

# Geoclient API

RESTful access to Geosupport

# Teams

- DCP/GSS
  - Rudy Lopez
  - Steve Oliver
  - Michele McInnes
  - Thom Costa
- DoITT/GIS
  - Colin Reilly
  - Matthew Lipper
  - Oleg Suslov
- DoITT/ADM
  - Greg Soto
  - Andrew Nicklin

# Me

## Work

- DoITT/Citywide GIS “Senior Software Architect”

## Likes

- Smart people
- Writing code
- Agile ideas, techniques, tools (2001 to now)
- OSS

*“Everything should be made as simple as possible, but no simpler.” - A. Einstein (paraphrased)*

# Project Goals

- Access to Geosupport
  - City agencies
  - Public

# Geosupport

- Created and maintained by the Department of City Planning (DCP)

# Geosupport

- Geocoder of record for NYC

# Geosupport

- Custom-built for NYC
  - Data
  - Logic

# Geosupport

- Written for the mainframe
  - Numbered functions
  - Work-area input and output



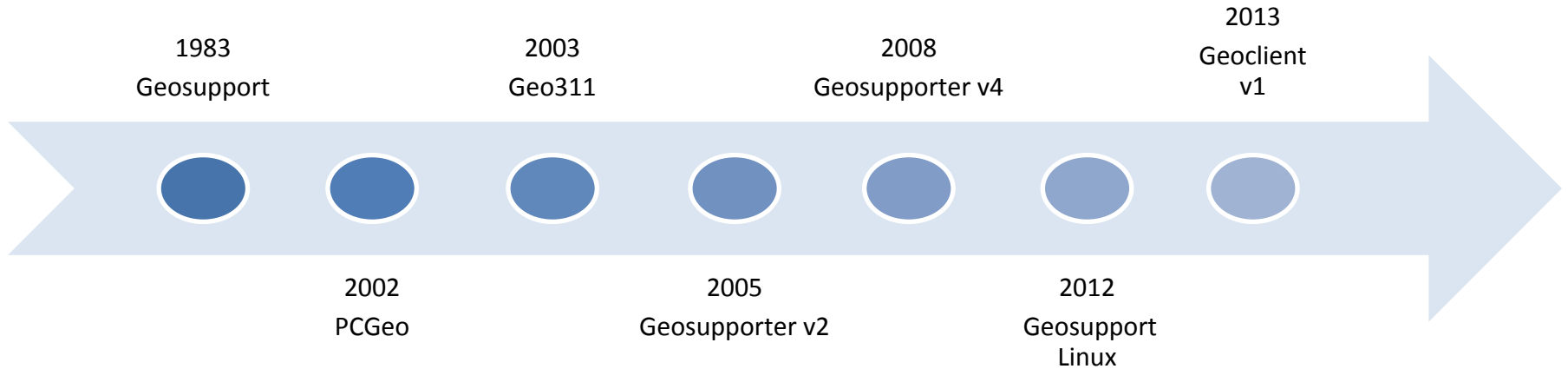
# Geosupport

- Lots of options!
- Lots of data!

