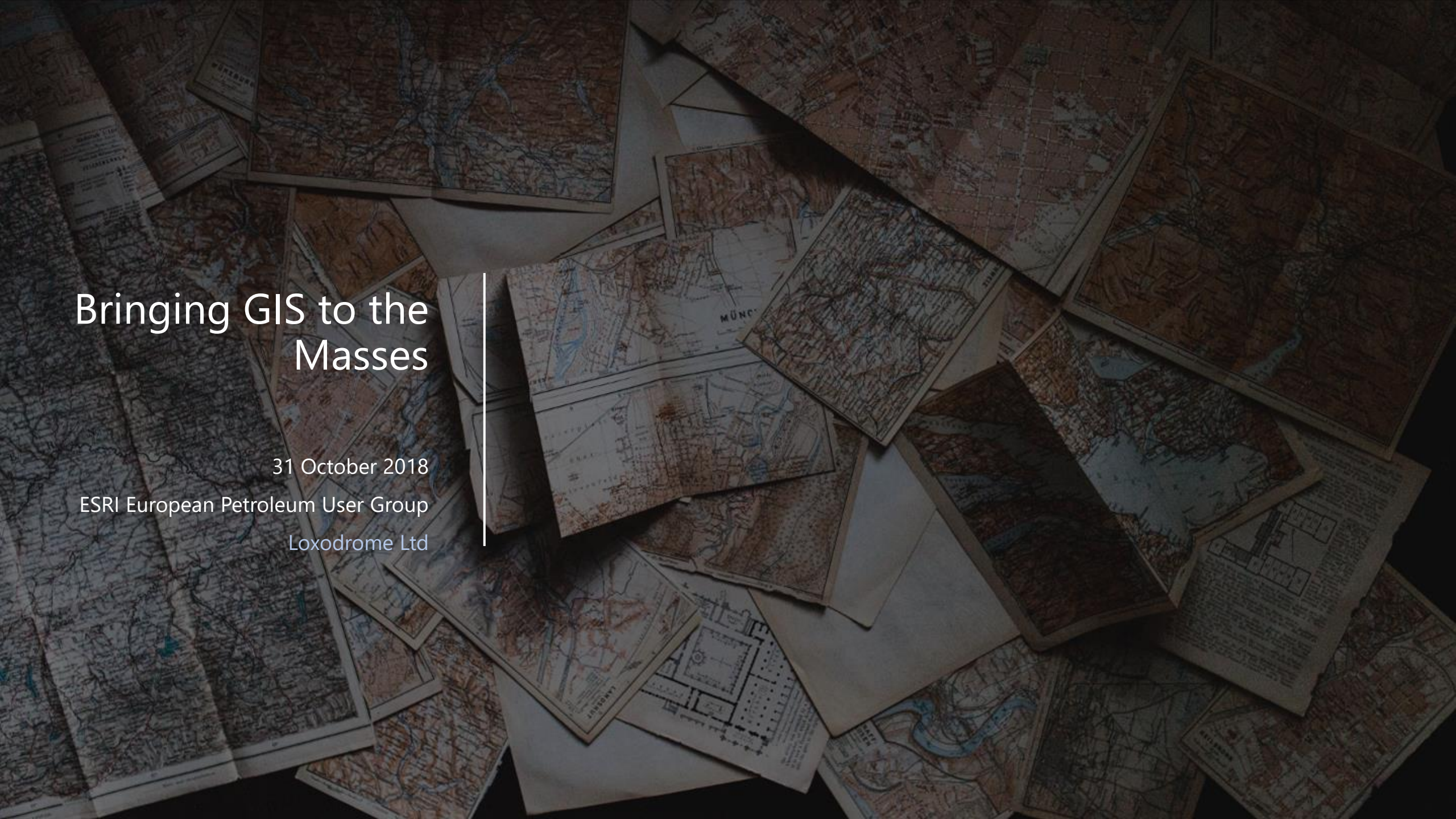
LOXODROME

GEOSPATIAL & DATA MANAGEMENT SOLUTIONS



Bringing GIS to the Masses

31 October 2018

ESRI European Petroleum User Group

Loxodrome Ltd

LOXODROME – who we are

I**ndependent** consultancy

GIS and **Data Management** experts

Insight through **INTEGRATION**

Leverage **existing** client **technology**

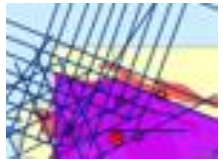
Utilise **Open Source** technology

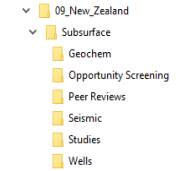
Extensive **E&P experience**

What do we mean by business insight?

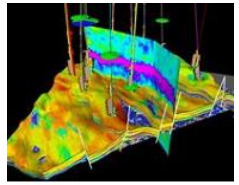
A farm-in opportunity has come in for Licence XYZ, offshore New Zealand. We like the look of it and we need to respond ASAP

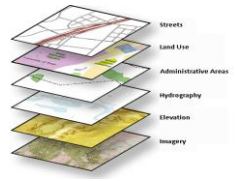
What data do we have here?

