Utilizing GIS to Detect & Prevent Fraud, Waste, and Misconduct

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The US Postal Service OIG

Who are we and what do we need GIS for?

The United States Postal Service (2018 Data)

- 497,157 Career Employees
- 137,290 Non-Career Employees
- 146.4 Billion Mail Pieces
- 158.6 Million Delivery Points
- 143,000 Collection Boxes
- 31,324 Retail Post Offices
- 47% of the world's mail

USPS Office of the Inspector General

- 102 Offices
- 1,014 Personnel
  - 522 Investigators
  - 277 Auditors
  - 215 Others
    - 3 GIS Team Members

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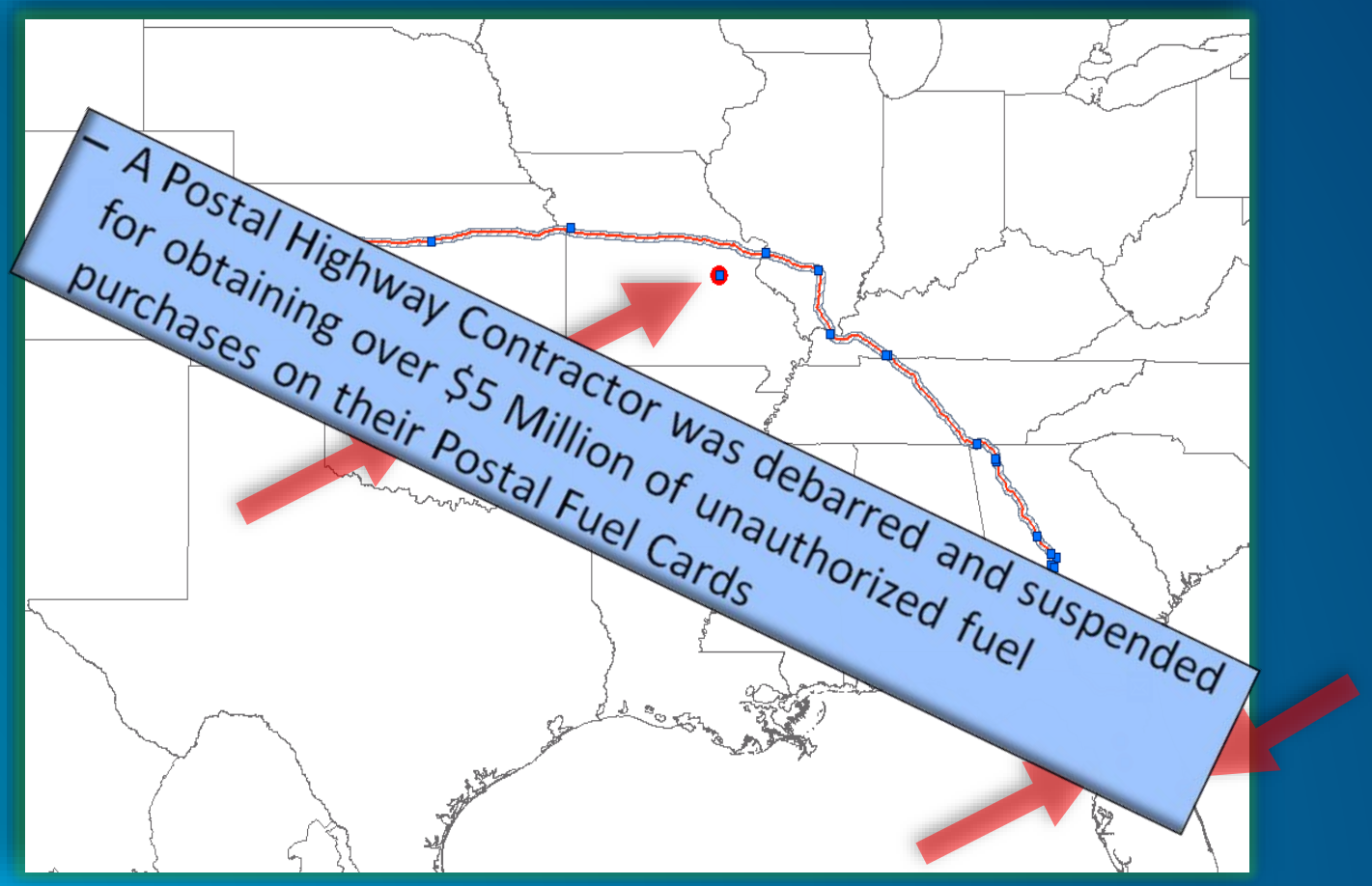
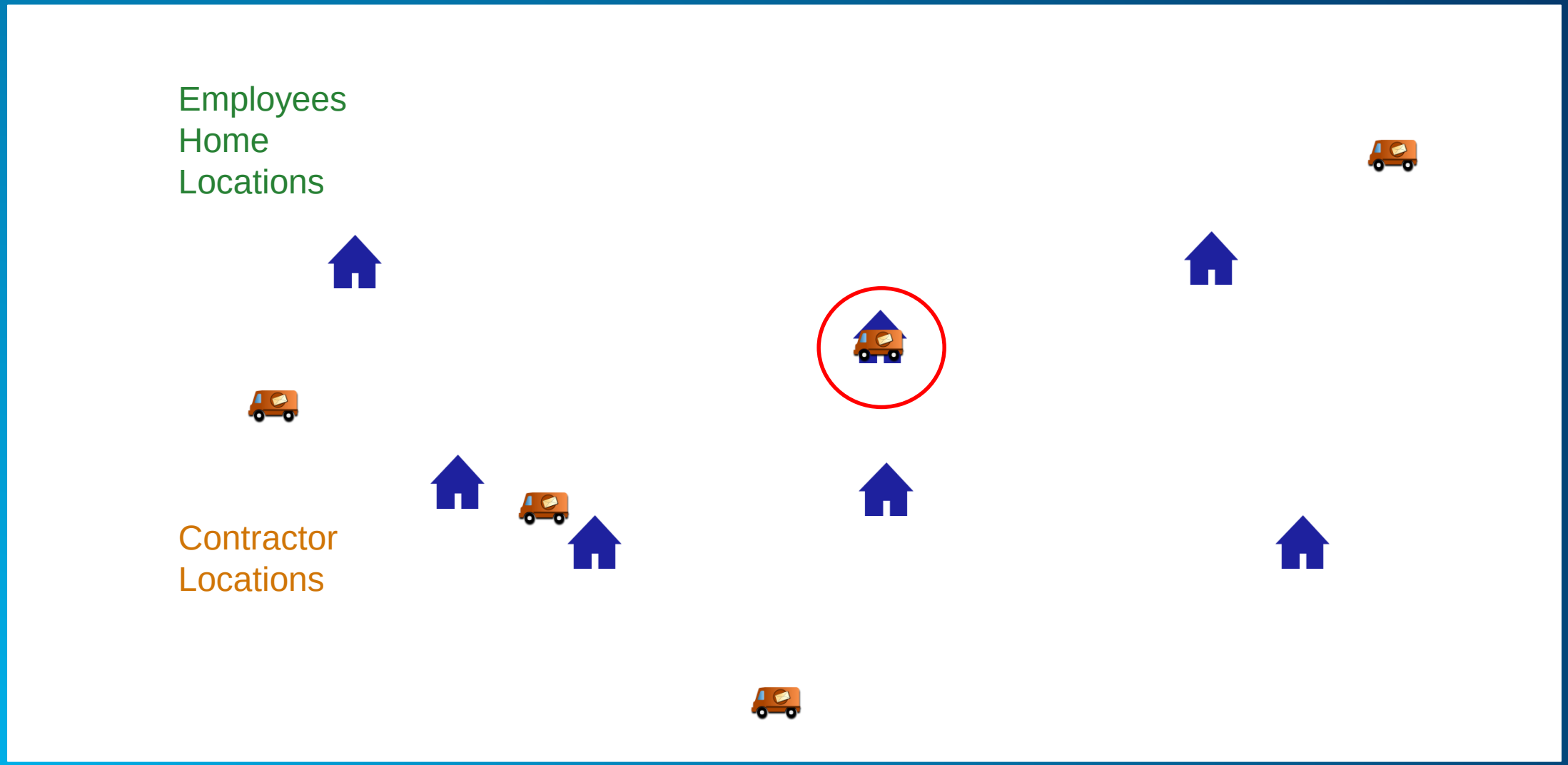
Examples

