Microsoft

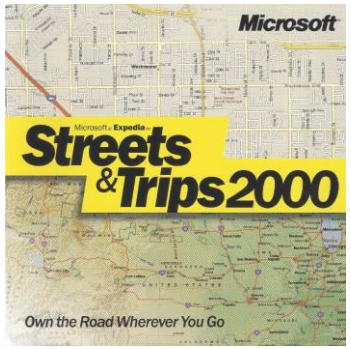
Microsoft's Mapping and Geospatial Roadshow

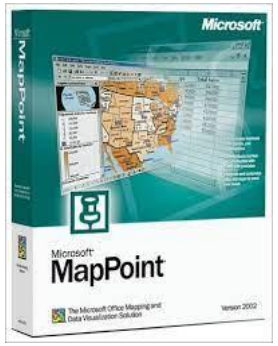
Amsterdam

Agenda

Time	Topic	Speaker
13.40 – 14.25	Unleashing the Power of Azure Maps & Bing Maps for Enterprise	Clemens Schotte (Microsoft)
14.25 – 15.10	Mapping Made Easy: Low Code Solutions with Excel, Power BI, and Power Apps	Annemarie Thijs (Microsoft)
15.10 - 15.30	**Break**	
15.30 – 16.15	Mastering Logistics and Onsite Service with Dynamics Field-Service	Steven Vlaanderen Oldenzeel (Microsoft)
16.15 – 17.00	Partner Spotlight: PTV's Journey with Bing Maps for Enterprise	Andreas Lehr (PTV)
17.00 – 18.00	**Networking & Drinks**	

Microsoft's Mapping Journey
20+ years of empowering consumers and enterprises





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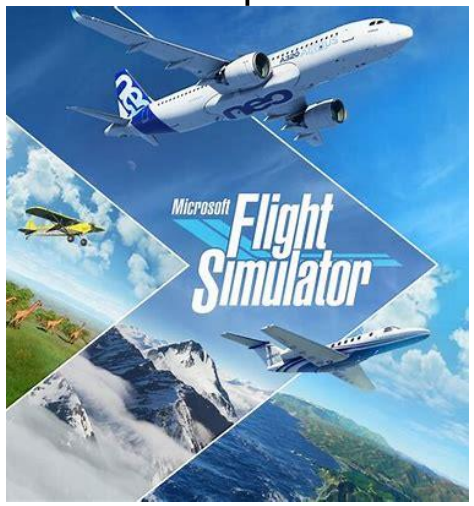
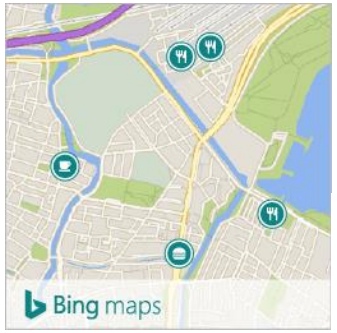
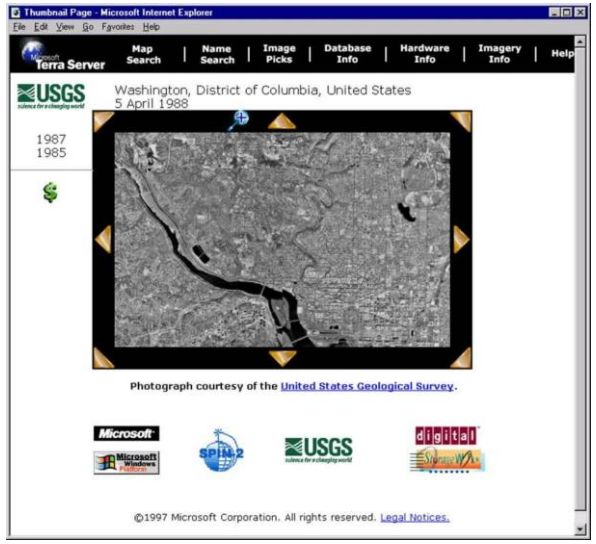


