

(BOUNDARY) SHIFT HAPPENS

Modelling and managing temporal changes to
geographic datasets

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The problem...

1980/81

		Dwellings started			
Current ONS code		Private Enterprise	Housing Associations	Local Authority	All
E10000005	Cornwall and Isles of Scilly	1,380	50	340	1,770
E07000019	Caradon	360	0	90	440
E07000020	Carrick	300	30	20	350
E07000025	Isles of Scilly				
E07000021	Kerrier				
E07000022	North Cornwall				
E07000023	Penwith				
E07000024	Restormel				

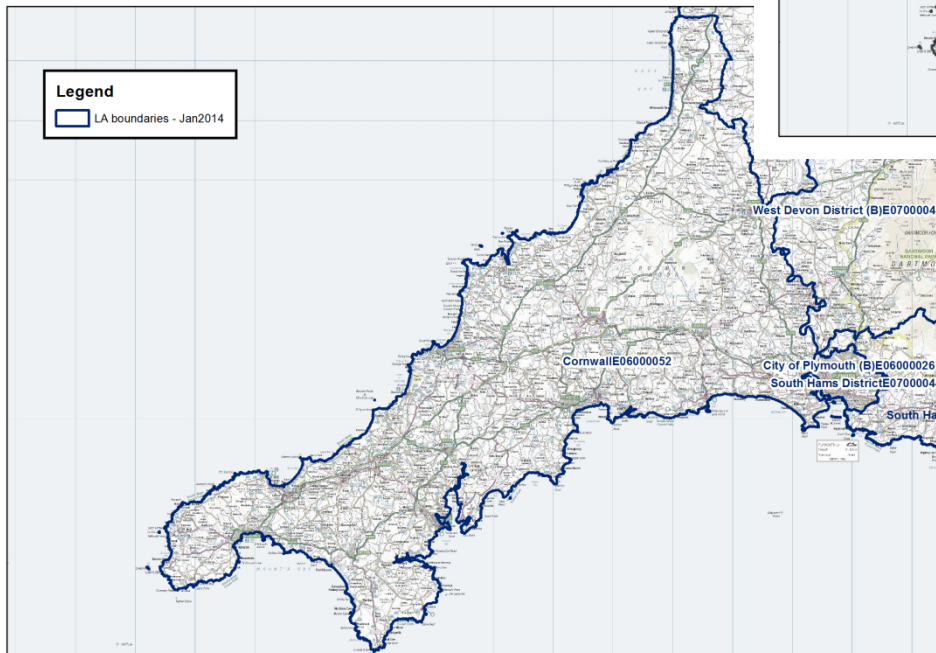
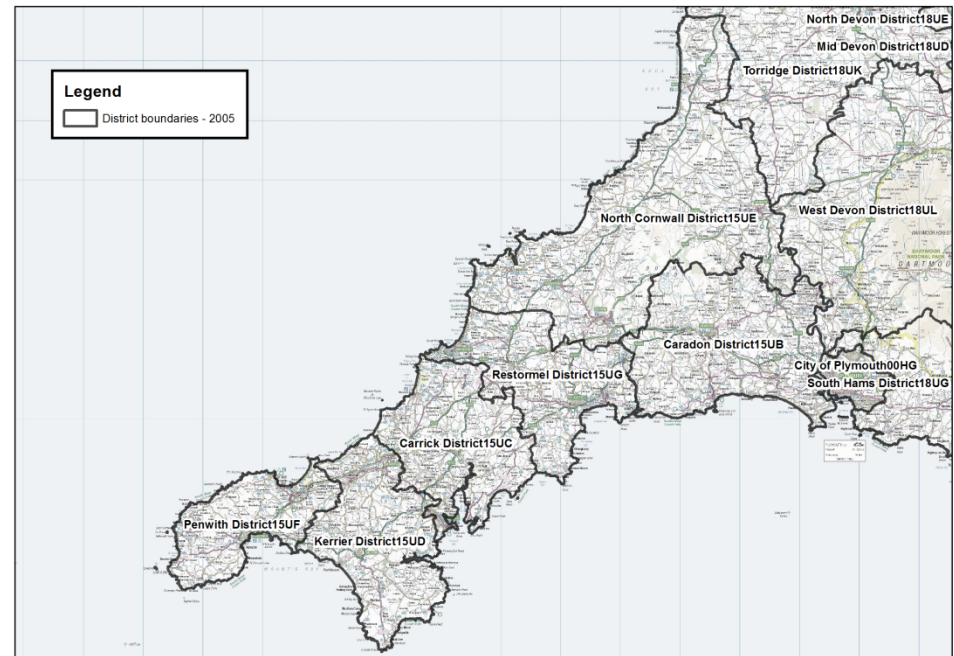
2012/13