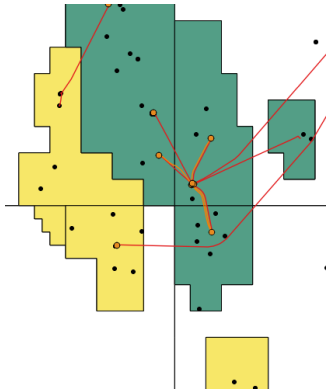




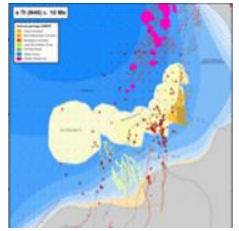
What interpretations/ studies/ analyses have we done here before?

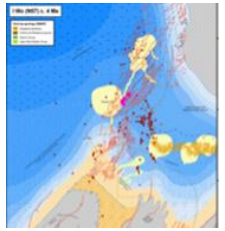






What other companies are operating in this basin, what do we think they are doing?





"The next wave of competitive advantage will be about using connections to identify and build knowledge"

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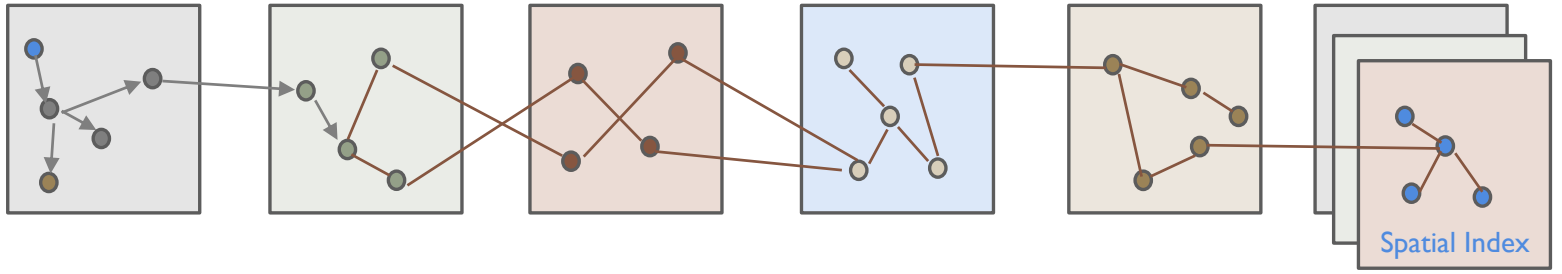
Unlocking Corporate Knowledge