Azure





Microsoft Dynamics CRM

Microsoft Teams

Office

Soundscape

Windows

Microsoft
Dynamics 365
for Field Service

OneDrive

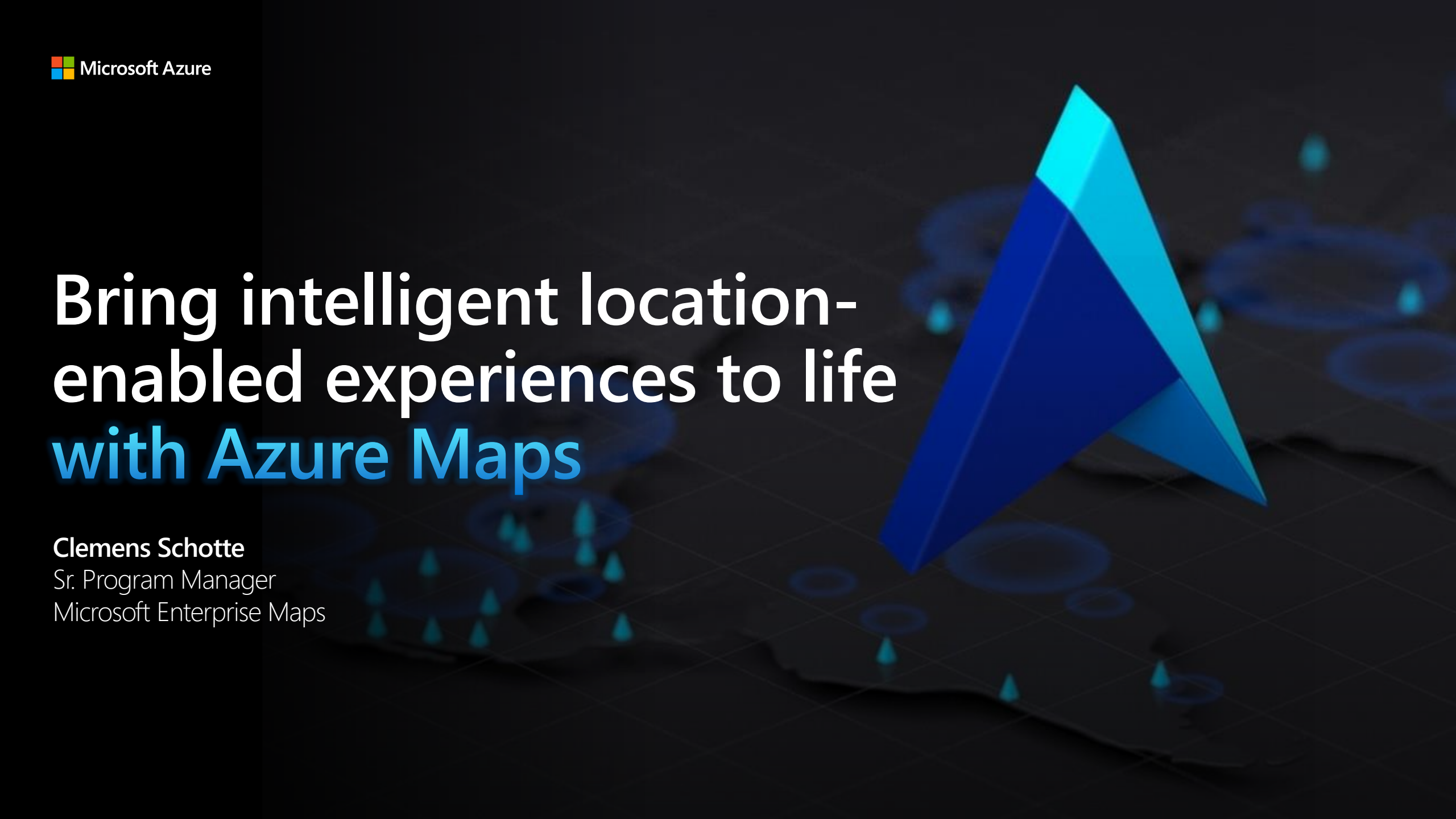
msn
Weather

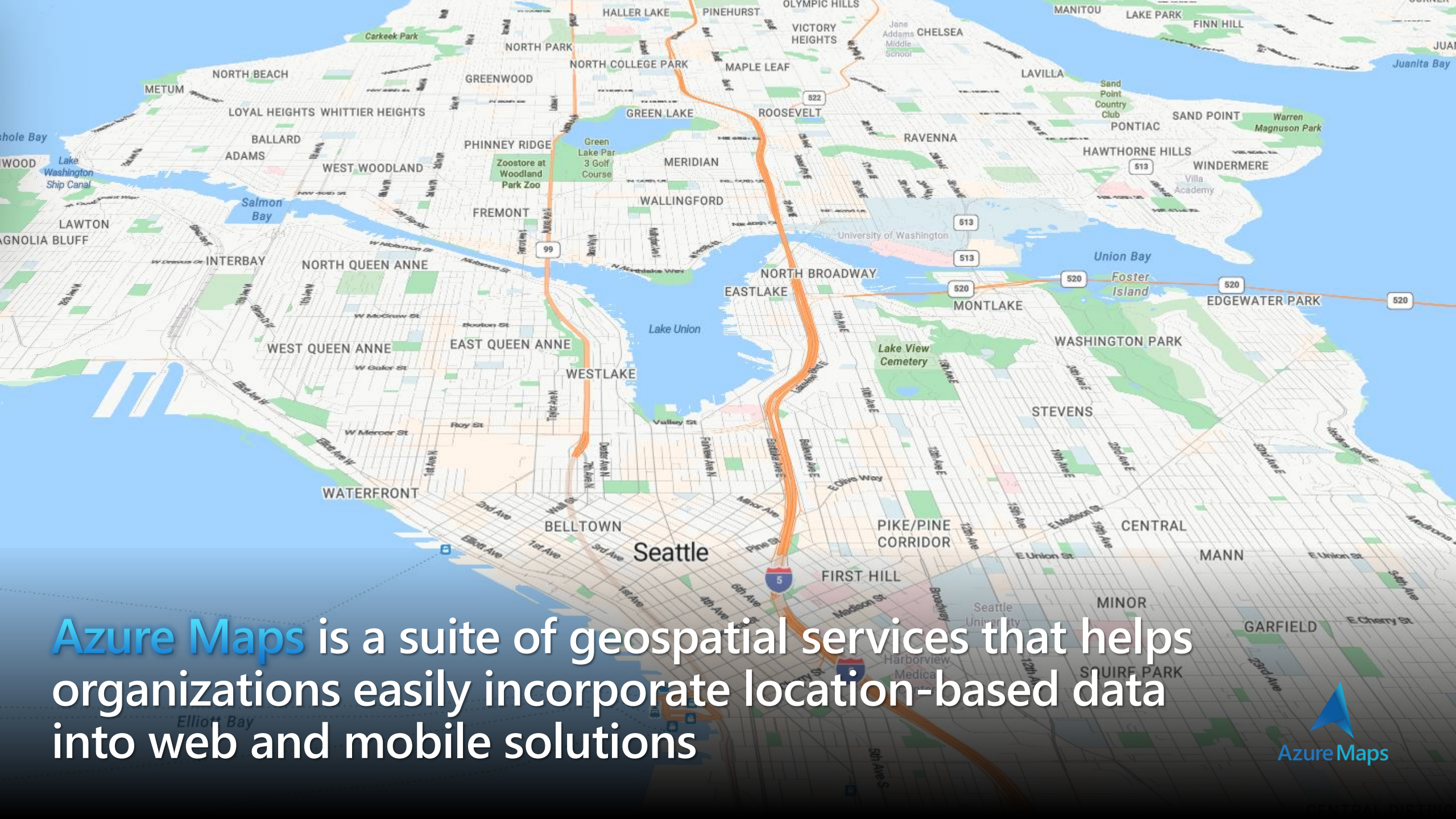
SwiftKey

Microsoft Azure

Bring intelligent location-enabled experiences to life with Azure Maps

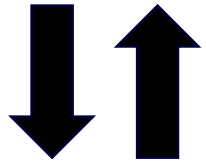
Clemens Schotte
Sr. Program Manager
Microsoft Enterprise Maps




Azure Maps is a suite of geospatial services that helps organizations easily incorporate location-based data into web and mobile solutions
Azure Maps

What is Azure Maps

- A geospatial **developer** platform
- Built in partnership with industry leaders
- Innovating for enterprise use cases
- Azure native
- Available for Web, iOS, Android and the Microsoft **Power Platform**
- Limit data residency to the **European** (EU) or **United States** (US) geographic areas (geos)
- Microsoft's Mapping Journey is more then 20+ years of empowering consumers and enterprises solutions



OpenStreetMap

A platform of location-based services for the enterprise

Maps
Display objects, points of interest, and business listings on static map images or interactive vector map tiles

Search
Create applications that provide details about a given location, nearby points of interest and address geocoding

Imagery
Get high-resolution satellite and aerial imagery that's available worldwide and continually updated

Routing
Calculate optimized routes for multiple modes of transportation such as auto and commercial vehicles, support for route matrix and isochrones

Spatial Operations
Enhance your location intelligence with a library of common geospatial mathematical calculations

Time Zones
Obtain time zone and current time information from any location

Traffic
Real-time traffic flow and incident detail for display or for route calculations

Geolocation
Convert IP address to location

Data Management
Upload and store geospatial data for use with spatial operations

Creator
Create and publish your private indoor maps maintaining control of design, distribution, scale and access.

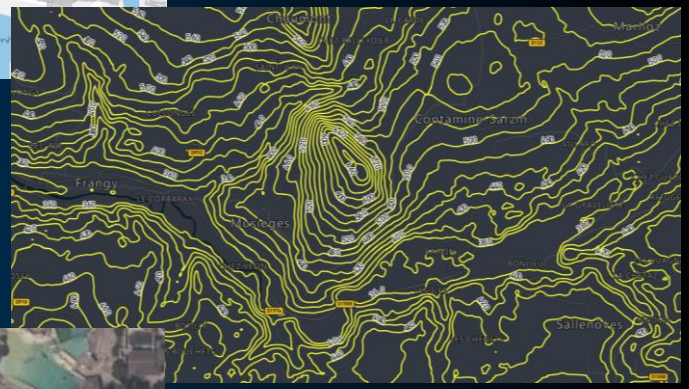
Weather services
Historical, current and forecasted weather data, air quality, tropical storms, radar and infrared satellite maps

Power BI integration
Integration with Power BI w/ rich data service and more powerful capabilities

US Gov Cloud support
Azure Maps services availability through Azure US Government Cloud

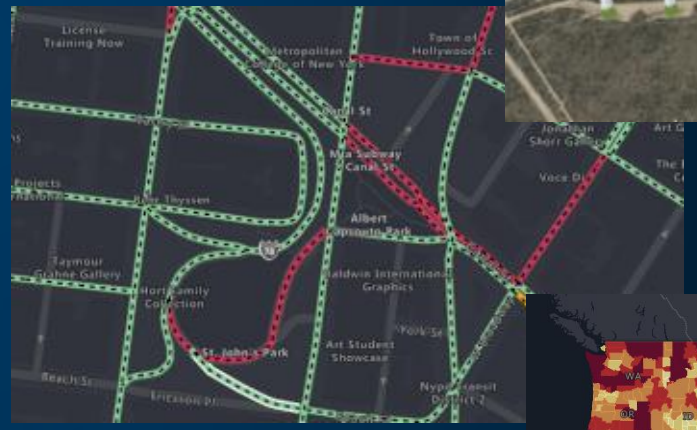
Render Maps & Imagery

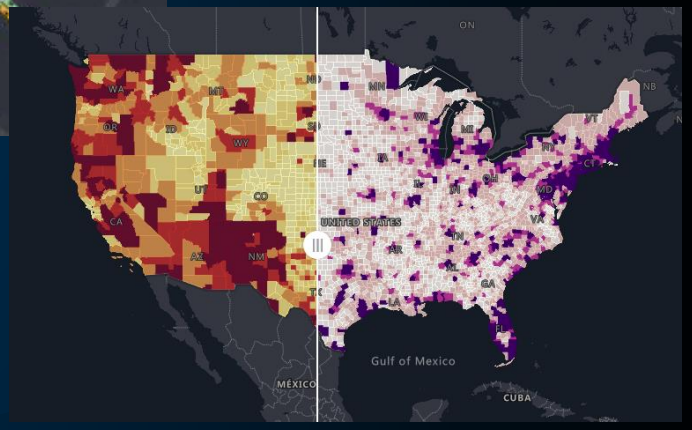
- Vector and Raster tiles from Bing Maps
- Base maps & Satellite imagery
- Weather Radar & Infrared animated tiles
- Real-time traffic Flow & Incidents
- Several predefined styles also for accessibility



SDKs

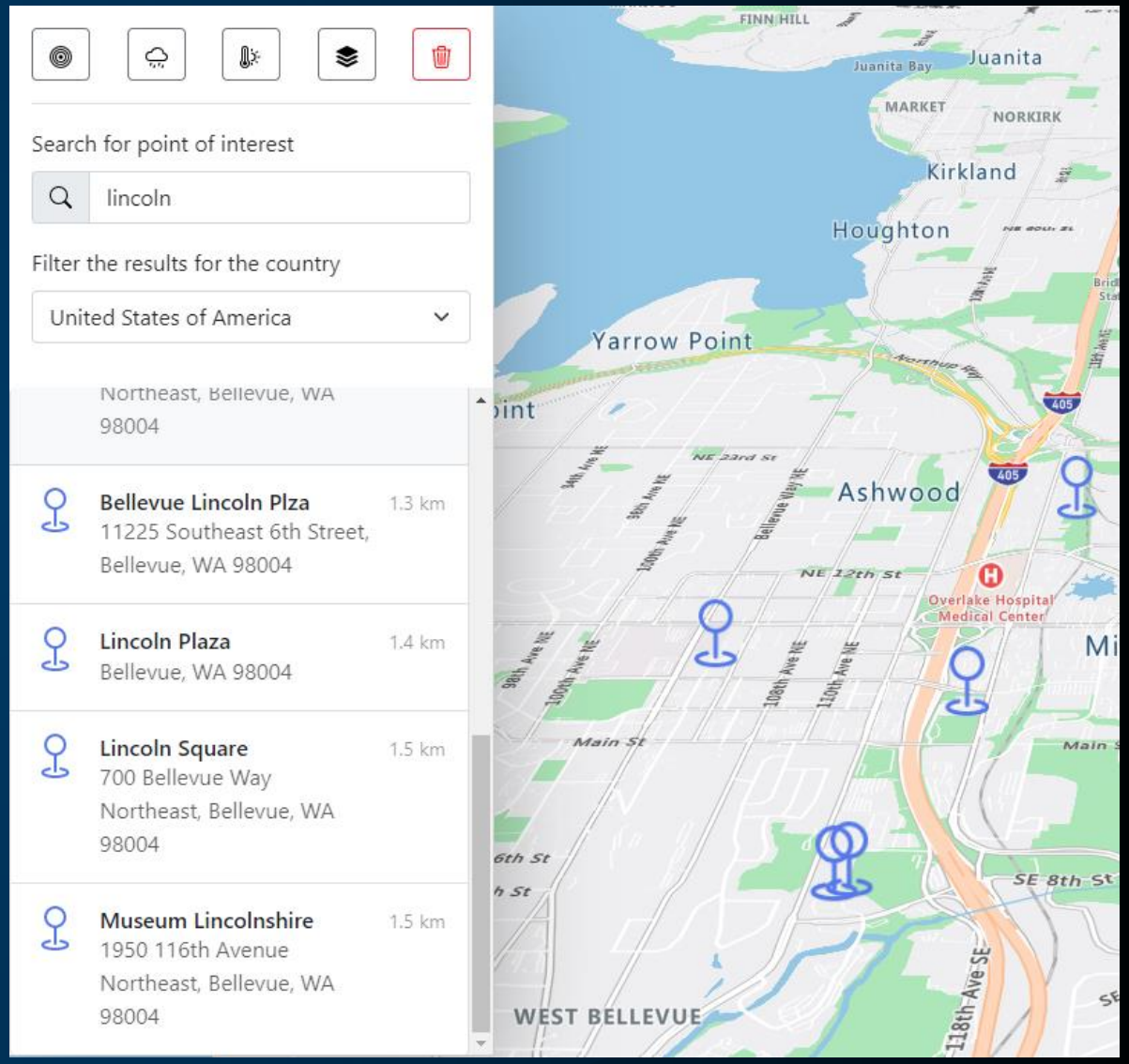
- Map Controls for Web, Android and iOS
- REST SDKs for C#, Java, Python and TypeScript
- Support for WebGL (Babylon, Deck GL and Three)
- Hundreds of samples
- Extensible through Open Web SDK modules





