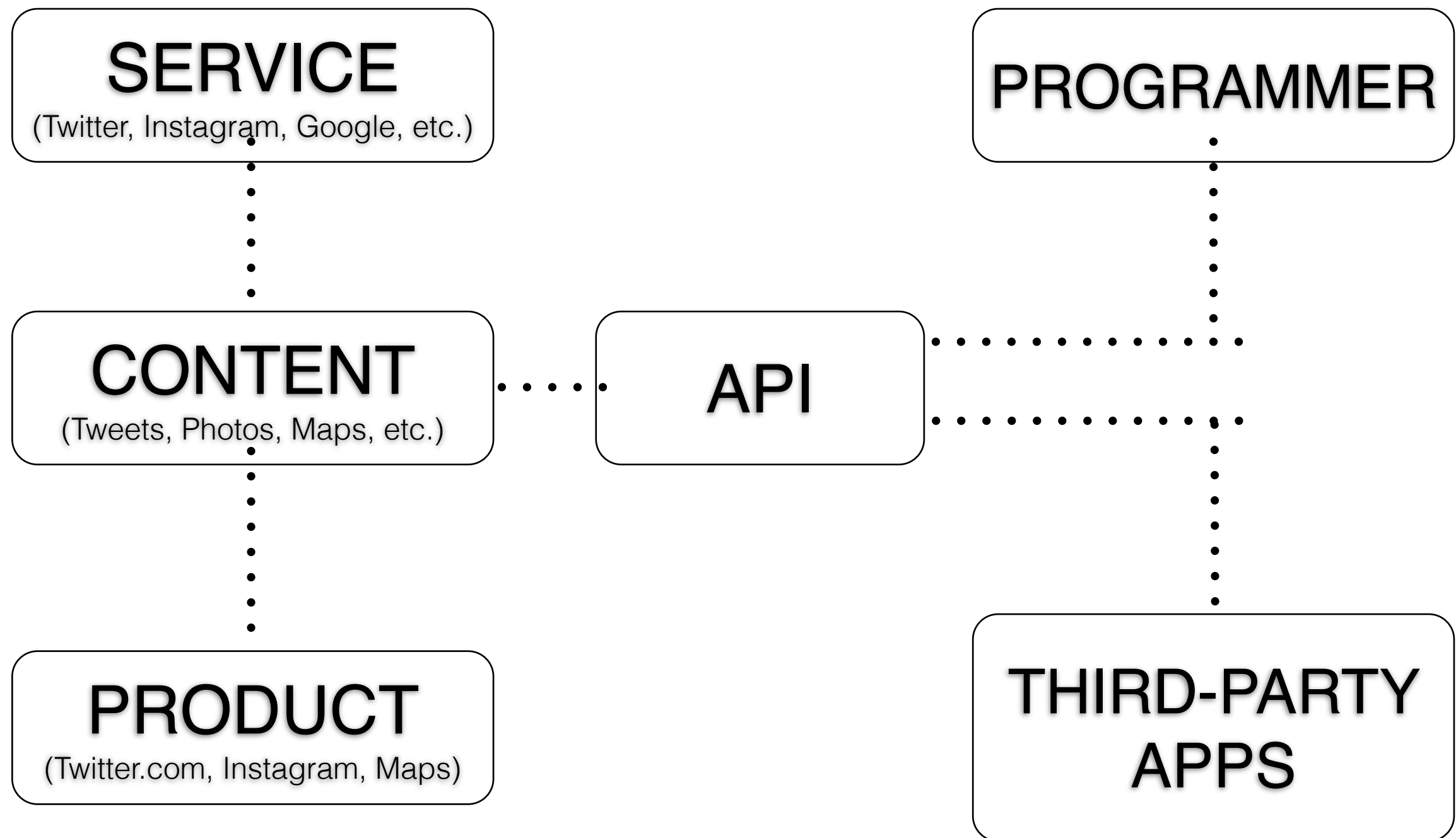


Programming for Journalists

UC Berkeley Graduate School of Journalism

API

Application Programming
Interface



Most Web APIs use REST

(Representational State Transfer)

- REST is an architecture for requesting information from a service.
- "RESTful" web APIs allow you to query a service over the Web using HTTP (a url).
- In REST APIs, the urls are *resources* (nouns) rather than actions (verbs). i.e. a users tweets, instagram photos of a certain tag.