Function	User Input	Selected Geosupport Output Items
1 & 1 Extended (a.k.a. 1X)	Address	Standardized Street Name and Street Code, Address Range, List of Cross Streets, Zip Code, Community District, Health Area, Health Center District, 1990 Census Tract, 2000 and 2010 Census Tract and Block, Fire Engine or Ladder Company, School District, Police Precinct, DSNY District and Schedule, X-Y Coordinates (based on the State Plane Coordinate System), Latitude & Longitude in 1 Extended only
1E &1E Extended (1EX)	Address	Same as for Function 1 + Political Geography (Election District, Assembly District, Congressional District, City Council District, Municipal Court District and State Senatorial District)
1A &1A Extended (a.k.a.1AX)	Address	Standardized Street Name and Street Code, Tax Block and Lot, Alternative Addresses for Lot, Building Identification Number, Latitude& Longitude, ,RPAD Building Class, Interior Lot Flag, Vacant Lot Flag, Irregularly-Shaped Lot Flag, Corner Code, etc.
1B	Address	Same as for Function 1E + Property Level Information from Function 1A + Street Names for Cross Streets and Address Lists
1N	Street Name	Standardized Street Name and Street Code (not available in the Desktop Edition of GOAT)
2 & 2W	Pair of Intersecting Streets, Named Intersection. or Node	Standardized Street Name and Street Codes, List of Additional Cross Streets, Zip Code, Community District, Health Area, Health Center District, 1990, 2000 and 2010 Census Tract, Fire Districts, School District, Police Precinct, DSNY District, X-Y Coordinates (based on State Plane Coordinate System), List of related nodes and cross streets for Function 2W only.
3 & 3 Extended (a.k.a. 3X)	On Street and a Pair of Consecutive Cross Streets	Standardized Street Names and Street Codes, Lists of Cross Streets at both ends, and information about both sides of the street, (including Zip Codes, Community Districts, Health Areas, Health Center Districts, 1990, 2000 and 2010 Census Tracts, Fire Districts, School Districts, Police Precincts)
3C & 3C Extended (a.k.a.3CX)	On Street & Pair of Consecutive Cross Streets & Compass Direction	Same as Function 3 but for only one side of the street, as indicated by the compass direction (Block face information)
3S	On Street and an Optional Pair of any Intersecting Streets along the On Street	Street Stretch information: List of intersecting streets in order along 'on' street, the distance between them and node IDs
BF, BB	Character String	List of street names in alphabetic order - supports street name browsing
BL &BL Extended (a.k.a. BLX)	Tax Block and Lot	List of Addresses Ranges for Lot, List of Building Identification Numbers (BINs), RPAD Building Class, Interior Lot Flag, Vacant Lot Flag, Corner Code, etc.
BN &BN Extended (a.k.a. BNX)	Building Identification Number	List of Address Ranges for Building, Tax Block and Lot, RPAD Building Class, Interior Lot Flag, Vacant Lot Flag, Irregularly Shaped Lot Flag, Corner Code etc.
D,DG,DN	Street Code / House Nbr.	Street Name and/or House Number in Displayable Format

**Seriously.**

# Timeline



# Functional Goals

- Geocoder for NYC locations
- X/Y + Geosupport data

# Implementation Goals

- Simple to use
- Easy to understand
- Happy change

# Strategy

**80-20 rule**

# Deliverables

- REST service
- Java libraries
- Build, test, deploy for Linux
- Build, test for Windows

# Request Types

- Locations
- Documentation
- Service info



# Location Types

- Address
- BBL
- BIN
- Blockface
- Intersection
- Place
- Search

# Location -> Function

Location Type	Geosupport Function
Address	Function 1B
BBL	Function BLX
BIN	Function BNX
Blockface	Function 3
Intersection	Function 2
Search	Based on input recognition
Place	Function 1B

# REST

## *Request URI's*

/geoclient/v1/<location type>.<media type>?param1=foo

- location type ::= address|bbl|bin|blockface|intersection|place|search
- media type ::= json|xml

/geoclient/v1/version.<media type>

- media type ::= json|xml

/geoclient/v1/doc

# REST

## *Response Content-Types*

- JSON/P

```
{ "address": { p1: "a", p2: "b" ... } }
```

JS Strings except lat/long

- XML

```
<geosupportResponse><address><p1>a</p1><p2>b</p2>...
```

Schema-less

- HTML, CSS, ...

# REST

*Required parameters*

- app\_id
- app\_key

Else:

HTTP/1.1 403 Forbidden

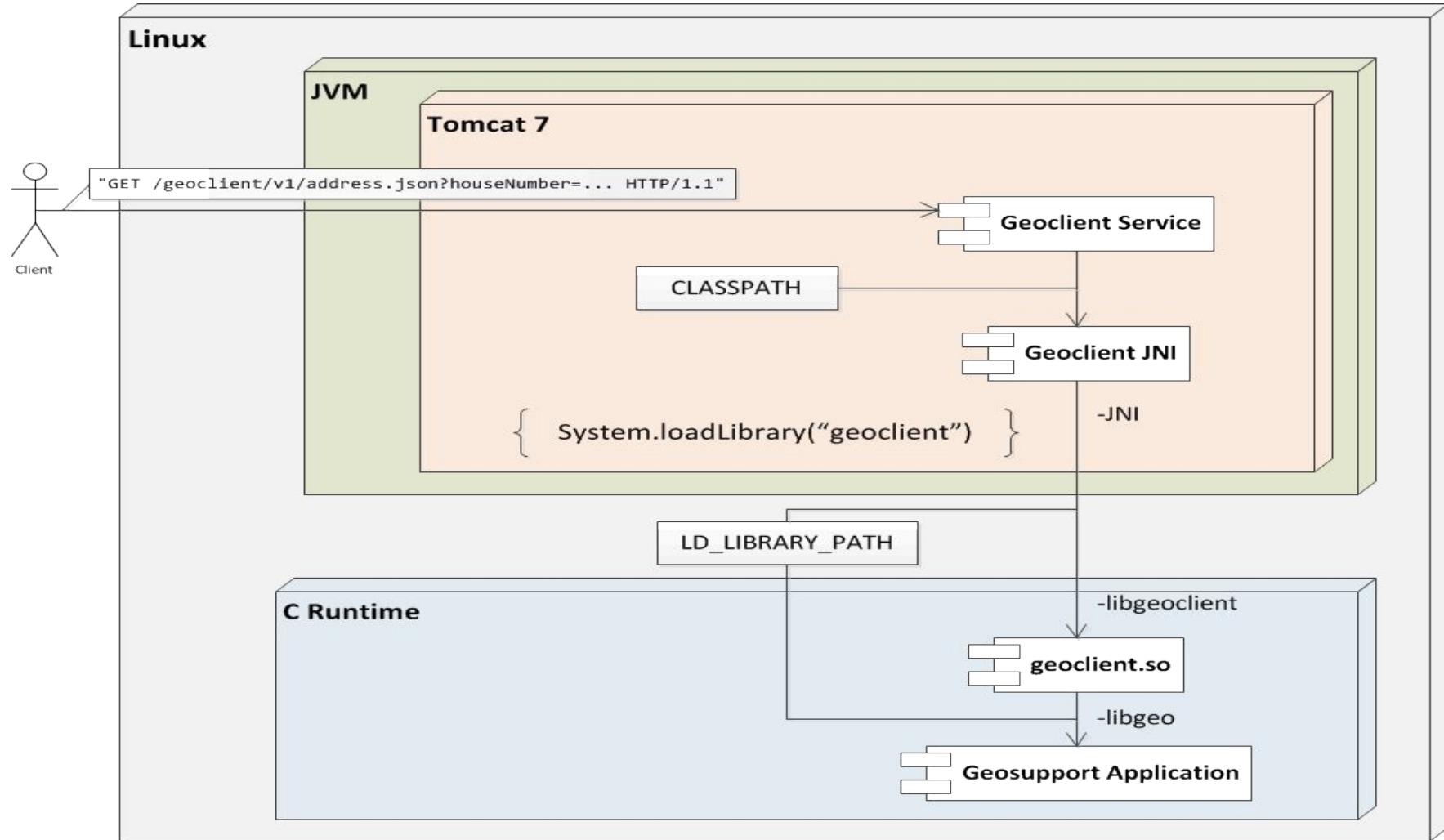
# REST

*Examples*