		Dwellings started			
Current ONS code		Private Enterprise	Housing Associations	Local Authority	All
E06000052	Cornwall UA	1,550
E06000053	Isles of Scilly	0	0	0	0

- How can open/linked data standards support consistent measurement and monitoring over long-time periods?
- How to cater for multiple complex changes to underlying geography?
- How to distinguish between geographic footprints and organisations responsible for them? (we can and do confuse the two)

The problem...

From big change...

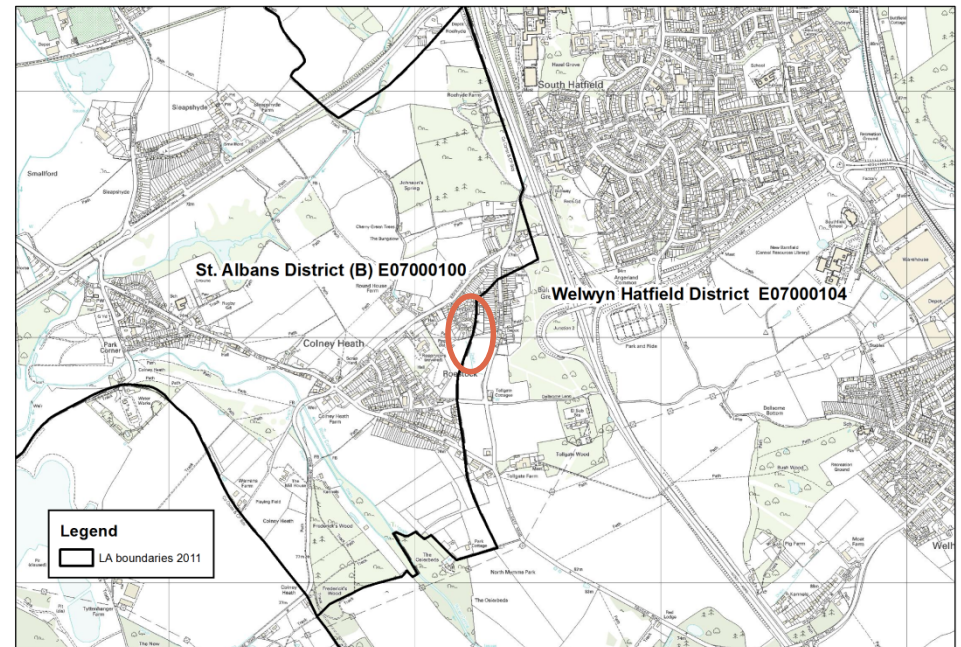
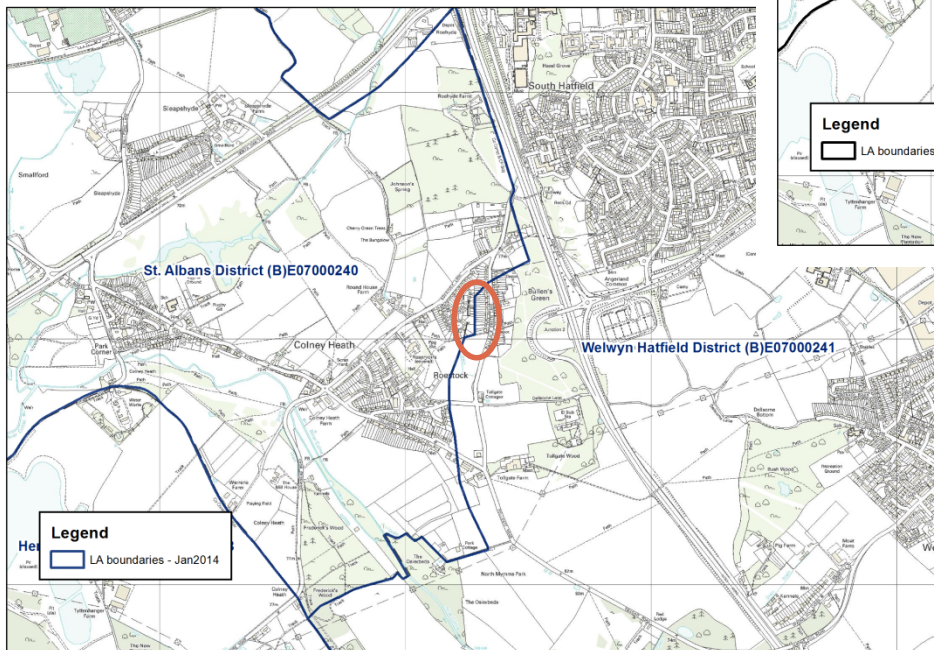


