Make room for more communication

Adrian Brezulianu, Daniela Iacob

- *Having to decide which telecom operator has the right to use one conduit and who doesn't can be quite a thorny issue, especially when you're a national Authority for Management and Regulation in Communications.*

- *Is there space for more cables? You should answer that. To do your best in this mediation process between sometimes ferocious telecom operators, you need the best geographic information system to support you licit decisions*

The Issue

Storing a large amount of heterogeneous information on telecom networks and infrastructure

AND

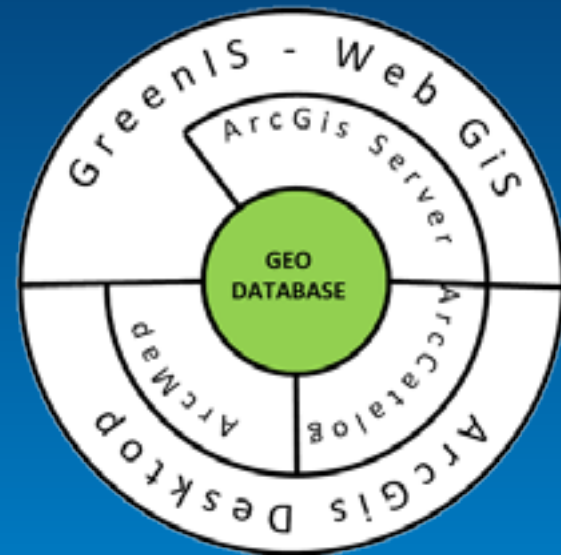**Mediating conflicts between network operators that use the same network infrastructure**

The Client

The National Authority for Management and Regulation in Communications of Romania

ANCOM
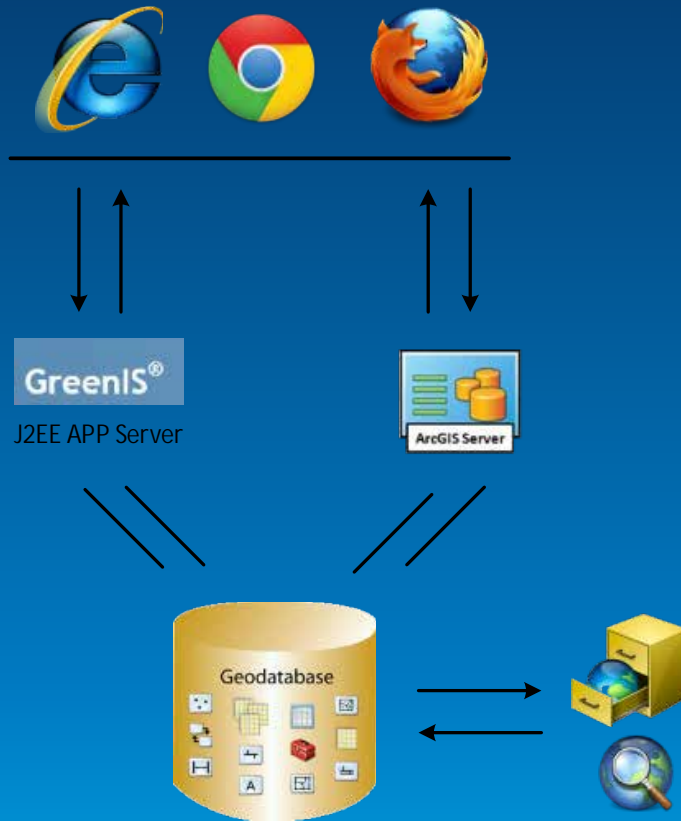Autoritatea Națională pentru Administrare și Reglementare în Comunicații
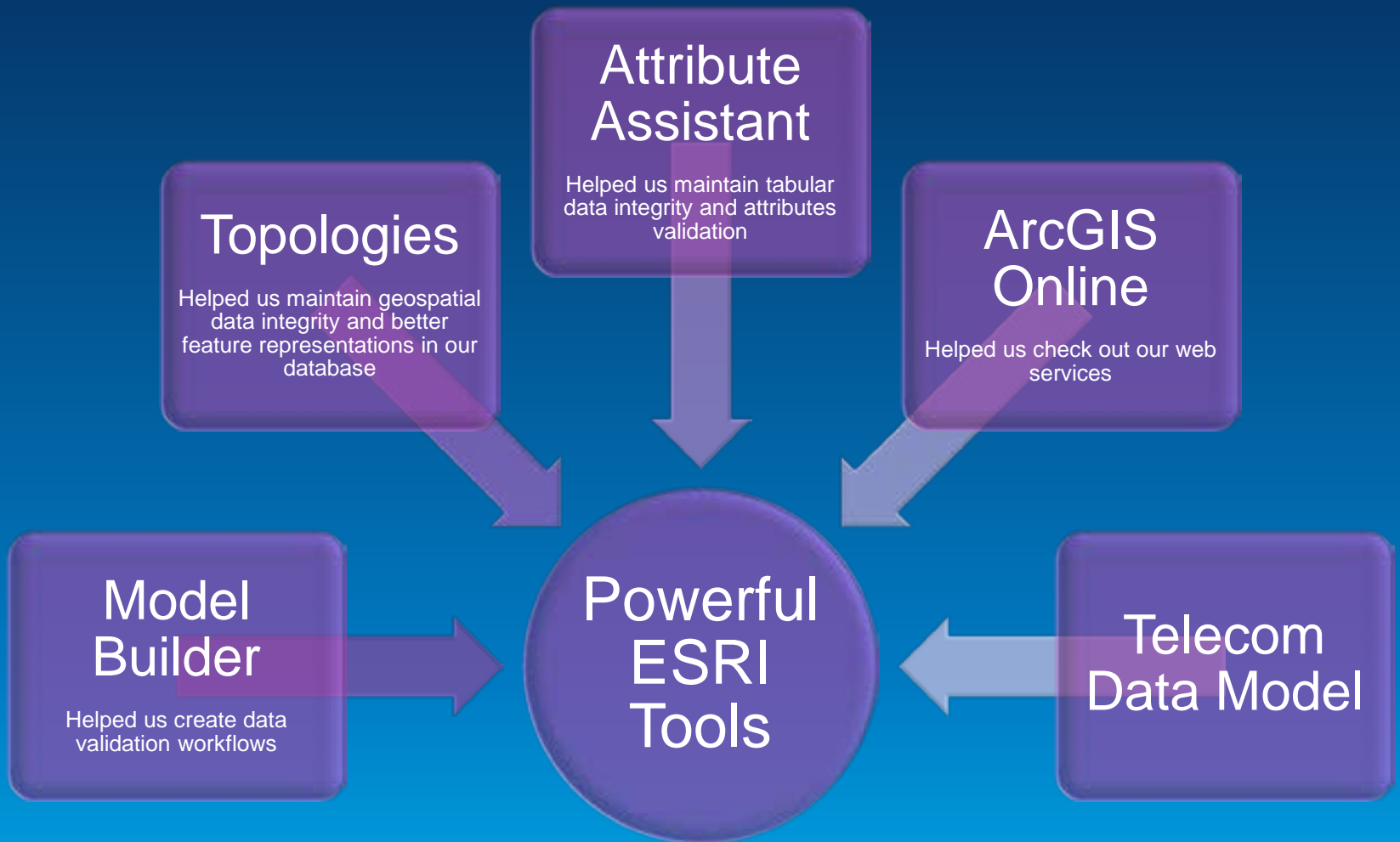
The solution

