Capgemini

THE CLOUD IMPERATIVE FOR TELCOS' DATA ANALYTICS

INTRODUCTION

Communication Service Providers (CSPs) are among the largest producers and consumers of data in the world. They hold troves of information about customers, their behaviors, experiences and preferences, as well as the networks, services, and infrastructures used to deliver those experiences.

Data analytics is a key element in the digital transformation of all organizations in that it enables better decisions, more automation, and stronger feedback. Further, advanced analytics algorithms promise to use data to deliver better customer relationships, more personalized experiences, higher quality of service, more efficient and automated network operations, low touch installation, and maintenance. Finally, data and information flows work together to unite departments and make an organization more coherent, more efficient, and more intelligent.

Unfortunately, for many CSPs, their existing data infrastructure is no longer adequate for addressing these new demands. While the cloud has proven in many sectors to be a key enabler in implementing a successful data analytics transformation and is being rapidly adopted by a growing number of organizations across the globe, cloud-based modernization of data infrastructures is challenging for organizations like CSPs that hold large volumes of data of high complexity.

In this paper, we examine CSPs' motivation for moving their data infrastructures to the cloud, as well as the three major transformation strategies available to organizations.

At a glance: Exploring the cloud imperative for Telcos

Which new demands are made on CSPs' data analytics infrastructures?

How does the cloud address those demands?

What are the major strategies for implementing a successful cloud transformation?

How can Capgemini accelerate this transformation by leveraging assets?

CSPS HAVE MORE AND MORE UNTAPPED OPPORTUNITIES TO LEVERAGE THEIR DATA

ADVANCED USE CASES

With fierce price and service competition, rising network costs, and margin erosion, CSPs need intelligent decisioning and automation to provide "ATAWAD"—anytime, anywhere, any device—services. Indeed, without automation, complex processes and offers imply high costs in personnel and training. Extending service support windows requires still more personnel while newer, more complex networks require operations expertise with deep technical knowledge.

AI and analytics can address these issues, making the organization more efficient in the process. Relevant use cases include:

- Automated monitoring of quality of experience to quickly identify and address service issues impacting customers;
- Adaptive marketing automation to provide context-based individualized customer experience with minimal human involvement;
- Chatbots and voice-bots to provide efficient, personalized first-level customer service and support; and
- Computer vision to monitor the status and quality of physical infrastructure, improve quality of service to the end customer, and alert the organization to the need for manual operations.

As experienced across many other industries, advanced AI technologies enable higher efficiency and lower costs, while providing a more reliable, available, and relevant customer experience. However, in many cases, AI use cases can be complex to deploy and use. They require dedicated technical platform expertise to install and manage, which many CSPs do not have at present and lack the time to build. CSPs also struggle in implementing them rapidly in production.

DATA SILOS

Furthermore, data is difficult to access as it resides in silos across departments, brands, and technologies. Telecom data is increasingly drawn from a variety of sources including the network, devices, users, partners, and internal functions, such as Finance and Marketing. To generate maximum value, CSPs need to consolidate data from these various sources, bringing them together and uniting them in innovative ways.

Today, CSPs often lack the ability to find, group, and relate data sets, restricting access and creation of value from data. They also lack an internal data marketplace that provides secure and safe access.

NEW REVENUE OPPORTUNITIES

CSPs must prepare for the new revenue streams linked to the arrival of 5G. Participation in data sharing ecosystems will generate new revenue sources, which CSPs need to support large investments in new technologies. CSPs will also attract application developers, which in turn will bring value to the business. This cycle will enable CSPs to build a more profitable future.

But the barriers to sharing data are significant: data must be documented and of good quality, with verification and correction procedures applied. In addition, CSPs must comply with security and privacy regulations in the locations they operate. For example, they must not inadvertently reveal information on their users and customer or about themselves. They must also share data at competitive cost and with limited complexity.

Insights generated from CSPs' data are of high interest for many industries and can be used as the basis for new revenue streams.

