



InDetail

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Zizo



Zizo does what it aims to do. It genuinely brings enterprise class analytics within the financial scope of much smaller organisations that cannot afford the big bucks traditionally associated with such capabilities.



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Executive summary

The problem with both traditional data warehousing solutions and the more modern environments that extend into “big data” and Hadoop, is that these environments are complex and expensive. They are complex because they are comprised of many moving parts: you have to move your data into your warehouse, mart or data lake; and this typically requires specialised software that is complicated in its own right. You also need to be able to ensure that the data is fit for purpose and that it is timely, which may require additional software if results of query processing are needed in real-time or nearly so. And then, of course, you need appropriate software to allow you to explore, investigate, query and analyse your data, before you eventually present the results in a dashboard or via some other form of visualisation.

Note that putting your data into the cloud won't, in and of itself, resolve this complexity. As a result, it won't stop the environment being expensive.

The issue here is really one of the rich getting richer and the poor getting poorer. Smaller companies, or departments in larger companies that do not have big budgets, simply cannot afford the cost of analytics, because of the complexity and expense just described. On the other hand, bigger companies can afford to pay premium prices for analytics, so they get the benefits all to themselves. What is required is affordable analytics and the only way to do that, in practice, is to remove the complexity from the environment: then it becomes a whole lot less expensive. This is what Zizo is trying to do.

Fast facts

Zizo provides analytics as a service with its solution targeted at all classes and sizes of organisations. While on-premises deployments are possible, typical users employ Zizo within a managed cloud environment. A major feature is that Zizo provides everything you might need with respect to analytics or business intelligence: the database in which to store the data, facilities to transform

existing (internal and external) data and load it into that database, data preparation functionality for blending the data, query and analytic capabilities to explore the data, built-in slice and dice and reporting capabilities, and dashboards in which to represent the results. The company provides its own front-end tool – Insight – for data visualisation, which has been specially tuned to work with large data sets. Connectivity options are also provided to support third-party tools such as Yellowfin, Qlik and Tableau. If companies have existing data integration tools that they want to reuse this can also be accommodated.

Key findings

In the opinion of Bloor Research, the following represent the key facts of which prospective users should be aware:

- Zizo offers a one stop shop for data warehousing, business intelligence, analytics and all the ancillary services that are needed to create and support these environments. While relevant for all companies this will be particularly appealing to smaller organisations that want the analytic sophistication that large enterprises expect, but without the budget that is typically associated with such deployments.
- Zizo uses patented database technology (a pattern database) to underpin its capabilities. This supports very high levels of compression (reducing the storage requirement and hence reducing costs) as well as performance.
- Zizo is typically provided as a managed service, though on premises deployments are possible.
- The one thing that Zizo does not provide is front-end visualisation tools such as Tableau or Qlik. Connectivity is provided to such tools.
- The offering is fully SQL compliant, though other methods for accessing the database – primarily used as a part of the managed service – are also available.



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- The company has built a number of industry specific capabilities (notably dashboards of various types) that are available out of the box. The company's partner strategy is focused on extending vertical expertise into other domains.

The big advantage that the Zizo environment brings is that it means that analytics can be provided much more cost effectively than would otherwise be the case: with complexity – at least in terms of the number of products and technologies involved – reduced to a minimum. This means less training and more transferrable skills as well as benefits that are more directly associated with service-based offerings, such as elastic scaling and reduced (subscription) costs.

The bottom line

There are a lot of vendors in the business intelligence and analytics space(s). While there are fewer that offer these functions as a service rather than simply providing tools, there is still significant competition. How Zizo differentiates itself is twofold: firstly, it has its own database technology so you don't have to worry about how or where to store your data. Secondly, there is a single environment (Pathway) that provides everything from initially extracting your data through to cleansing, transforming, filtering and joining your data (not necessarily in that order) to the final querying of your data and the presentation of the results. While it is easy to think of the pattern database that underpins Zizo as the secret sauce that underpins the Zizo product offering, it would be more accurate to describe it as one of the secret sauces, with Pathway being the other. Like the database, Pathway is not visible to most users though it is available for use by "power" users.