VISUALISATION / DATA DISCOVERY LAYER



Graph Database Layer

INTEGRATION LAYER

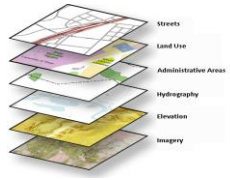

Wells


Seismic


Licences/ Assets


Production


Documents



Geospatial

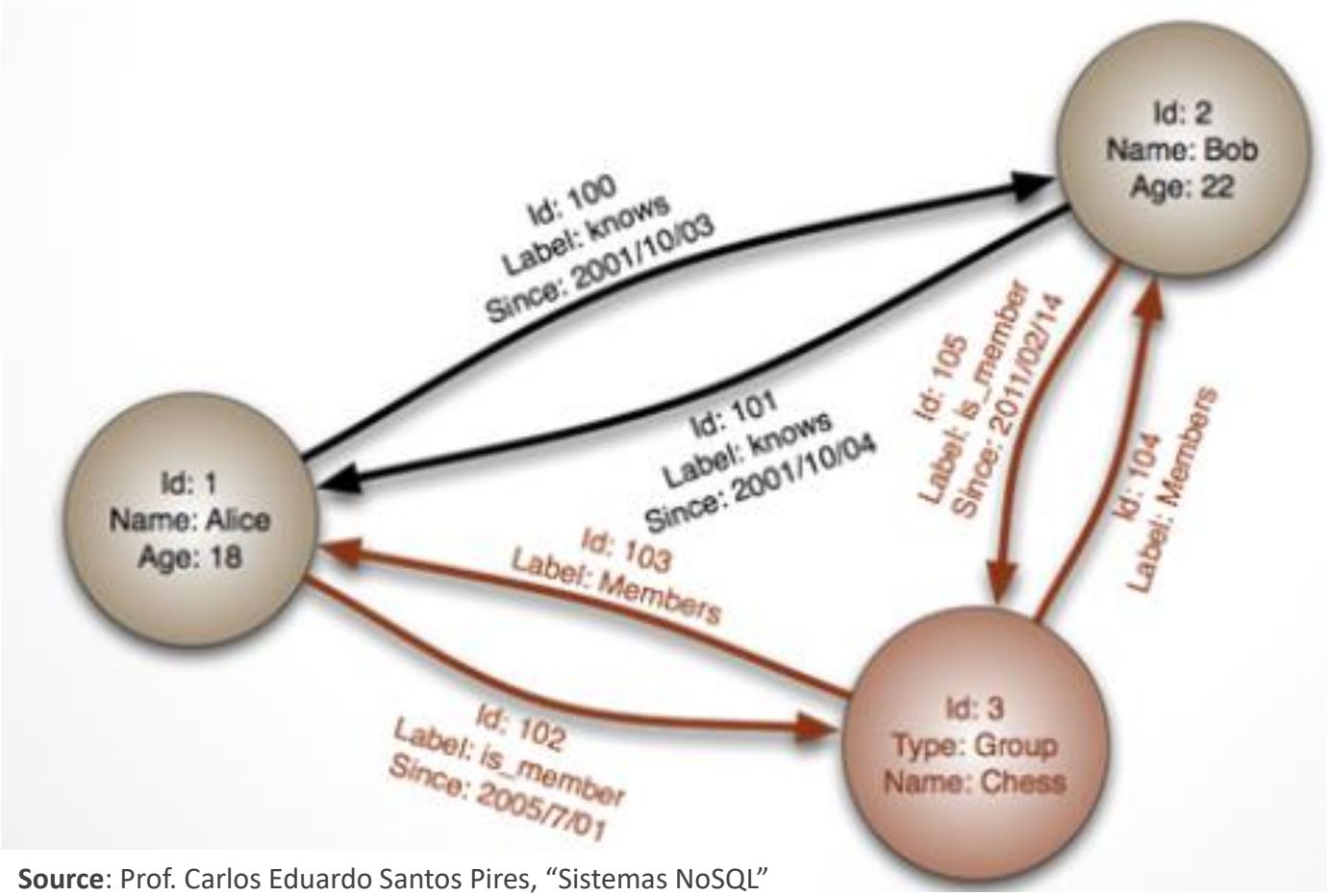

External web services

What is a Graph Database?

"a database that uses graph structures for semantic queries with nodes, edges and properties to represent and store

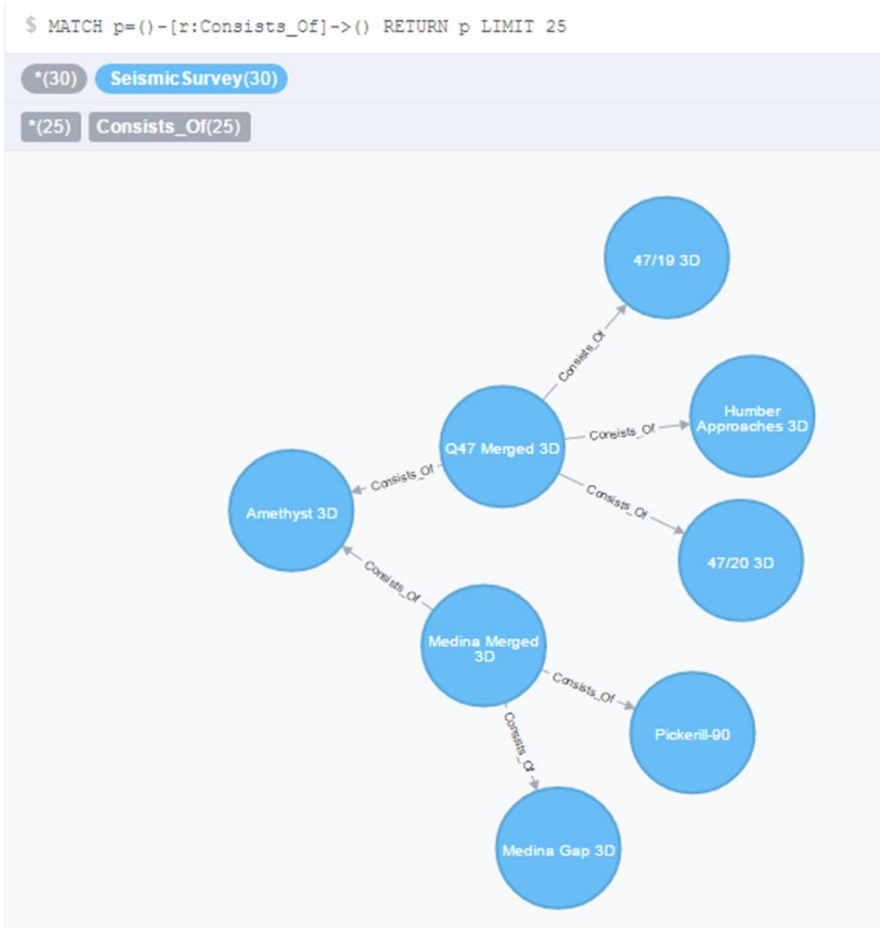
Simple, fast retrieval

Complex, hierarchical structures



Source: Prof. Carlos Eduardo Santos Pires, "Sistemas NoSQL"

Why a Graph Database



Model the occasionally complex relationships between the data
Easy to communicate and refine the graph model as requirements change
Works with the data rather than dictating

Flexible
Open Source (Community Edition of Neo4j) – cost effective
Simple query language to learn (Cypher)

