Customer Experience; March 2017

Rapidis

Case Study

FK
Distribution

- Total Market Coverage
- 2.7 million delivery points
- More than 20.000 routes
- Delivery of printed advertise-ments and a free newspaper

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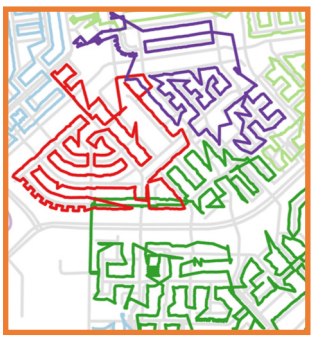
- Esri Business Partner since 2003
- Software for Logistics Planning
- All products based on ArcGIS

Tools used

- ArcMap
- ArcGIS Server
- Web AppBuilder for ArcGIS
- Portal for ArcGIS
- ArcGIS Network Analyst
- ArcGIS API for JavaScript
- Rapidis Logistics Planner for ArcGIS Postal edition
- Rapidis Logistics Planner for ArcGIS VRP edition



FK Distribution manages 20.000+ High Density routes with Rapidis Postal Solution for ArcGIS

Introduction and background

FK Distribution is a Total Market Coverage (TMC) company with distribution of a free newspaper and printed advertisements to almost all 2.700.000 households in Denmark twice a week.

The country is divided into more than 20.000 routes each being served by carriers who either walk, ride a bicycle or drive a car.

Every carrier will have the right amount of newspapers etc. dropped off at his or her home address in the early morning of the day of distribution. This delivery is carried out with a number of delivery vans each belonging to a regional warehouse.

For more than 15 years FK Distribution has been using ArcGIS mainly for sophisticated map production as well as solutions built by Rapidis, to create and optimize postal routes and distribution routes. In addition FK used open source GIS for supporting several in-house developed line-of-business GIS web applications. These web applications grew organically over the years.

The challenge for a new strategy

By 2015 FK Distribution had concluded that a strategic review of their GIS and route planning architecture was required as the system landscape had become somewhat unwieldy and cumbersome to maintain due to many years of organic development.

FK Distribution asked Rapidis – a longtime Esri Partner – to conduct the review. Very early in the review two important parameters were agreed upon:

* Rapidis would take over the development and maintenance of GIS web applications instead of continuing the practice of in-house development.

* Rapidis would propose to consolidate GIS applications on the ArcGIS platform. This was an easy choice since the web GIS platform of Portal for ArcGIS with ArcGIS Server fit perfectly with FK Distribution's workflows and since the specific features and capability of the ArcGIS platform easily matched FK Distribution's more specific requirements. Something that was not the case years earlier when FK Distribution began to adopt open source GIS.

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Abstract

When the strategic review was completed, a plan was delivered for implementing a new architecture for GIS and routing applications. A fundamental principle of this was to first focus on modernizing the software architecture, while not changing many end user workflows or utilizing many new possibilities in the new platform. The motivation for this order of business was simple: Continuity for end users. The daily tasks that are carried out by the users of the GIS web applications are mission critical for FK Distribution, so this strategy minimized risks of irregularities in daily operations.

FK Distribution management adopted this plan and the project was given the go-ahead for implementation.

Architecture

Web GIS is and has for many years been the cornerstone of daily operations at FK Distribution. For this reason, Portal for ArcGIS was chosen as the hub of the new architecture.

The new web applications were all developed with Web AppBuilder for ArcGIS and are all accessed from the Portal.

Several web applications need to make use of demanding processes. These are all implemented as Geoprocessing Sevices in ArcGIS Server and are very easy to include in user workflows through the ArcGIS JavaScript API. The Geoprocessing Services facility in ArcGIS Server is extremely flexible and very easy to configure through Model Builder and the Publishing Wizard in ArcMap.

Some of the demanding processes are routing related. For the purpose of creating postal routes, which are usually “high-density” in the sense that most or all addresses in an area are served, FK Distribution has been using the Postal edition of Logistics Planner from Rapidis. This was a separate web services based product, which did not integrate with ArcGIS. For this project the Postal edition of Logistics Planner was modernized and is now an extension for ArcGIS.

Logistics Planner for ArcGIS provides specialized route planning solvers delivered as ArcGIS Geoprocessing tools. This fits very well with the selected architecture as these Geoprocessing tools can easily be integrated into the specific service workflows that are needed in FK Distribution’s user applications.

Benefits

- **Consolidation on a single software platform**
- **Easily supportable applications**
- **Market leading software from a dependable partner**
- **Modern services based architecture**
- **Platform allows for easy implementation of new productivity applications**

Postal Solution for ArcGIS

- High density Routes for Postal delivery
- Divides large areas into efficient routes
- Optimized sequence per route
- Minimizes number of routes
- Multi Modal and supports delivery by walking carriers and/or car
- Routes with no overlap
- Safe routes without crossings
- Input data is simply addresses, time and weight per address and a street network
- Very configurable

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Select and divide selection into routes

Overview of existing routes.

