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EVOLUTION
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Data Migration to the Cloud



ANALYTICS · BUSINESS APPS · CLOUD · INFRASTRUCTURE · SECURITY



Drive your Digital Agenda Forward with Real-time Cloud Analytics Enabling Smarter Business Decisions

Transformation in the Digital Era

The digital era may have started in the 1970s, but its true impact has been felt most acutely in the last decade. The mainstream adoption of cloud, mobile, and social technologies has resulted in an explosion of data. Life online has spurred a new mindset and expectations in consumers; the proliferation of data drove the creation of new technologies and companies; and, all around, the world started moving at a faster pace. Cloud infrastructure also let new businesses design highly efficient, cost-effective operations from the ground up, offering cheaper and more accessible solutions to customers. Combining data and next generation infrastructure, along with business models catering to the preferences of customers in the digital age, led to disruption across industries. Netflix, Google, Uber, AWS, and Airbnb have all used this formula, as have a number of FinTech and Insurance upstarts – two of the next big industry disruptors.

Square is a prime FinTech example of the digital success model: next gen infrastructure + customer focus + data. Started as a way for small businesses to accept small payments, it was easy to use, anywhere, anytime (just plug it into your iPhone or iPad), and both inexpensive to purchase the hardware, as well as process transactions. Data was also an essential part of the story, allowing vendors to serve their customers better. “I always think of Square as A-B-C,” says Gokul Rajaram, who runs the company’s product engineering team. “A stands for analytics and data. B stands for business operations – how can sellers operate their business more efficiently based in large part on the data we provide them? And C is for customers – how can we help sellers manage relationships with their customers?”¹ In fact, A, B, and C are all about data. Square, along with the rest of these major disruptors, have vast stores of data which will allow them to continue innovating and disrupting.

The Digital Success Model:
Next Generation Infrastructure + Customer
Centric Focus + Data and Analytics

¹ <https://www.wired.com/2014/05/square-data-diving/>

² <http://mattturck.com/2016/02/01/big-data-landscape/> (The Deployment Phase)

As the disruptions continue, enterprises in industries that once felt relatively unshakeable see the need to transform. Having identified technology as being at the core of their disruption, the C-suite have realized Digital Transformation initiatives are the way to maintain their competitive edge. A foundational component of this transformation, as we can see from the previous examples, is data and analytics. Thanks to the excitement around Big Data at the executive level a few years ago, many enterprise IT departments have spent the last several years laying the technical foundation for corporate analytics initiatives: experimenting with different technologies, selecting the right tools, developing information management strategies and working with select business units to run trials².

The promise of big data was – and is – to provide insights that allow benefits like the creation of new revenue streams, improved customer satisfaction, identification of new market opportunities, and the ability to streamline operations. These are, in fact, a subset of the goals of Digital Transformation, so it would seem management and IT are in alignment. There's only one problem: due to a lack of clear strategy, very few enterprises have seen a return on their investment in big data and analytics platform initiatives. The good news is that an overarching digital transformation initiative can provide the impetus to develop a clear analytics strategy. Since transforming the culture into one that's data driven is a top priority in Digital Transformation, it's critical enterprises see their big data and analytics initiative to fruition as a major first step.

So, what is the bridge to achieving business goals with data and analytics initiatives which will set up the business for broader Digital Transformation?

Evolve the Conversation

It's not hard to imagine that when the CXO was getting excited about Big Data, it wasn't visions of Hadoop dancing before their eyes. The promises of more revenue and happier customers, among other things, were the prime motivators for setting IT loose with big data, BI, and analytics initiatives. It's also easy to imagine what motivated the technical teams exploring and implementing the technologies: cool new technology. As frequently happens in large organizations, once initiatives get started, the goals of the executive audience get lost in translation or time. Especially when there are not measurement systems in place to track, which puts implementing measurement systems firmly in the catch-22 zone.

So the first thing to do is shift the IT conversation from one of technology to the one business teams have. The focus should be on what end results need to be achieved. What questions need to be asked to get there? How can the data your business collects be monetized? When IT begins acting with business goals as the driving force for big data and analytics initiatives, always keeping in mind what will be achieved through the consumption of data, they are more likely to develop an effective solution. The goal of enterprise IT is not to provide a great technology; it is to provide the right technology to make smarter business decisions.

Digital Transformation Initiatives are the way to Maintain Competitive Edge for Today's Organization

Evolution to the Cloud

The first step in a digital transformation and to optimal use of data and analytics, which we will explore thoroughly in the rest of this paper, is

often a move to cloud infrastructure. With legacy systems in place, data warehouses, databases and data analytics, BI and big data tools have, for the most part, been built on existing on-premises infrastructure in enterprises. But with changing market demands, an increasing volume of data generated and stored in the cloud, and technology evolving rapidly, a move to the cloud makes business and economic sense for many enterprises today.

First, the tools and ability to use real-time analytics are essential for competitive advantage. In fact, in a survey by McKinsey, high performing organizations are five times as likely as low performing ones to have these capabilities³. For real-time performance, data must be captured at the speed in which it is generated. The flexibility and elasticity of the cloud lend themselves perfectly to this.