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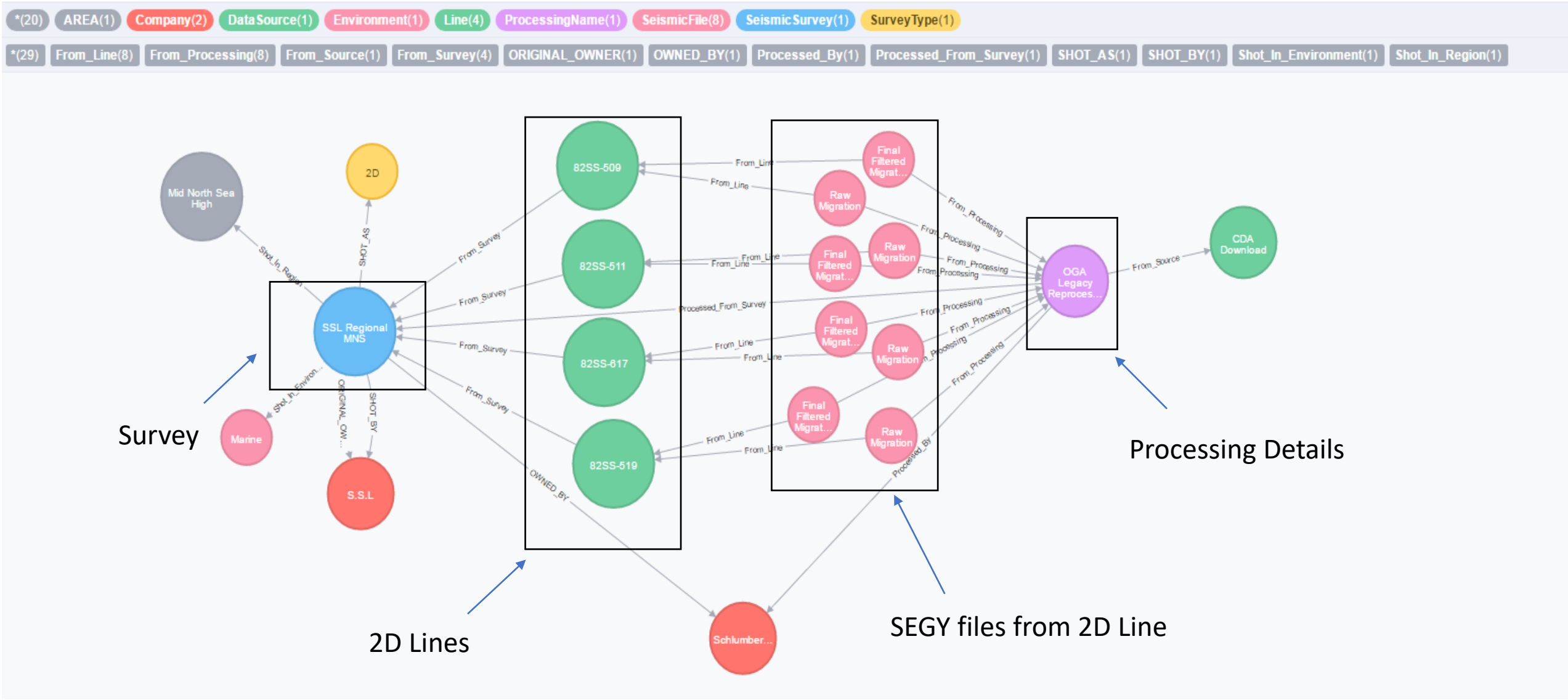
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SurveyType(1)
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From_Processing(8)
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From_Survey(4)
ORIGINAL_OWNER(1)
