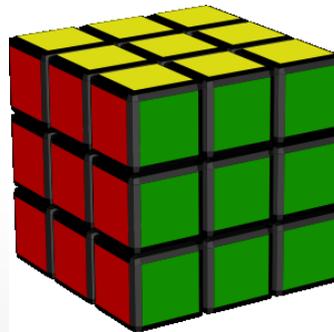


# UK Ofcom Connected Nations 2019

## Data Analysis in Power BI



# Overview

- What is the story?
- Data Model
- DAX
- Visualisation
- Summary

Data source

<https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2019>

N.B. 2019\_Final, not the 2019\_Spring\_update

# Story: 'Mind the gaps in connectivity'

- The data inform policies (*does not create them*)
- Is there *enough* progress for remoter areas?  
(with lower density of population and businesses)
- *Who wants* full connectivity for everyone?  
residential electorate / businesses / government

## Therefore display:

1. Progress in connectivity over time
2. Flexible comparisons, specified by the users

# Shaping the Data Model

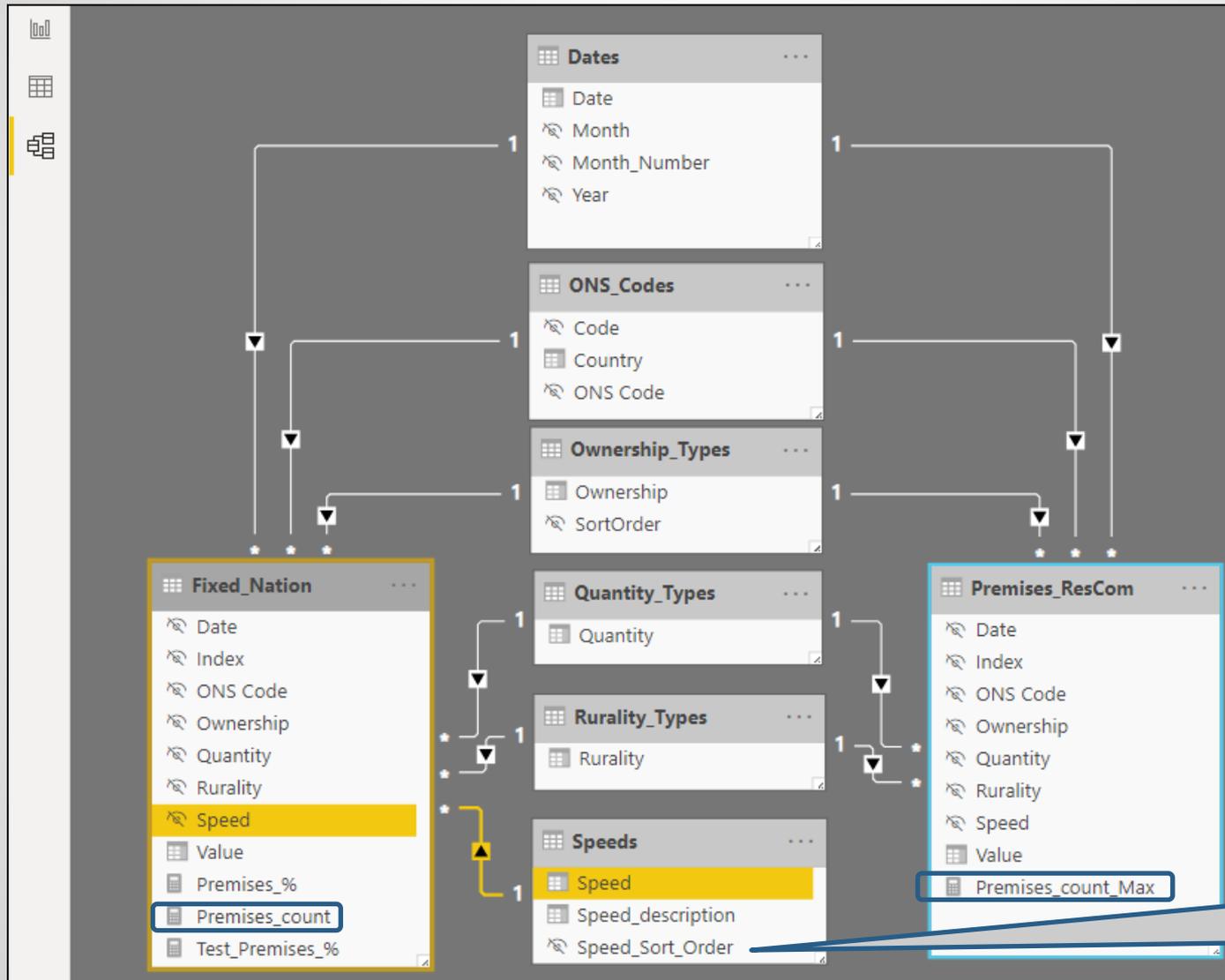
## Stationary connectivity:

- Import 18 named tables from Excel
- Append these queries (same columns)
- Unpivot (normalise) multiple dates
- Engineer a Date column
- Filter some rows (totals will be calculated)

## Mobile connectivity & Total Premises:

- similarly

# Data Model



Needed for  
visuals

# DAX for Count and % of premises

1 Premises_count = CALCULATE( SUM( Fixed_Nation[Value] ), Fixed_Nation[Quantity] = "_prem_count" )							
ONS Code	Rurality	Speed	Ownership	Value	Date	Quantity	Index
E92000001	Urban	Below_USO	Residential	0.00	2019-09	_prem_per	1
E92000001	Urban	Below_USO	Residential	98,634.00	2019-09	_prem_count	2
E92000001	Urban	Below_USO	Residential	0.01	2019-05	_prem_per	3

1 Premises_count_Max = CALCULATE( SUM( Premises_ResCom[Value] ), Premises_ResCom[Quantity] = "_prem_count_Max" )							
ONS Code	Rurality	Speed	Ownership	Value	Quantity	Date	Index
E92000001	Urban	Total	Commercial	1380167	_prem_count_Max	2019-09	1
E92000001	Urban	Total	Residential	21206265	_prem_count_Max	2019-05	2
E92000001	Urban	Total	Residential	21245186	_prem_count_Max	2019-09	3
E92000001	Rural	Total	Residential	2989586	_prem_count_Max	2019-09	4

**Premises\_% = DIVIDE(**  
[Premises\_count], [Premises\_count\_Max], 0 )

# Visualisation

Showing possible connectivity to premises as both Count and % of Premises

- **Matrices** for details and for quality checks
- **Bar charts** for comparisons
- **Line charts** for progress over time

