

White Paper

Amdocs SmartOps: Delivering Business Outcomes Through a Hybrid Operations Model

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MARKET OVERVIEW: COMMUNICATIONS SERVICE PROVIDER BUSINESS CHALLENGES

Over the past few years, digital transformation has become a strategic imperative for telecom providers as they respond to disruptive market forces that have had a significant impact on their business. Perhaps the most daunting challenge is the slow revenue growth that has consistently plagued the industry for the past four years. At a global level, telecom revenue has held steady at \$1.4 trillion with little to no growth. One of the factors contributing to this is the increased competitive intensity from nontraditional competitors such as over-the-top (OTT) providers, many of which were fast adopters of cloud-native technologies.

OTT providers have successfully leveraged their advanced architecture to create sustainable competitive differentiation in the market, and they continue to cannibalize communications service provider (SP) revenue streams while disintermediating the communications service provider-customer relationship. The wireless segment has similar challenges as saturation and intense competition in many markets around the world have put heavy pressure on average revenue per user (ARPU) and contributed to significant customer churn in some markets.

In addition to competition from newer OTT providers, competition has intensified from traditional communications SPs and cable operators, many of which have embarked on transformation programs aimed at developing sustainable advantages through continuous innovation. This level of innovation requires an investment in a new architecture that provides the flexibility to drive innovations to market more quickly and an optimization of existing processes that accelerates time to market for new services. SDN and NFV are at the heart of a new architectural approach that will allow communications service providers to accelerate innovation.

Within the enterprise segment, demand is shifting to more sophisticated services that support the speed, reliability, and security capabilities. New use cases are emerging across various vertical segments such as healthcare, automotive, and manufacturing that are driving the need for more innovative solutions. Despite the need for always-on, anytime, anywhere communications, communications SPs have not been able to fully monetize the opportunities present in the market. This is largely because their current operations are not optimized to support an agile, data-driven cloud model. In fact, many operators believe that the inflexibility of their IT operations is a major operational challenge and inhibitor to delivering innovative solutions to market.

As a result of these dynamics, communications SPs must rethink all aspects of their business, including how they engage and interact with customers, how they develop and take new offerings to market and, perhaps most importantly, how they run the day-to-day operations of their business in a more efficient manner. IDC believes that communications service providers are on a path to become digital services providers that run an operating model that is highly digitalized; encompasses next-generation technologies such as AI, analytics, and automation; and is centered around cloud at the core.

In fact, in an IDC worldwide survey of 80 communications SPs, respondents identified the top 3 drivers for their digital transformation initiatives:

- Deliver a better customer experience (35%).
- Drive operational efficiency by eliminating manual tasks through automation (32.1%).
- Develop new sources of revenue (16.5%).

To achieve these goals, a transformation strategy that pursues an evolutionary path to a future mode of operations that incorporates AI, analytics, automation, self-healing, DevOps, and microservices, as well as new skills and processes that support a cloud operations model, is essential. The shift to a cloud operations model will be a long journey for communications service providers that will take several years. However, implementation of the technologies mentioned previously, and new operational processes, will bring measurable and incremental improvements, which will enable operators to meet business and technical goals that are driving their transformation initiatives.

THE CLOUD MIGRATION JOURNEY

As communications SPs pursue digital transformation, achieving business outcomes is critical to not only maintain competitiveness but also discover sources of competitive differentiation that can help drive unique value propositions to existing and new customers. The key enabler for communications SPs to achieve transformation objectives is an operational evolution that takes advantage of the scale, cost, and flexibility attributes of cloud for hosting communications SP workloads.

Achieving communications service providers' transformation outcomes requires a careful planning and a comprehensive cloud strategy that align the technical objectives of a cloud migration with the business objectives. This ensures that the business is getting maximum value from the cloud strategies that are supporting the business and help minimize the inherent risk and challenges associated with transformation initiatives. Cloud has become central to communications service providers transformation strategies as they look to drive innovation in their business by becoming more agile and responsive to changing business requirements.

A critical first step in the journey to cloud is assessing the application portfolio to determine which are best suited to remain on premises and which are better optimized in a public cloud environment. An array of factors such as cost, security/compliance concerns, efficiency, workload dependencies, performance requirements, and resiliency requirements should be considered before the workload migration decision is made.