High-performing organizations are 5x more likely to use real-time analytics than low performers

The democratization of data, or allowing everyone in an organization to have access to data through user-friendly BI tools, is another key indicator of success. In the same survey mentioned above, high-performers were more than twice as likely than low performers to involve more of the business in analytics, working toward a data-driven culture. Again, the cloud's on-demand nature and accessibility are best suited to support this type of setup.

Time to value is also faster than with on-premises systems. The cloud allows quick set-up of new decision management applications; no infrastructure setup (hardware, OS, databases, application servers, analytics), no need to create

new integrations or define data models or upload data. It's all there in the cloud, ready to go⁴.

Affordability is another imperative often addressed by cloud infrastructure. Part of using legacy infrastructure in the first place was keeping costs down.

There are now many instances where the elastic scalability of the cloud allows organizations to analyze data more cost-effectively utilizing cloud architecture for bursts of high traffic times – weekly, monthly, seasonally – or test/dev. Hortonworks Vice President of Corporate Strategy Shaun Connolly says “We’re starting to see more dev test where you just spin up ad hoc clusters to do your work around a subset of data⁵.”

To Go or Not to Go

Since the race to digital transformation is on, how do enterprises embark on the journey from on-premises to cloud quickly and efficiently?

First, the good news. In 2015, cloud officially reached the tipping point in enterprise. In fact, by the end of 2017, over 80% of enterprise IT organizations will commit to hybrid cloud architectures according to the 2016 IDC FutureScape: Worldwide Cloud 2016 Predictions. And cloud storage for data analytics, BI, and big data workloads is on the rise. Currently, according to 451 Voice of the Enterprise 2016, 9% of survey respondents use public cloud as the primary storage location for data analytics and BI, and 23% use it for big data, with growth to 22% and 40%, respectively, by 2018⁶. So there's likely to be little resistance to cloud from above.

Still, due diligence is a must before deciding whether to migrate an analytics platform to the cloud. There are six areas to be evaluated in a decision to migrate analytics to the cloud:

³ <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-need-to-lead-in-data-and-analytics>

⁴ <http://data-informed.com/why-cloud-analytics-is-better-analytics/>

⁵ <http://www.infoworld.com/article/2905917/big-data/big-data-is-all-about-the-cloud.html>

Factors Governing Migration to the Cloud

Data Governance is the overall management of the availability, usability, integrity, and security of data employed in an enterprise⁷. Making sure a governance framework is in place before migration is critical to good business outcomes. The volume and source of data, as well as how frequently the data is accessed and analyzed need to be evaluated when deciding whether it should reside on-premises or in the cloud. Using a tool like Amazon Snowball to transport large volumes of data to the AWS cloud can be cost-prohibitive, so moving petabytes of data, whether structured or unstructured, to the cloud is not an economical option. This is particularly true if it was generated within on-premises systems. However, if the data source is from mobile devices, online applications or transactions, IOT, or social and can be accessed and needs to be analyzed realtime, then the cloud could be the best option. In a highlyregulated environment, sensitive data resides on-premises, and the rest is moved to the cloud.

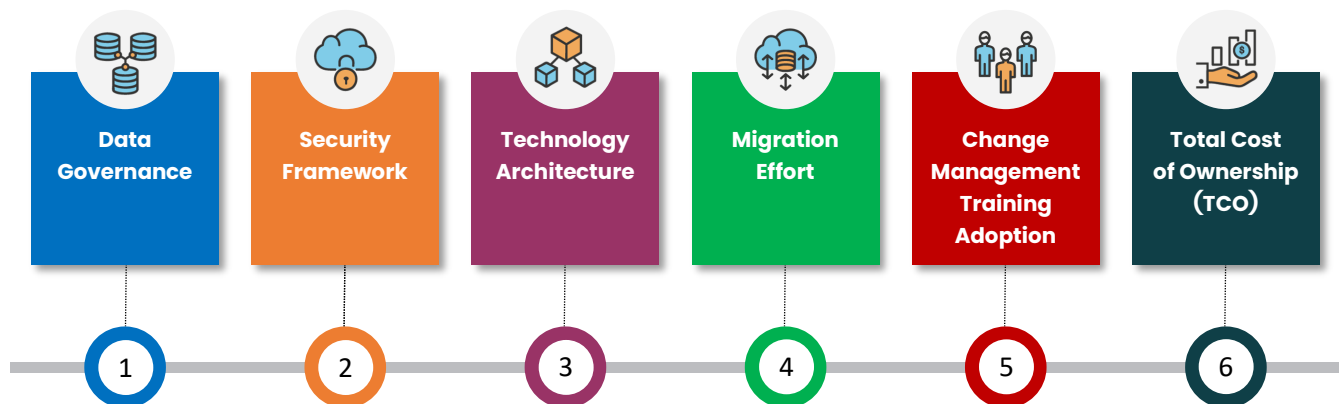
The **Security Framework** determines the apparatus around the data exchange and the metrics that need to be defined, measured and

reported. This is particularly critical in a public cloud environment and includes both cyber and physical (at the data center) security measures. Considerations include the security of the data in case of a natural catastrophe. In such an event, is there a disaster recovery or risk mitigation process that enables the business to get back to “business as usual” with little to no impact? On the virtual side, if sensitive data is accessed from multiple applications, devices or locations it has to go through advanced encryption for added safety, and this is going to add to the cost.

