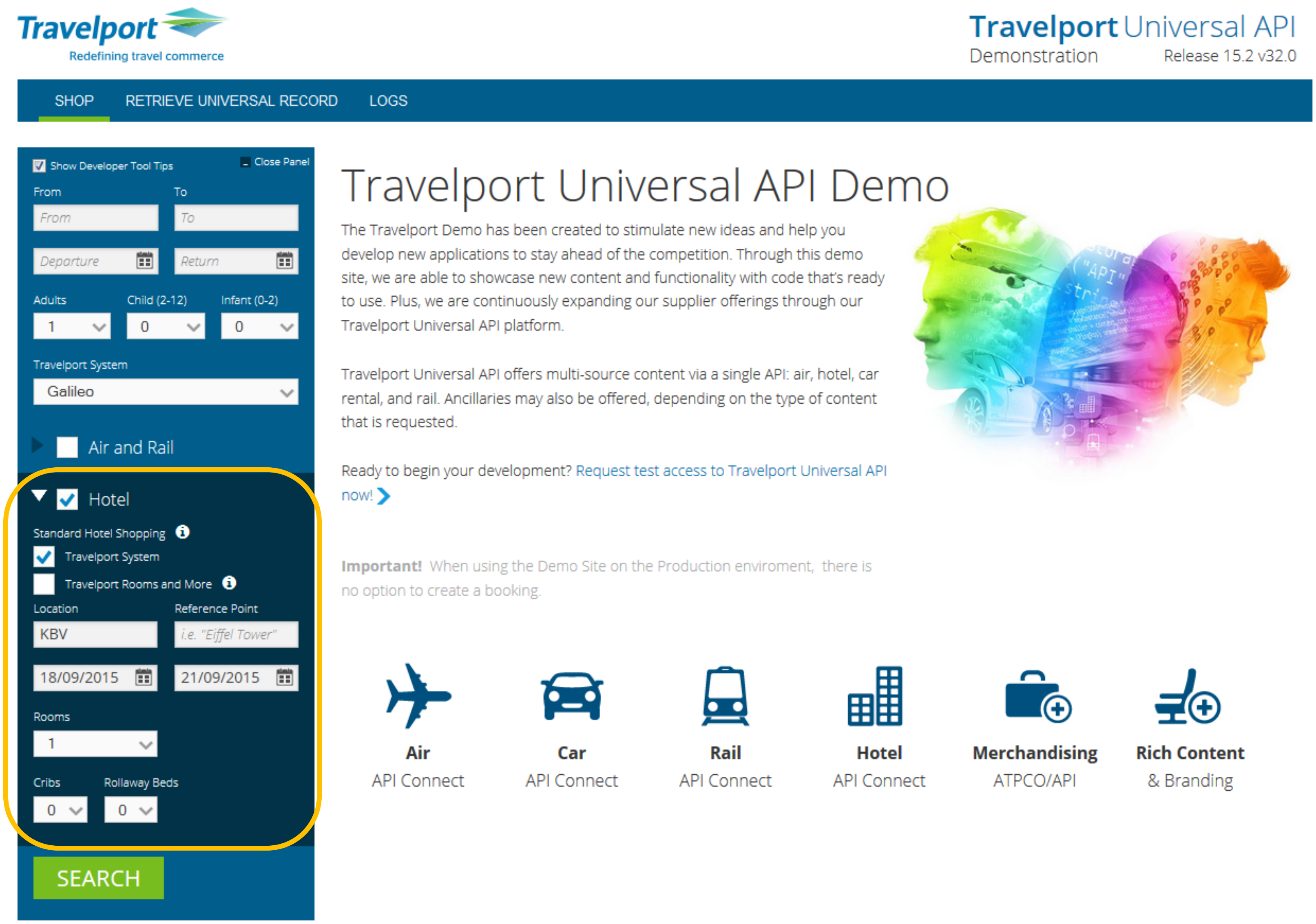
Story Embed: <iframe width="480" height="

REST example

Response

```
<response>
  <status>OK</status>  -- Indicates that the request was successful
  <content>
    <username>AllisonLori</username>  -- The username we asked for in the GET request
    <subdomain>
      <album>library</album>  -- The album name: “library “is  the default album for a user on Photobucket
    </subdomain>
    <path>s95.photobucket.com/user/AllisonLori/library/</path> -- The path to the album
  </content> <format>xml</format>
  <method>GET</method>
  <timestamp>1236628744</timestamp>
</response>
```