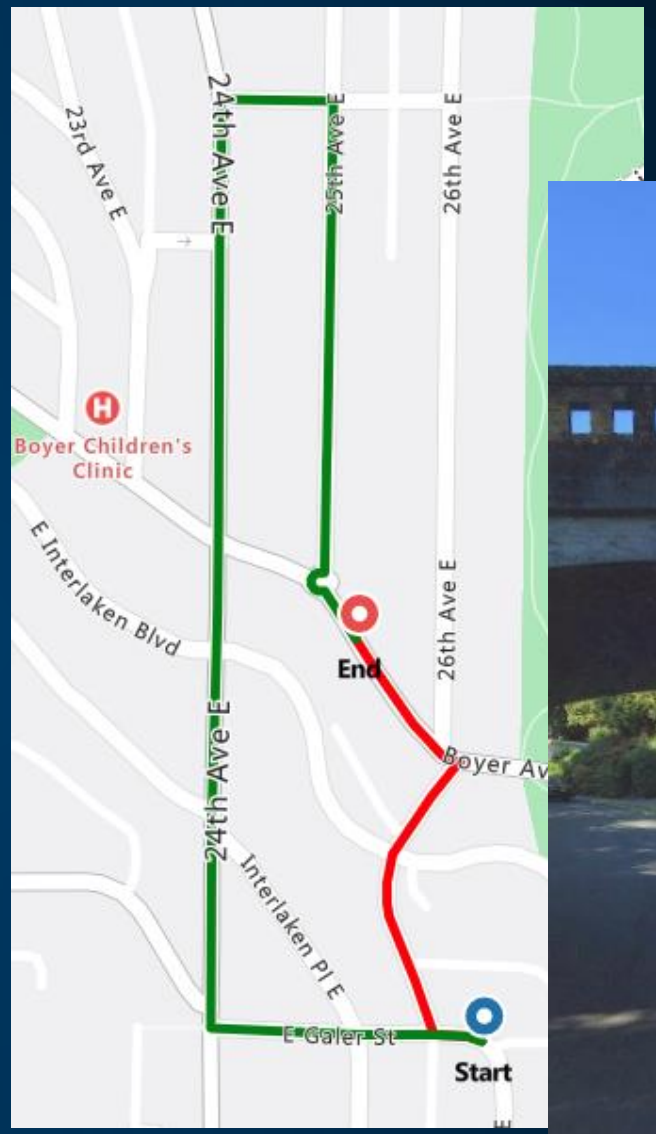
Search

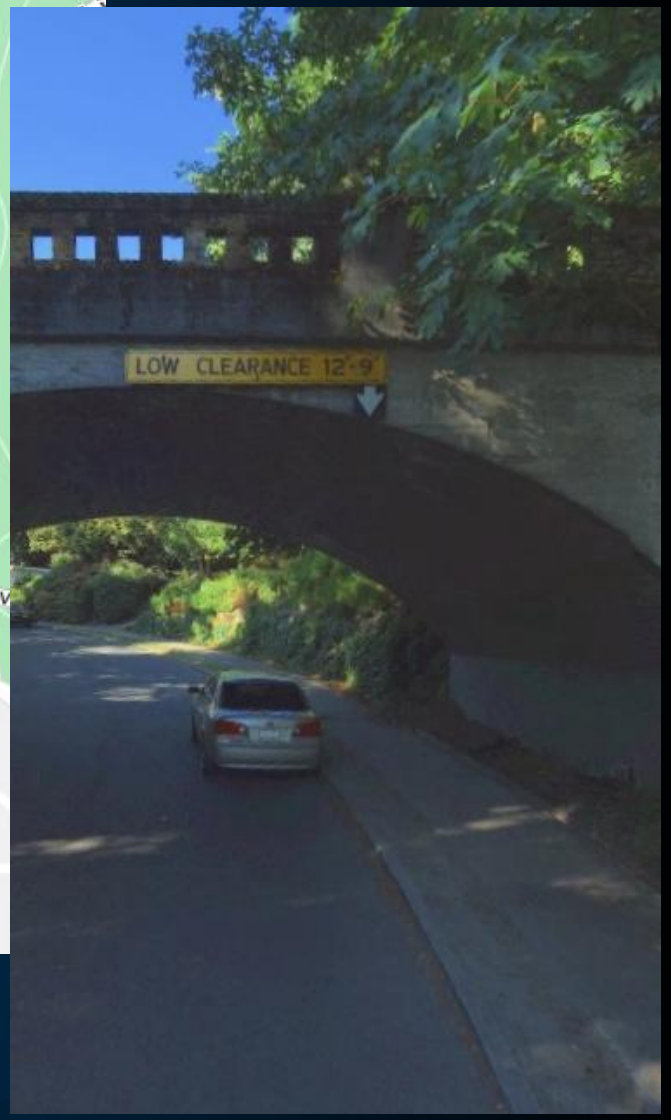
- Autocomplete
- Address and Place Geocoding
- Structured or Unstructured
- Restrict Results by Bounding Box or Country
- Reverse Geocode to Address or Cross Street
- Batch Geocoding (up to 10K requests with 1 call)
- POI Search (incl. along route and in geometry)



Routing

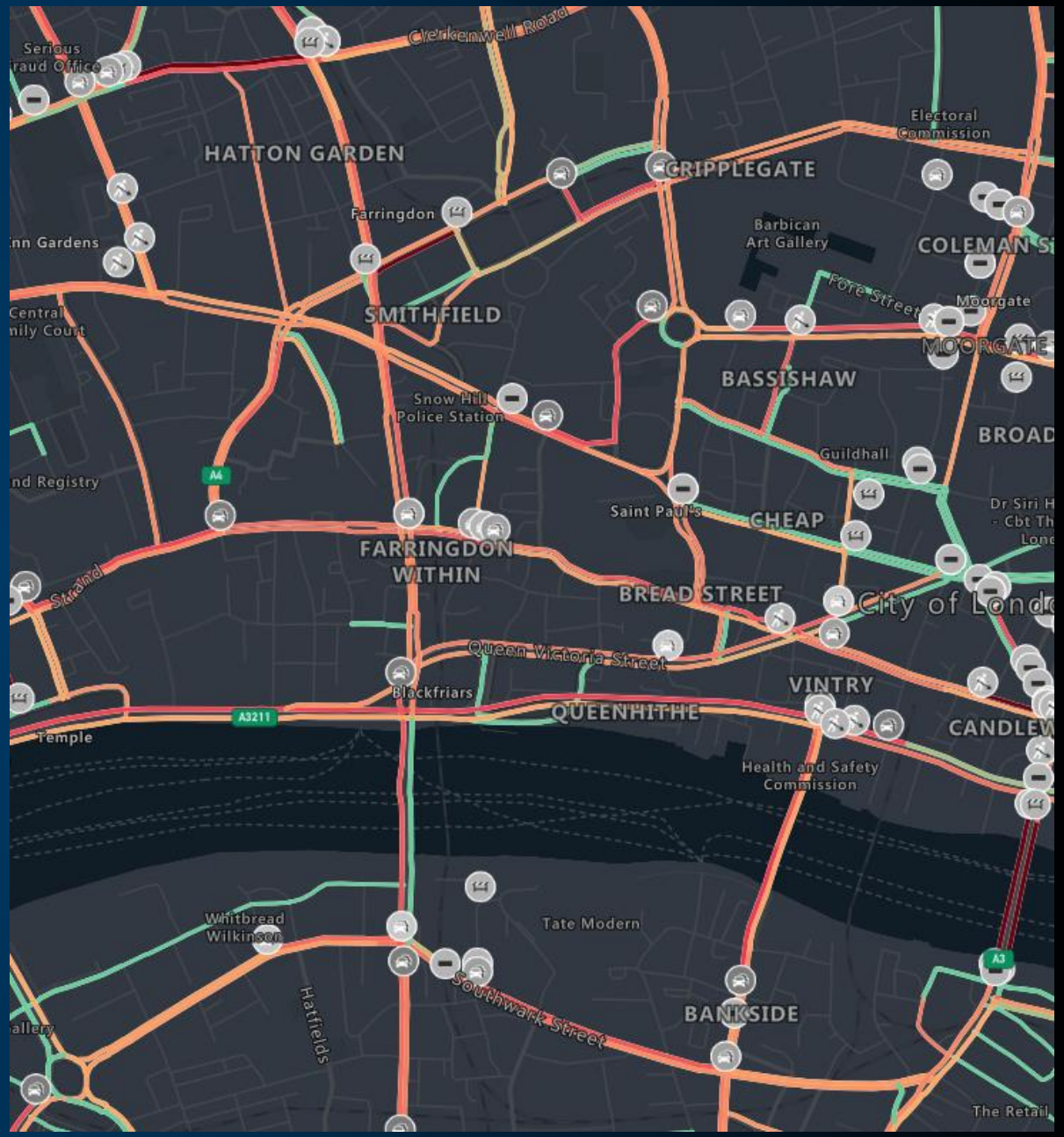
- Fastest, Shortest and Traffic-Based Routing
- Truck Routing (Height, Width, Weight, Hazmat)
- Combustion and Electric Engine Efficiency Routing
- Route Optimization
- Batch Routing
- Distance Matrix Routing
- Route Range (Isochrones) in time, kWh, fuel and distance