As in other industries, data transformation is necessary and expected to produce high performance companies. For Telcos, this means enabling modern capabilities to support better customer understanding, process automation, a higher quality network, better investment planning and enhanced revenue growth.

At the same time, cloud computing has matured, and is bringing the promise of easy and economical access to advanced technologies. Once limited to startups and small companies, the cloud is now the topic of strategic partnerships in the telecom industry, among industry leaders such as Orange, Vodafone, Ericsson and Nokia. With the cloud, analytics are now more readily accessible as compared to when companies, including CSPs, invested in the first nascent big data technologies. This should allow CSPs to perform their data transformation without the heavy capital investments required by on premise implementations.

CSPS ARE RAPIDLY MOVING TO THE CLOUD TO UNLEASH THE FULL POTENTIAL OF DATA

Once limited to startups and small companies, the cloud is now the topic of strategic partnerships in the telecom industry, among industry leaders such as Orange, Vodafone, Ericsson, and Nokia. With the cloud, analytics are now more readily accessible than when companies, including CSPs, invested in the first nascent big data technologies.

AGILITY AND EFFICIENCY

The cloud helps organizations build agility and speed, allowing teams to focus on business needs, use cases, and change management. Cloud vendors are strong in analytics: they have built tools and capabilities for their own use, optimized them for ease of use and efficiency, and have made them readily available within their platforms.

Once data estates have been moved to the cloud, organizations have the proper environment to launch new initiatives and establish data access in a matter of hours or days, as opposed to weeks or months. Use cases can be implemented more efficiently and staff can focus on serving business initiatives, as opposed to installing, maintaining, and tuning complex technologies.

Meanwhile, AI-powered applications can be moved to production rapidly and the iteration process can be completed in a more efficient way. Business results can be obtained quickly, more flexibly, and with less people involved. Since lead time is shorter, iterations are faster, which means business outcomes are obtained more quickly, and can be refined rapidly based on learnings, with higher productivity. All of these benefits compound over time, allowing businesses to derive more value from their investment in Data and Analytics.

INTERNAL DATA MARKETPLACES

The cloud allows organizations to break data silos and create value by collating data formerly spread across the organization and making it accessible to all departments. Accessibility is no longer restricted because of capacity constraints or department boundaries. Instead, it can be allocated on demand, based on data classification and security rules, regardless of data origin. This essentially creates internal data marketplaces where data is advertised, published, and consumed on demand.

Data marketplaces are the cornerstone of data democratization. In this model, citizen data scientists can flourish, each using data in their own context. This fosters a culture of data-informed decision making and data-driven processes where technical and expertise barriers are much lower. Still these benefits can be obtained only if adequate data management is set up to ensure data quality and security. Tools must be available, while processes and organizations must be developed.

It should be noted that security on premise and security in the cloud are remarkably different. Cloud security is not based on physical and perimeter access but data authorization and rights. It is easier to provide access to data sets on a more granular level, based on configuration, while breaking down traditional silos.

DATA SHARING ECOSYSTEMS

Data sharing ecosystems are communities, cutting across sectors, data domains, and value chains, where organizations share data and produce new value from the collaboration. From Capgemini's Research Institute Data Sharing Masters report, a typical organization can increase annual revenue by up to 9% through more effective data sharing.

CSPs hold troves of data of great interest to other industries. This includes location, audience, and financial information. Though CSPs are among the largest investors in data ecosystems across all industries, traditional data sharing with other organizations is essentially based on extracting data from an internal data warehouse, data lake, or data source, and then transforming it by cleaning, deduplication, aggregation, and personal data removal. This data must then be delivered by some form of data transfer tool. This process is complex, costly, and not inherently secure. Few tasks are automated.

Cloud platforms offer new ways to efficiently build automated data preparation pipelines, and then share data by creating storage zones, granting access rights, and enforcing fine-grained data sharing and protection policies with any number of consumers without having to copy or move data. These mechanisms are available via the data repository's management console, and can be activated based on business rules, with minimal technical intervention.