Delivery Scans at Facilities



Employee/Contractor Double Dipping



Vehicle Maintenance Facilities (VMF) Areas

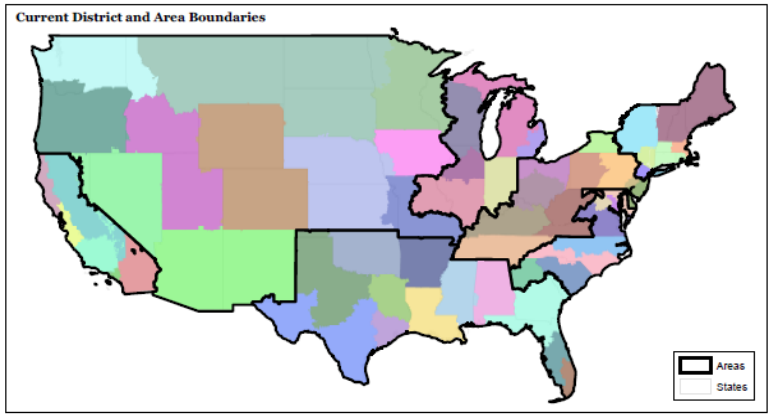
May 2014
Project ID: FY14_021_EX_USPS

Vehicle Maintenance Facilities (VMF) Alignment Opportunities

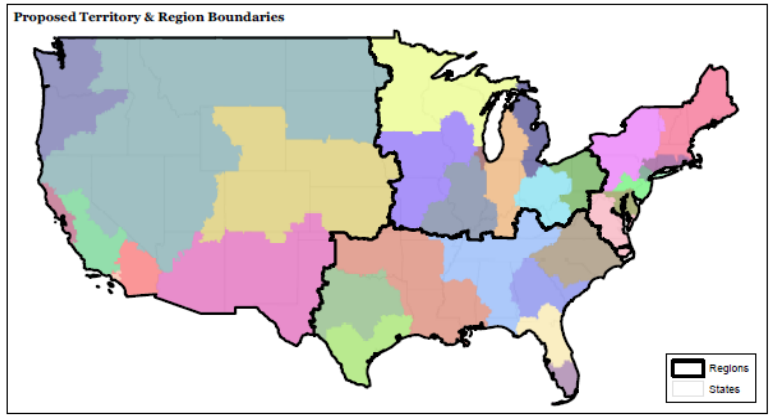
Current

Proposed