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The product

Zizo provides a managed service (though the software is, technically, available for on-premises deployments) that delivers everything from simple business intelligence to advanced analytics, based on data Zizo manages for you in the cloud. The truth is that you shouldn't care about the technical details that make this happen. How the company loads the data, how it is stored and how it is processed. The hardware that it uses and all the infrastructure should be irrelevant, provided you get the results that you want within timescales that are appropriate, and at as low as possible cost. However, in real-life, while Zizo may demonstrate (perhaps via a proof of concept) its performance and capabilities, the fact is that many people will want to understand the underpinnings of Zizo's solutions and how it can do what it does.

At the hardware level, Zizo has partnerships with both Intel and Dell and these provide the backbone of Zizo's solution. However, it is the database that is the secret sauce behind the company's capabilities and this needs to be discussed separately, as does Zizo Pathway. However, Pathway is really only for power users, so we also need to consider how more typical users interface with the Zizo environment.

The database

Zizo uses a patented (in Europe and the United States) database known as a pattern database. According to Wikispaces: a pattern database *"stores a collection of solutions to sub-problems that must be achieved to solve the problem. While we normally think of a heuristic as a function computed by an algorithm, any function can also be computed by a table lookup, given sufficient memory. In fact, for reasons of efficiency, heuristic functions are commonly precomputed and stored in memory."* To put this more simply: pattern databases work by breaking a problem or query down into smaller components and then resolving each of these components at the lowest practical level. These individual results are then compounded so that they provide the desired result. This is not a new concept. Indeed, the idea of

breaking problems down into smaller parts has been around forever. As a practical approach in database technology it was first documented by Culberson and Schaeffer in 1996. However, as the Wikispaces description may suggest, pattern databases were originally designed to resolve combinatorial puzzles such as Rubik's cube. What Zizo has done is to apply the basic principle of working at the sub-problem level and apply that to business intelligence and analytics as opposed to purely numerical problems.

In practice, the way that Zizo's database works is that when you want to insert a row (thinking in relational terms) of data into your database what the database does is to examine each field and, whenever it encounters a field that it does not currently have in its database – whether that is a company name, a town, an account value, an email address or whatever – then the database will create a "pattern" to represent that value. If it has seen that value before then the database creates a pointer to the existing pattern and increments a counter that records how many times that that pattern currently occurs within the database. Indexes identify the patterns that are stored in the database.

One major benefit of this pattern/pointer approach is that you get very good compression. Zizo claims typical rates of 30 to 1 or as much as 100 to 1 for call detail records (CDRs).

Patterns may also refer to other patterns so that a pattern can be a compound of its children. Thus, when you insert new data into the database this results in a series of concatenated patterns that, in effect, you can think of as being a "root record".

It is not just your data that is treated as patterns but also your queries (though it might be simpler to understand if different terminology was used). These also equate to patterns. For example, "sales by region" would equate to the compound pattern consisting of the sales pattern and the region pattern. Answering queries of this type – and more complex queries – can be handled very efficiently in a pattern database. However, Zizo operates in memory and memory is not infinite. While what we might call



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You can think of Pathway as providing an ETL (extract, transformation and load) environment except that it instead of a target database at the back-end, you have a query.



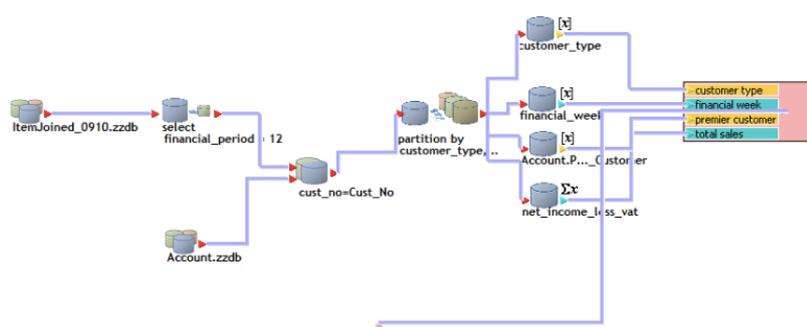
“data patterns” are stored for long-term purposes on disk and then loaded into memory, “query patterns” are ephemeral and exist only in memory. So, as memory gets used up, the question arises as to what patterns should be retained in-memory? Clearly, data patterns can be held in memory or read from disk, as required. However, because query patterns are temporary you lose them if they are rolled out of memory. So, to optimise memory usage, Zizo constantly monitors the patterns that are held in memory. This monitoring not only does conventional things like monitoring how frequently any particular query is run, it also considers the complexity of queries and their resulting patterns, as well as how expensive it would be to rebuild that pattern if it was to be rolled out of memory. Thus, the software optimises the use of the patterns in memory.