MIGRATING TO THE CLOUD: THREE STRATEGIES FOR CSPS

Shifting to the cloud is challenging for organizations that hold large volumes of data of high complexity. CSPs must consider their specific drivers and challenges in order to choose between three major cloud-based modernization strategies:

1. **Lift & Shift**
2. **Replatforming**
3. **Redesign**

Lift & Shift

The client data infrastructure is simply moved to the cloud, using the cloud-based version. At a large U.S.-based client, Capgemini has performed a Lift & Shift of a Teradata database to Teradata Vantage, the cloud-based version of the database, on the AWS infrastructure. The project was much simpler than a typical migration project and took only 5-6 months for preparation, transfer of data, processing and consumption, and testing. This enabled the client to shut down the existing appliances as well as close some data centers. The project was a success and is now being followed by a redesign with a migration to Microsoft Azure Synapse, in order to generate further advantages from the capabilities of a cloud platform integrating databases and ML development environments.

Replatforming

One large global telecom operator is moving its main customer data warehouse to Google Cloud, with a plan to shut down the legacy database within two years and replace it with a BigQuery instance. The foundational technology will move to a new platform, but the architecture and most of the surrounding tools stay identical. The new system will make full use of the cloud platform, while the duration of the migration is limited in time, and most of the transfer will be automated, including conversion of critical pieces of Teradata SQL code. Some of the benefits of the cloud will be realized from the start, including higher performance and availability of advanced AI frameworks, while future refactoring will move the organization closer to a cloud-native architecture.

Both Lift & Shift and Replatforming are platform-driven approaches wherein an entire platform is moved to the cloud. User involvement is reduced, as features are similar or identical to the legacy solution. Once the migration is performed, the entire legacy platform can be shut down. These approaches are better for faster migration and decommissioning.

Redesign

It will take care of porting and re-building use cases on the cloud, generally one at a time, at least initially.

For instance, Capgemini is working with a European CSP to move their data infrastructure to a cloud platform. This CSP has merged several companies and brands, which has resulted in a disparate and complex set of tools and technologies for their data lakes and data warehouses. Our client has decided to re-implement their analytical systems, replacing each use case using a phased approach. This will allow the business to shut down existing applications, while building an improved architecture with a strong reduction in technical debt of incompatible technologies. A one-to-one move to cloud was not an option as it would have been expensive and offered only limited returns.

Redesign is use-case driven, and requires some user involvement for defining, designing, and then testing the new platform.

Cloud agnostic approach

It is also worth noting that some of our clients are investing in technologies which are cloud agnostic, which means they are both cloud-native and independent from the underlying infrastructure – as is the case with the Snowflake and Databricks data platforms, which can run on many major hyperscalers. Such technologies support a Redesign or Replatform strategy. This model makes sense in a multicloud approach and insures more independence from the cloud infrastructure provider.

		Lift & Shift	Replatform	Redesign
Scalability	*Is the target platform able to grow and shrink as needed?*	★ Limited scalability	★★ Improved scalability	★★★ No limit
Additional business opportunities	*Is the transformation generating additional business opportunities? (use cases, new revenue stream, etc.)*	★★ Capabilities limited by the conservation of legacy technology	★★★ Access to most / full capabilities of cloud platform	★★★ Access to full capabilities of cloud platform
Cost of run	*Is the target platform effective in cost and cloud utilization?*	★ Higher costs due to non-native platform	★★ Architecture not optimized for cloud	★★★ Fully cloud-native cost efficiency
Low complexity transformation	*Is the transformation of low complexity and risk?*	★★★ Lower complexity	★★ Average complexity	★ Higher complexity due to new architecture
Decommissioning	*Are we able to decommission legacy platforms rapidly?*	★★★ Quick migration	★★ Migration and adaptation to new platform	★ Redevelopment
Technical debt	*Is the target platform free from the technical debt of the legacy?*	★ Transfer of debt from legacy	★★ Some debt can be paid back	★★★ Redevelopment