Slicers: Format > Edit interactions

Tables with Conditional Formatting > Data bars

# Premises types and locations

## Country

- England
- Northern Ireland
- Scotland
- United Kingdom
- Wales

## Ownership

- Commercial
- Residential

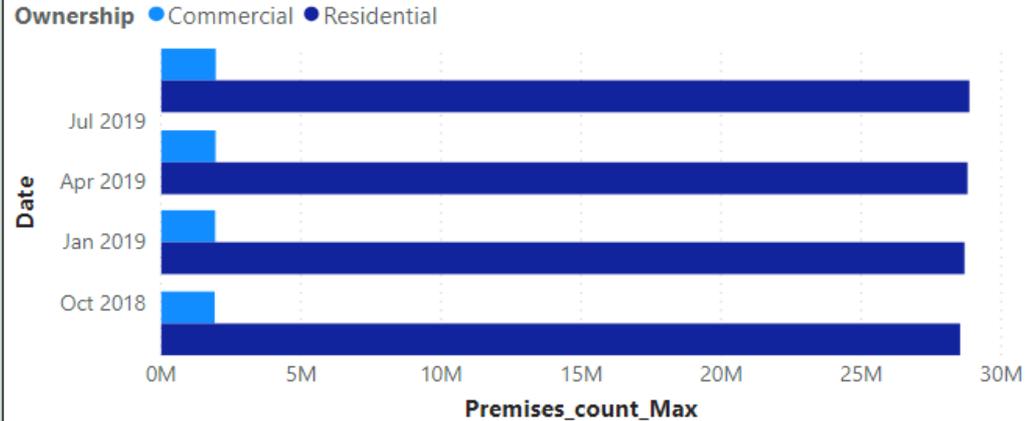
## Rurality

- Rural
- Urban

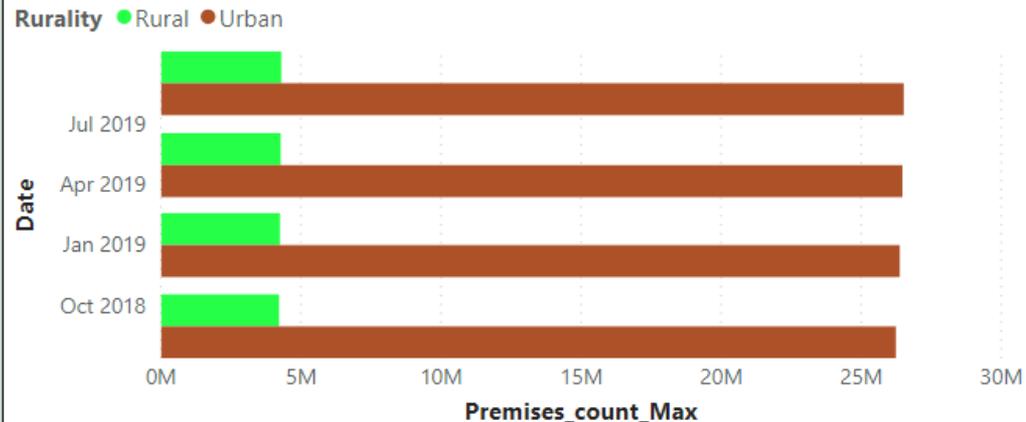
Ownership	2018-09	2019-01	2019-05	2019-09
<b>Commercial</b>	<b>1,923,381</b>	<b>1,939,325</b>	<b>1,951,720</b>	<b>1,957,847</b>
Rural	317,058	320,889	324,806	327,299
Urban	1,606,323	1,618,436	1,626,914	1,630,548
<b>Residential</b>	<b>28,533,395</b>	<b>28,688,399</b>	<b>28,796,003</b>	<b>28,861,348</b>
Rural	3,901,675	3,930,903	3,953,390	3,972,197
Urban	24,631,720	24,757,496	24,842,613	24,889,151
<b>Total</b>	<b>30,456,776</b>	<b>30,627,724</b>	<b>30,747,723</b>	<b>30,819,195</b>

Rurality	2018-09	2019-01	2019-05	2019-09
<b>Rural</b>	<b>4,218,733</b>	<b>4,251,792</b>	<b>4,278,196</b>	<b>4,299,496</b>
Commercial	317,058	320,889	324,806	327,299
Residential	3,901,675	3,930,903	3,953,390	3,972,197
<b>Urban</b>	<b>26,238,043</b>	<b>26,375,932</b>	<b>26,469,527</b>	<b>26,519,699</b>
Commercial	1,606,323	1,618,436	1,626,914	1,630,548
Residential	24,631,720	24,757,496	24,842,613	24,889,151
<b>Total</b>	<b>30,456,776</b>	<b>30,627,724</b>	<b>30,747,723</b>	<b>30,819,195</b>