- Sparks significant additional changes: e.g.
 - Contacts & locations for responsible organisations
 - Legal responsibilities (scope and nature of services provided)
- Code-lists for unique identifiers also changed

The problem...

To small change...

Spot the difference!



- Not the same thing
 - geometry gets new identifier
- No change to data about the responsible organisations

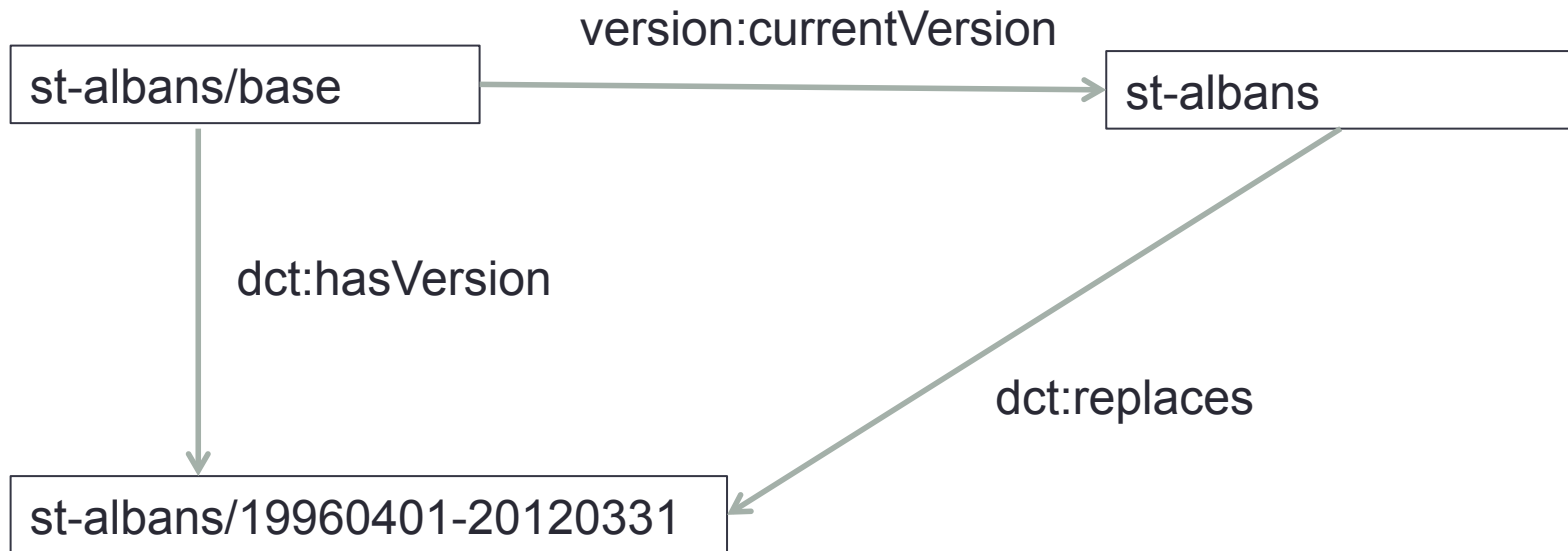
Objectives

- Make common tasks easy and quick for data users:
find info about the current situation
- Make it possible to:
 - Find info on a particular local authority as it was at some date in the past
 - Find a complete list of local authorities that existed at some date in the past
 - Find how different regions were interconnected at a some date in the past