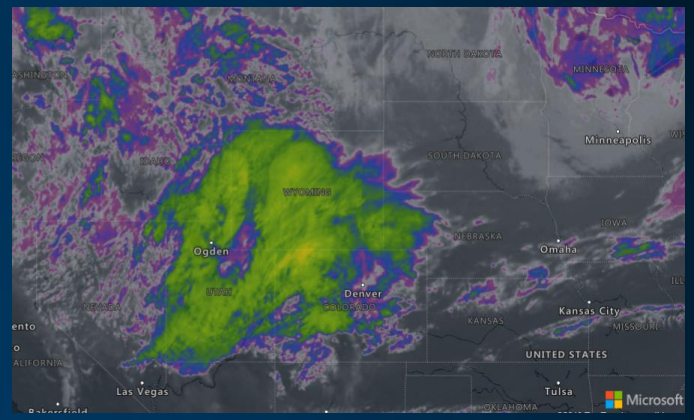
Traffic

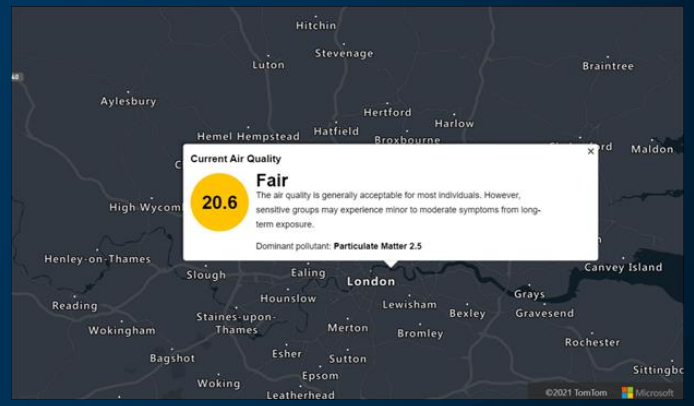
- Flow
  Raster and Vector Tiles
  Updated Every Minute
- Incidents
  Vector Tiles and REST API
  Updated Every 2 Minutes



Weather

- Historic, Current and Forecasted Weather
- Weather Tiles (Radar and Infrared)
- Weather along a route
- Severe Weather Alerts
- Tropical Storms
- Current and Forecasted Air Quality



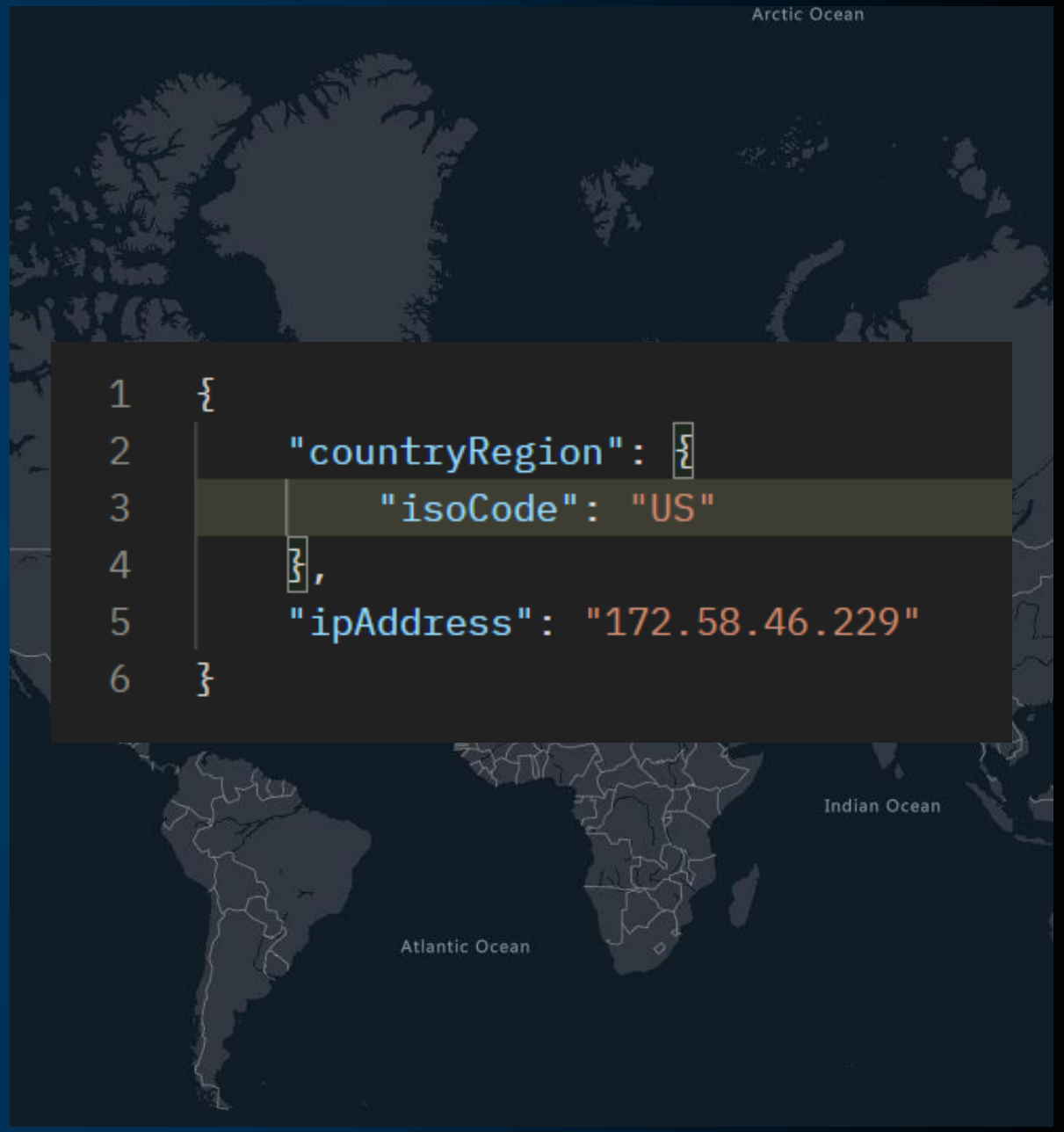


Time Zones

- Query by Coordinate or ID
- Uses Microsoft Compliance Polygons
- Powered by IANA and Windows Time Zones
- Provides Wall Clock Time, Daylight Savings and UTC Offsets

🎯 Geolocation

- Return country based on a specific IP address
- Identify customer geographic distribution
- Respect geopolitical boundaries and regulations
- Customize and/or block certain content and services based upon country



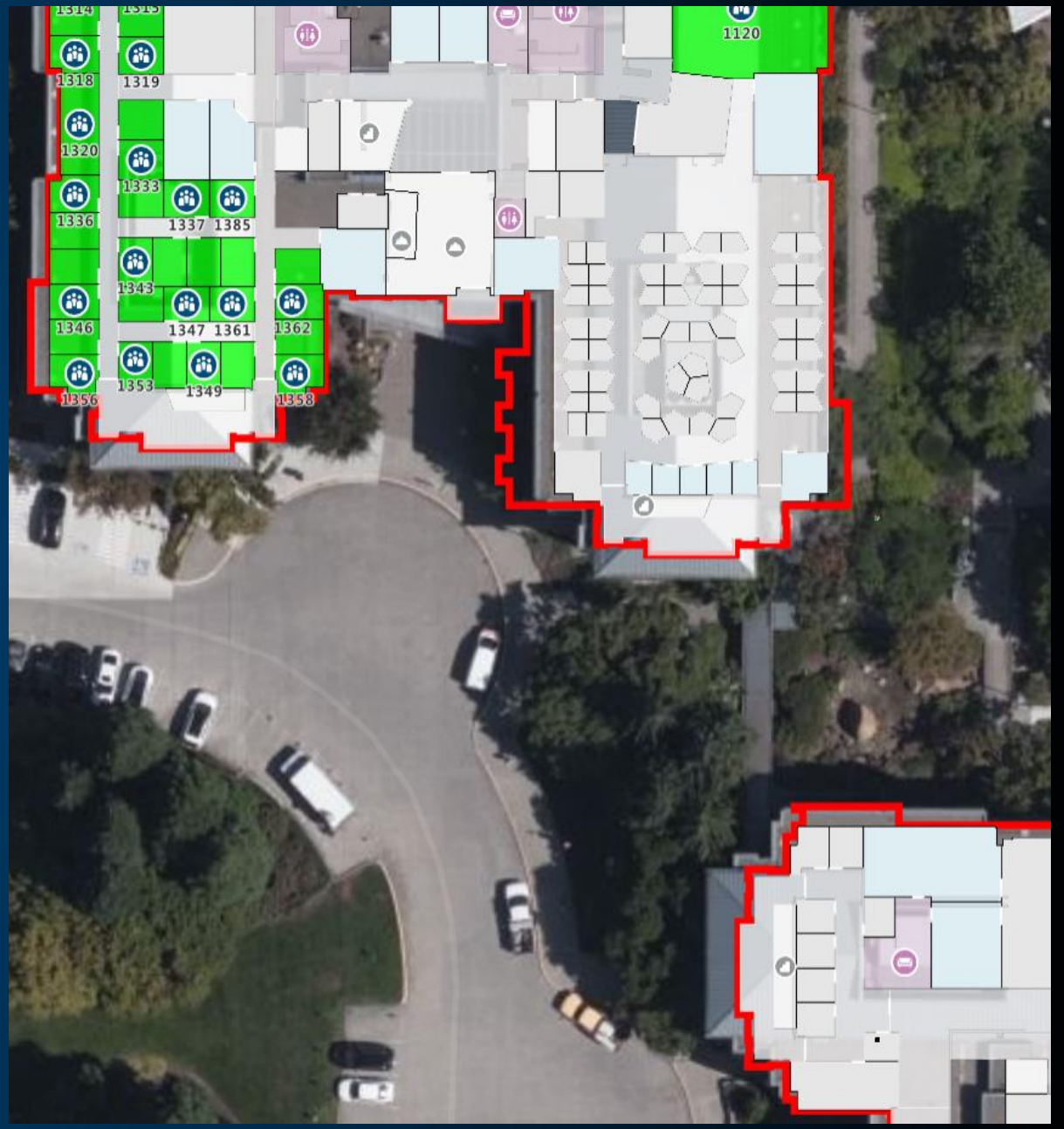
Spatial Operations

- Geofence
  Entering or leaving a fence
  Azure Event Grid integration
  Time validation