Travelport Universal API Demo



Travelport
Redefining travel commerce

Travelport Universal API
Demonstration Release 15.2 v32.0

SHOP | RETRIEVE UNIVERSAL RECORD | LOGS

☑ Show Developer Tool Tips Close Panel

From: From
To: To
Departure
Return
Adults: 1
Child (2-12): 0
Infant (0-2): 0
Travelport System: Galileo

□ Air and Rail

☑ Hotel

Standard Hotel Shopping
☑ Travelport System
□ Travelport Rooms and More
Location: KBV
Reference Point: i.e. "Eiffel Tower"
18/09/2015
21/09/2015
Rooms: 1
Cribs: 0
Rollaway Beds: 0

SEARCH

Travelport Universal API Demo

The Travelport Demo has been created to stimulate new ideas and help you develop new applications to stay ahead of the competition. Through this demo site, we are able to showcase new content and functionality with code that's ready to use. Plus, we are continuously expanding our supplier offerings through our Travelport Universal API platform.

Travelport Universal API offers multi-source content via a single API: air, hotel, car rental, and rail. Ancillaries may also be offered, depending on the type of content that is requested.

Ready to begin your development? Request test access to Travelport Universal API now!

Important! When using the Demo Site on the Production enviroment, there is no option to create a booking.

Air API Connect

Car API Connect

Rail API Connect

Hotel API Connect

Merchandising ATPCO/API

Rich Content & Branding

SOAP example

This SOAP example uses the proprietary Travelport Universal API Demo site (https://demo.travelportuniversalapi.com/) to create a request and response.

Request

```
<HotelSearchAvailabilityReq xmlns="http://www.travelport.com/schema/hotel_v32_0" TraceId="7ebe1c2c-61d0-4f63-
a600-0f90695912c0" AuthorizedBy="Travelport" TargetBranch=“TRGT_BRCH">
   <BillingPointOfSaleInfo xmlns="http://www.travelport.com/schema/common_v32_0" OriginApplication="uAPI" />
   <HotelLocation Location="KBV" />
   <HotelSearchModifiers NumberOfAdults="1" NumberOfRooms="1" AvailableHotelsOnly="true">
      <PermittedProviders xmlns="http://www.travelport.com/schema/common_v32_0">
         <Provider Code="1G" />
      </PermittedProviders>
   </HotelSearchModifiers>
   <HotelStay>
      <CheckinDate>2015-09-18</CheckinDate>
      <CheckoutDate>2015-09-21</CheckoutDate>
   </HotelStay>
</HotelSearchAvailabilityReq>
```

This section requests a hotel in Krabi (in Thailand) from Sep 18 to 21, 2015

SOAP example

The header looks similar to this:

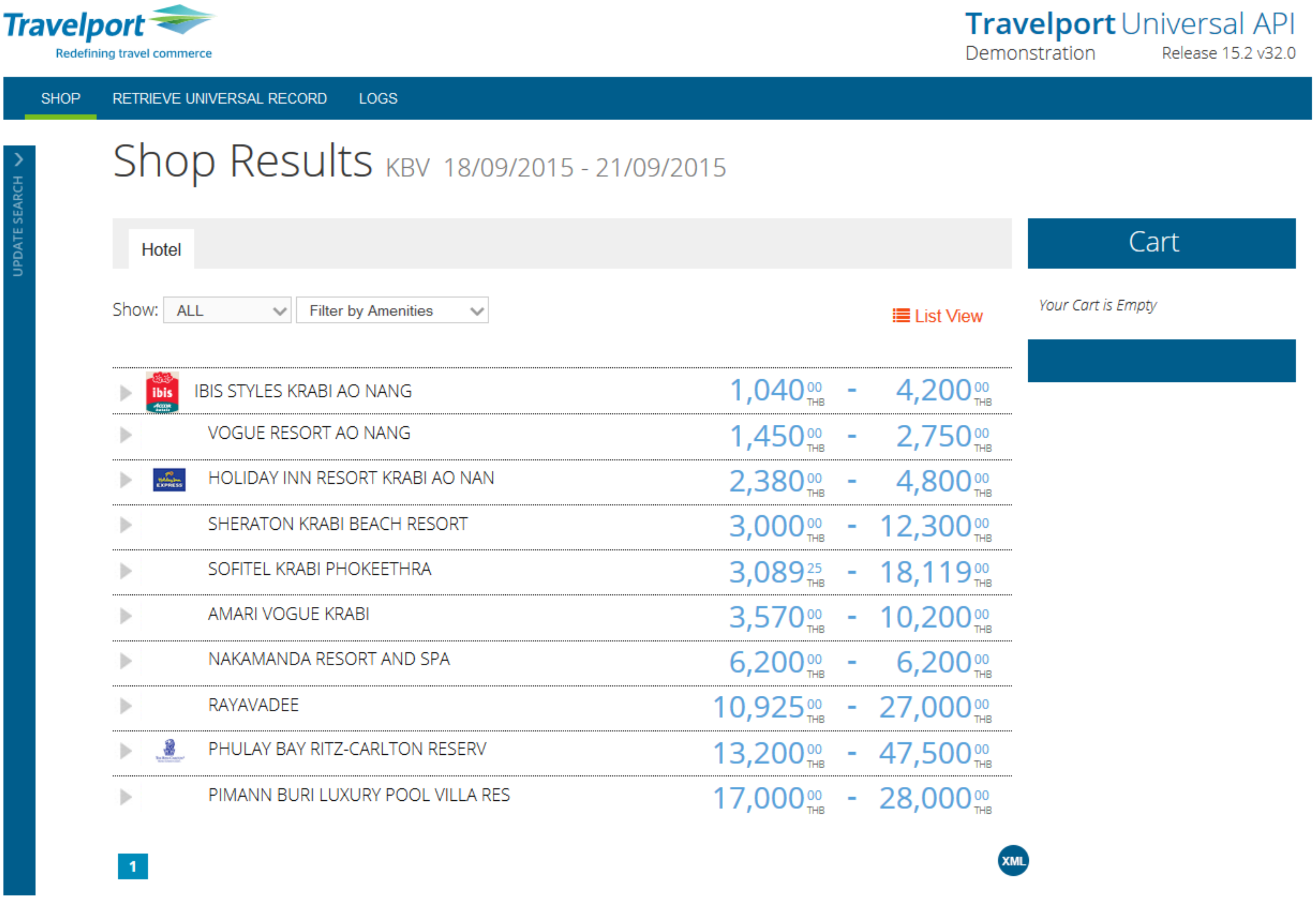
```
POST https://americas.universal-api.pp.travelport.com/
B2BGateway/connect/uAPI/HotelService HTTP/2.0
Accept-Encoding: gzip,deflate
Content-Type: text/xml;charset=UTF-8
SOAPAction: ""
Authorization: Basic UniversalAPI/UserName:Password
Content-Length: length
```

The POST operation tells the web service to send data and provides the URL of where to send the data.

The Content-Type section defines that the request and response use XML format.

Authorization sends the username and password for authentication.

Travelport Universal API Demo



Shop Results KBV 18/09/2015 - 21/09/2015

Show: ALL
Filter by Amenities

Your Cart is Empty

IBIS STYLES KRABI AO NANG	1,040 00 THB	-	4,200 00 THB
VOGUE RESORT AO NANG	1,450 00 THB	-	2,750 00 THB
HOLIDAY INN RESORT KRABI AO NAN	2,380 00 THB	-	4,800 00 THB
SHERATON KRABI BEACH RESORT	3,000 00 THB	-	12,300 00 THB
SOFITEL KRABI PHOKEETHRA	3,089 25 THB	-	18,119 00 THB
AMARI VOGUE KRABI	3,570 00 THB	-	10,200 00 THB
NAKAMANDA RESORT AND SPA	6,200 00 THB	-	6,200 00 THB
RAYAVADEE	10,925 00 THB	-	27,000 00 THB
PHULAY BAY RITZ-CARLTON RESERV	13,200 00 THB	-	47,500 00 THB
PIMANN BURI LUXURY POOL VILLA RES	17,000 00 THB	-	28,000 00 THB