A couple of things to know:

URI == URL

(for our purposes)

`http://something.com?SomeCoolStuff`

Using the URI to fetch data

- Most RESTful apis require you to send data to the service through the URI.
- We format the URI to specify which data we want to retrieve.

Using query strings

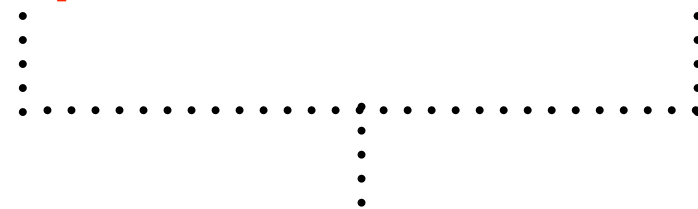
`http://something.com?`

Using query strings

`http://something.com?param=value`

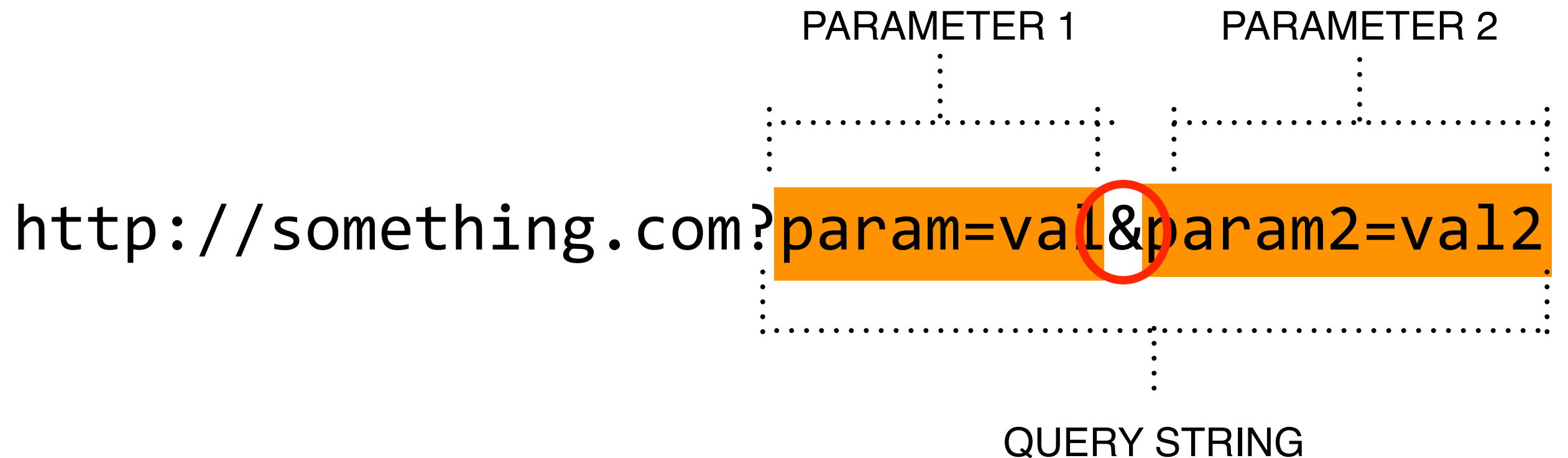
Query String

`http://something.com?param=value`



QUERY STRING

Query String



What are the query strings?

`https://api.instagram.com/v1/media/popular?
client_id=DSE8798DS898s`

What are the query strings?

`http://api.flickr.com/services/feeds/photos_friends.gne?
user_id=44908314@N00&format=json`

What are the parameters/arguments?

What are the values of those?

`http://api.nytimes.com/svc/search/v2/
articlesearch?q=news&sort=oldest&h1=false`

Build a query

Base URI

`http://mycoolapi.com`

Arguments/Parameters

q	<i>(string)</i>	Search terms
sort	<i>(string)</i>	Oldest or newest
count	<i>(number)</i>	Number of items to return
api-key	<i>(string)</i>	The key you used to register
all	<i>(boolean)</i>	Return all items?