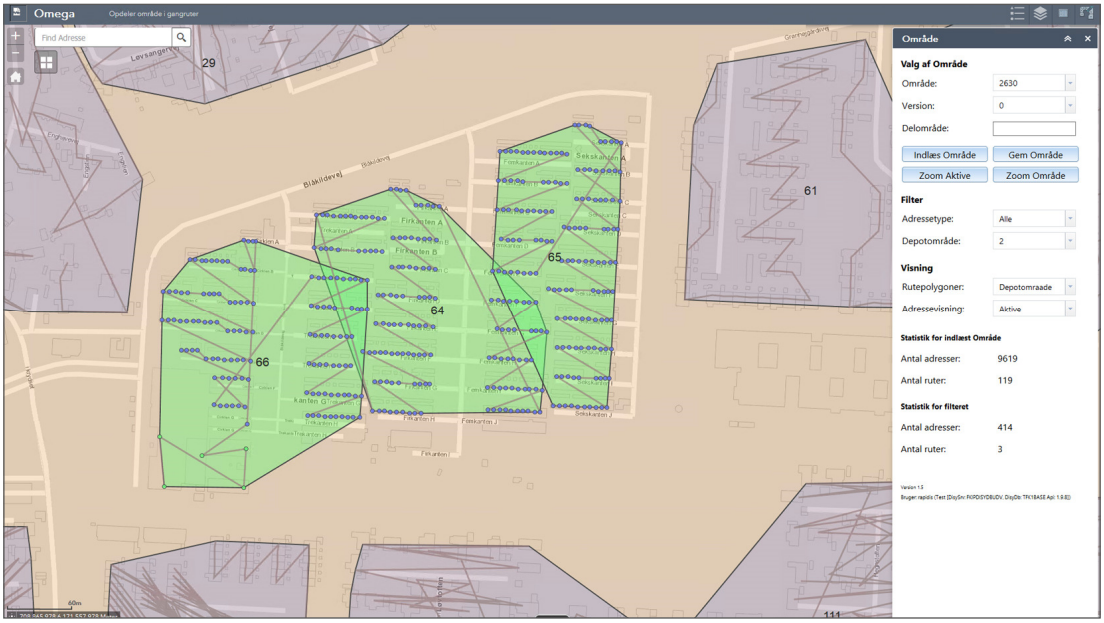
Select a number of routes, postal codes or a polygon.

Divide selection into routes that meet your requirements.

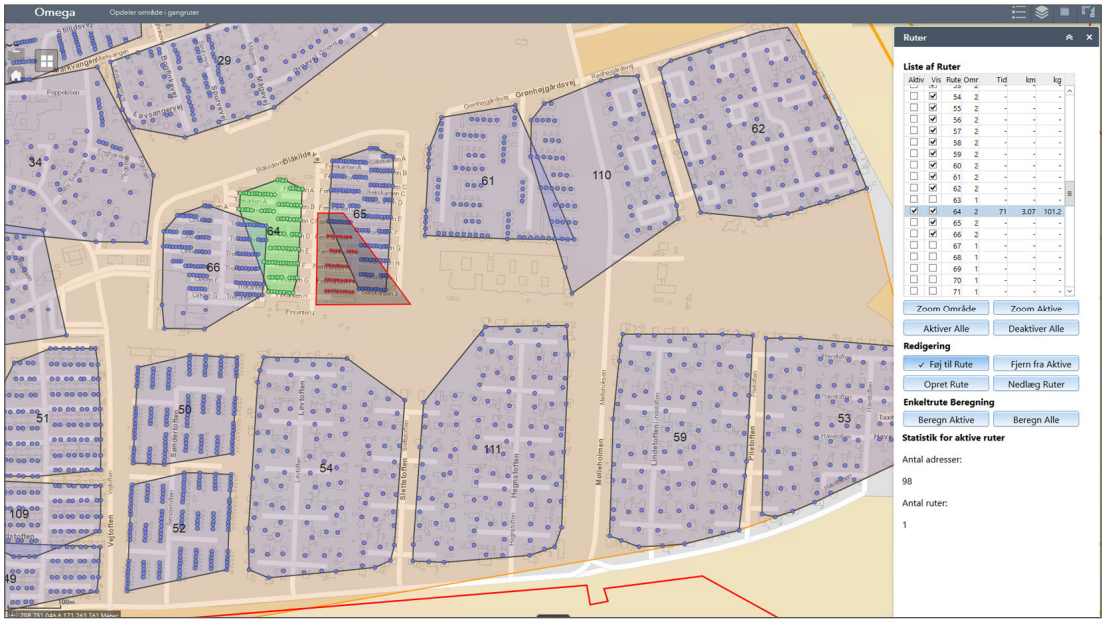
Key figures for selected routes

Zoom to selected routes.

Address count and route count both for total area and filtered area.



Manual editing



Select addresses and subtract from one route and add to another route.

Optimize route sequences with new information.