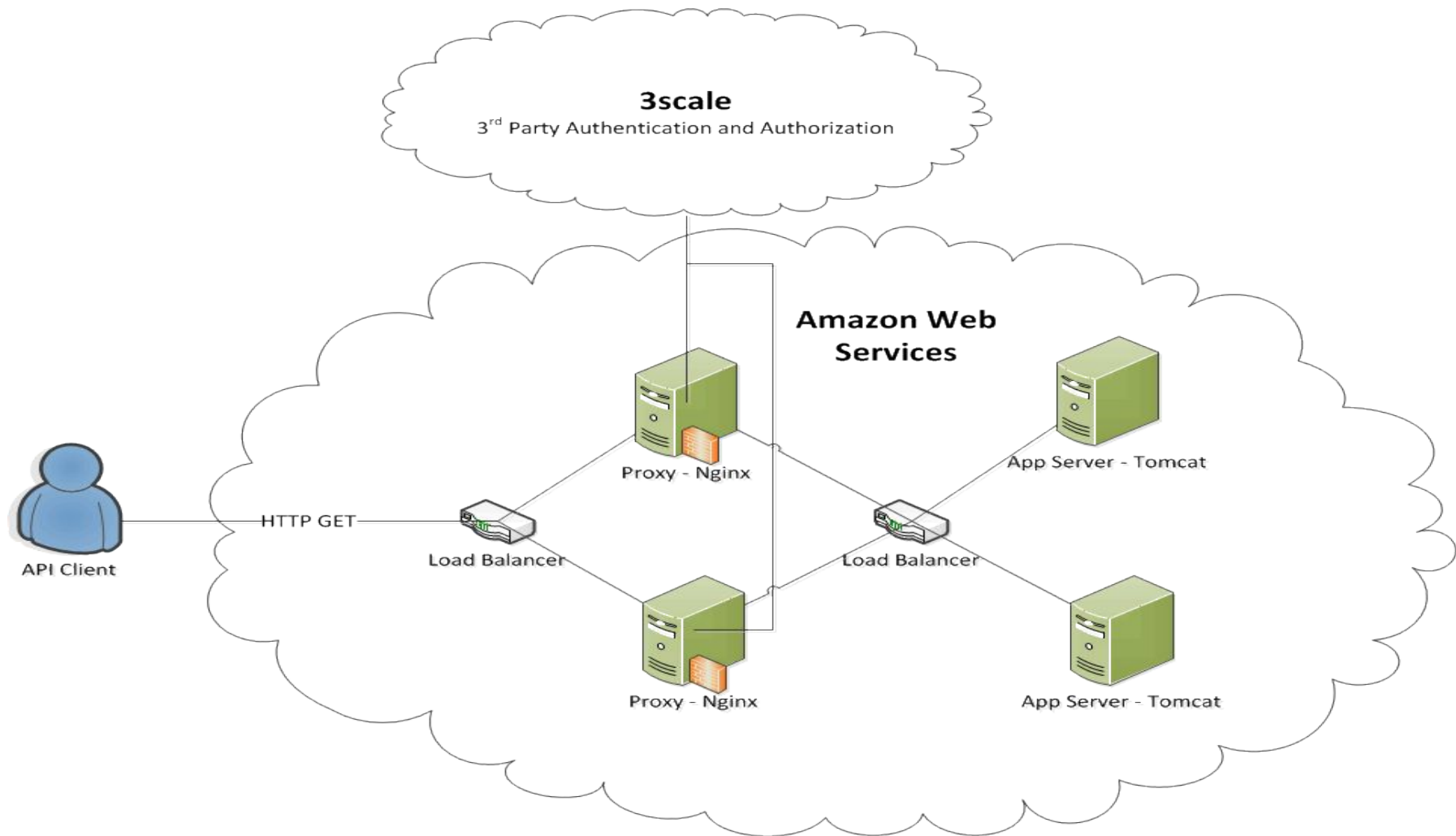
**To the Internet!!**

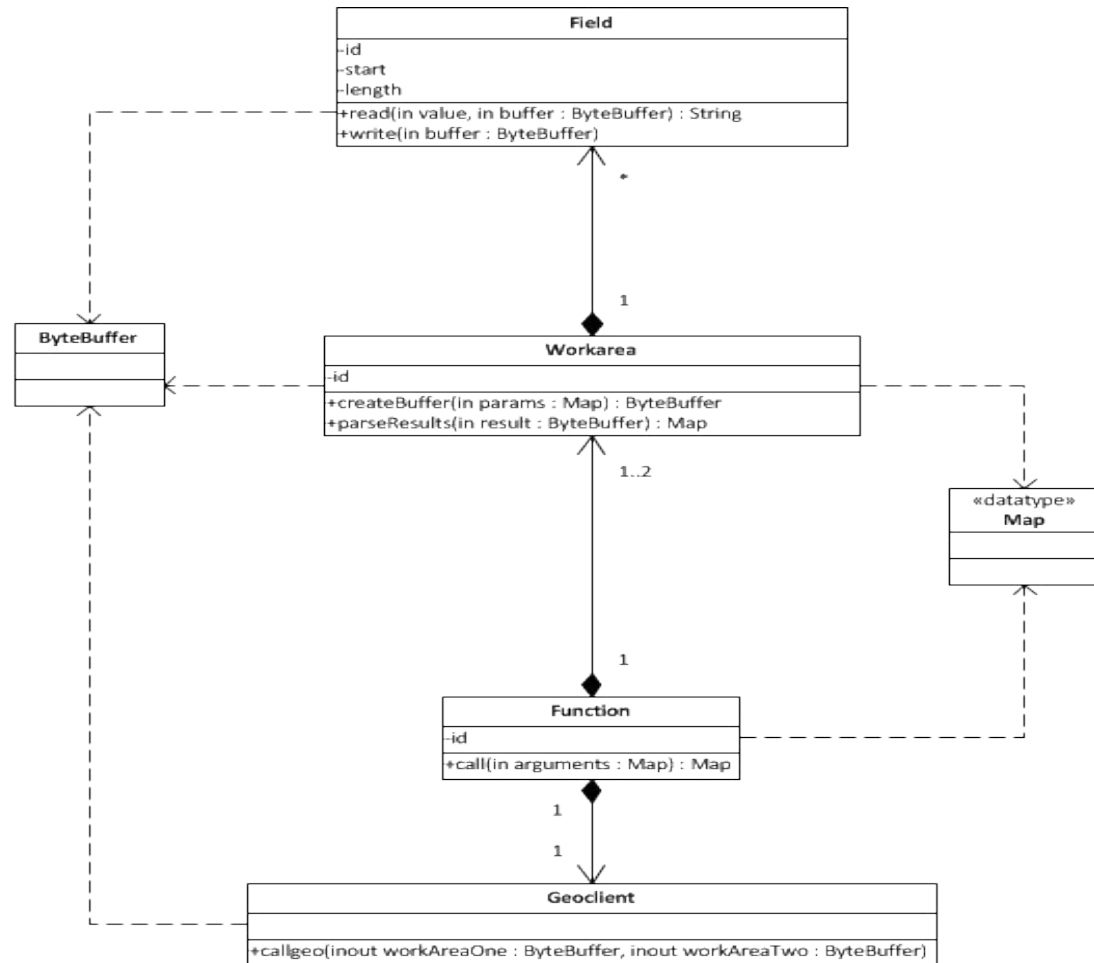
