Innovation at Moody's Analytics: A new approach to database provisioning using SQL Clone
“We already had a one-click process for database provisioning, but it was still taking too much time.”

Moody’s Analytics, a subsidiary of Moody’s Corporation, helps capital markets and risk management professionals worldwide respond to an evolving marketplace with confidence. The company offers unique tools and best practices for measuring and managing risk through expertise and experience in credit analysis, economic research and financial risk management.

Moody’s Analytics provides insurers with industry-leading modeling and content delivered through high-performance, modular and configurable software. Its Economic Scenario Generator (ESG) is an award-winning software product that provides Monte Carlo simulation paths for the joint behavior of financial market risk factors and economic variables. The ESG is constantly updated with the latest market and calibration data, and the responsibility for keeping the update process running smoothly falls on the shoulders of the Service Delivery Infrastructure (SDI) team.

The architect, two testers and three software engineers in the team have already adopted agile software development practices and Principal Software Engineer, Daryl Griffiths, is constantly looking for ways to innovate yet further.

Working on a Microsoft stack, they develop both the application and databases in parallel and, while they can call on Moody’s Analytics global DBA team when required, Daryl supervises most of the database work for the team. Their risk assessment application accesses data from six databases, the largest of which is 230GB. Already familiar with Redgate tools, the team check in database changes using SQL Source Control, before using SQL Compare and SQL Data Compare to perform deployments and upgrades, both automatically and manually.

Provisioning database copies is a constant requirement, particularly for the Test Engineers who need to create several fresh database copies each day, to run the required database integration and system tests. Daryl had developed a one-click database restore process that allowed testers to self-serve copies very easily, but it still took an hour and more to perform each restore, which limited the team to creating two to three fresh database copies each day.
“The team didn’t notice any difference between working with a real database and a clone.”

When the beta version of SQL Clone was announced in a Redgate webinar, Daryl knew immediately it was something the team might benefit from. He installed it in his own development environment and started to investigate its potential to reduce database provisioning time.

SQL Clone works by creating a single ‘image’ of a SQL Server database or backup. Clones can then be created in seconds from this image and, even, for a 64TB database, are just MB in size.

“Our process before was quite slick, but in my tests with SQL Clone, I reduced the time to provision copies of all six of our databases from nearly two hours to ten minutes,” says Daryl.

After testing SQL Clone on other servers to verify it would work in a wider environment, Daryl introduced the tool to the Test Engineers. They could self-serve a cloned copy of a database in seconds, and they reported no differences in performing tests against a clone rather than a full copy of the database.

Daryl then silently switched the provisioning of development copies over to the new SQL Clone process. For a week, the team made changes to their development databases, and ran SQL queries against them, unaware that they were now working with a ‘clone’ rather than a full copy of the database. They reported no impact on performance of their queries.

With SQL Clone tested, validated and proven, it has now become a standard part of the development process for the SDI team. Anyone in the team can self-serve a cloned copy of a database in minutes and it has contributed significantly to the speed and efficiency of the database development and testing processes.
“We're now moving towards continuous deployment, and SQL Clone is a big part of that.”

The introduction of SQL Clone brought advantages to the development process as well. “I found I was less worried about making a change to the database in development,” says Daryl. “Before, I was concerned about changing data because it would take a long time to recreate the database to put it back to a clean state.”

In turn, this encouraged more innovative ways of working. “Traditionally, database work was the one area where there was less freedom to run quick experiments. Now, suddenly, it’s very easy to create two clones, side by side, when I’m working on two different projects, or wanting to try out two different ways of doing something. I think going forward that sort of freedom is going to change the way the team approaches database work, and allow us to deliver changes much more quickly.”

For the Test Engineers, it’s meant that they can spin up as many fresh clones as required. They can run tests in parallel and so perform far more extensive testing in the time they have. This gives the team, and the business, a lot more confidence in the reliability of the new features they deliver.

The next big innovation will be continuous deployment, which Daryl is now introducing.

“We’re adopting our processes one stage at a time,” says Daryl. “If we want to deliver new functionality more frequently, then we need to adapt and improve our development processes, and ensure that the testers can make the most effective use of their testing time. I think SQL Clone could play a big part in helping us achieve that.”
SQL Clone is a database provisioning tool that allows users to create full copies of SQL Server databases and backups in seconds, using around 40MB of disk space per clone.

Instead of spending hours provisioning different copies of the database for development, testing or diagnostics, SQL Clone creates a single data image of a live SQL Server database or backup, which is used as the source data for the clones. Clones work just like normal databases and can be connected to and edited using any program.

SQL Clone’s web app provides a central place to create and manage clones, and individuals can then work locally on up-to-date, isolated clones to speed up development, testing, and fixing issues.

To find out more, visit www.red-gate.com/sql-clone, where you can download a 14-day, fully-functional trial.