### Premises\_count\_Max by Date and Ownership



### Premises\_count\_Max by Date and Rurality



# Rural broadband availability

**Country**  England  Northern Irela...  Scotland  United Kingdo...  Wales

**Owner...**  Commercial  Residential

**Rurality**  Rural  Urban

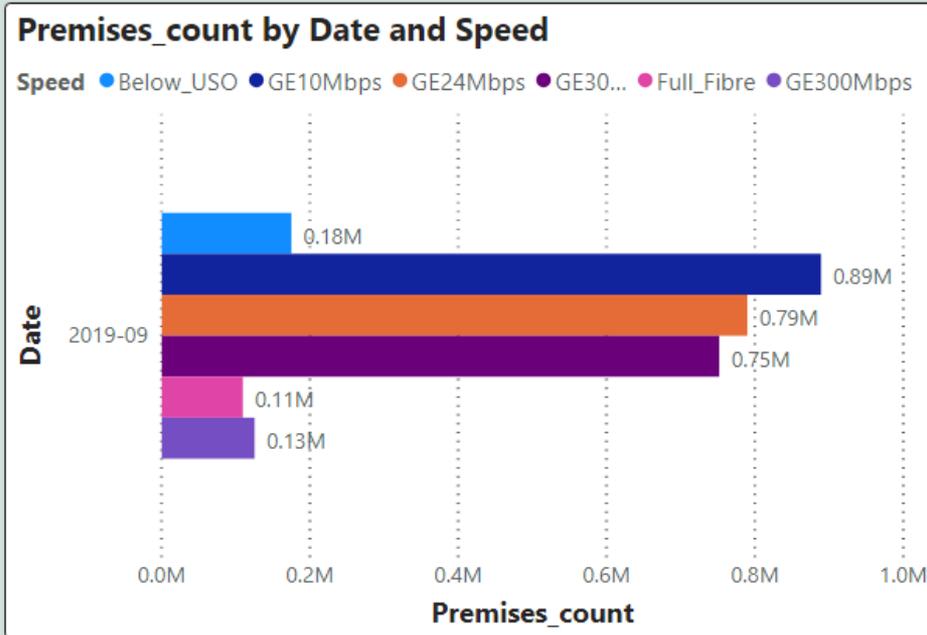
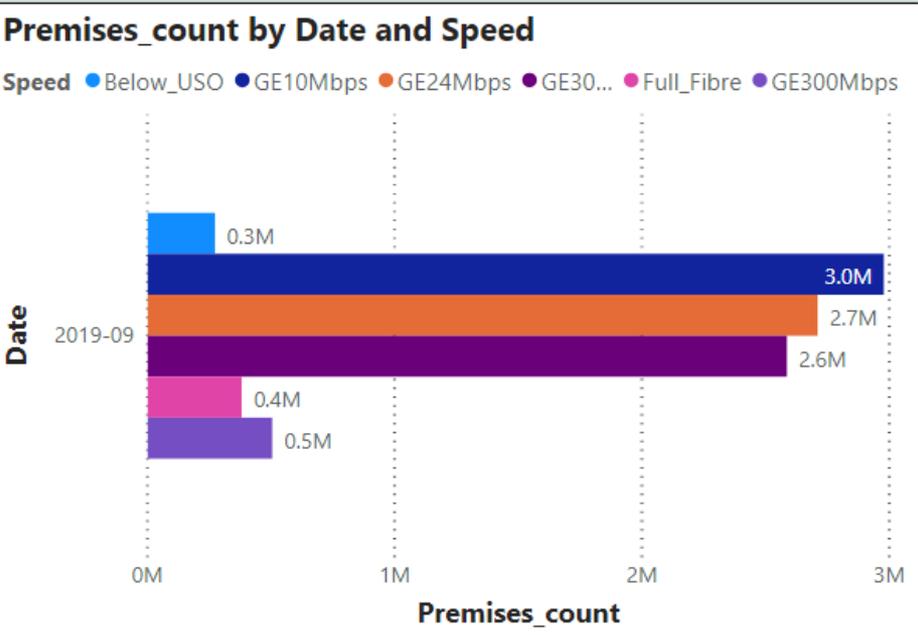
**Date**  2018-09  2019-01  2019-05  2019-09