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Processed_By(1)
Processed_From_Survey(1)
SHOT_AS(1)
SHOT_BY(1)
Shot_In_Environment(1)
Shot_In_Region(1)
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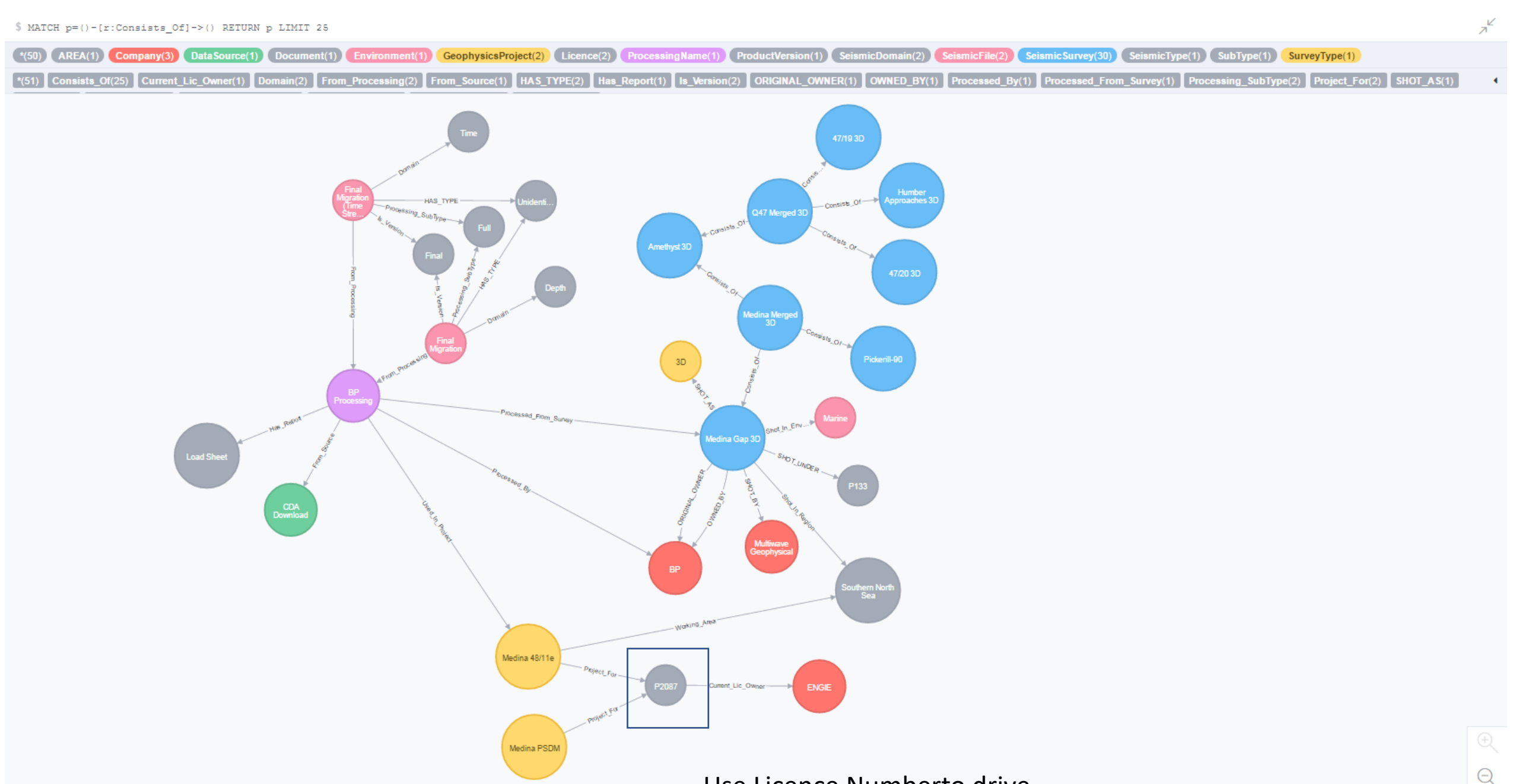
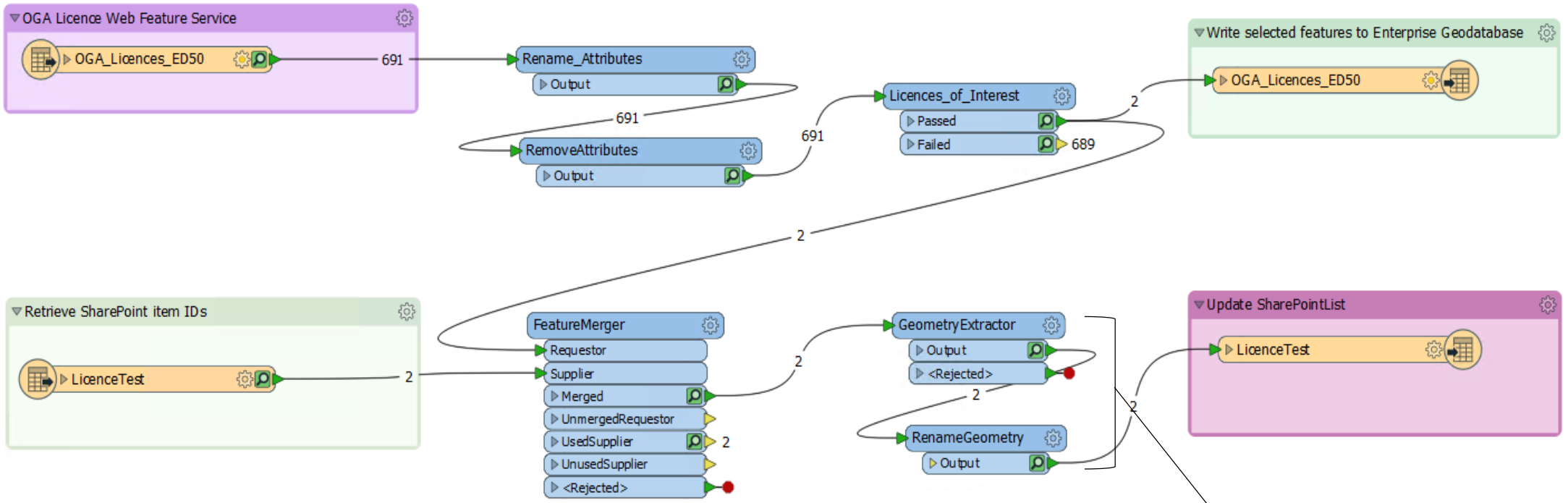
CDA Download
Schlumber...
Survey
2D Lines
SEGY files from 2D Line
Processing Details