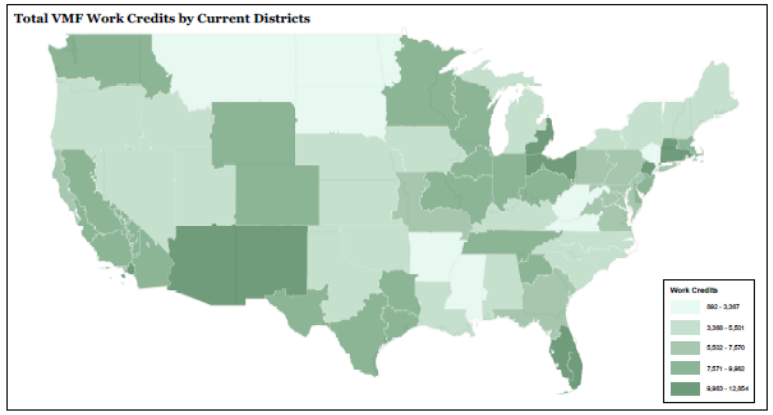
Current District and Area Boundaries



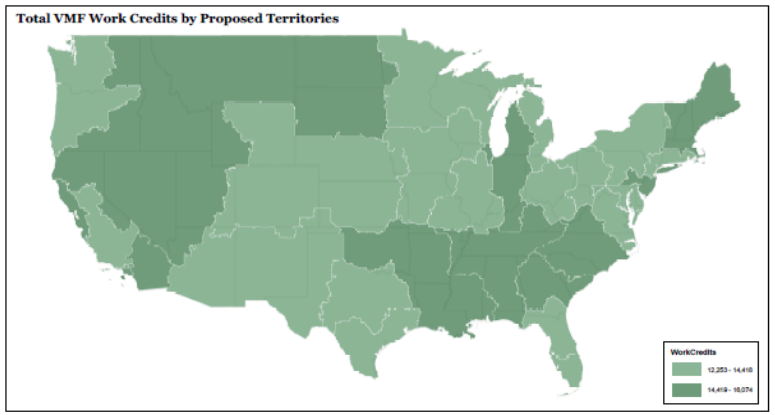
Proposed Territory & Region Boundaries



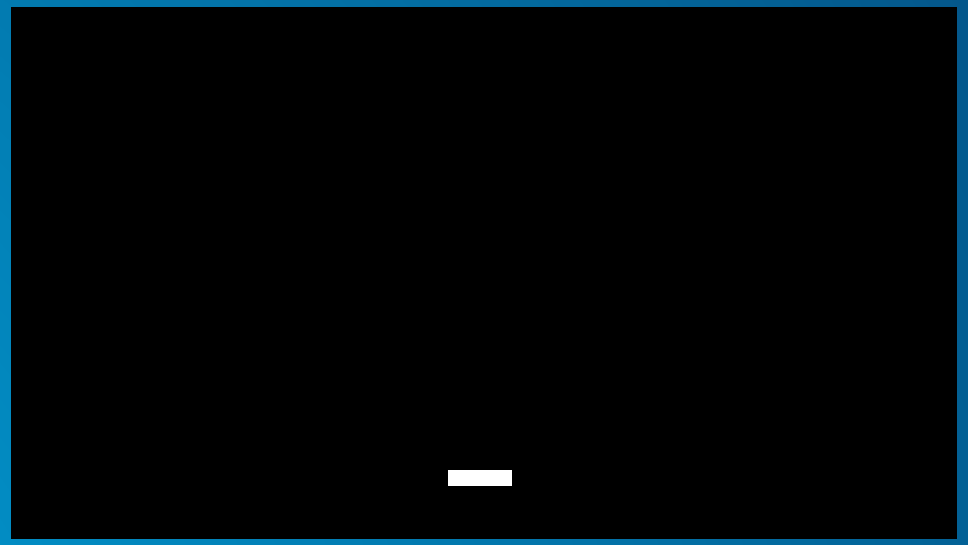
Total VMF Work Credits by Current Districts



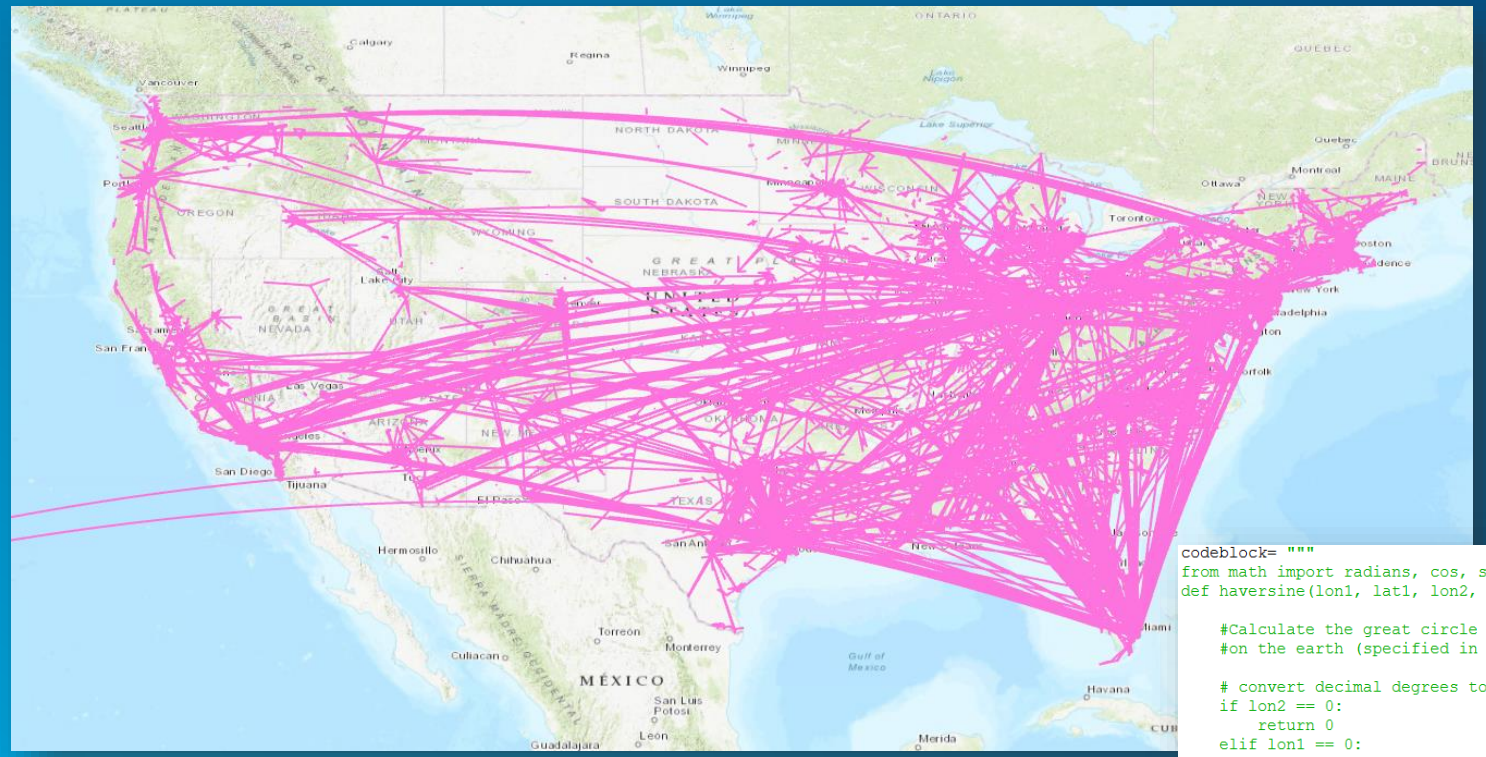
Total VMF Work Credits by Proposed Territories