**Country**  England  Northern Irela...  Scotland  United Kingdo...  Wales

**Owner...**  Commercial  Residential

**Rurality**  Rural  Urban

**Date**  2018-09  2019-01  2019-05  2019-09



### Premises % by Date and Speed

Date	Below_USO	GE10Mbps	GE24Mbps	GE30Mbps	Full_Fibre	GE300Mbps
2019-09	8%	92%	84%	80%	12%	16%

### Premises % by Date and Speed

Date	Below_USO	GE10Mbps	GE24Mbps	GE30Mbps	Full_Fibre	GE300Mbps
2019-09	17%	84%	75%	71%	10%	12%

# Example comparison of progress

**Country**  England  Northern Irela...  Scotland  United Kingdo...  Wales

**Owner...**  Commercial  Residential

**Rurality**  Rural  Urban

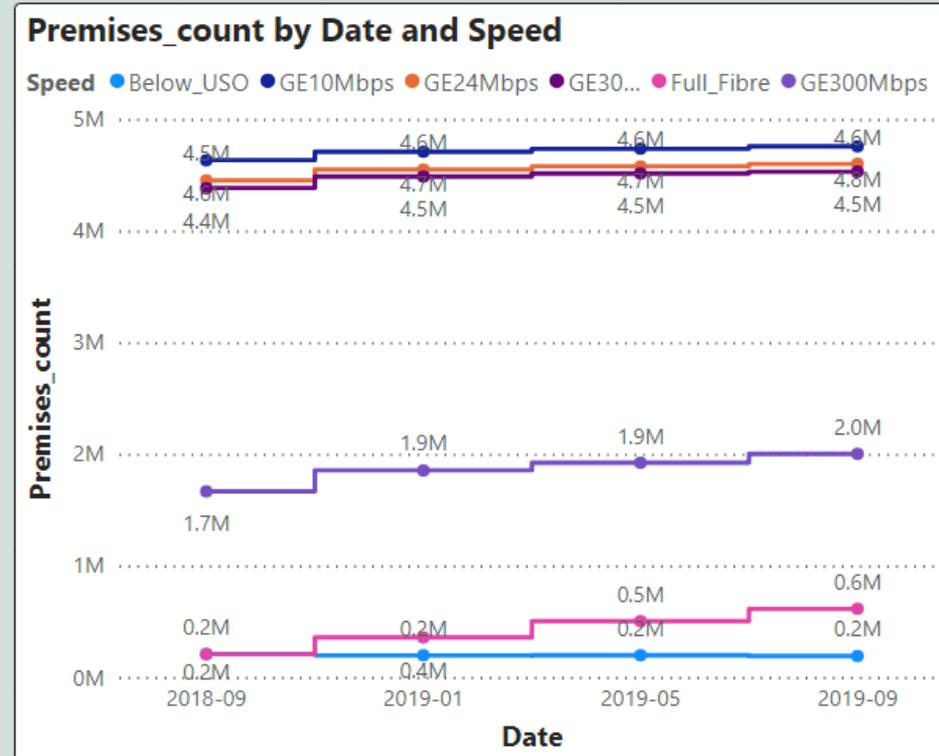
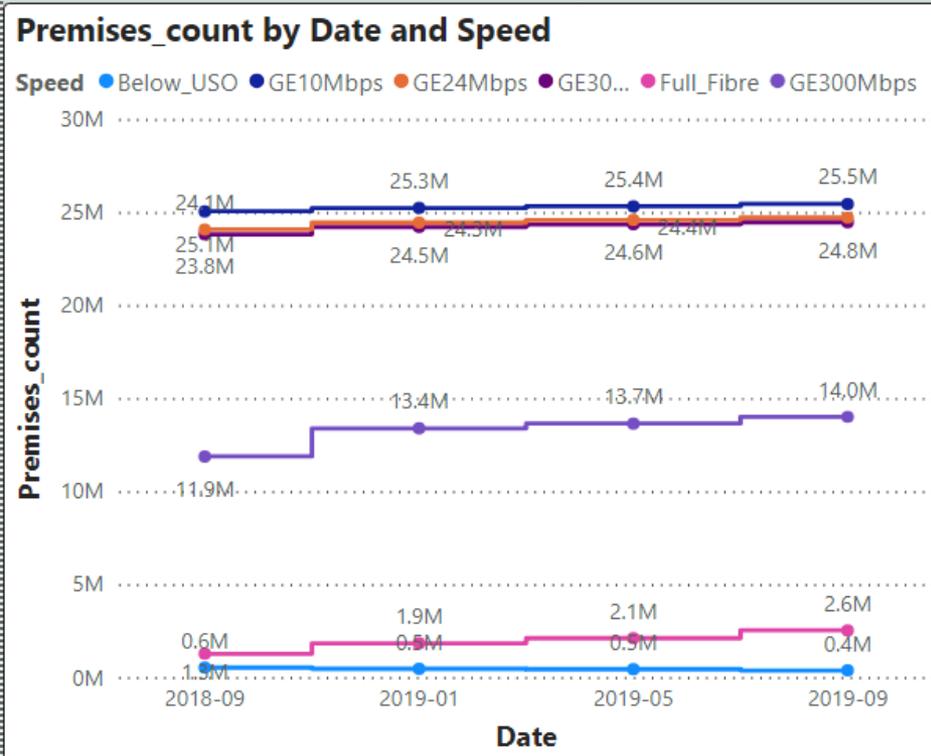
**Speed**  Below\_USO  GE10Mbps  GE24Mbps  GE30Mbps  Full\_Fibre  GE300Mbps