Use Licence Numberto drive queries into other systems

Safe FME – Update Geodatabase and SharePoint



Synchronize key attributes between you GIS and document management system

Bring geospatial data direct into SharePoint

https://loxodrome.co.uk/posts/fun_with_fme.html

LicenceTest

Licence	BLOCKREF	Location	SubType	Shape	Licence Status
P225	16/17a, 16/27a, 16/27c	OFFSHORE	Subtype Unavailable	{"hasZ":false,"hasM":false,"rings":[[[1.3,58.45],[1.3333333,58.45],[1.3333333,58.4],[1.3666667,58.4],[1.3666667,58.3833333],[1.3833333,58.3833333],[1.3833333,58.3666667],	Extant
P1731	44/11b, 44/11c, 44/12b, 44/12c	OFFSHORE	Traditional	{"hasZ":false,"hasM":false,"rings":[[[2.05,54.5333333],[2.05,54.6166667],[2.1666667,54.6166667],[2.1666667,54.6],[2.1,54.6],[2.1,54.5333333],[2.05,54.5333333]],[[2.3,54.6166667],[2.3,54.6333333],	Extant

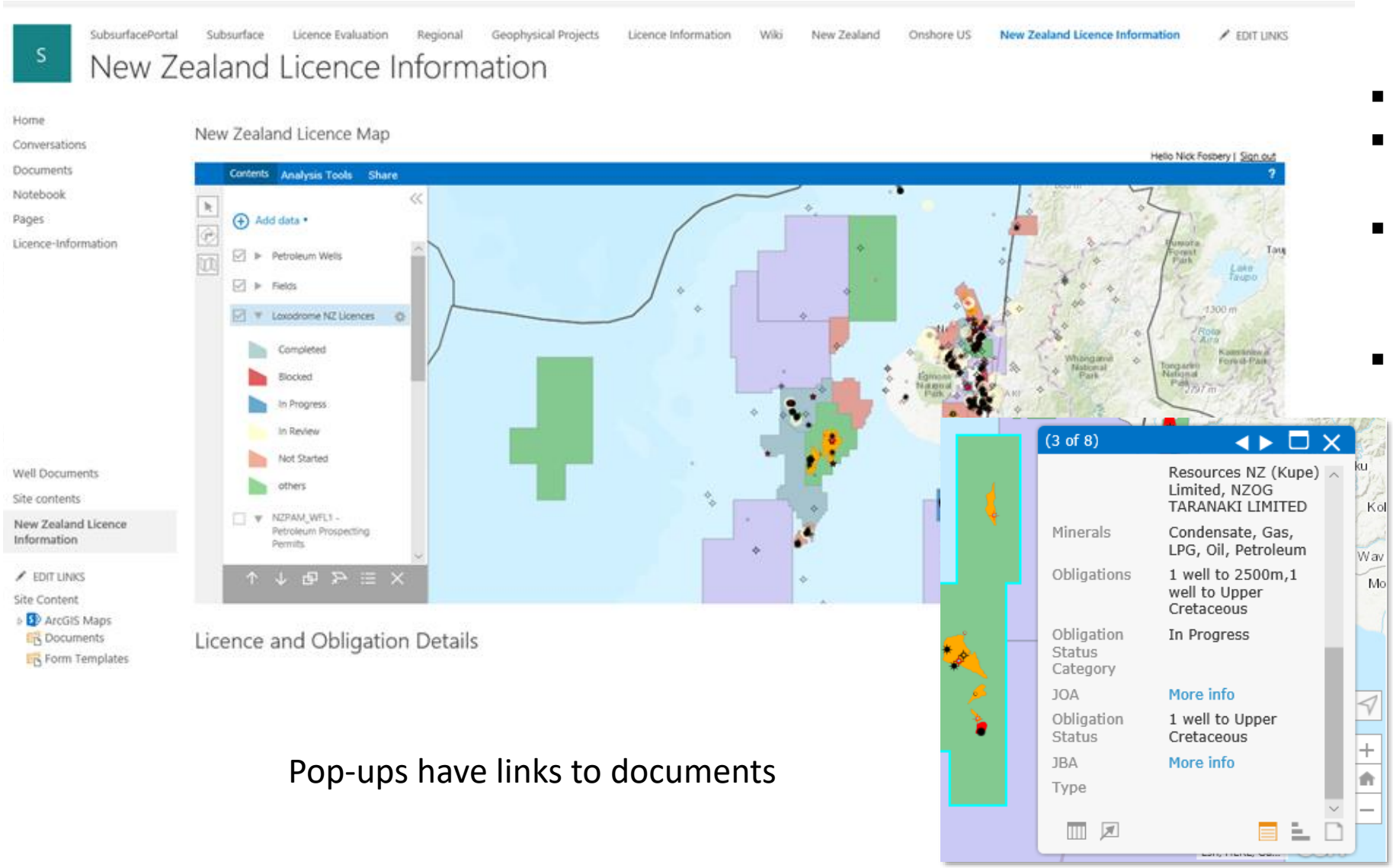
Existing List Attribute

Updated attributes from external source

Updated [Geo-enabled] SharePoint List

- Shape attribute must contain data in ESRI JSON format
- Automatically update key lists
- Could use event trigger to update Term Store attributes

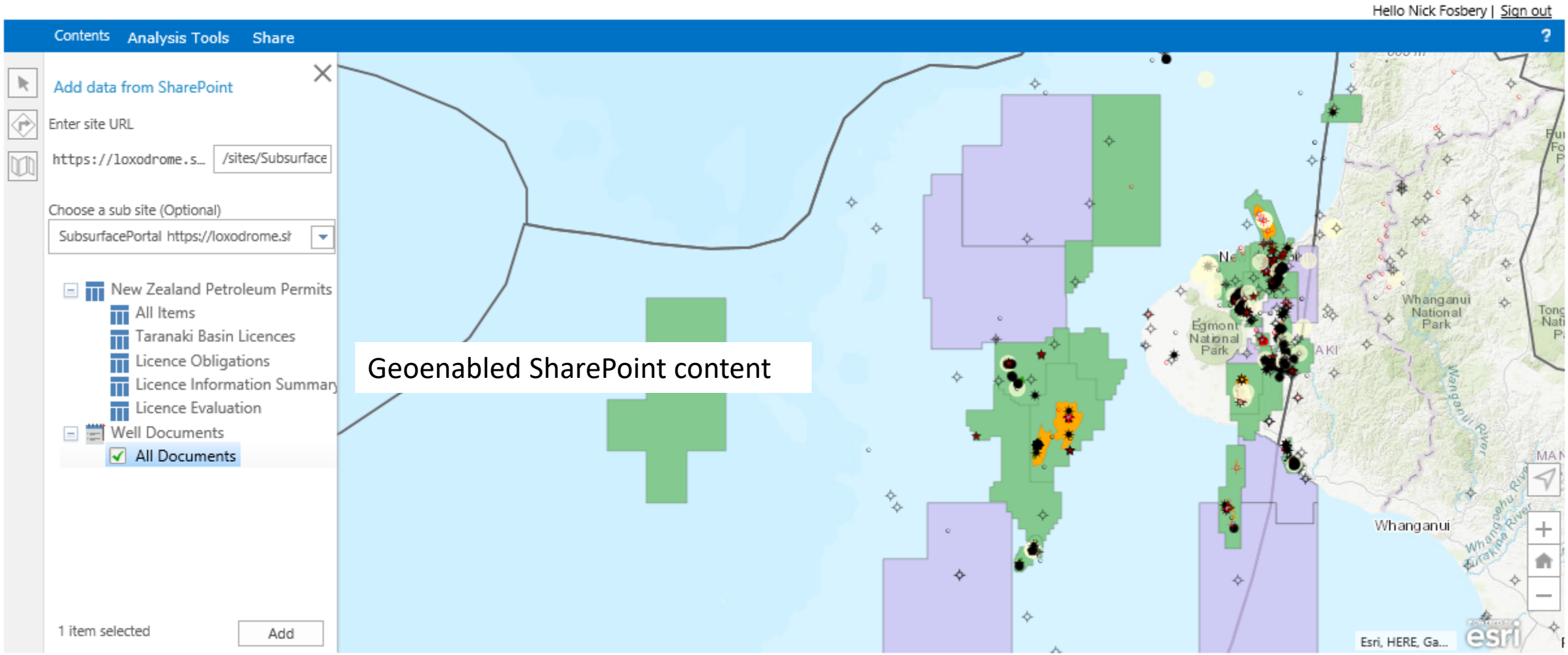
ArcGIS Maps for SharePoint – *Because nobody likes lists!*