Pathway is a computationally complete development language presented to the user via a graphical user interface whereby you drag and drop objects onto a canvas. This may require some explanation. Firstly, “computationally complete” means exactly what it says: anything that it is possible to compute can be computed by Pathway. This is not trivial. SQL, for example, is not computationally complete. Secondly, Pathway is based on the Lucid programming language (though this is hidden and you won’t see it). This is significant because Lucid (and Pathway) is a dataflow programming language originally developed for processing infinite streams of data. What we mean by “dataflow” is illustrated in **Figure 1**, which shows a partial screenshot from the Zizo environment. This is, in fact, a relatively simple example where Pathway is being used to join (blend) various sets of data, on the fly, while creating a simple data query. Note that various transformations are being performed within the dataflow: for example, the data is being partitioned by customer type and sales are being totaled.

In effect, you can think of Pathway as providing an ETL (extract, transformation and load) environment except that it instead of a target database at the back-end, you have a query – and the results thereof – as the end product, ready to be consumed. Moreover, this is not an analogy. Pathway is used for a variety of purposes, starting with data integration, transformation, data cleansing, enrichment and so forth, and, in modern parlance, it acts as a data preparation tool. When loading data into Zizo it can be used not just with relational and NoSQL databases as sources, but also files, Excel spreadsheets and so on. However, Pathway is not limited to data management tasks but may also be used to create data flows that form the basis for complex queries that address the Zizo pattern database.

One final thing to mention about both Lucid and Pathway are that they use an “on-demand” processing approach whereby values are computed only when they are required. The implication is that Pathway, and therefore Zizo, has been designed to support query processing against real-time data as well as historic data and, moreover, that it should be able to handle very large volumes of data.

Figure 1 – Zizo Pathway in practice



Zizo Pathway

There are three ways that you can access the Zizo database. You can use Zizo’s own slice and dice capabilities, you can use SQL-based tools if you want to – such as Tableau or Yellowfin – for which Zizo provides ODBC-based connectivity, or you can use Zizo’s Pathway. Pathway is used primarily by Zizo itself, as a part of its managed service, and it does all the things that the environment requires apart from storing and analysing the data. That is, it provides data integration functions, data cleansing, data preparation and blending. Most users will never see Pathway; however, it is available for those that want to become power users.

Insights

When Zizo was first launched, it had no front-end visualisation capabilities, apart from some dashboarding. If you wanted to interact with your data in a more sophisticated manner then you were effectively forced to license a third-party product from the likes of Qlik or Tableau, via the ODBC connectivity mentioned. This was clearly a flaw, so the company has introduced an “Insights” capability. This provides slice and dice capabilities, support for various visualisation options (including graphs), user administration and scheduling capabilities. It can be customised for each user. However, Insights is not – and Zizo would not claim that it is – a fully blown tool such as Tableau or Yellowfin but it does, in the company’s own words “provide the ten to thirty percent of Tableau that actually gets used”.