# Implementation

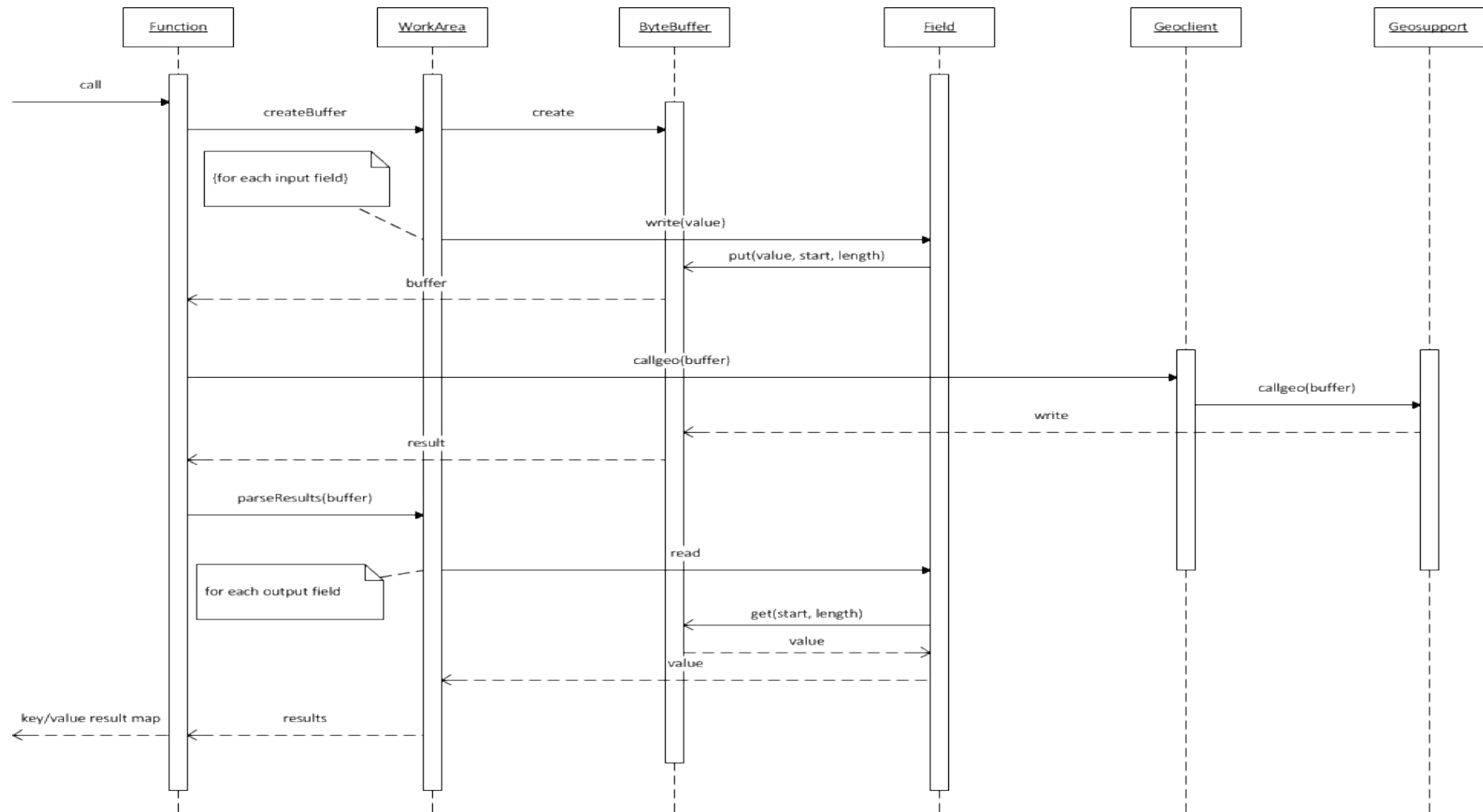
- Deployment
- 3Scale
- Classes
- Ingredients