GPS Breadcrumbs



Identifying Potential Credit Card Cloners

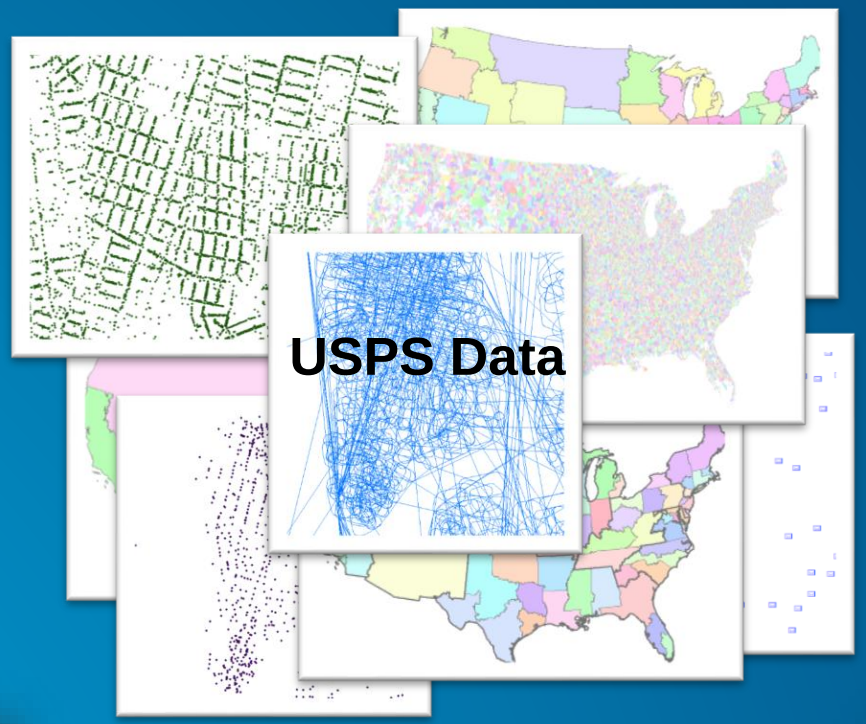


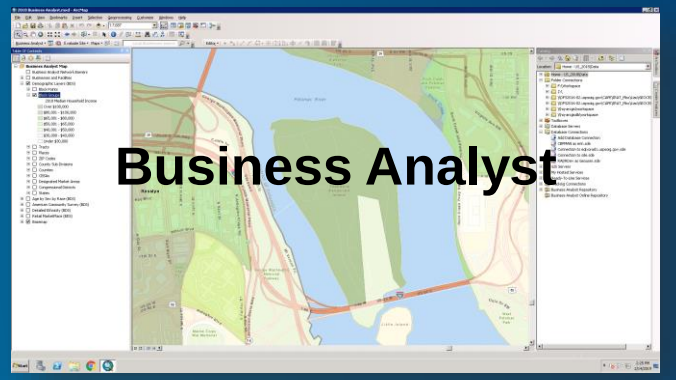

```
codeblock= """
from math import radians, cos, sin, asin, sqrt
def haversine(lon1, lat1, lon2, lat2):

    #Calculate the great circle distance between two points
    #on the earth (specified in decimal degrees)

    # convert decimal degrees to radians
    if lon2 == 0:
        return 0
    elif lon1 == 0:
        return -1
    else:
        lon1, lat1, lon2, lat2 = map(radians, [lon1, lat1, lon2, lat2])

    # haversine formula
    dlon = lon2 - lon1
    dlat = lat2 - lat1
    a = sin(dlat/2)**2 + cos(lat1) * cos(lat2) * sin(dlon/2)**2
    c = 2 * asin(sqrt(a))
    r = 3956 #Done for miles. Radius of earth in kilometers use 6371
    return c * r"""

expression= "haversine(!RouteX!,!RouteY!,!MerchantX!,!MerchantY!)"
```