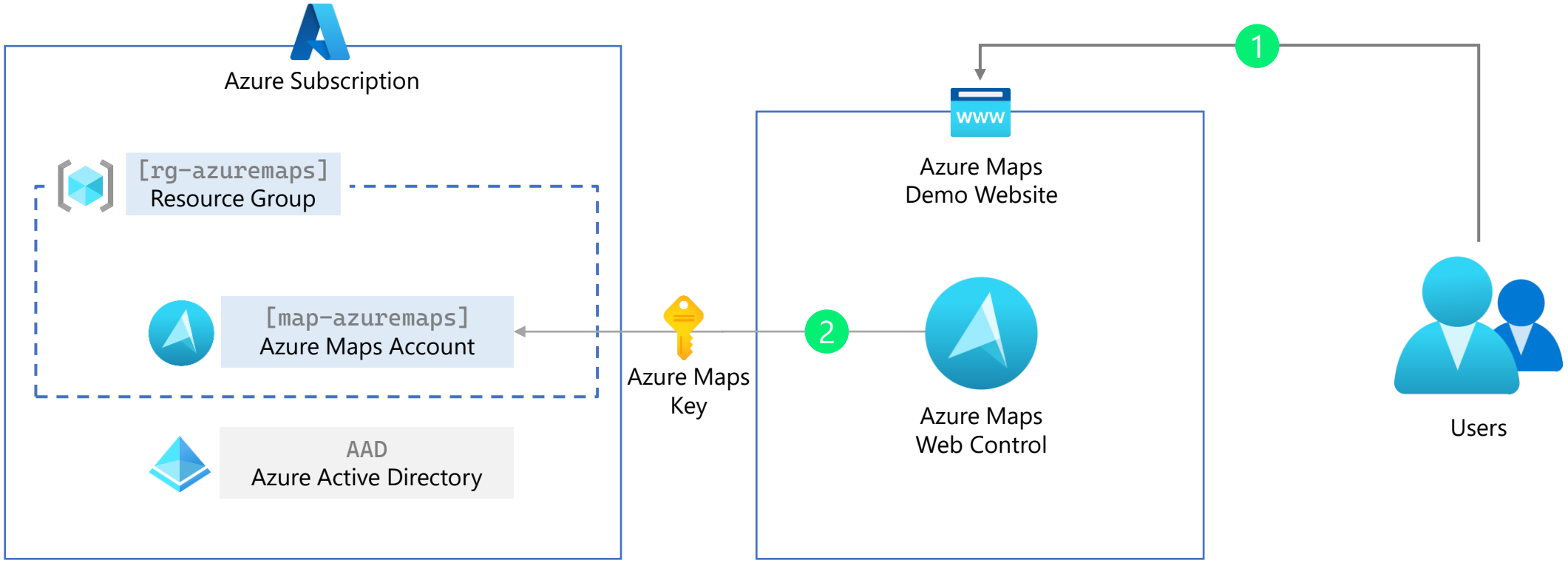
- Spatial Calculations
  Closest points
  Buffer
  Point in polygon
  Great circle distance

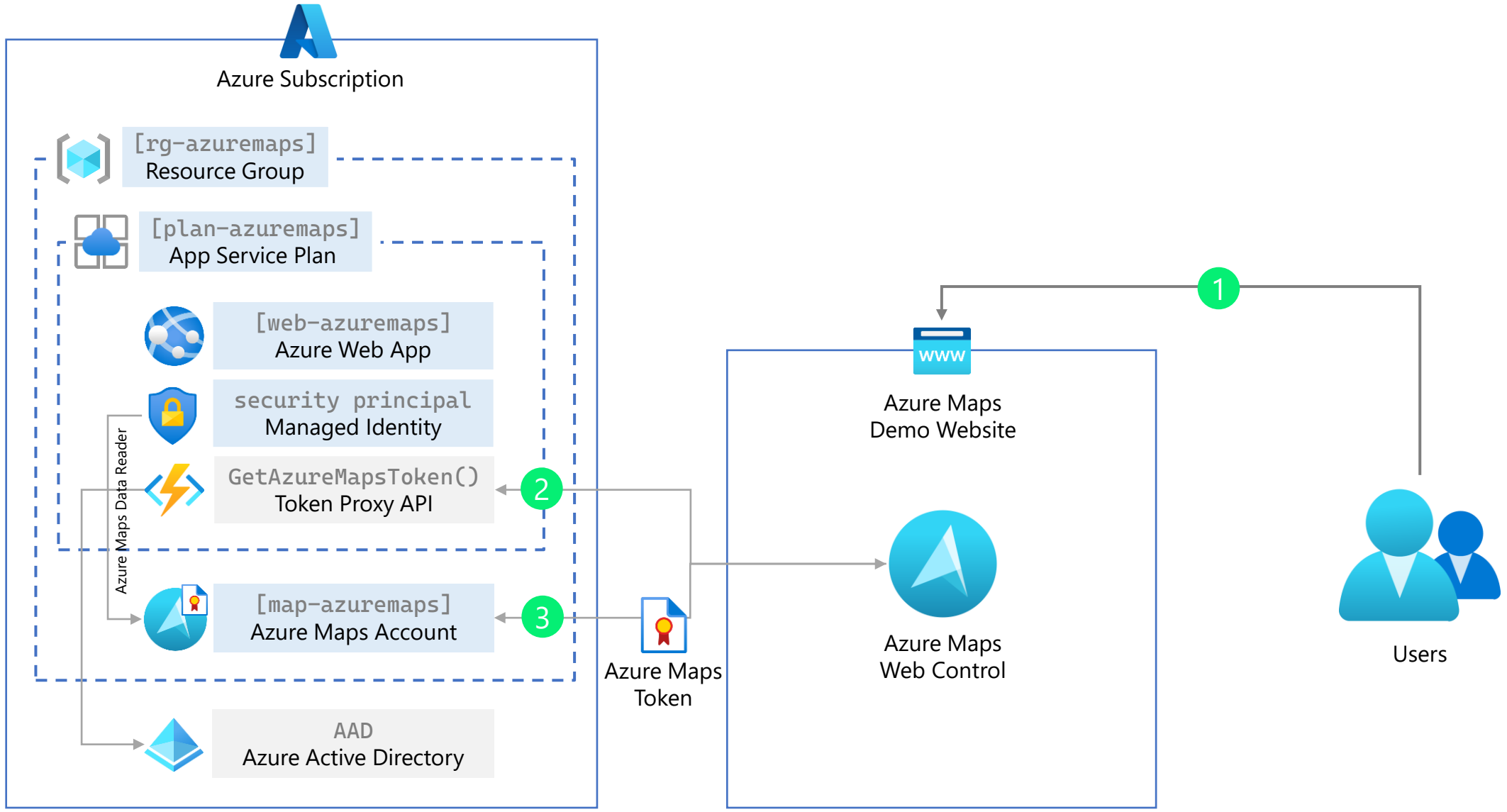
Azure Maps Creator

- Private Maps
- Automated CAD Processing
- Render Vector Tiles
- Manage State for Operational Monitoring
- Routing on Private Maps (wayfinding)
- Query Features through WFS
- Plugin for QGIS



Azure Maps Authentication

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Resource Group
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App Service Plan
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Azure Web App
security principal
Managed Identity
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Azure Maps Data Reader
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Azure Active Directory
Azure Maps
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www
Azure Maps
Demo Website
Azure Maps
Web Control
Users
1
2
3

Microsoft Azure

Bing Maps for Enterprise
Logistics and Fleet Management

Truck Routing

What is the best route for our trucks in the city?