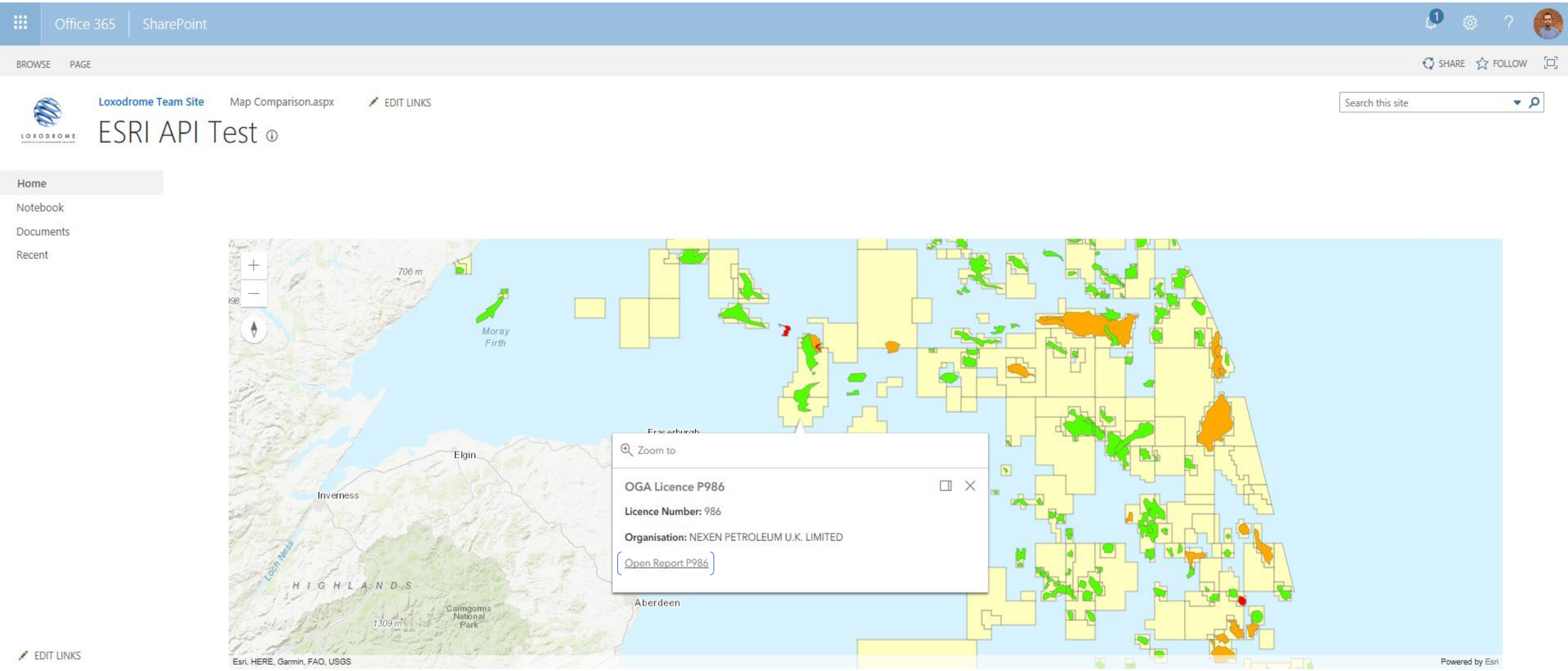


Pop-ups have links to documents

- SharePoint Web Part
- Add data from SharePoint or ArcGIS
- Also works for *geoenabled* Document Libraries
- Publish the map/layer back to AGOL/Portal Map view can be configured and then published so all users get the same view.