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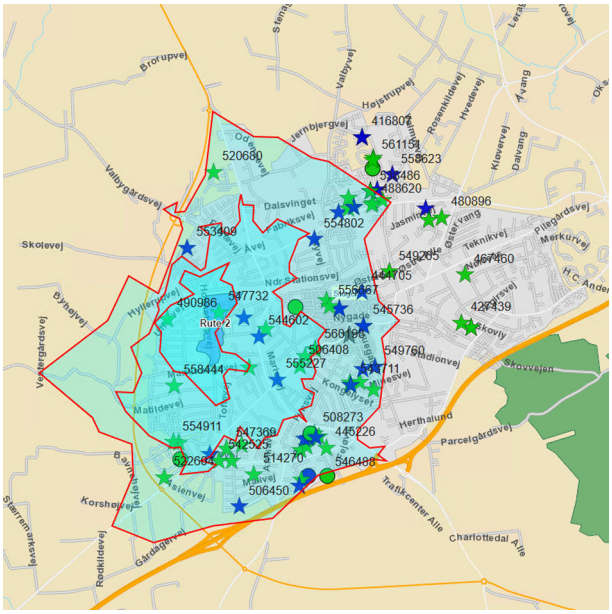
Sequcence optimization (Postal TSP)

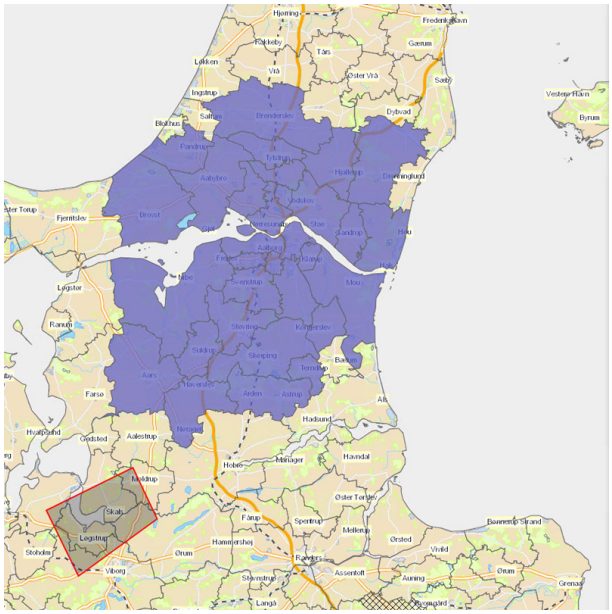
A gruop of addresses is optimized for best sequence.

Manual editing like reversing sequence for part of the route or entire is possible.

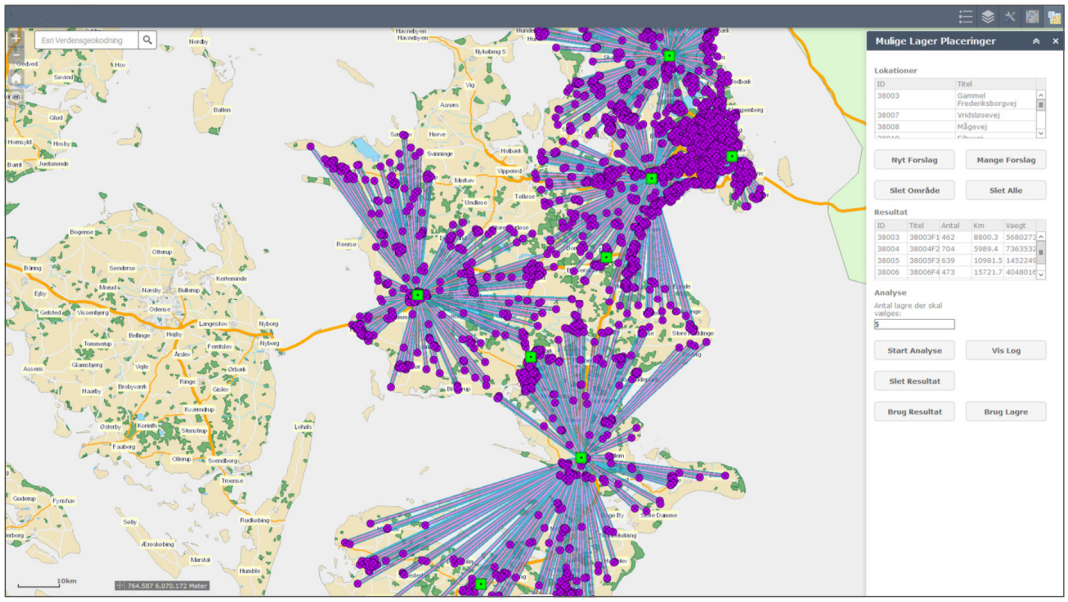
Visualize carrier addresses, illustrates routes that can be reached from carriers house within 5, 10, 15



Order editing, *used to match delivery routes to disered target group for a customer order*



Location of regional warehouses,



Calculates and visualizes optimal warehouse locations based on actual deliveries to depots. The same application is used to optimize daily routes for deliveries from current regional warehouses to depots.

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