Navigating a semi-truck is challenging

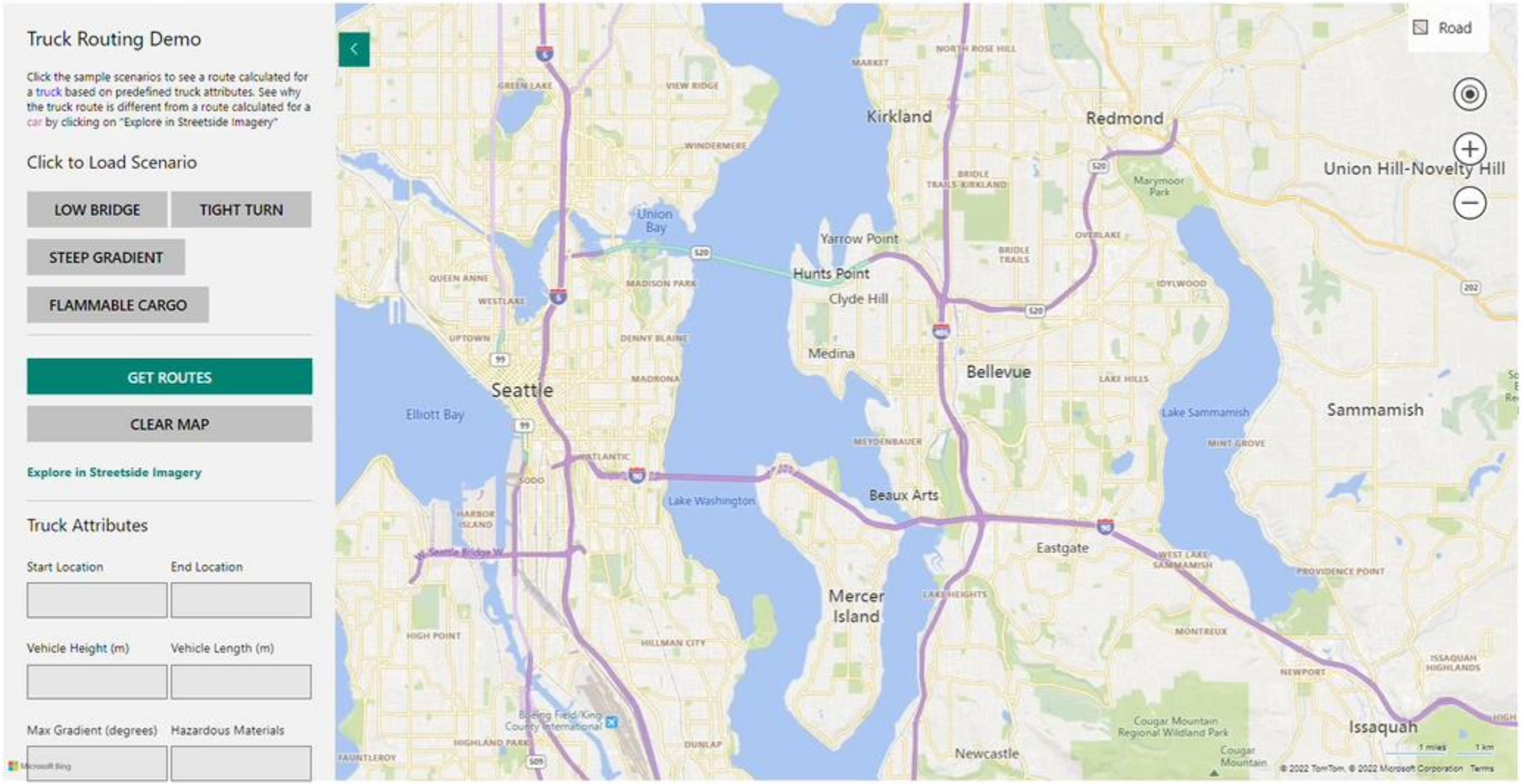
- Low or narrow bridges / Tunnels
- Tight turns
- Steep gradient
- Cargo / Regulator restrictions
- Road closures
- Strong crosswinds
- Traffic conditions

Truck Routing API
Optimized Routing for Commercial Vehicles

- Extension to our existing routing APIs
- Calculates the route between waypoints (from point A to point B), supporting up to 25 waypoints per call
- Vehicle’s height, width, length and weight
- Number of axles
- Number of trailers
- Maximum gradient
- Turn radius
- Avoid tolls, highways, border crossing
- Avoid cross winds and grounding risk
- Transportation of hazardous materials
- Hazardous permits
- Historic traffic data
- Speed limitations

Next-level routing logistics

A commercial routing tool that calculates routes optimized for trucks and other commercial vehicles.



Optimized Routing for Professional Transportation

With the Bing Maps Truck Routing API, you can determine a safe and efficient route for your commercial vehicles, saving time and money, as well as avoiding unsafe conditions and legal restrictions. In addition, use the Streetside imagery capabilities of the Bing Maps platform to view why your vehicle needs to take a different route, such as a low bridge, sharp corner, waterway, and more.

Legend

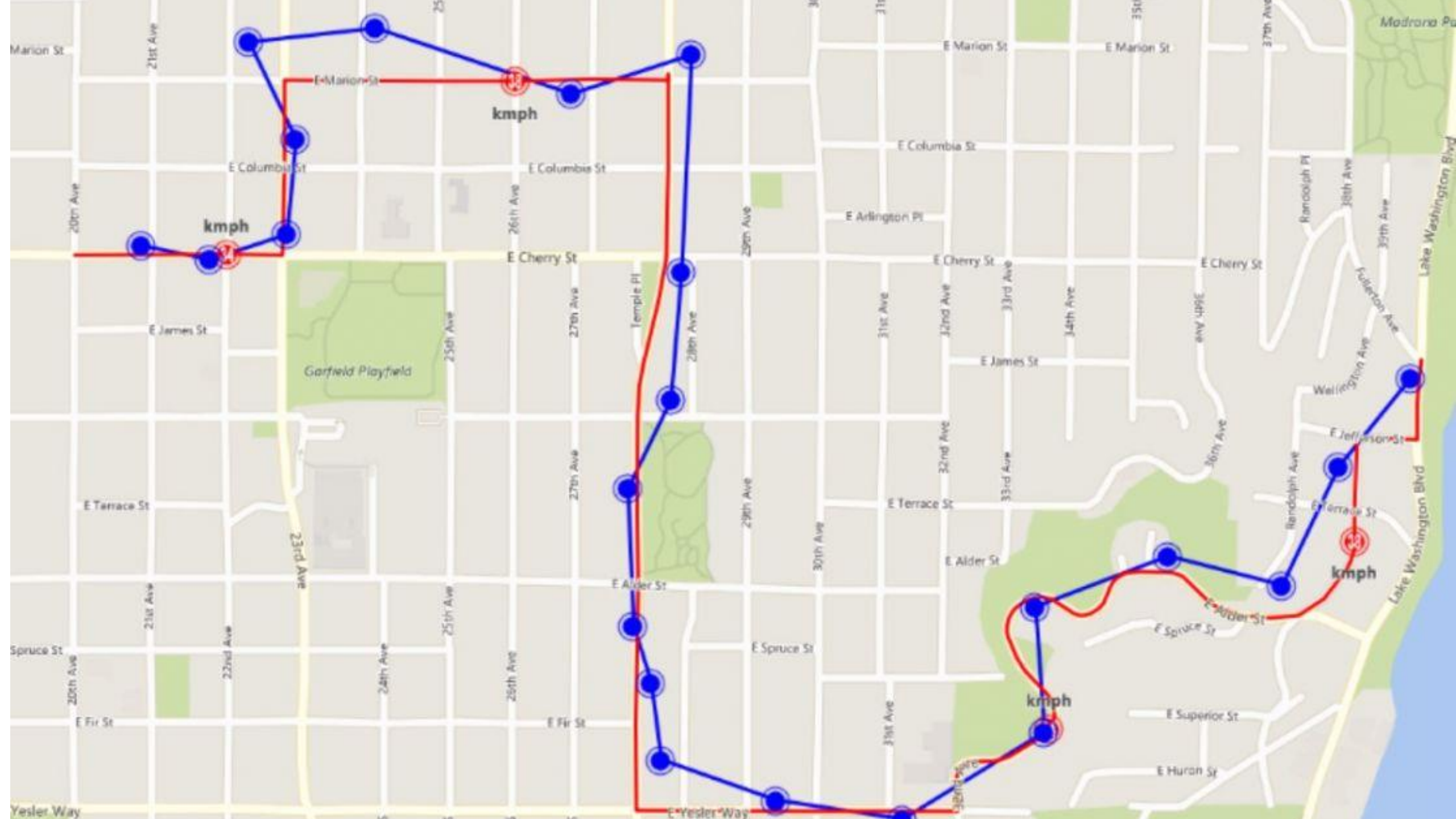
GET STARTED NOW

Snap to Road

Snap to Road

Users can track an asset's route by snapping its GPS points to the nearest roads for display purposes. They can also view data for each point, including associated road names and posted speed limits.

- Interpolate GPS points and get a path that smoothly follows the geometry of the road for advanced data visualization.
- Determine if a driver is adhering to the posted speed limits and monitor if they go off-route.
- Assess how much time the asset has been traveling, and look at overlapping routes to optimize deliveries.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E Cherry St
E James St
E Terrace St
E Alder St
E Spruce St
E Fir St
E Yesler Way
E Superior St
E Huron St
E Arlington Pl
Garfield Playfield
Madrona Pa
Lake Washington Blvd
Fuhrman Ave
Wellington Ave
Temple Pl
Randolph Pl
Randolph Ave
20th Ave
21st Ave
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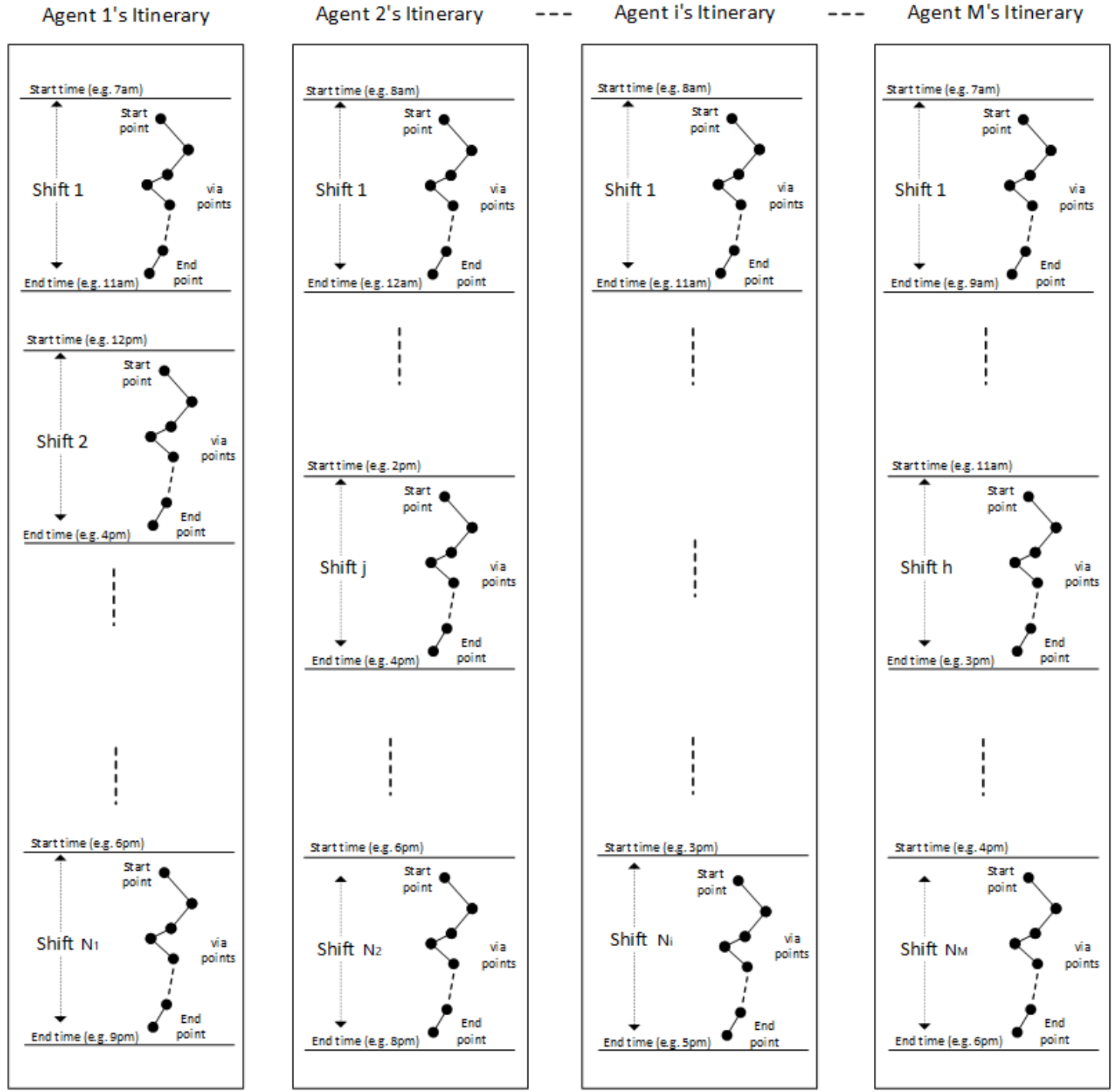
Multi-stop Route Planning