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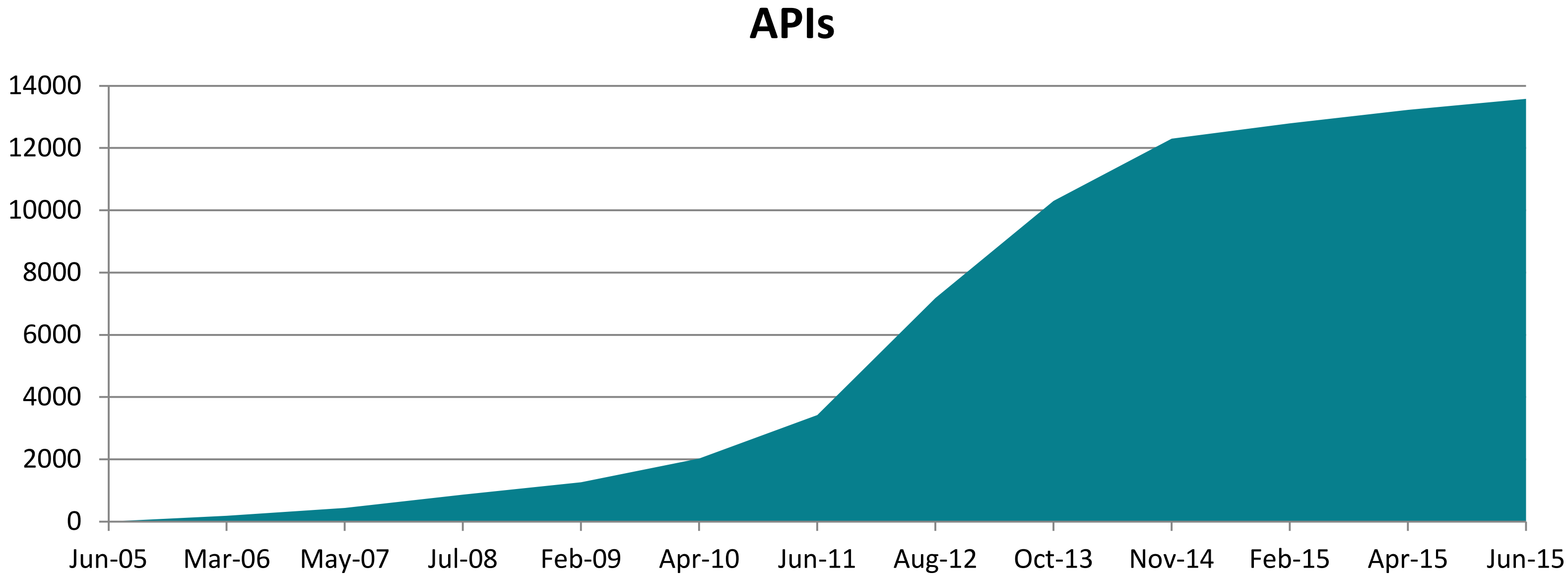
SOAP example

Response

```
 <hotel:HotelSearchResult>
   <common_v32_0:VendorLocation ProviderCode="1G" VendorCode="SI" VendorLocationID="53742"
Key="caz3FGu8S2K0OVe64rEmrw==" />
   <hotel:HotelProperty HotelChain="SI" HotelCode="53742" HotelLocation="KBV" Name="SHERATON KRABI BEACH
RESORT" VendorLocationKey="caz3FGu8S2K0OVe64rEmrw==" HotelTransportation="Limo"
ReserveRequirement="Other" ParticipationLevel="Best Available Rate and Inside Shopper participant"
Availability="Available">
     <hotel:PropertyAddress>
      <hotel:Address>155 MOO 2  NONG THAL</hotel:Address>
     </hotel:PropertyAddress>
     <common_v32_0:Distance Units="MI" Value="2" Direction="S" />
     <hotel:Amenities>
      <hotel:Amenity Code="AICO" />
         <<  Over 35 amenity codes returned >>
     </hotel:Amenities>
   </hotel:HotelProperty>
   <hotel:RateInfo MinimumAmount="THB3000.00" MinAmountRateChanged="false" MaximumAmount="THB12300.00"
MaxAmountRateChanged="false" />
  </hotel:HotelSearchResult>
```

Why should I care about APIs?

The number of APIs is constantly growing. APIs speed development and allow companies to use services to enhance their products. Many companies are offering APIs to reach a wider audience with their products.



On June 15, 2015, ProgrammableWeb had 13,581 APIs listed on its site, an increase of 787 since February 1.