# Ingredients

## Java

Eclipse  
GeoTools  
Gluegen  
Gradle  
Jackson  
JDK 1.7\*\*  
JUnit  
Maven  
Mockito  
Spring Framework  
Tymeleaf  
Tomcat  
XStream

## C

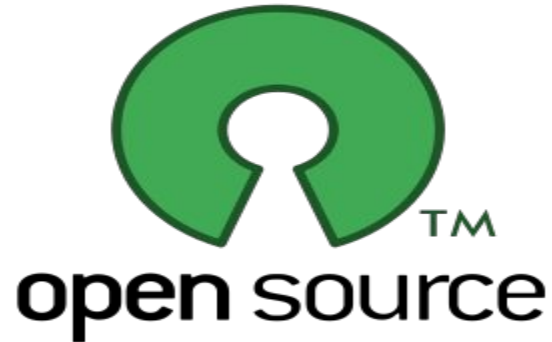
AWK  
Bash  
GCC  
GNU Make  
MinGW  
Sed  
VIM

## Ruby

Minitest  
PdfReader  
Treetop  
VIM

## Python

PyUnit  
VIM



\*\* Not quite open....but slightly ajar

# Coding

*Server-side*

- Standard libs
- REST libs

# Coding

*Client-side*

- Same origin policy -> JSONP
- Cross-origin resource sharing (CORS)

# Coding

## *Tools*

- GOAT website
- GOAT app
- Browser
- Postman
- SoapUI

# Usage

- 37 million requests in past year
- 3 million a month
- 700,000 a week
- 10,000 a day



**Stats for service 'Geoclient v1'**[Back](#)

Stats

**Usage**

Top Applications

Hours of day

Days of week

Alerts

Request Log

**API Usage** 36,802,018 Hits

Metrics

Methods

Year

Month

Week

Day

Hits ▾

7 Sep ▾

**Methods**

Using time zone (GMT-05:00) Eastern Time (US &amp; Canada)

[Download CSV](#)

NYC Home | Developer Portal

https://developer.cityofnewyork.us

Apps Development Home Work Pandora Internet Ra...

Login Register

NYC Developer Portal

Home App Showcase API Showcase Site Feedback

Search for a zipcode

Welcome to Energy Zip  
Explore the Map to learn about New York's electricity use. To learn more:

- Search for a zipcode
- Hover over a zipcode
- Click a zipcode
- Change the data set

<

see how you compare

>

Change the data set:

Electricity use per person

HighLow

Explore NYC data visualizations on the Open Data Tumblr

Upcoming Tech Events

09/10/2014  
Civic Hacknight

09/16/2014  
NYC BigApps 2014 Awards Ceremony

10/31/2014  
BetaNYC / Civic Service Forum's #CivicFridays

Get Started With Our APIs

Collaborate with us on Github

Got ideas for an API?

Got a concept for an APP?

# NYC Developer Portal Is...

Your destination for New York City-specific APIs and data sets. We've already opened up hundreds of City data sets through [NYC OpenData](#); now, we're also supplying APIs to make it even easier to access New York City services.

This website is a work in progress – please look around and give us your feedback so we can make it better.

# Links

## Sign-up

<https://developer.cityofnewyork.us/>

## Doc

<https://api.cityofnewyork.us/geoclient/v1/doc>

## Endpoint

<https://api.cityofnewyork.us/geoclient/v1>

# DCP Links

## Web

- <http://www.nyc.gov/goat>

## Download

- [http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml#geocoding\\_application](http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml#geocoding_application)

# Contacts

*Geoclient API*

Questions, issues, requests

## Technical

- Matthew Lipper - [mlipper@doitt.nyc.gov](mailto:mlipper@doitt.nyc.gov)

## General

- Colin Reilly - [creilly@doitt.nyc.gov](mailto:creilly@doitt.nyc.gov) / @ColinReillyNY

# Contacts

*Geosupport*

## **GEOSUPPORT**

Behavior, functionality, data

**GSS\_FEEDBACK@PLANNING.NYC.GOV**