`http://mycoolapi.com?q=story&sort=oldest
&count=12&api-key=1234&all=false`

Query String Examples

`http://google.com/search?q={SEARCH HERE}`

`http://richmondconfidential.org?p=50238`

Encoding URLs

<http://google.com/search?q=uc%20berkeley%20j%2Dschoo1>

ASCII Character	URL-encoding
space	%20
-	%2D
"	%22
:	%3A
\$	%24
/	%2F
&	%26
.	%2E

Encoding URLs

`http://google.com/search?q=uc%20berkeley%20%2Dschool`

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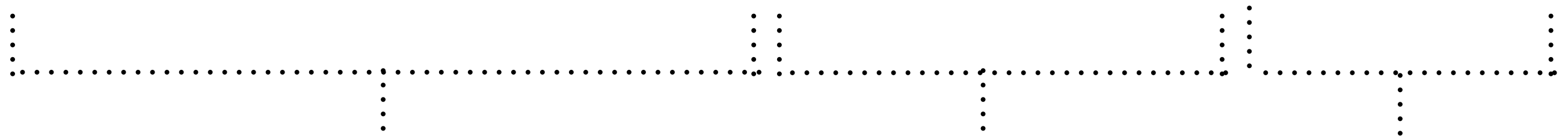
ASCII Character	URL-encoding
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/	%2F
&	%26
.	%2E

Endpoints

`http://someservice.com/data/datatype?request`

Endpoints

`http://someservice.com/data/datatype?request`



BASE URI

ENDPOINT

QUERY STRING

Endpoints are the URIs you should use to request certain resources

Endpoints

ENDPOINT

`http://api.nytimes.com/svc/search/v1/article
?query=UC%20Berkeley&begin_date=20010101&end_date=20120131`

PARAMETER	DESCRIPTION
QUERY	Search keyword
begin_date	YYYYMMDD
end_date	YYYYMMDD
facets	Category, or desk

API Key

- Most API services require you to register for an account.
- This allows them to track your usage for API queries.
- This is becoming the new standard for data access.



OAuth (authentication)

Authentication protocol so that you can make changes to an account.

Example: Update twitter, or add to a Google Spreadsheet.

```
http://api.twitter.com/1/statuses/update.json  
?status=Hey%20everyone%20posting%20on%20twitter  
%20from%20the%20api&access_token=S42MDK465DSFS5
```

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[http://api.twitter.com/1/statuses/update.json](http://api.twitter.com/1/statuses/update.json?status=Hey%20everyone%20posting%20on%20twitter%20from%20the%20api&access_token=S42MDK465DSFS5)
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OAuth

- Cannot be done with just a username and password.
- User has to authorize an "application" to give access to that account, and can revoke it at any time.
- Works with API "keys" that are long strings of encrypted characters.
- You **SHOULD NOT** put private API keys inside your JavaScript.

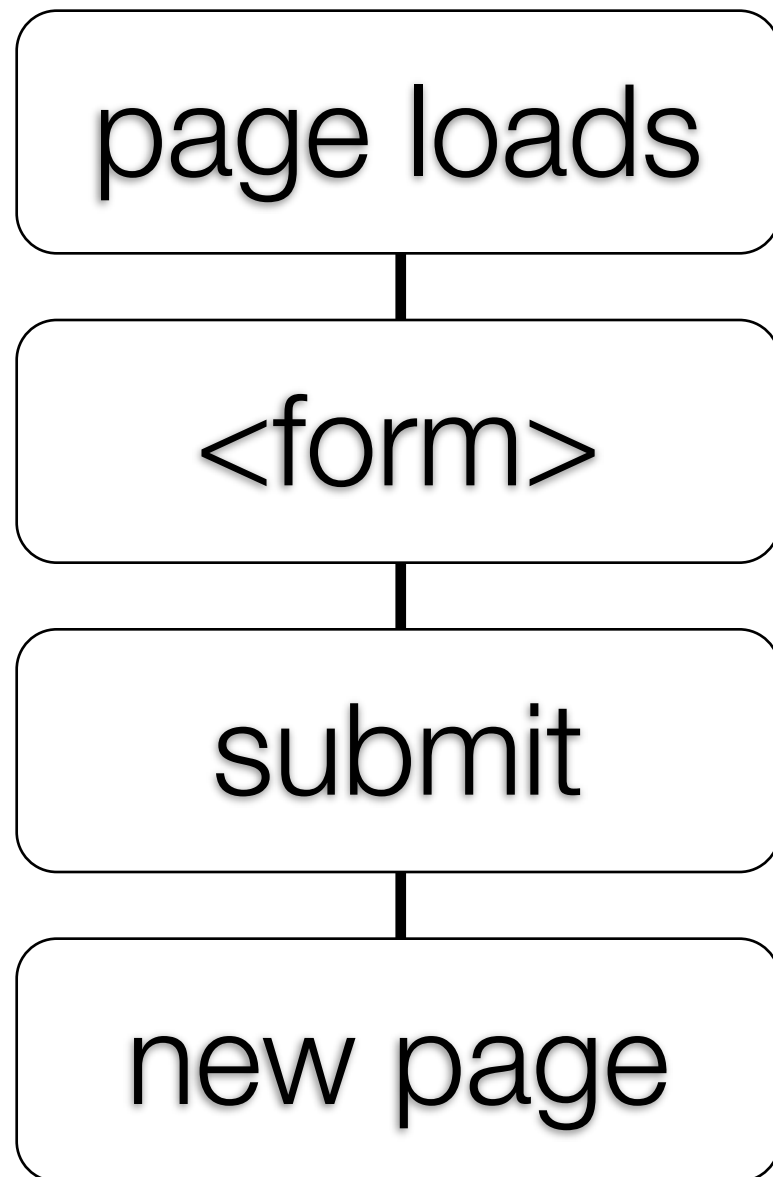
How to request data?

