CLOUD-BASED HYBRID DATA ANALYTICS

INTRODUCTION
More and more organizations now want to use data analytics in real-time or near real-time, instead of simply as a rear-view mirror to look at past performance, or as a means of keeping the auditors happy. At the same time, there is rapidly expanding use of cloud-type systems, whether that’s public cloud infrastructure, internal private clouds or software-as-a-service (SaaS) online applications and services.

WHO TOOK PART
The CIO WaterCooler Research Group is made of CIOs and IT leaders from the United Kingdom, Europe and North America. They represent multiple industries and their company sizes vary from Small (1-99) to Large Enterprises (+10,000).

For this survey we focused particularly on CIOs from the following sectors; Banking, Insurance, Telco, Retail and Utilities.

Respondents by industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail Banking</td>
<td>18%</td>
</tr>
<tr>
<td>Insurance</td>
<td>8%</td>
</tr>
<tr>
<td>Retail</td>
<td>15%</td>
</tr>
<tr>
<td>Telcos</td>
<td>13%</td>
</tr>
<tr>
<td>Utilities</td>
<td>10%</td>
</tr>
<tr>
<td>Investment</td>
<td>5%</td>
</tr>
<tr>
<td>Management</td>
<td>18%</td>
</tr>
<tr>
<td>Financial</td>
<td>12%</td>
</tr>
</tbody>
</table>

Respondents by size of organization – number of staff

<table>
<thead>
<tr>
<th>Size of Organization</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;10,000</td>
<td>37%</td>
</tr>
<tr>
<td>5,000 – 9,999</td>
<td>26%</td>
</tr>
<tr>
<td>1,000 – 4,999</td>
<td>16%</td>
</tr>
<tr>
<td>100 – 999</td>
<td>10.5%</td>
</tr>
<tr>
<td>&gt;100</td>
<td>10.5%</td>
</tr>
</tbody>
</table>
THE IT LANDSCAPE TODAY

Over the years a clear trend has developed whereby most organizations, whatever their size, use a mixture of IT sourcing. They have systems running in their own offices and data centers, or in CoLo facilities, and they also use resources from public cloud and SaaS service providers. For many, this started as a tactical choice, with new solutions deployed to meet pressing needs, but today it is well accepted to have a mix of IT systems running on public and private infrastructures. Going further, for some it has become a fully developed hybrid service delivery strategy (FIGURE 1).

Fig 1. How would you describe your current infrastructure setup? (TICK ALL THAT APPLY)

HYBRID: 68%  
ON-PREM: 47%  
PUBLIC: 21%  
MULTI-CLOUD: 37%

It is fair to say that the advantages of having a mix of service provision are well understood, especially in terms of resilience and flexibility. And while using multiple facilities has its own challenges, this has not stopped the growing usage of public cloud services, with many organizations now using multiple cloud service providers. After all, at its most basic, the old adage of “don’t put all your eggs in one basket” still resonates, and the survey shows that many organizations make use of at least two, if not more public cloud services (FIGURE 2).

Fig 2. Which of the following cloud providers do you work with?

aws: 79%  
Azure: 79%  
Google: 16%  
IBM: 16%  
salesforce: 16%  
ORACLE: 11%  
OTHER: 5%

However, with so many organizations using multiple public cloud providers, and with many combining their use of cloud services with their own on-premise IT systems, a new challenge arises. This is the need for organizations to have a coherent view of their data and its usage across all these different systems. In some ways, public cloud usage has become the new ‘data silo’ challenge for enterprises.
HYBRID DATA ANALYTICS (HDA)

But how are organizations looking to make use of Hybrid Data Analytics, as they seek to win valuable business insights from their multiple sources of data? The survey suggests that HDA is perceived to be well suited to deployment – or is already in use – in a broad range of business areas (FIGURE 3).

The results also show that, as well as being perceived to be a good fit in many different areas of the business, HDA is already supporting many key activities, ranging from top-line revenue generation and business performance management, through sales and marketing, to critical risk management, compliance and regulatory reporting efforts (FIGURE 4).

This spread of potential use cases indicates that HDA systems must of course be able to handle significant data diversity. But, just as importantly, HDA also needs to serve many different departments and functions, some of whose users may not be familiar with specialist data analysis tools.

