While the need to maintain state for our data is a technical impediment to including a database in a DevOps process, there are many other issues that development teams encounter when they look to include a database in their development process.

One of the main issues is with the people in charge of the production databases. Often traditional DBAs that manage databases aren’t familiar with software development tools and techniques. Just like sysadmins often need coaching to understand how version control and scripted build or release servers work, so do DBAs.

However, it’s not just a lack of understanding of the tooling, but also a fundamental tension between the goals of developers and the goals of a database administrator. Just as sysadmins are more concerned with security, stability, and performance of the production systems than the features in an application, DBAs have similar concerns. The DBA may, in fact, be even more concerned about rapid change as the database is a single source for data, with some changes not easily rolled back. Unlike web servers and application servers, having to remove changes from or restore a database is extremely disruptive.

Another issue that teams often face is the fact that some of the data in a database is really a part of the development system, and needs to be migrated along with code changes. For example, there will be lookup or reference data (also called static data), that should be synchronized across all environments from development to production. This may be information from official sources, like lists of cities and postal codes, or this might be application specific, such as status values or gender options.

This isn’t technically too hard to manage, but it is a challenge that companies need to address. The administration of determining the official source of data and ensuring that correct sets are distributed to each database in all environments can be an issue.

The last issue is perhaps one of the most problematic. When there are issues with databases, often performance related, DBAs or sysadmins might make changes to code on the production server. Sometimes these are index changes, but perhaps stored procedures or views need to be changed with hints or other code tweaks to help them perform better. The need to expediently correct issues is often the driver for causing this “drift” from the last official release of database code.

Often these changes aren’t fed back to the development system, which means that future development code might not deploy correctly