New Zealand Licence Map





https://loxodrome.sharepoint.com/sites/GIS/SitePages/ReportSearch.aspx?LicenceFilt=P986

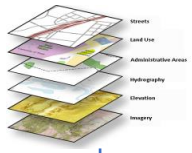
Web part page with Query String (URL) filter and List/Doc Library parts

Query Parameter Name

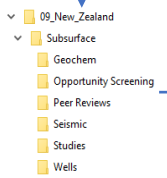
Query Value

Automate the boring stuff

Updated spatial data



Zip file(s) containing shapefile



PowerShell filesystem watcher

External Web Services

SAFE SOFTWARE

FME Workbench

Update Enterprise Geodatabase

Data available to end users

Update SharePoint List

Email notification to users

Push notification

1. Data arrives as a zip file and is dropped into a specific directory
2. PowerShell script with a FileSystemWatcher launches the FME when the file is created
3. FME opens the zip file, transforms/loads the data to Enterprise Geodatabase (ArcSDE)
4. Updated spatial data in desktop and web maps
5. FME updates SharePoint list with details of successful load and sends notifications to DM/Users

In Conclusion

Integrate – Integrate – Integrate

- Join up the systems you already have
- Expand the user base of tools such as FME beyond the GIS users, and empower users to learn how to use them

Don’t have one database, have them all

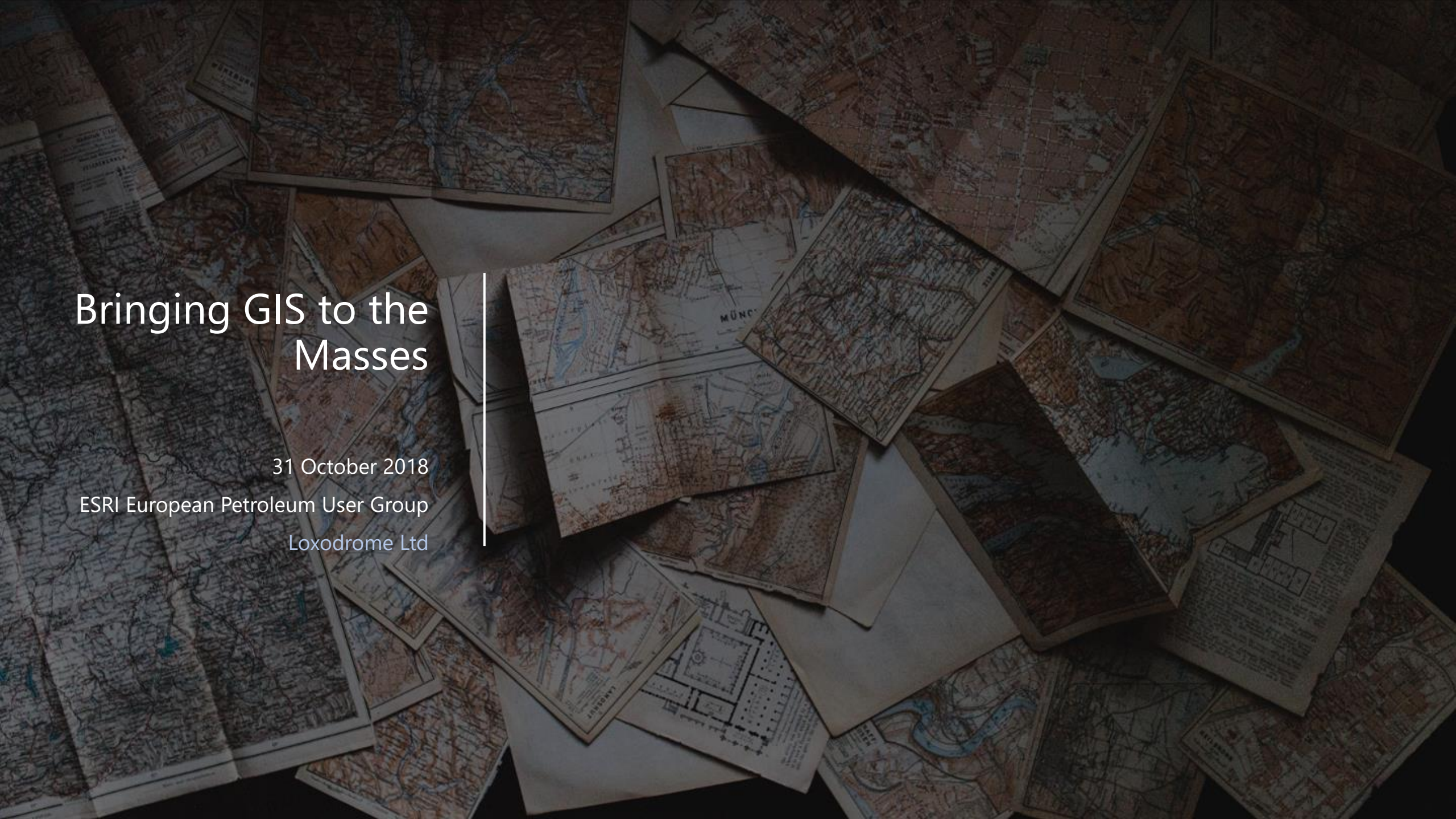
- Use the most appropriate database for the type of data – don’t shoe-horn everything into one

Embrace Continuous Development = Continuous Improvement

- Don’t attempt to solve all the problems in one go
- Allow for trial and error and experimentation (no “fear of failure”)

Technology is good – talking is better

- Engage with Information/Document Management, IT, Data Managers
- Understand (and pre-empt) the needs of the business



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