Fig 3. Which areas of the business does your cloud-based hybrid data analytics infrastructure service (or will it service if not yet implemented)?

- Sales: 79%
- Product: 74%
- IT: 58%
- Finance: 53%
- Marketing: 47%
- R&D: 16%
- Other: 11%
HYBRID DATA ANALYTICS (HDA)

For organizations to maximise the potential benefit of HDA solutions, it is important that work processes allow insights generated to flow across the entire business process lifecycle. This also requires that everyone be able to work off the same core set of data assets across the lifecycle.

There has been a steady accumulation of evidence that advanced organizations are looking to make use of real time, operational analytics to make business decisions continuously. For such enterprises, the goal is to stop using retrospective reporting to frame business planning and become more agile, able to respond to changing business requirements rapidly.

This requires a shift from relying on data warehousing and retrospective report generation to the provision of much more timely and continuous insights that cut across the internal/external, structured/unstructured, and cloud/on-prem boundaries.

Fig 4. How are you currently leveraging hybrid data analytics? (You can select multiple answers)
HOW FAR HAS HDA REACHED INSIDE BUSINESSES?

In order to question whether HDA is the next step in the way analytics solutions are evolving, let’s first look at how those organizations with an understanding and knowledge of HDA from our survey are progressing (FIGURE 5).

We should note here that these results, and those shown in the rest of this paper, are only from those who have committed to HDA deployment and excludes those who indicated they had not yet taken such solutions on board. A deeper analysis of the returns of who have no HDA experience or plans indicates that many respondents were thrown by the term Hybrid Data Analytics itself or inferred an incorrect definition when they guessed. This is something that vendors using the terminology in their marketing plans must take note of. IT Professionals have considerable experience of vendor marketing that is meant to speed up technology adoption, but instead manages to confuse and delay it.

One tactic that vendors could try is to position Hybrid Data Analytics as part of the broader conversation around Hybrid Data Management, which is a better-accepted, and usually well-understood, term. This is an important distinction because much customer and unstructured data now originates and is stored in the public cloud or in various SaaS solutions. It therefore makes sense for at least some of the data collation, transformation and analytics to take place there.

Against such a background, it’s useful to look at input from those with relevant knowledge and experience of HDA. The comments of those already using HDA solutions illustrate how broadly the benefits can stretch (FIGURE 6).

**Fig 5.** Has your business transitioned to a hybrid data analytics cloud-enabled infrastructure?

<table>
<thead>
<tr>
<th>YES, MADE TRANSITION</th>
<th>TRANSITION IMMINENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63%</td>
</tr>
<tr>
<td></td>
<td>37%</td>
</tr>
</tbody>
</table>

**Fig 6.** Tell us briefly, in your own words, how is data analytics helping your organization?

- **Uses customer and web data to optimize the online business performance.**
- **Still in its infancy but revenue, profit and increased customer focus are the goals.**
- **It’s about cost reduction, increase of productivity, time to market.**
- **Churn reduction and sales opportunities.**
- **Foresight, long term predictions, churn management.**
- **It drives key business decisions in terms of product pricing, operational scheduling, etc.**
- **We use it to enable customer segmentation and portfolio modelling.**
- **Driving the business to be data led.**
- **Provides evidence and detail we can work to.**
- **Allows experiments to be run and hypothesis tested with actual data.**
- **It enables us to make data driven decisions at both a strategic and tactical decision level.**
- **Corroboration of the value opinions and experiences of those using or citing imminent adoption of hybrid data analytics.**
The challenges

It is clear that some organizations are benefitting from using HDA solutions. But, as with any IT project, in order to do so, they had to face a number of challenges (FIGURE 7).

It is fair to say that there will be a skills shortage that must be overcome when adopting almost any new technology. For HDA, given how closely it is linked to analysing data from multiple sources, it is no surprise that the necessary skills are often unavailable or in short supply.

Finding people who are comfortable using analytical tools is always a challenge, and even when such tools are available, they can be expensive to keep in-house and up to date. That is why many vendors have invested heavily in making the tools used to generate analyses considerably more user-friendly, although they are still far from perfect.