- **A multi-component complex geographical information system**, with both Web and Desktop interfaces designed for advanced data processing, geospatial analysis, centralized data storage and data exchange in a user-friendly environment adapted to the telecommunication industry
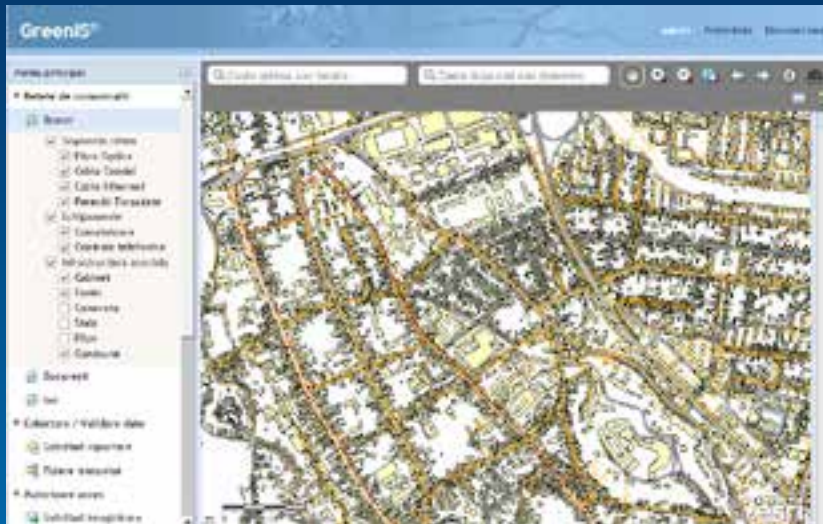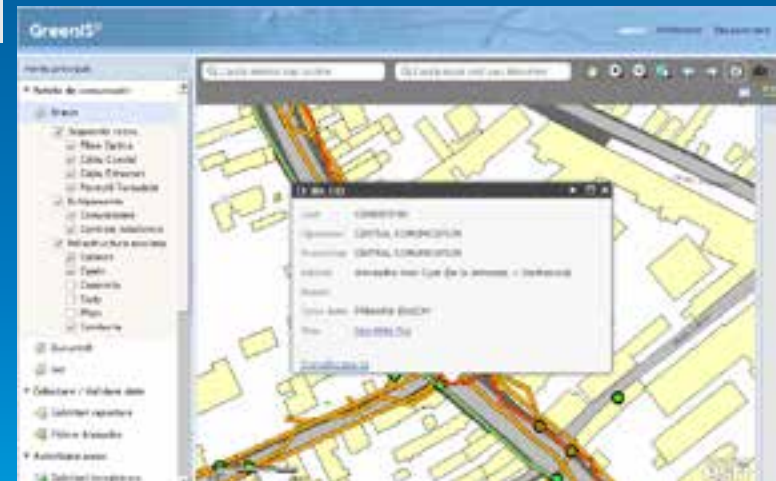
System architecture