AJAX

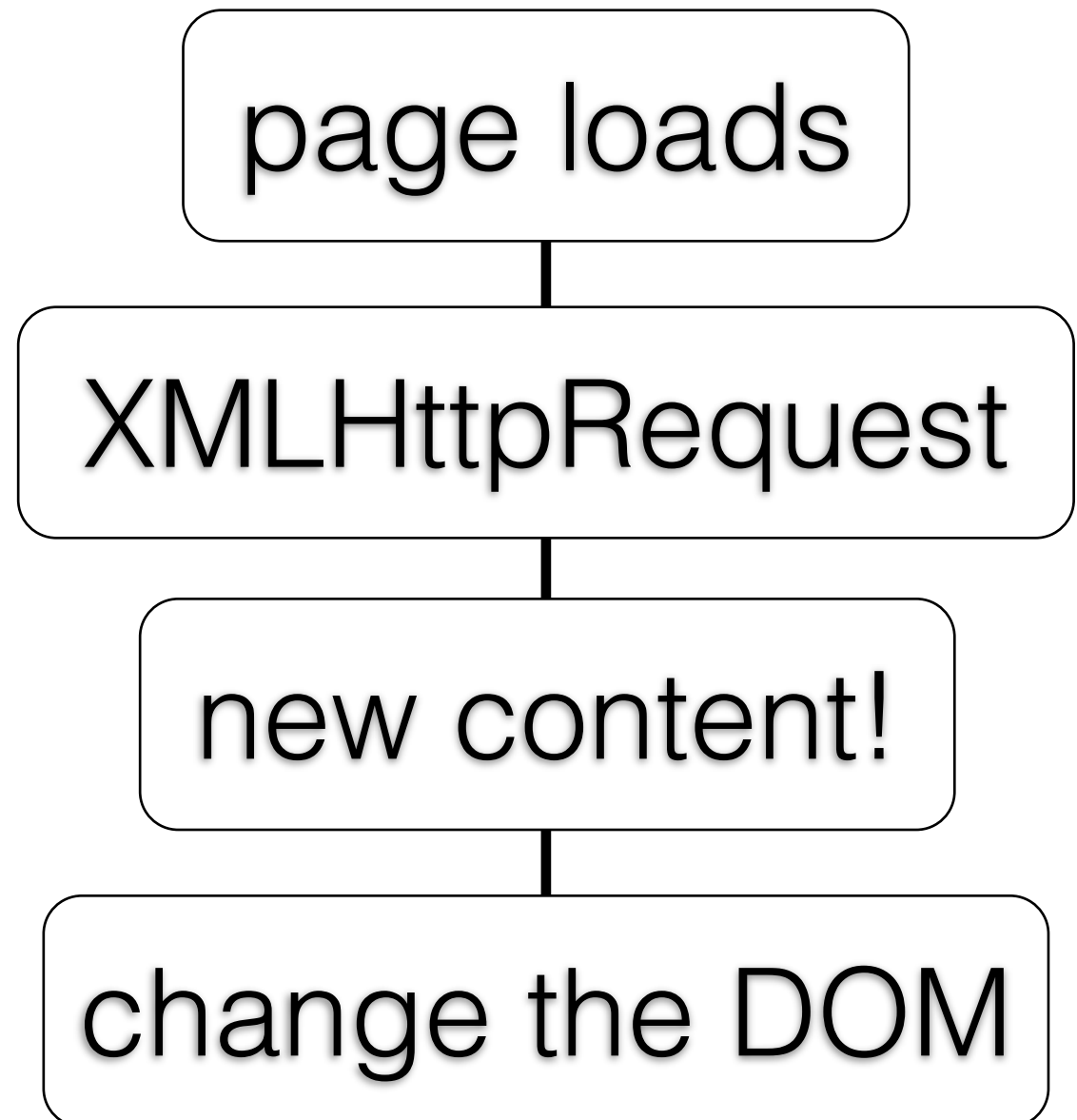
Asynchronous JavaScript and XML

Ability for browser to request data using JavaScript after the page is loaded

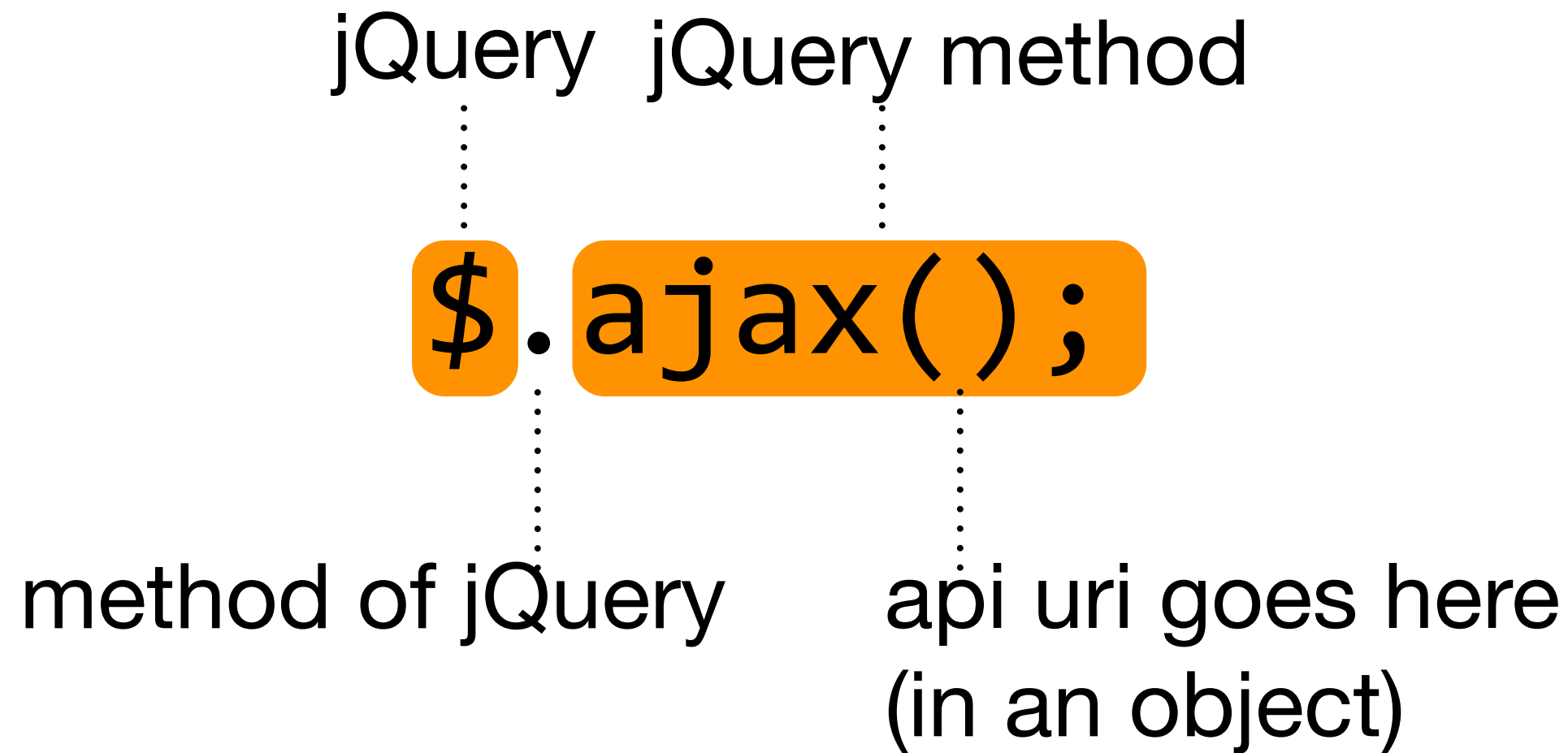
OLD WAY



AJAX WAY



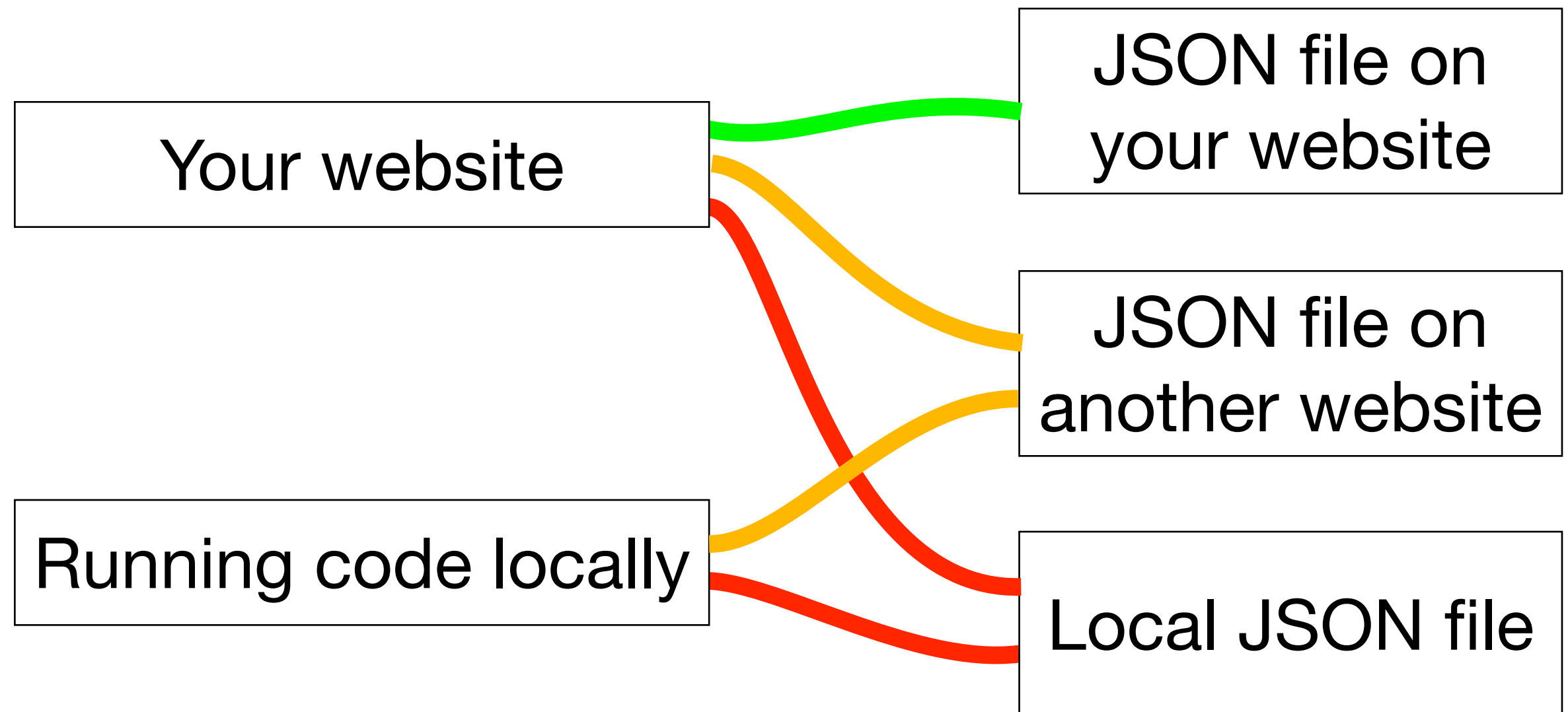
How to request data



How to request data

```
$.ajax('http://api...',  
function(data){  
    data['prop']['prop']  
}  
);
```

Cross-Domain Security issues



JSON vs JSONP

- Most browsers have a built-in protection system that prevents JSON data from being read *by another website* using JavaScript.
- In order to get around this, some website APIs employed another version of JSON called "JSONP." This allows other websites to request data.
- The technical explanation is that JSONP puts some "padding" around the JSON file to make it appear inside a function. This tricks the server into thinking it's not JSON information...