Multi-stop Route Planning

Automate itineraries for multiple agents and optimize all their routes

- Multiple delivery stops
- Time windows when the customer is available,
- Different priorities for each of the stops,
- Multiple delivery agents with different shifts,
- Traffic conditions,
- Travel time between stops,
- How long the delivery is expected to take
- Input Parameters:
  - Agent (Name, shifts)
  - Agent Shift (StartTime, EndTime, StartLocation (optional), EndLocation (optional))
  - ItineraryItem (Name, OpeningTime(optional), ClosingTime (optional), DwellTime (optional), Priority (optional), Location)
  - Type (Simple Request, TrafficRequest)
  - CostValue (TravelTime, Distance)



Multi-Itinerary Optimization Demo

Click the sample scenarios and select parameters below to see how the API handles route optimization for:

- Multiple agents and multiple shifts
- Service time windows
- Dwell time (i.e. how long an agent needs to be at a location)
- Capacity constraints
- Service ordering restrictions
- Priority of stops
- Traffic
- Price optimization objective

Click to Load Scenario

2 AGENTS 5 STOPS

4 AGENTS 40 STOPS

Optimize for

Travel Time

Use traffic information

True

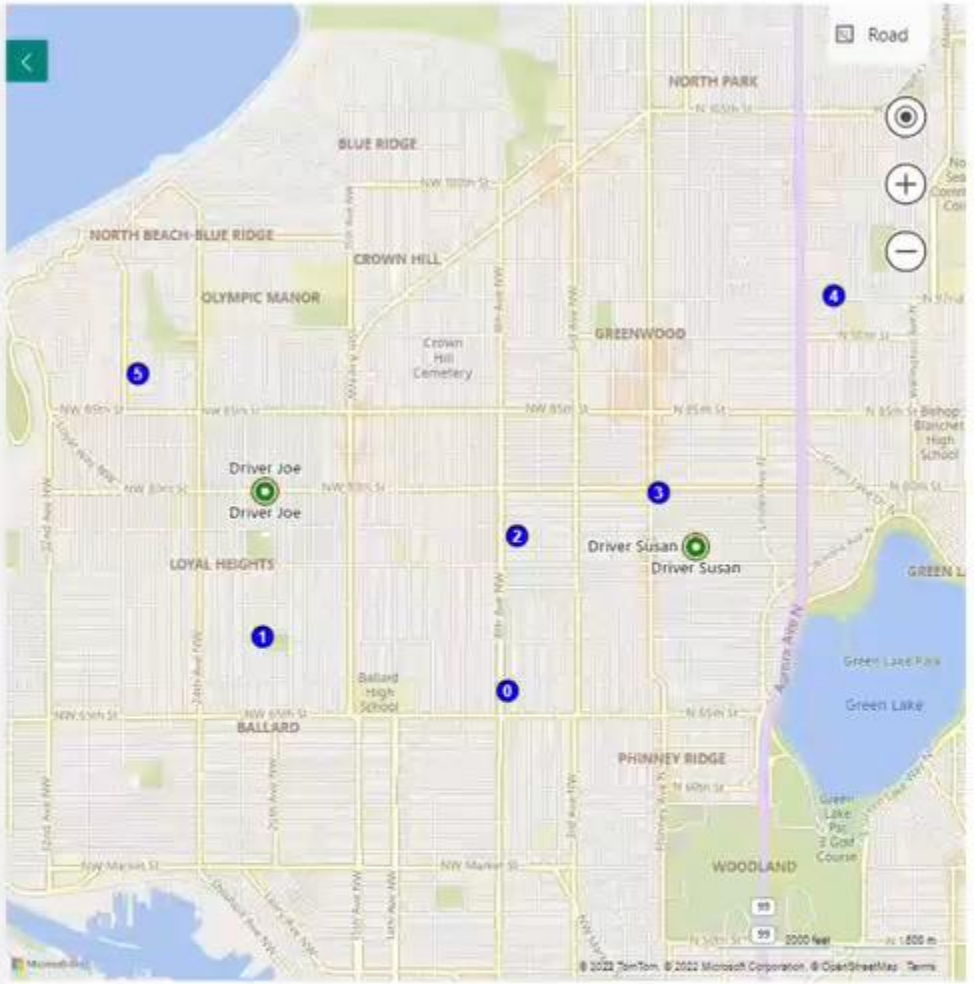
Agents

Agent	Shift Start	Start Location	Shift End	End Location	Capacity	Fixed Price	Price/ KM	Price/ Hour
Driver Joe	2020-01-09T08:00:00	47.68678, -122.38289	2020-01-09T20:00:00	47.68678, -122.38289	6	50	1	3
Driver Susan	2020-01-09T08:00:00	47.68412, -122.35208	2020-01-09T19:00:00	47.68412, -122.35208	10	100	1	5

Itinerary Stops

Stop	Name	Opening	Closing	Dwell	Priority	Location	Quantity	Drop Off
0	Pizza Place	2020-01-09T12:00:00	2020-01-09T20:00:00	00:02:00	1	47.67716, -122.36553	1000	
1	Customer -1	2020-01-09T17:30:00	2020-01-09T18:30:00	00:02:00	1	47.67981, -122.38304	-1	

GET ROUTES

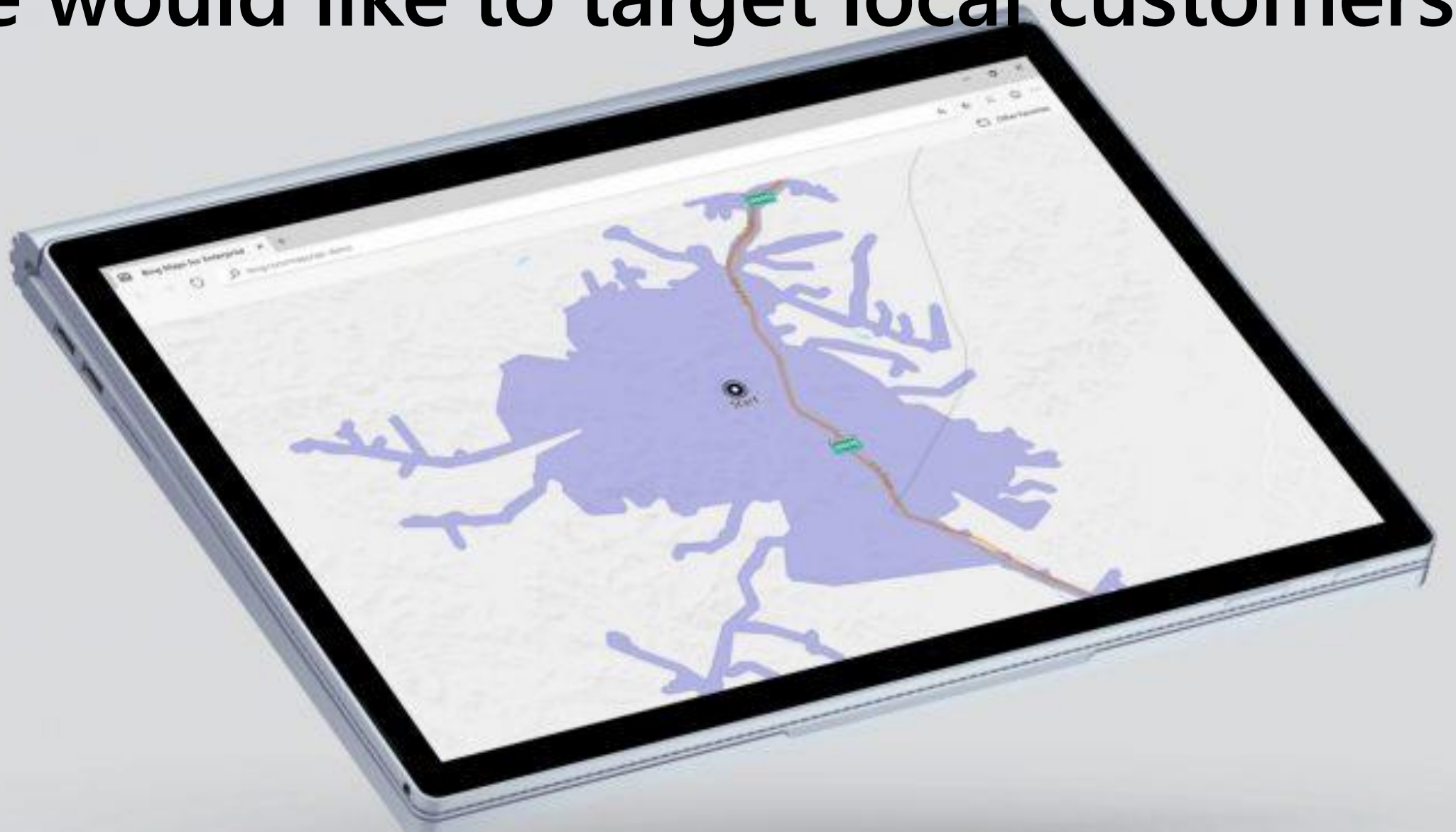


Scenario	Optimized for	Traffic	Road Network
2 AGENTS 5 STOPS	TravelTime	TrafficRequest	true

