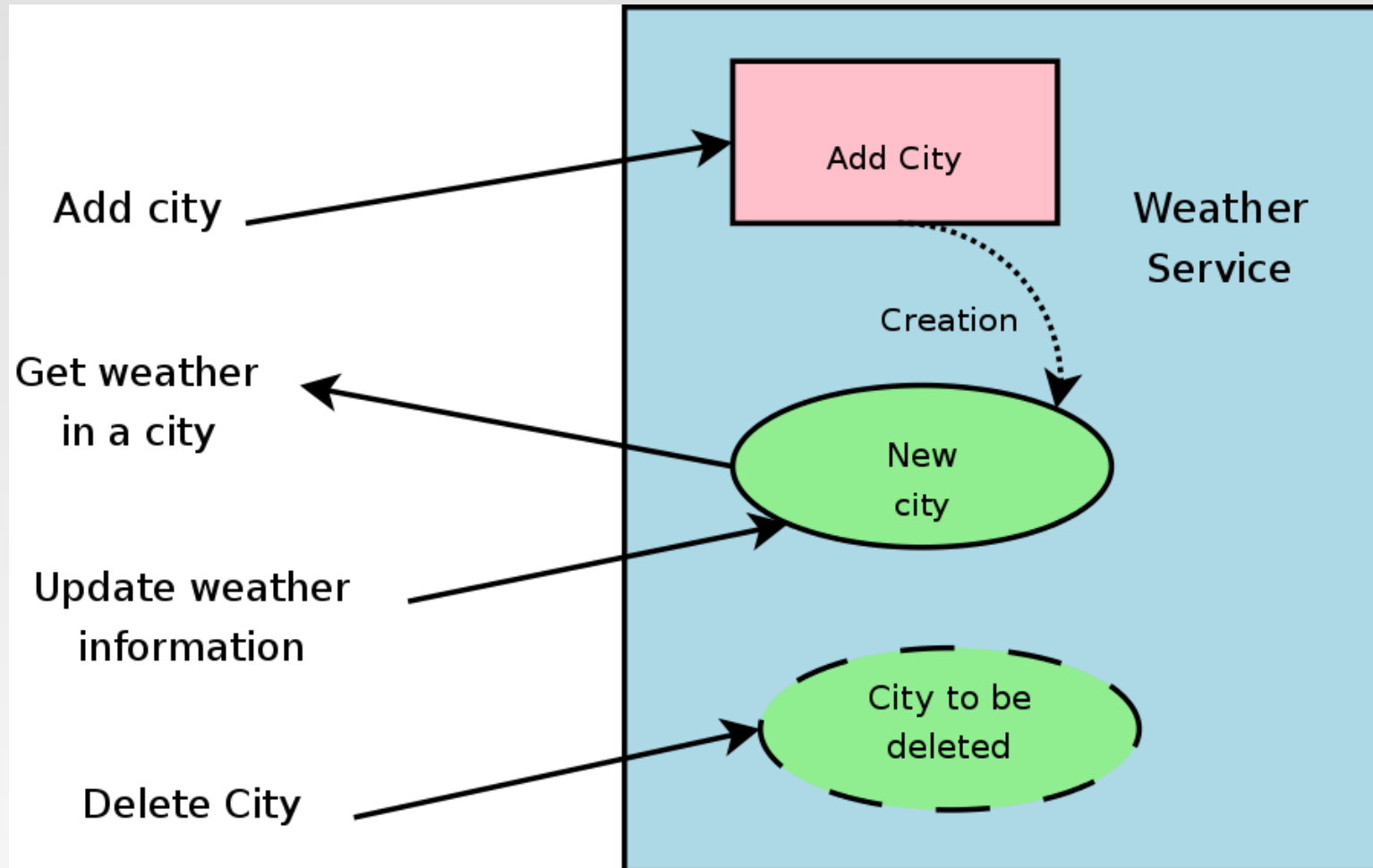


Designing RESTful Services



Overview

- Intro to RESTful Web Services
- REST Best Practices
- REST Examples / Demo



D. Keith Casey, Jr
CaseySoftware, LLC



So who is this guy?

- D. Keith Casey, Jr. -
 - CaseySoftware, LLC
 - Java developer who saw the light...
 - Former core contributor to dotProject, founding member of web2project
 - Specialize in refactoring existing codebases
 - Have utilized these tools and concepts to support sites for a cable news network, dP installs for 1200+ users, and *“involvement in the SMS system for a live musical performance show”*



D. Keith Casey, Jr
CaseySoftware, LLC



So why listen to me?