1. **Web Browser**

2. **Web-GIS Application: GreenIS**

3. **GIS Server : ArcGIS Server 10.1**

4. **J3EE Application Server.**

5. **Spatial Geodatabase: PostgreSQL**

6. **ArcGIS Desktop**

GreenIS®

J2EE APP Server

ArcGIS Server

Geodatabase

Attribute
Assistant

Helped us maintain tabular
data integrity and attributes
validation

Topologies

Helped us maintain geospatial
data integrity and better
feature representations in our
database

ArcGIS
Online

Helped us check out our web
services

Model
Builder

Helped us create data
validation workflows

Powerful
ESRI
Tools

Telecom
Data Model

Green**IS:** the WEB-GIS application

Information organized by layers and groups of layers.

Identify tool→ visualize detailed information in a pop-up window with only a click.
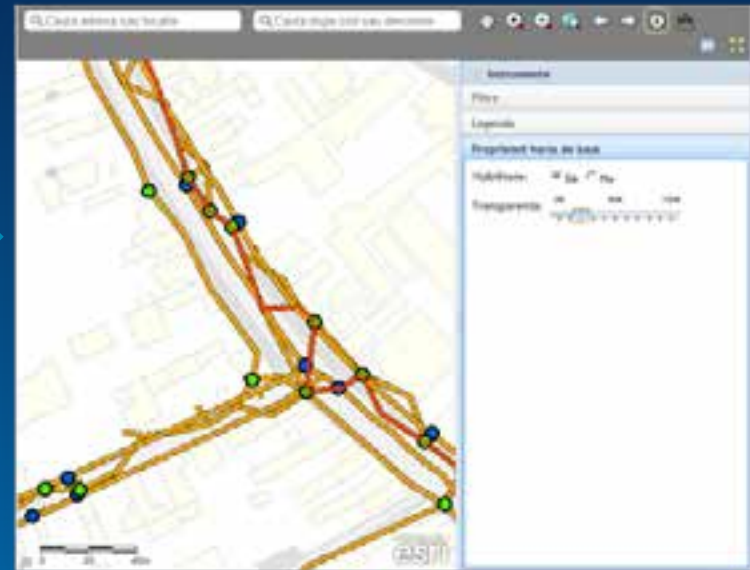
Variety of filters + option to create and save custom filters → information is easily accesible
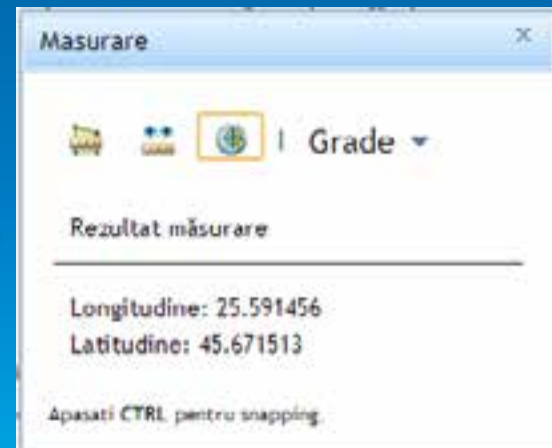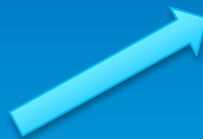

Interactive map legend
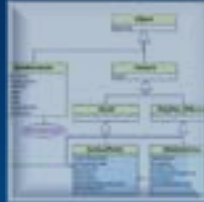
Users select a basemap from the ESRI-offered gallery

Then they select the basemap transparency

ESRI-supported web-tools

Bottlenecks we encountered

Finding the most 'functional' database design

Displaying dozen of conducts sharing the same location

Managing millions of cables

Handling data in various formats and different Coordinate Systems

Designing a performant workflow

Customer requests

Our experience with the customer revealed that there are several things when talking about requirements:

- **Trainings**. Most people are not that familiar to GIS, so it is important to offer them detailed information on how to use the products one offers.

- **Restricted acces**. Acces to database servers, GIS server, web-application's functionalities, web application's layers is configurable at a user's level.

- **Security**. Many clients have information that is highly confidential thus securing that information and limiting its access within the company is very important.

- **A Data Template** for telecom operators to use when they send their data. This way data is received in a standard format and input data processing is easier

System Advantages

- The application can be customized to the end-user needs and requirements for a wide range of utilities, not just telecommunications.

- The GreenIS web-GIS application is a more user-friendly environment for the client. Complex GIS Desktop can seem a little overwhelming.

- Acces to information can be restricted to each layer, to each user and to each process

Results

- The application is currently used for more than 10 major infrastructure operators and telecommunication networks.

- Our client can easily mediate conflict situations between operators sharing the same infrastructure.

- All information is centralized, easily-accesible without having to go on the field.

Our Conclusion

 Developing a GIS dedicated to telecom industry can be difficult but it gets easier using ESRI tools.

Thank you!