Optimized Itinerary

GET STARTED NOW

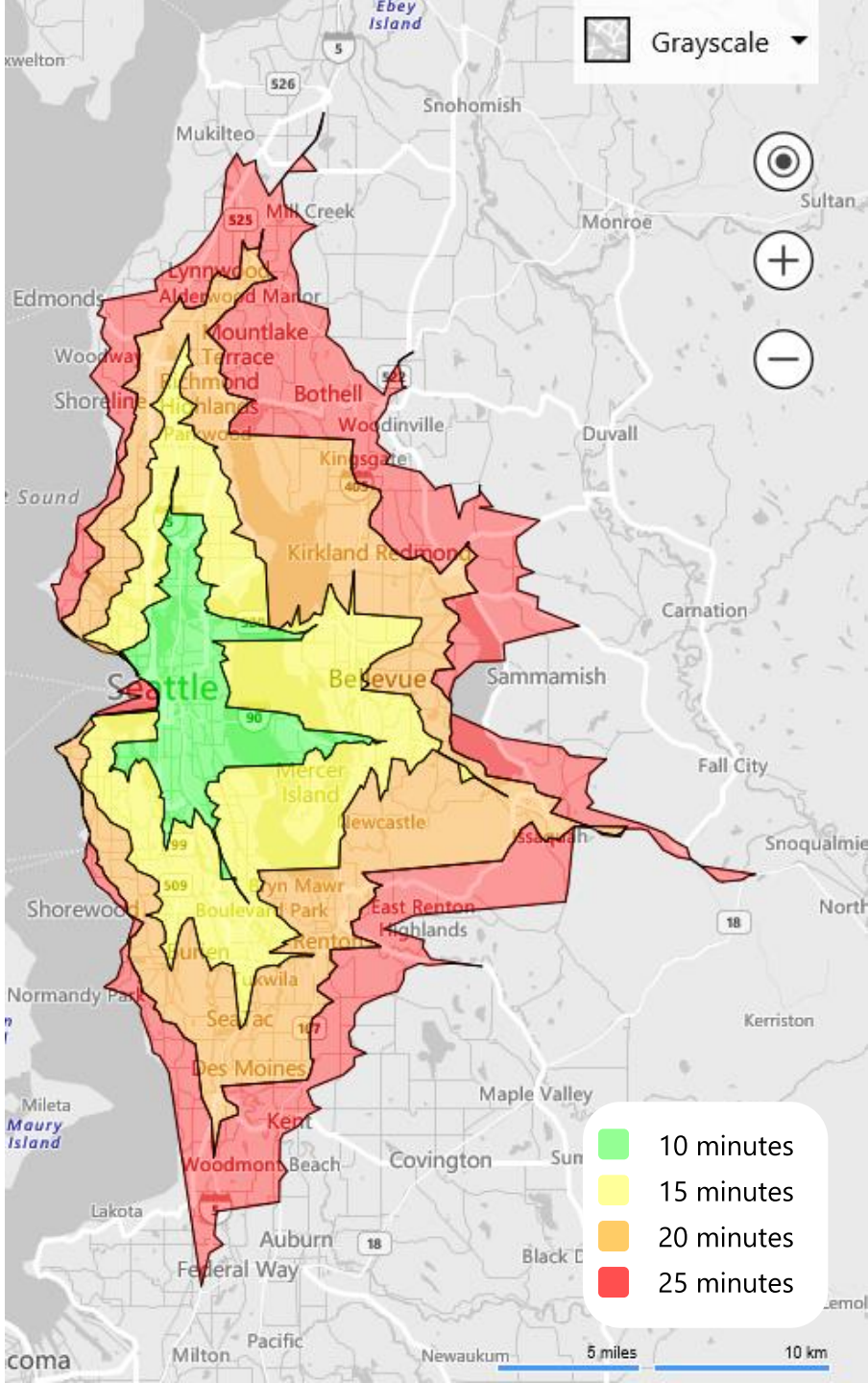
We would like to target local customers



Isochrone

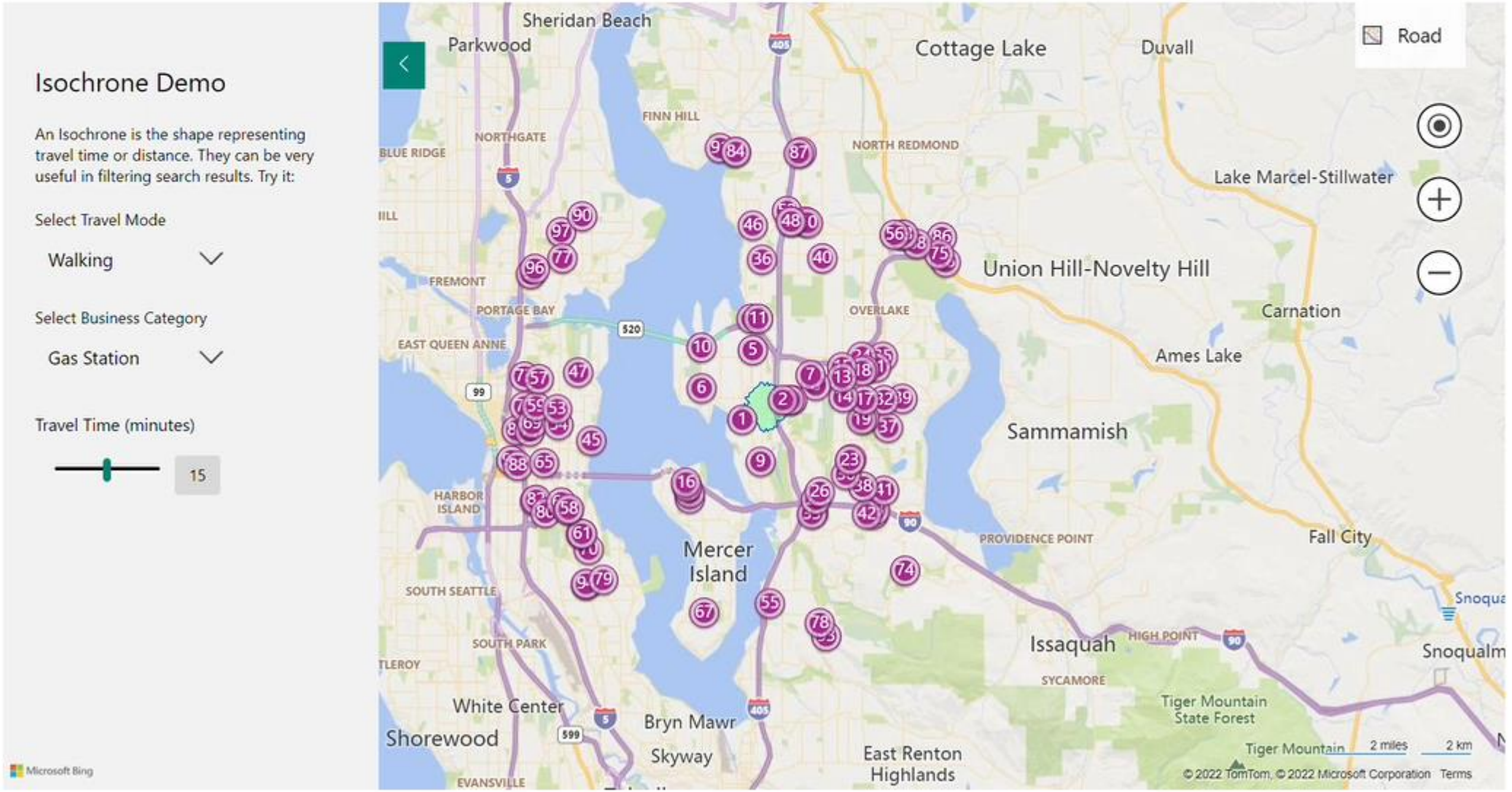
Calculates the area that can be traveled to within a specified distance or time

- Calculates a travel-time or travel-distance polygon array of latitude/longitude points that describe the isoline
- Supports drawing a shape on a map and using the shape in spatial queries
- API inputs:
  - **startPoint** Latitude/Longitude or address
  - **routeMode** (driving, walking or public transportation)
  - **road types** to minimize or avoid (highway-minmizeHighways, tolls-, minimizeTolls)
  - **maxDistance** for which the polygon shall be created
  - **maxTime** for which the polygon shall be created
  - **departTime**
- Historic traffic data will be used in calculating the routes if the date and time are specified in the call



Visualize what's near and far

You can use the Bing Maps Isochrone API to plan the area that can be reached from a designated starting point within a set time period. Try the demo to see how it works.



GET STARTED NOW

Thank you!

Microsoft.com/Maps