CAPGEMINI, YOUR ACCELERATION PARTNER FOR A CLOUD-FIRST WORLD

CAPGEMINI AS AN END-TO-END TRANSFORMATION ENABLER

Our more than 14,000 data professionals contribute to our clients' data transformation, from strategy and design to implementation, across the globe, across all industries. As a trusted advisor, we help refine your transformation strategy, identify your key drivers, and build your business case. We accelerate proofs of concepts, prototyping and pilots with our consulting and delivery teams. We implement large-scale industrial transformations, delivering IT solutions, ensuring alignment and supporting transitions through our change management expertise.

We partner with the major cloud platform providers and independent software vendors to ensure our clients have access to the best options. We invest in trainings and certifications, to provide the best mix of expertise.

CAPGEMINI AS PREFERRED PARTNER TO CSPS

We have deep telecom expertise, with more than 30,000 telecom experts worldwide and more than 1000 projects delivered in 50 countries. We understand the industry, its priorities, challenges and drivers, as shown by the trust we get from our CSP clients and the awards we receive from industry analysts. We have a deep track record in transformation at CSPs, across all areas of the business: marketing, operations, network, finance, and IT. We understand what is specific to CSPs, their business, their drivers and their data, including the most specific data linked to network technologies.

# JUMPSTARTING THE DATA MIGRATION PROCESS WITH IDEA

IDEA by Capgemini —Industrialized Data & AI Engineering Acceleration—is a new modular framework to accelerate the move to the cloud, supporting multiple migration sources and target cloud platforms. It is built based on the experience of our 14,000 data professionals involved in our clients' data strategies.

IDEA provides a clear, fast, and scalable path from innovation to industrialization, shrinking the data estate transformation timetable from years to a matter of months—all while maintaining the highest levels of security, compliance, safety and trust.

IDEA is a suite of capabilities, accelerators, frameworks, methodologies, and best practices that helps organizations accelerate the data modernization journey in 5 key areas:

- Turbo-charges the data migration process, helping organization shift from a legacy solution to a modern, cloud-based platform
- Infuses data security and trust from the outset, ensuring data cleanliness, compliance, and ethicality
- Establishes an industrialized data ingestion framework that uses metadata-driven ingestion, orchestration, quality, and ABCR to allow organizations to generate real-time insights
- Automates data quality, lineage, classification, standardization, and MDM to accelerate solution migration and delivery.
- Connects data pipelines and models to ease ML operations, expediting model build, training and deployment.

IDEA is not a separately licensed product: it is an accelerator for our teams working with you on your migration to the cloud.

