ArcGIS Network Analyst Extension

...models transportation
• Less gas used
• Less vehicle maintenance
• Less driver overtime
• More customers serviced
• Optimal locations chosen
• Redundant facilities removed
ArcGIS Network Analyst Extension is *NOT* used for utility networks.
Utility networks are part of the geodatabase
• Analysis types
• Products
• Street networks
• Questions and resources
Analysis
Types

4
Network Dataset

Accurate modeling

Network Dataset
Find point-to-point routes

Route solver

Directions

Connect origins to destinations
Find coverage
Buffer
Service area
Find Coverage

Service Area solver

Create drive-time areas
Select the optimal site
Select the optimal site
Select the optimal site

- Location-allocation solver

- Choose best facilities
Coverage and Site selection
Optimize a fleet

Vehicle routing problem solver

Plan routes
Connect two sets of locations

- Closest facility solver
- OD Cost Matrix solver
- Find nearest

<table>
<thead>
<tr>
<th>Stores</th>
<th>29.4</th>
<th>24.2</th>
<th>31.3</th>
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<td>Warehouses</td>
<td>21.5</td>
<td>11.5</td>
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<tr>
<td></td>
<td>17.3</td>
<td>5.67</td>
<td>19.1</td>
</tr>
</tbody>
</table>
Dispatching & Mileage estimation

http://nadev.arcgis.com/arcgis/samples
More about Products!
License

Street Data

No Credits

ArcGIS Enterprise
ArcGIS Desktop
Geoprocessing
ArcGIS Runtime
Navigator

ArcGIS Network Analyst: An Introduction
ArcGIS Online

- Managed by Esri
- High-quality data
- Excellent reliability
- No Network Analyst Extension license required
Network services (and credit cost)

- Simple route (0.04 per route)
- Optimized route (0.5 per route)
- Vehicle routing problem (1 per route)
- Service area (0.5 per area)
- Closest facility (0.5 per route)
- Location-allocation (0.1 per demand point route)
ArcGIS Desktop

- Use Pro, except for:
  - Editing network dataset schemas
  - Editing network dataset turns
  - Network dataset layer symbology
  - Publishing network services
ArcGIS Runtime SDKs

- Android
- iOS
- Java
- macOS
- .NET
- Qt
Navigator
Modeling Travel
Where can I get street data?
You can make your own network dataset

- Use your organization’s data
Maybe you don’t need street data

- Use credits for analysis
You can make your own network dataset

- Use free government data
You can make your own network dataset

- Use crowdsourced data
You can purchase data

- Street Map Premium from Esri
You can purchase data

- Street Map Premium from Esri
Streets are connected
Travel modes

- Car
- Truck
- Pedestrian
- Emergency vehicles
- 4-wheel drive
- Transit
Restrictions can depend on street characteristics.
Restrictions can depend on vehicle characteristics.
Traffic
Turns can restrict travel
ArcGIS Network Analyst: An Introduction

5 Seconds

5 Seconds

15 Seconds

5 Seconds

Total Time: 25 Seconds

Turns can add time
Barriers can restrict travel
Barriers can restrict travel
Barriers can slow travel
Side of the road
Slope
Modeling travel
...and the rest
Common questions

- Does Network Analyst support high-density routing?
Common questions

- Can I get alternate shortest paths?
Common questions

• Can Network Analyst work with transit schedules?
Support and resources

- Network Analyst tutorial
- Network Analyst documentation
- ArcGIS Network Analyst Extension Discussion Forum
- Creating network datasets video
• ArcGIS Network Analyst Extension…
  - Makes it easy to do sophisticated analysis
  - Offers many types of analysis
  - Works across products and skill levels
  - Models transportation networks accurately