Technology Architectures should be evaluated based on the expected ingestion, transformation, and consumption of data, and the solution should facilitate data exchange with different applications and data sources. An organization needs to look at the different usage patterns and leverage a mix of IaaS and PaaS services to define the right solution set. The chosen architecture needs to be scalable, flexible, and able to respond to fluctuating business needs.

Migration Effort should be analyzed to determine the amount of code level changes needed for migrating analytics to the cloud.

Six Evaluation Factors for Moving Analytics to the Cloud



⁶ <https://www.witi.com/articles/726/Data-Analytics-Moves-to-the-Cloud/>

⁷ <http://searchdatamanagement.techtarget.com/definition/data-governance>

Change Management, Training, & Adoption

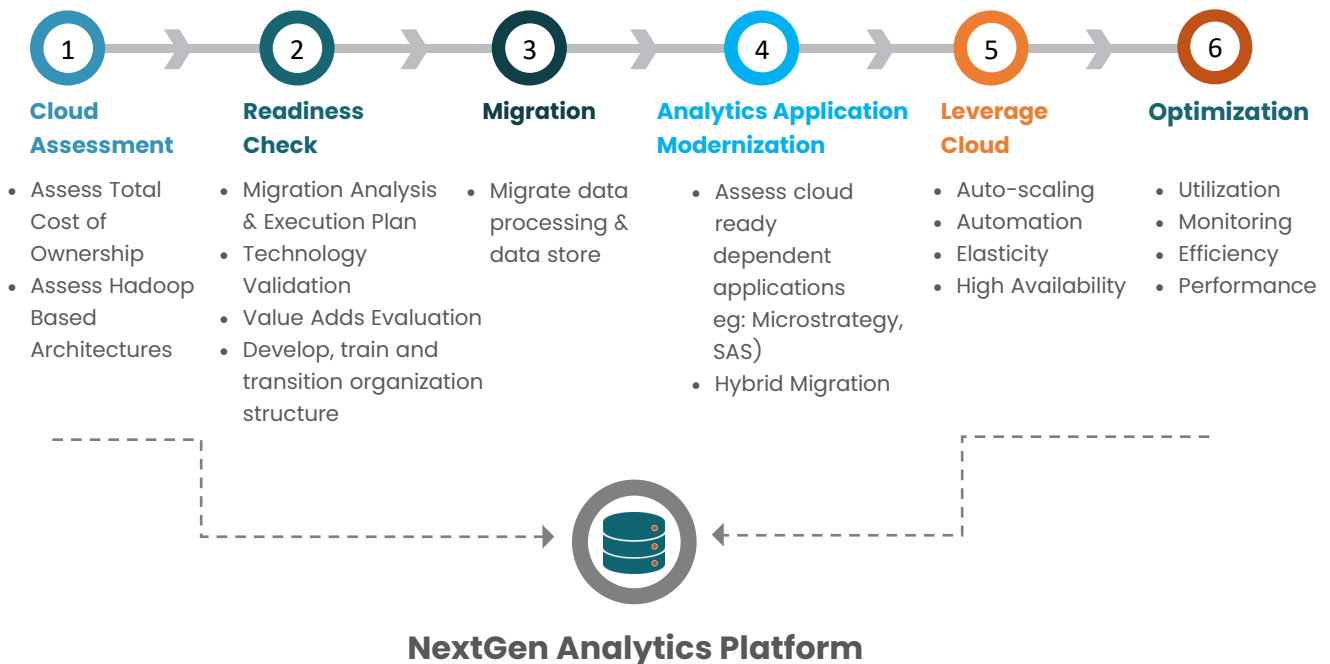
are the outcome of the migration effort. Depending on findings for migration effort, organizational changes and training may be big or relatively minimal. The goal is to keep migration effort low, to minimize organizational impact and change needed and increase user adoption. An organization will need to assess the impact of the new toolset critically, determine where there may be skills gaps and chart a training plan to fill those gaps.

Total Cost of Ownership (TCO)

is the most critical decision in the entire journey and likely at the forefront in the executive sponsors' minds. The TCO not only encompasses CapEx and OpEx but all of the costs associated with the factors outlined above. A sophisticated TCO tool built with technical know-how and business knowledge can significantly speed the time of this analysis by building on previous experience of similar organizations to determine technical feasibility and financial viability.

Roadmap to Leveraging the Cloud

US Consumer Markets Information Systems



ABOUT TRIANZ

Trianz simplifies digital evolutions through effective strategies and excellence in execution. Collaborating with business and technology leaders, we help formulate and execute operational strategies to achieve intended outcomes by bringing the best of consulting, technology experiences, and execution models. Powered by knowledge, research and perspectives, we serve Fortune 1000 and emerging organizations across industries and geographies to transform their business ecosystems and achieve superior performance by leveraging Cloud, Analytics, Digital, Infrastructure and Security paradigms.