IDEA - Accelerated client journey to a cloud data platform
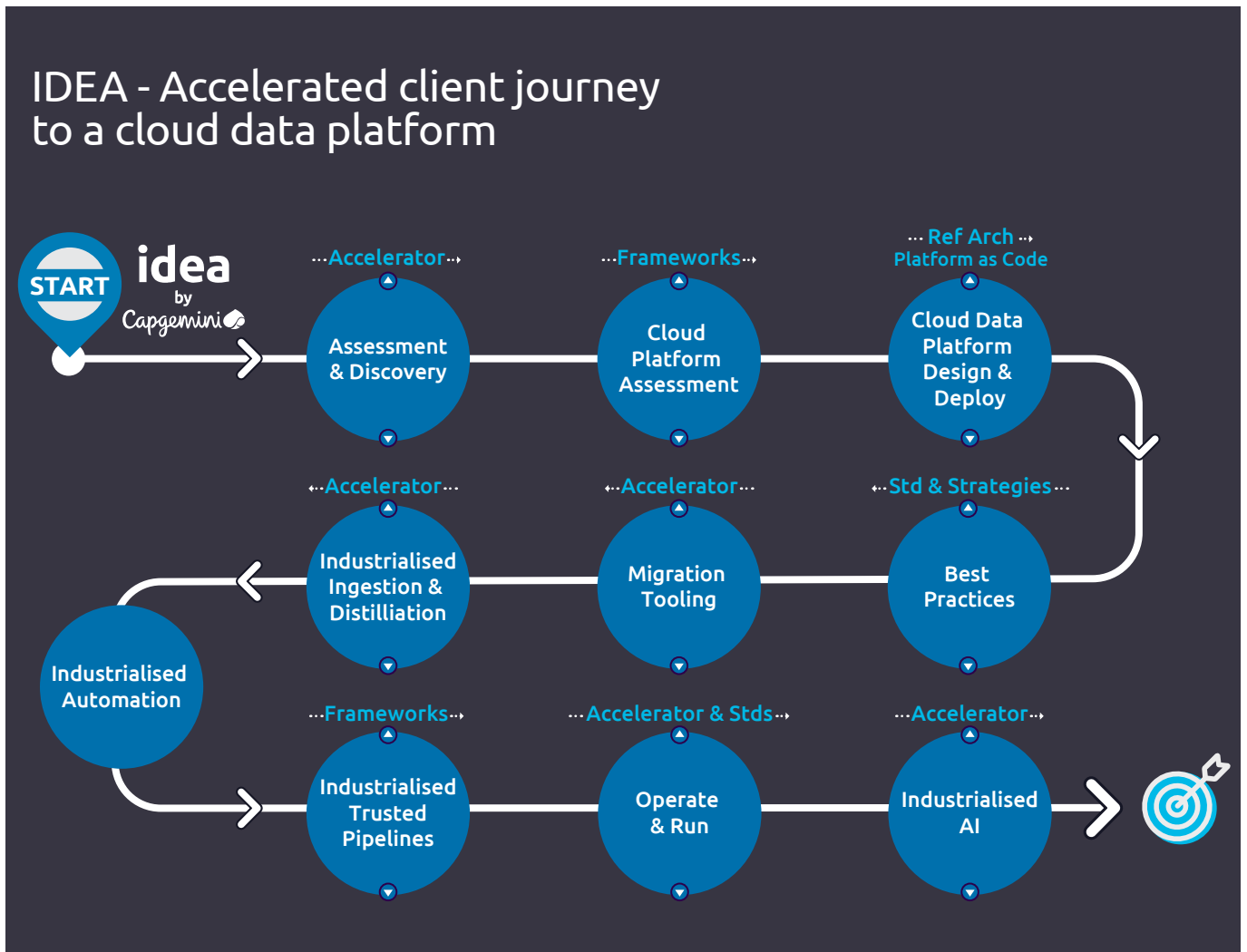
CONCLUSION

The cloud provides CSPs with a way to overcome the most serious challenges on data infrastructures, including data accessibility, scalability at controlled cost, availability of advanced analytics/AI tools, and infrastructure agility. Cloud data platforms empower the digital transformation by enabling the key analytical use cases of CSPs across customer management, network management and business management.

The cloud strategy for data estates can be driven by use cases, redeveloping them in cloud-native form, or driven by platforms, supporting a quicker transition. In either case, IDEA helps CSPs benefit from Capgemini's range of experience in data estate modernization to secure and accelerate the transition, shortening the delivery time by up to 40%.