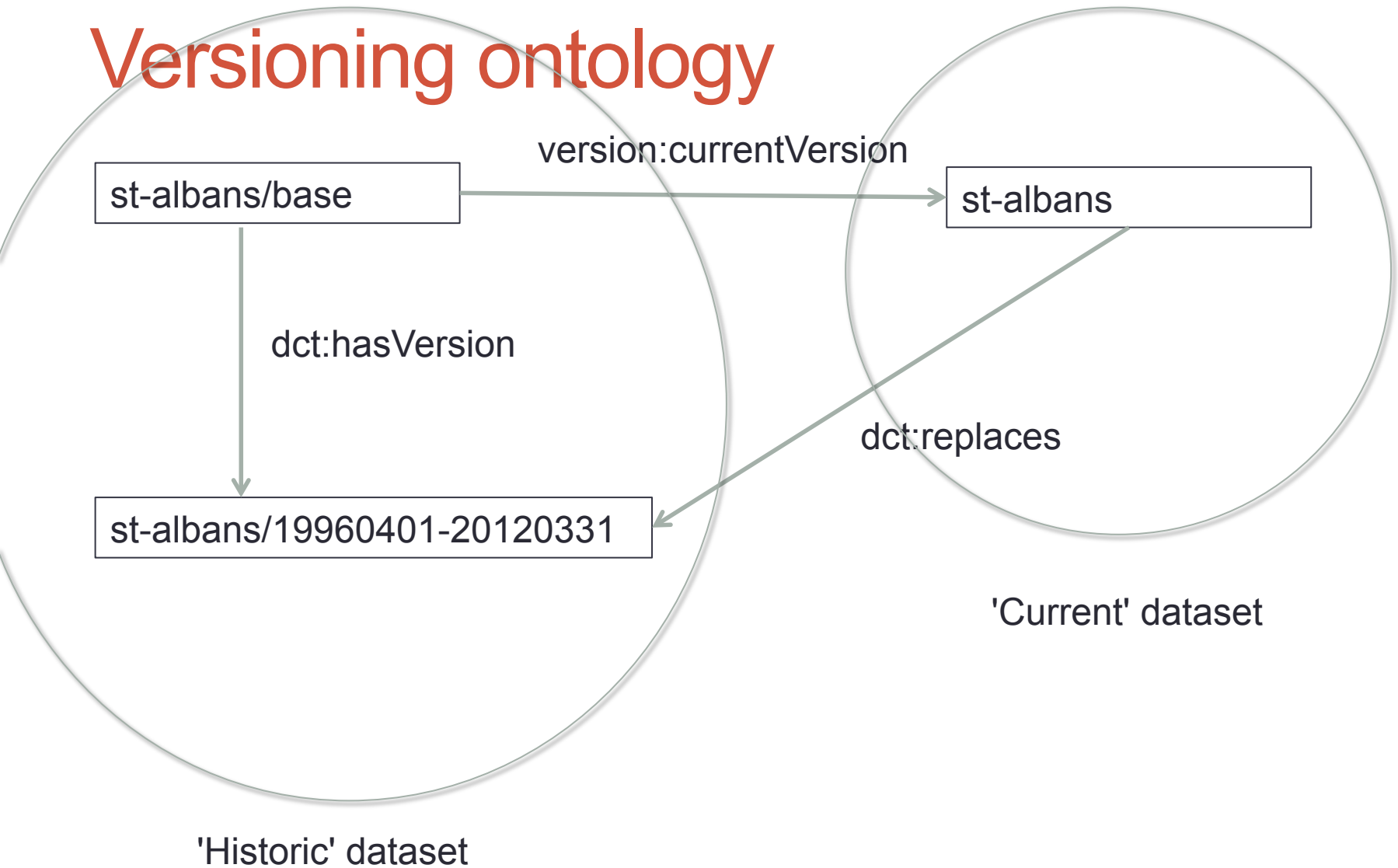
Two datasets

- 'Current' dataset describing the authorities as they are now
- 'Historic' dataset describing all previous states of each resource

Versioning ontology



Versioning ontology



Next steps

- Implement our plan!
- Define the detailed steps to carry out when a Local Authority changes
- Create convenience APIs on top of SPARQL queries for retrieving historical data

Re-usable pattern?

- Is this a pattern that others would re-use?
- Are there better patterns we could copy?