USPS OIG GIS Enterprise System & Resources

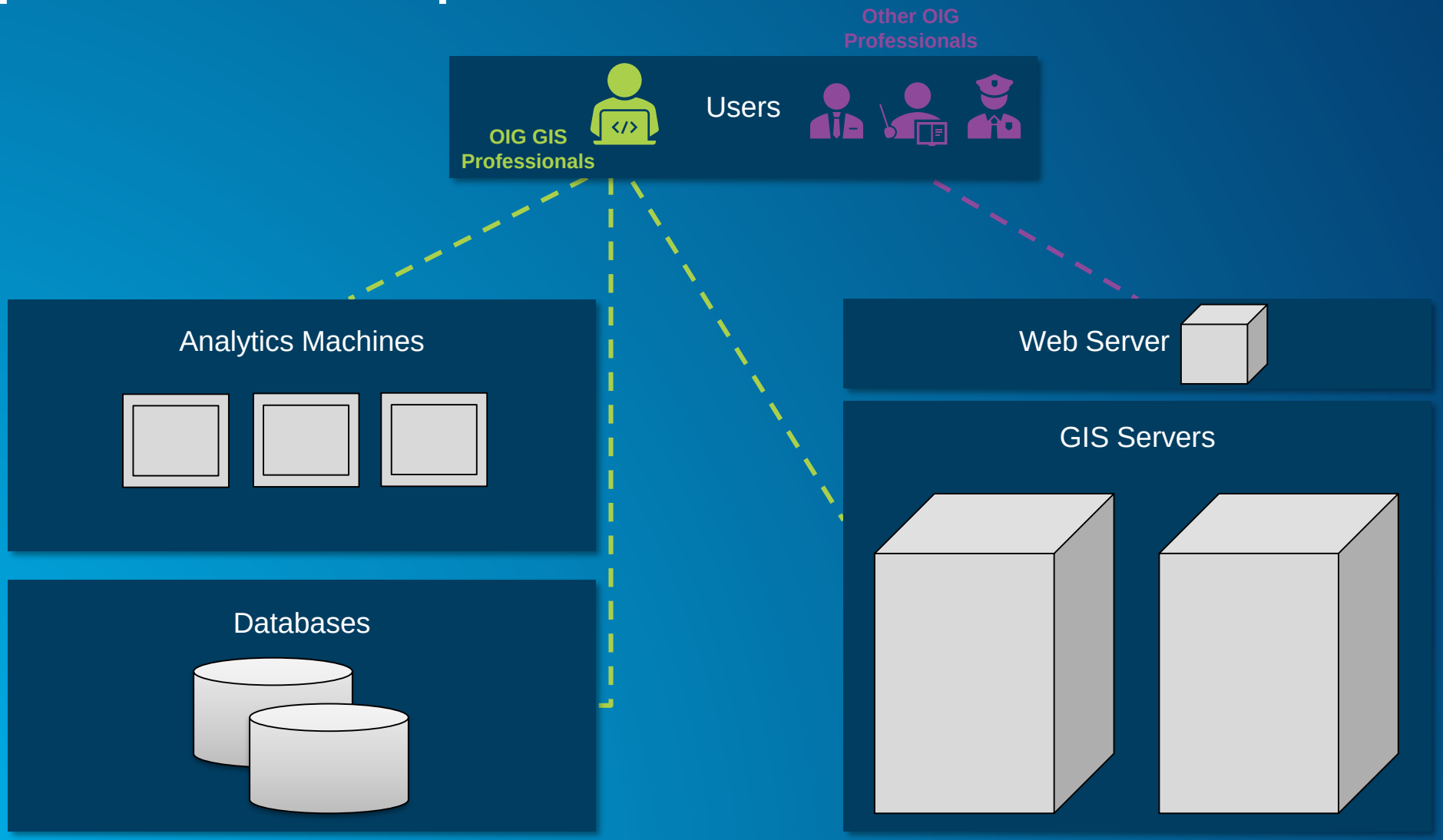
The system

Data Resources





Enterprise GIS Cloud Implementation



Questions

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