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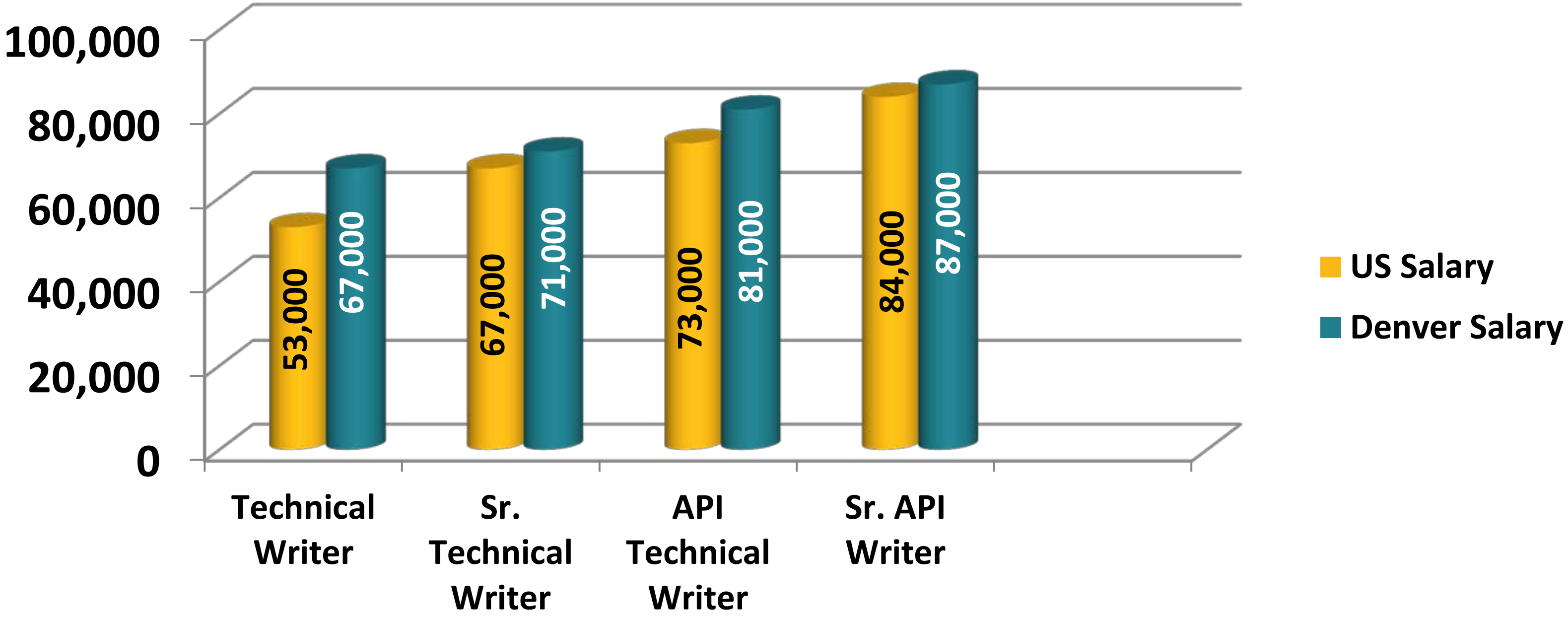
What can APIs do for me?

- Because APIs have no GUI, documentation is key.
- API documentation skills could lead to more money.



Data from SimplyHired.com as of February 2015

Documenting your first API

What you don’t need to know:

- How to program

What you do need to know:

Most of what you need to know is already in your technical writer toolbox. Do what you normally do when documenting a GUI:

- Gather information.
- Filter the information you receive down to what a user needs to know.
- Lay out information such that it can be easily found and searched.

What you need to learn:

- API terminology
- Minimal familiarity with code

What information do I provide?

- Getting started information
  - Credentials
  - Connectivity
  - Security
  - Quick start task
- Industry information
- Why use this API

What information do I provide?

- How to use the API
  - Workflows for complex functionality
  - Interactions between the transactions
  - For each transaction, describe the required and optional information, acceptable values, return values, errors/exceptions
  - Tutorials and message examples are highly desirable
- Reference documentation
  - WSDLs and schema
  - Sample code
- Versioning information

What’s the big deal with versions?

New API versions can break existing functionality.

- Define the version support timeline.
- Ensure customers are notified in advance of breaking changes, so they can assign resources to upgrade to the new version.
- Decide how you will support multiple versions with the same source documentation. Or, will you create a help version for each API release?
- Provide a detailed list of changes between versions and clearly identify breaking changes.

Where do I find this information?

Like information about a GUI product, API product information comes from a variety of sources, but you may have to dig a little more to find it.

- Interview subject matter experts
- Attend functionality walkthroughs and developer meetings
- Read product documents, such as functional designs, Wiki pages and use cases, or JIRA stories

Pare down the information to what is needed by the developer (customer).

I have to read code?!

- Poke around code (schema files and sample code)
- Ask questions
- Use tools to make it easier
  - Altova XMLSpy
  - Eclipse (free)
  - XSD Diagram (free)
  - <oXygen/> XML Editor
  - Notepad ++

API documentation examples

Good documentation examples:

- Flickr API
- Lufthansa Open API
- Stripe

How do they compare to our documentation?

- Travelport Universal API

Wrap-up

- APIs are growing, as is the need for those who can provide user documentation.
- API documentation skills can make you a more desirable job candidate and could yield higher pay.
- The skills you have as a technical writer are easily adaptable to documenting APIs.

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Every accomplishment starts with the decision to try.

Author unknown