Fig 7. What are the biggest challenges associated with your (current or planned) hybrid data analytics infrastructure?

<table>
<thead>
<tr>
<th>Challenge</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Most Difficult</th>
<th>Least Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available Skills</td>
<td>44%</td>
<td>28%</td>
<td>17%</td>
<td>11%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory and Compliance</td>
<td>18%</td>
<td>23%</td>
<td>29%</td>
<td>12%</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>13%</td>
<td>25%</td>
<td>37%</td>
<td>12%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complexity of Technology Architecture</td>
<td>11%</td>
<td>39%</td>
<td>22%</td>
<td>22%</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Times to the Business</td>
<td>6%</td>
<td>23%</td>
<td>29%</td>
<td>12%</td>
<td>18%</td>
<td>12%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Costs</td>
<td>6%</td>
<td>35%</td>
<td>18%</td>
<td>12%</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Issues</td>
<td>12%</td>
<td>35%</td>
<td>18%</td>
<td>6%</td>
<td></td>
<td>29%</td>
<td></td>
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</table>
DON’T FORGET DATA GOVERNANCE

But HDA faces another issue directly linked to its very nature. Analysis of data that is resident in various data sources makes it essential that effective data governance is in place, as you may need to stop not just the inappropriate use of data from taking place, but also the inappropriate combination of data from different sources.

The potential financial penalties from failing to do so are, today, anything but trivial, never mind the reaction of customers, and even staff, to inappropriate data usage.

HOW IS HYBRID CLOUD AFFECTING YOUR APPROACH TO RISK?

- Clients highly aware and some are anti cloud. We spend a lot of time answering compliance questions.
- Simplifying controls matrix, ability to consume capabilities.
- Made us more confident.
- Different risks in terms of infrastructure have emerged. Moving to the Cloud allows us to deal with more business critical risks, rather than IT or technology risks.
- Reduce risk of change, incidents.
- Less of a prohibiting factor to adoption than previous but extending perimeters across on prem and cloud is costly.
- Given us the ability to mitigate single point of failure, dynamically scale to meet business needs. Redeveloped solutions enhance our security approaches and solutions.

Clear governance, control and assurance through vendor contractual commitments.
PARTNERS CAN HELP

One of the ways to overcome such challenges is to work with suppliers, often an interwoven ecosystem, who understand both the issues of Hybrid Data Management and analytics and the business area in which the organization operates. However, finding the right suppliers can itself be a major challenge (FIGURE 8).

Fig 8. How many suppliers and service providers are supporting your hybrid data analytics initiatives?

10+ | 10%
5 – 10 | 11%
1 – 5 | 74%
UNSURE | 5%

These results show that it is important to try and limit the number of suppliers used, if only to keep the interdependencies under control. This is particularly relevant given that in figure 7, 50% of survey respondents highlighted solution complexity as a noteworthy challenge.

IN SUMMARY

Digital transformation and social developments are changing the world. Many business sectors are experiencing rapid changes in competition, customer behavior, how new business models get to market, and so on. Organizations therefore have to become more agile, so they are better able to respond to the increased speed of business and social change. This makes it imperative for them to get full value out of the data they hold, and to do so in real-time, or at least near real-time.

Today, that data may be held in many different storage systems or private clouds within the enterprise, in numerous SaaS solutions, and in the stores of various public cloud providers. This is why so many organizations find themselves grappling with Hybrid Data Analytics and Hybrid Data Management. The challenge now is that they need to ensure they engage strategically, not merely tactically.
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WE HELP OUR COMMUNITY

- Raise their profiles
- Benchmark themselves
- With knowledge growth
- And expanding their networks of trusted peers, advisors and experts

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Dell Technologies helps organizations and individuals build their digital future and transform how they work, live and play. The company provides customers with the industry’s broadest and most innovative technology and services portfolio for the data era.

D4T4 Solutions is ALL ABOUT THE DATA. We are a UK-founded tech company quoted on the London Stock Exchange (D4T4). For 30 years our work and solutions have been focused on helping companies get the best possible value from all their data assets. Today we have clients in 22 countries who operate within the financial services, retail, travel and telco sectors who rely on our solutions and technical expertise.

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