Capgemini
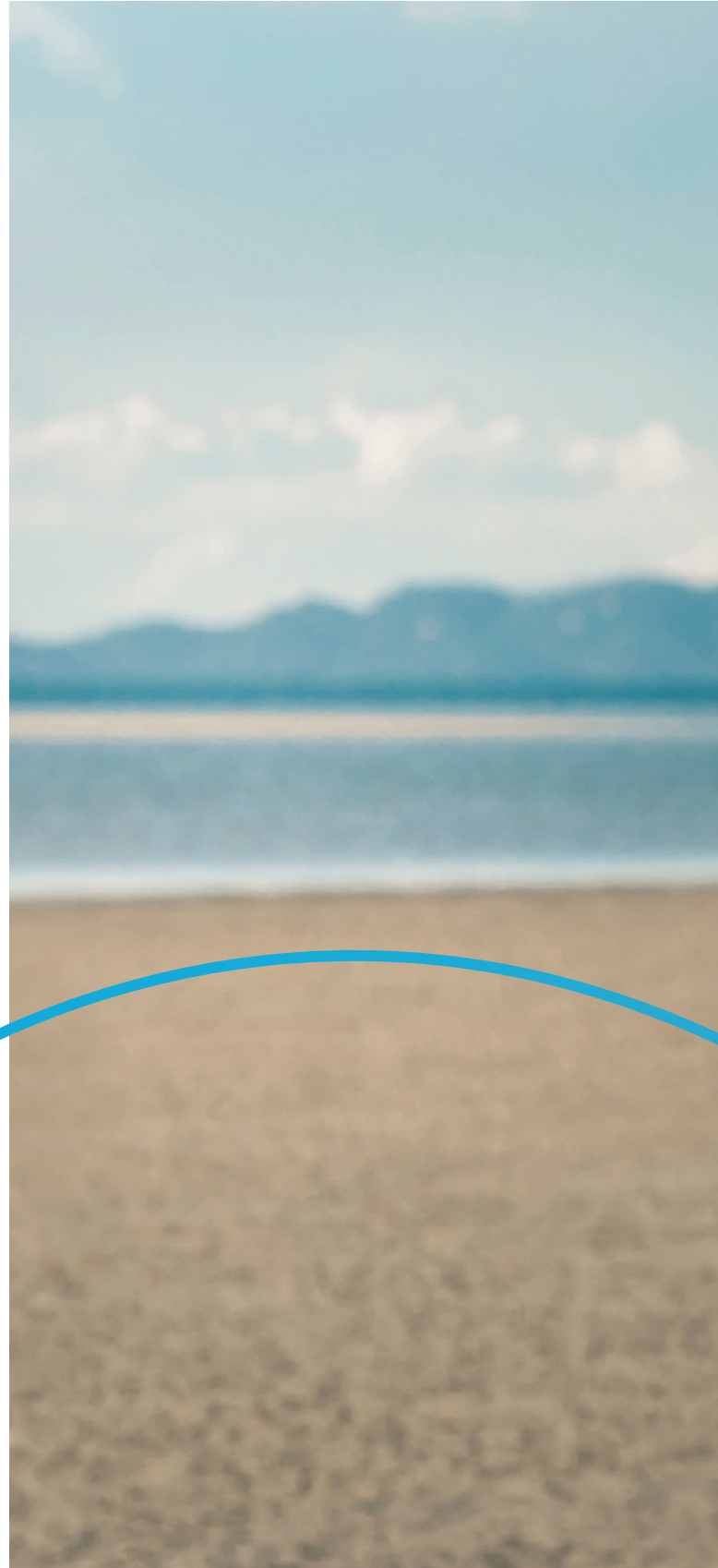
Author details :

Yannick Martel

Yannick is Group offer lead for Data & AI in the Telecom industry. Yannick has more than 25 years of experience working in the Telecom and Banking industries, helping organizations actually implement their digital and data transformation and better serve their customers.

✉ yannick.martel@capgemini.com

in https://www.linkedin.com/in/ymartel/

Nicolas Claudon

Nicolas is Customer First Group offer lead within the Data & AI portfolio. He has nearly 15 years of experience as an Architect, designing and implementing real-life data-centered solutions providing concrete improvements in customer relationship and operational efficiency.

✉ nicolas.claudon@capgemini.com

in https://www.linkedin.com/in/nicolasclaudon/

in https://www.linkedin.com/showcase/capgemini-telecommunications/

About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 270,000 team members in nearly 50 countries. With its strong 50 year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fuelled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.

Get the Future You Want | www.capgemini.com

Industry Marketing_20210927_MKr