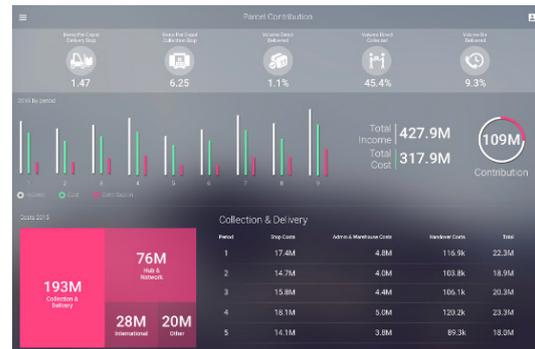
Apart from Insights, the company has developed a number of pre-canned dashboards that have been built for particular industries. For example, in the retail sector, store optimisation and merchandising are available, while **Figure 2** shows visualisations with respect to staff utilisation.

Another area in which Zizo specialises is logistics and the company has built capabilities for ABC analyses, parcel delivery and so on. **Figure 3** is a parcel contribution dashboard. The company is also active in a number of other sectors, ranging from media (the BBC is a customer) to defence establishments and re-insurance.

Figure 2 – Staff utilisation in the retail sector



Figure 3 – Parcel contribution in logistics



The vendor

Zizo Software is a UK-based provider of analytics as a service. The company was previously called Data-Re, which was founded in 2002. The company changed its name to Zizo Software in 2014.

Zizo's avowed intention is to provide enterprise class analytics to SMEs. Smaller companies have just as acute business intelligence and analytics requirements as large companies but they can't afford the expensive solutions that are typically offered by other vendors. Zizo, on the other hand, is very competitively priced so that it is affordable at the lower end of the market.

Zizo primarily uses a direct marketing approach and is encouraging partners to develop particular vertical solutions, targeted at end users rather than IT-based deployments. The company is an Intel strategic partner for Intel Cloud Technology and it is also a member of the Dell Service Provider Partner Program. Perhaps most significantly, Zizo is an IBM partner for Watson Analytics, with the company seeing Zizo as a road to cognitive analytic solutions.

Website: www.zizo.co.uk



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Summary

The challenge that Zizo faces is that it is relatively small, is UK-based rather than US-based (which shouldn't be an issue but often is), and is relatively unknown. The issue is: what are Zizo's ambitions? Does it want to be a mega-vendor or is it content to satisfy its customer's needs and its employee's bank managers? What the company does with its sales and marketing strategy will be dependent on the answer to this question.

However, from our point of view it is the technology that we are interested in. And, in our estimation, Zizo does what it aims to do. That is, it genuinely does bring enterprise class analytics within the financial scope of much smaller organisations that cannot afford the big bucks traditionally associated with such capabilities. We are duly impressed.

FURTHER INFORMATION

Further information about this subject is available from www.www.BloorResearch.com/update/2329



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About the authors

PHILIP HOWARD

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Philip started in the computer industry way back in 1973 and has variously worked as a systems analyst, programmer and salesperson, as well as in marketing and product management, for a variety of companies including GEC Marconi, GPT, Philips Data Systems, Raytheon and NCR.

After a quarter of a century of not being his own boss Philip set up his own company in 1992 and his first client was Bloor Research (then ButlerBloor), with Philip working for the company as an associate analyst. His relationship with Bloor Research has continued since that time and he is now Research Director, focused on Information Management.

Information management includes anything that refers to the management, movement, governance and storage of data, as well as access to and analysis of that data. It involves diverse technologies that include (but are not limited to)

databases and data warehousing, data integration, data quality, master data management, data governance, data migration, metadata management, and data preparation and analytics.

In addition to the numerous reports Philip has written on behalf of Bloor Research, Philip also contributes regularly to *IT-Director.com* and *IT-Analysis.com* and was previously editor of both *Application Development News* and *Operating System News* on behalf of Cambridge Market Intelligence (CMI). He has also contributed to various magazines and written a number of reports published by companies such as CMI and The Financial Times. Philip speaks regularly at conferences and other events throughout Europe and North America.

Away from work, Philip's primary leisure activities are canal boats, skiing, playing Bridge (at which he is a Life Master), and dining out.

Bloor overview

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For over 25 years, Bloor has assisted companies to intelligently evolve: by embracing technology to adjust their strategies and achieve the best possible outcomes. At Bloor, we will help you challenge assumptions to consistently improve and succeed.

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