**Country**  England  Northern Irela...  Scotland  United Kingdo...  Wales

**Owner...**  Commercial  Residential

**Rurality**  Rural  Urban

**Speed**  Below\_USO  GE10Mbps  GE24Mbps  GE30Mbps  Full\_Fibre  GE300Mbps



# Universal Service Obligation (USO)

## new scheme w.e.f. 20-Mar-2020

**Country**  England  
 Northern Irela...  
 Scotland  
 United Kingdo...  
 Wales

**Owner...**  Commercial  
 Residential

**Rurality**  Rural  
 Urban

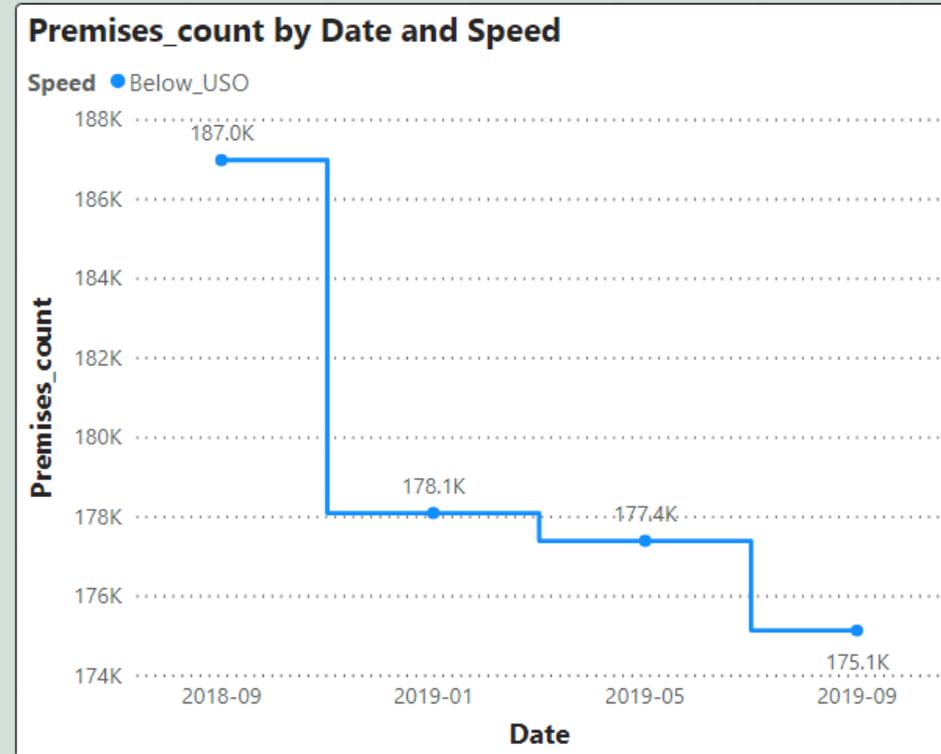
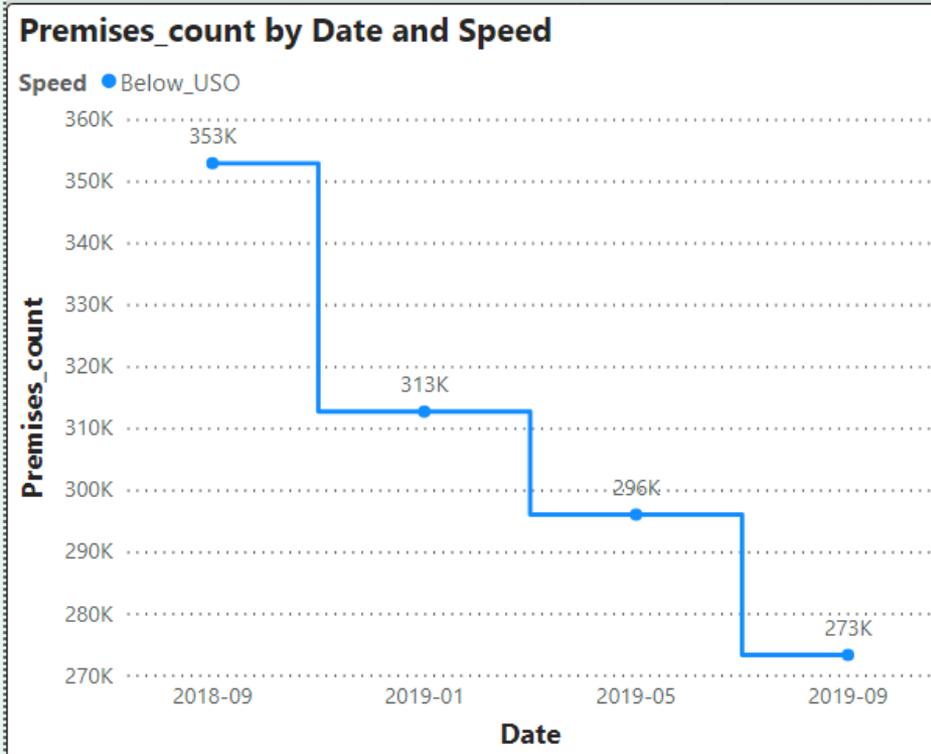
**Speed**  Below\_USO  
 GE10Mbps  
 GE24Mbps  
 GE30Mbps  
 Full\_Fibre  
 GE300Mbps

**Country**  England  
 Northern Irela...  
 Scotland  
 United Kingdo...  
 Wales

**Owner...**  Commercial  
 Residential

**Rurality**  Rural  
 Urban

**Speed**  Below\_USO  
 GE10Mbps  
 GE24Mbps  
 GE30Mbps  
 Full\_Fibre  
 GE300Mbps



# Summary, Questions, Feedback

- Main work was in Power Query
- Visualisation
  1. Progress over time
  2. Flexible comparisons, for interaction by users
- Insight:  
need for the new 'Universal Service Obligation'