



Courtesy of Bucknell University

Bucknell

UNIVERSITY

Bucknell University Uses Automation to Develop Cloud-Based Data Warehouse

About Bucknell University

Founded in 1846 along the banks of the Susquehanna River in historic Lewisburg, Pa., Bucknell University is a selective, highly ranked national university where liberal arts and professional programs complement each other. WhereScape talked with Ken Flerlage, Business Intelligence Functional Architect at Bucknell, about the University's use of WhereScape's automation software to quickly develop a cloud-based data warehouse that will better serve students and stakeholders with improved reporting and analytics.

“We can build data models much faster than previously and much faster than using a traditional ETL tool.”

– Ken Flerlage, Business Intelligence Functional Architect, Bucknell University

What were the drivers for developing your new data warehouse?

Bucknell is currently implementing some new enterprise systems and the existing data warehouse would require significant architectural changes to support them. Bucknell has historically used (and continues to use for many core processes) the Banner Ellucian ERP student information system that managed everything on the back-end, including BI and reporting—a turnkey system for higher education. While the BI components are an effective solution, it is a “black box”, making it very difficult to modify a model or transformation to meet our specific needs. It required special skill sets and digging through lower level logic and was a bit “bulky” for us. In addition, performance and stability was starting to become an issue and the lack of agility in the platform was troublesome as we are a small development team on tight delivery deadlines.

Some significant architectural changes were required to support the addition of new cloud-based, best-of-breed enterprise systems as well as a multitude of new and emerging data sources. We also needed our new platform to be as “future-proof” as possible, being able to handle other types of data—not just relational data—as our cloud-based systems are not necessarily based on traditional relational databases.

What kind of development solution were you seeking?

We were specifically looking for a tool to help us build our data warehouse and initially thought we were going to need to invest in a full-blown ETL tool along with the significant learning curve required to come up to speed on that product. Traditional ETL tools—while effective—are a one-size-fits-all solution. They can often operate like a programming language—you can do anything you could ever imagine, but you must manually create each instruction, resulting in a lack of agility. During our due diligence, we discovered the concept of data warehouse automation and immediately saw that it was exactly what we needed. These products allow developers to automate monotonous and repetitive tasks, masking the complexities along the way. We are now able to automate these minor tasks, allowing us to focus on business-level problems.

Why did you purchase WhereScape?

We selected WhereScape over traditional ETL for reasons noted previously and chose WhereScape over other automation tools because we felt it was the most mature and proven of the available automation solutions. Our purchase of WhereScape was part of a larger re-architecture of our data warehouse. Our choice of WhereScape was largely based on its ability to rapidly speed up the development process through automation.

Key Features and Benefits:

- Automation of Documentation –** This is perhaps the best feature of the product. Based on your design, it creates two sets of documentation—one for your technical teams and one for end-users—which show the data model, metadata, and just about anything else you’d want to know about the model.
- Impact Analysis –** During the lifetime of a data warehouse, there is regularly a need to enhance and extend the warehouse, but it can often be difficult to understand how changes will impact other things downstream. With WhereScape® RED, you can simply click on an object and perform an impact analysis to see how changes to that object will impact other objects. You can also do the reverse of this, looking at an object and “tracking back” to see what objects are used to build it.
- Code Runs on the Database –** When you build objects in WhereScape (through a point-and-click GUI), the product automatically generates target-specific code. So, for instance, if your target platform is SQL Server, it will generate T-SQL stored procedures for updating your warehouse objects. When jobs are run, this code gets executed on the target database. This essentially means that the ETL—or ELT, if you will—is serverless.
- Pricing –** The product is much less expensive than traditional ETL tools. Licensing is very simple to understand and is developer based.

Please describe your new computing environment?

In our new heterogeneous, best-of-breed environment, student and financial aid continue to run on Banner; Finance and HR are moving to WorkDay; Development and Alumni Relations are moving to Blackbaud CRM; and Admissions is now running on Technosolutions Slate.

We are building a new cloud-based data warehouse running on AWS's database-as-a-service offering, Relational Database Service, using Microsoft SQL Server. We also purchased MongoDB Atlas, another database-as-a-service offering to support emerging data types—a place where we can drop semi-structured data to make it available for reporting—a data lake, of sorts. We utilize IBM Cognos and Tableau for enterprise reporting, analytics, and data visualization.

What features most attracted Bucknell to WhereScape RED?

WhereScape RED is meant for the specific task of building data warehouses. The product takes on much of the painful, time-consuming, manual and repetitive tasks, allowing you to focus on meeting business requirements. For a small development team, this is huge! The key ingredient that makes WhereScape RED so powerful is its data lineage support—including track forward, track back and its change management capabilities. Doing this type of work in an ETL environment—where you want to make a change to a source table, for example—can be very difficult. In addition, trying to do any type of impact analysis via legacy ETL is a nightmare. With WhereScape RED, both creating documentation and an impact analysis is now done with a click of the mouse. Very powerful, and an invaluable part of our everyday development work. Our choice of WhereScape was largely based on its ability to speed up the development process through automation. We also use WhereScape RED in our validation efforts. If we view a discrepancy, we open up WhereScape, find that field and track it back. It is that simple.



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Is WhereScape RED difficult to install and use?

We have had a very positive experience integrating WhereScape RED into our new computing environment. Because there is no server component other than a lightweight job scheduler, it's simply the installation of the software and some initial setup. The software generates database code for the target platform and runs that code on the database server itself, so it's very lightweight. The only components are 1) Client Software and 2) A Lightweight Scheduler. The installation of these two components is very quick and easy.

What has WhereScape RED afforded your organization?

WhereScape allows us to focus on the most important aspect of a data warehouse—business requirements—instead of focusing on the low-level details of the development platform. We can build data models much faster. With WhereScape RED, we were able to build, validate and begin using the student module subject area within the new data warehouse twice as fast as it would have taken us using traditional ETL approaches.



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Can you describe the after sales support with WhereScape?

This is another area where WhereScape shines. They are not a huge organization, so you get very prompt and personalized care. My support tickets are always answered very quickly and they truly listen to my suggestions. And, perhaps most importantly, their support team knows the product inside and out—you will not deal with inexperienced first-level support techs. They also make experts available to help us quickly answer any questions about best practices, how to accomplish specific tasks, etc.

Do you have any advice for organizations looking to adopt data warehouse automation?

Data warehouse automation requires you to change your thinking and perspective. If you are looking at this product as a simple replacement for your existing ETL solution and try to use it exactly the way you utilized ETL, then you will not fully realize the functional benefits. The cost benefits will still be there though. You need to think more in terms of agile data warehouse design. For those new to this concept, I recommend a book called *Agile Data Warehouse Design: Collaborative Dimensional Modeling, from Whiteboard to Star Schema* by Lawrence Corr and Jim Stagnitto. WhereScape fits very nicely into the concepts presented in the book.

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Functional Architect, Bucknell University

About WhereScape

WhereScape helps IT organizations of all sizes leverage automation to design, develop, deploy, and operate data infrastructure faster. More than 700 customers worldwide rely on WhereScape automation to eliminate hand-coding and other repetitive, time-intensive aspects of data infrastructure projects to deliver data warehouses, vaults, lakes and marts in days or weeks rather than in months or years. WhereScape has global operations in the USA, UK, Singapore and New Zealand.

WhereScape.com