I'm lazy.



D. Keith Casey, Jr
CaseySoftware, LLC

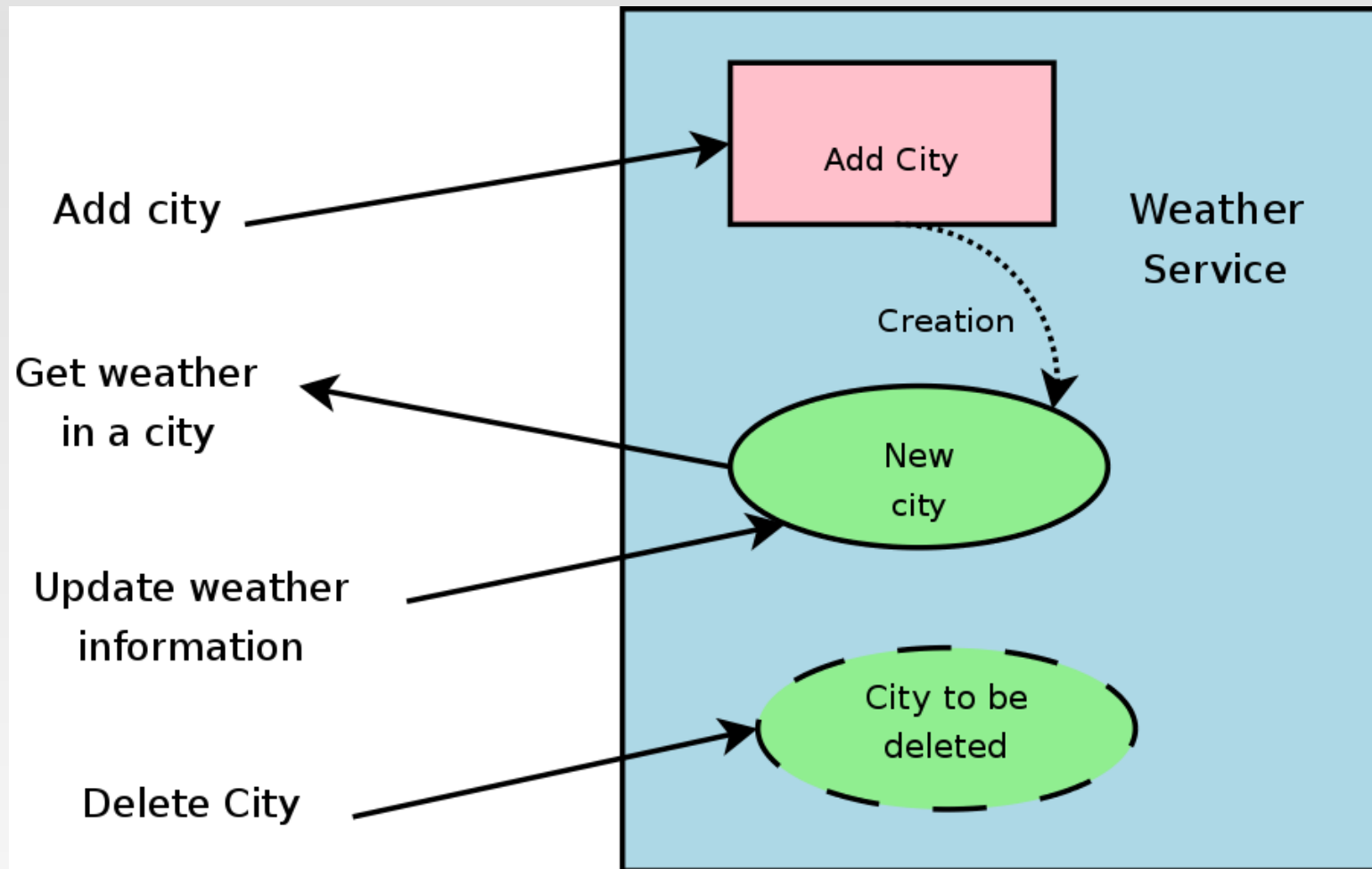


REST Defined

- *Representational State Transfer is intended to evoke an image of how a well-designed Web application behaves: a network of web pages (a virtual state-machine), where the user progresses through an application by selecting links (state transitions), resulting in the next page (representing the next state of the application) being transferred to the user and rendered for their use.*
 - Coined by Roy T. Fielding - <http://roy.gbiv.com/>



... or to put it another way.



Source: [http://www.w3.org/2005/Talks/1115-hh-k-ecows/#\(23\)](http://www.w3.org/2005/Talks/1115-hh-k-ecows/#(23))



D. Keith Casey, Jr
CaseySoftware, LLC



Web Services : Benefits

- XML-based
 - Human readable (mostly)
 - Flexible in implementation technology
- Vendor-independence
 - Based on “open” standards
 - Easier to add additional partners
- “Many parts, loosely joined”
 - Promotes reuse/commoditization of components
 - Increased collaboration



Web Services: Drawbacks

- XML-based
 - Human readable (mostly)
 - Vendor mis-implementations
- Different design paradigm
 - Bypasses the “planned” user interfaces
 - Different security model
 - Dependency management
- REST
 - “No standards” - Nouns & Verbs



Best Practices

- Design, design design -
 - It's a deliberate, not an accidental process.
 - Figure out your Nouns (Verbs are fixed)
 - Projects, Tasks, Accounts, Monkeys?
 - Determine read-only -vs- updatable
 - Enforce the distinction
- Stateless -
 - Whenever possible, forget it, ignore it, etc.
 - Scaling, reliability, sleep



Best Practices (cont)

- Security -
 - Alright, how?
 - No auth?
 - Shared certificates?
 - HTTP Auth?
 - Cookies?
 - URL-embedded parameters?
 - SSL?
 - Selected domains / IP restricted?



Best Practices (cont) (cont)

- Addressable -
 - It's not just a concept, it's a url!
 - <http://domain/app/project/list>
- Uniformity / Flow -
 - <http://domain/app/project/list>
 - <http://domain/app/company/list>



Best Practices (cont^3)

- Versioning
 - Identification
 - Migration
 - Deprecation
- Know your HTTP Response Codes
 - 2xx = success
 - 3xx = redirect
 - 4xx = client/request error
 - 5xx = server/response error



D. Keith Casey, Jr
CaseySoftware, LLC



Amazon S3

- Nouns
 - Bucket, Object
- Verbs
 - GET, HEAD, PUT, DELETE
- PHP 4 and PHP 5 Versions available



D. Keith Casey, Jr
CaseySoftware, LLC



Amazon S3 Howto...

```
require_once("s3.class.php");  
$object_id = "l_2024";  
$filePath = "path/to/my/file";  
$bucket = "my_bucket";  
$transfer = new s3();  
$data = $transfer->getObject($object_id, $bucket);  
header("content-type: ".$transfer->getResponseContentType());  
echo $data;
```

Source: <http://neurofuzzy.net/2006/03/17/amazon-s3-php-class/>



D. Keith Casey, Jr
CaseySoftware, LLC



Amazon S3 Howto... (cont)

```
require_once("s3.class.php");
$object_id = "l_2024";
$filePath = "path/to/my/file";
$bucket = "my_bucket";
// PUT OBJECT
if ($data = file_get_contents($filePath)) {
    $transfer = new s3();
    echo $transfer->putObject($object_id, $bucket);
    echo("done");
} else {
    echo("error.");
}
```



D. Keith Casey, Jr
CaseySoftware, LLC



More Examples...

- Delicious... del.iciou.s... deli.cio.us..
 - <http://del.icio.us/help/api/>
- Flickr
 - <http://www.flickr.com/services/api/>
- Yahoo's Maps
 - <http://developer.yahoo.com/maps/rest/V1/geocode.html>

Further info, etc

- Resources:

- “How I Explained REST to My Wife”
 - <http://naeblis.cx/articles/2004/12/12/rest-to-my-wife>
- RESTful Web Services, Richardson & Ruby, O’Reilly
 - “<http://roadmap.cbdiforum.com/reports/roi/>”
- “A RESTful Web service, an example”
 - <http://www.peej.co.uk/articles/restfully-delicious.html>
- Amazon S3 PHP Class
 - <http://neurofuzzy.net/2006/03/17/amazon-s3-php-class/>



Questions / Comments ?

Designing RESTful Web Services

Slides available:

[http://CaseySoftware.com/events/
keith@caseysoftware.com](http://CaseySoftware.com/events/keith@caseysoftware.com)

*Most code samples are from Open Source projects and
subject to their licensing, etc.*



D. Keith Casey, Jr
CaseySoftware, LLC