After a thorough assessment of the application portfolio, operators must determine the best method for migrating those applications destined for the cloud. The cloud migration strategy can follow a few approaches, and the assessment process helps determine the "readiness" of each application to move to the cloud. Table 1 provides different approaches for cloud workload modernization.

TABLE 1**Approaches for Cloud Workload Modernization**

Cloud Workload Modernization Type	Description
Lift and shift	Redeployment of existing applications on cloud infrastructure changing application's code and infrastructure configuration
Refactor	Change of application code and configurations for open source and deployment of refactored application on cloud infrastructure
Modernize	Breaking up monolithic application functions into modular services based on distributed and modern architectures such as microservices architecture
Cloud native	Rewrite existing applications leveraging cloud-native platforms
Retain	Improve the operational efficiency of existing on-premises applications
Retire	Applications that have reached end of life to be retired

Source: IDC, 2021

Communications SPs are in various stages of cloud migration; with applications spanning across each of the categories described previously, it is clear that they will operate in a hybrid operating model for quite some time. There is a massive amount of legacy infrastructure running monolithic applications to support the business of communication SPs, and the investment needed to maintain the infrastructure and applications that support revenue-generating services must be preserved and migrated effectively. There are currently three operating modes in play today, with mode 1 still being the most prominent, but many large tier 1 operators are executing strategies to radically change their current operations:

- **Mode 1:** Operational support for monolithic legacy applications
- **Mode 1.5:** Operational support for monolithic applications that are redeployed on public or private cloud infrastructure in a lift-and-shift fashion
- **Mode 2.0:** Operational support for full cloud-native applications developed and run in the public cloud domain using a DevOps methodology

Working in a hybrid operations model requires a significant amount of change in the way IT teams work. Within each of the modes described previously, the ways to work, responsibilities, processes, and infrastructure requirements are very different. Developing appropriate tools and guidelines for effectively operating across these modes is essential to supporting fully optimized operations. Applications moving to mode 1.5, and those moving to mode 2.0 operations, create even more challenges for communications SPs as it creates a significant amount of change across people, process, and technology.

CLOUD OPERATIONS CHALLENGES

Transformation impacts various parts of an organization, and as a result, it is a very difficult and complex activity. The success of the effort is largely dependent on effective coordination of the various elements that support ongoing operations. The essential component of success is a tight linkage between business strategy, people, systems, and operational processes. While much of the transformation focus is on implementation of new technology, changing the way work is done is also critical to achieving business outcomes. This typically involves making changes to staff skills, removing functional silos to improve coordination between groups, and designing new business processes. People, process, and technology are inextricably linked, and as communications service providers pursue a journey to cloud, these elements must evolve together to achieve a successful outcome to the cloud strategy. Furthermore, to achieve DevSecOps maturity, a change in the culture and organizational DNA is required.

While migration to cloud has been underway for some time now, the results are mixed. Many cloud transformation initiatives have failed to achieve the technical benefits and business outcomes sought by migrating and operating in the cloud. There are a variety of reasons for this; however, IDC believes that there are three primary reasons for the mixed results. First, the cloud migration strategy is misaligned to the business objectives. Second, the move to cloud often focuses on the migration component as opposed to optimizing cloud operations once workloads have reached their "landing zone." Last, new processes, guidelines, and tools were not in place to ensure a smooth transition to cloud. In addition to the complexities involved in moving to cloud, the implementation of a DevOps work methodology introduces another layer of complexity that communications SPs must address as part of the cloud migration strategy. Some common challenges encountered when moving to a cloud operations model are:

- End-to-end control, visibility, and governance
- A shared responsibility model with cloud providers
- Shifting to a data-driven, AIOps model
- Shifting IT roles and responsibilities
- Aligning costs with business objectives
- Inconsistent policies and procedures for end-to-end security
- Limited coordination between siloed departments
- Cultural resistance to change
- The need to work in dual mode as hybrid is the reality of the coming years
- The lack of skill sets in the organization

To minimize risk, reduce complexity, and realize the value of cloud adoption, communications SPs need an approach to cloud operational transformation that provides a holistic strategy that addresses key aspects of cloud operations. IDC believes that managed services will play a key role in helping communications SPs execute a successful journey to cloud. In fact, in a survey conducted on managed services, when asked which areas a managed service provider could offer most assistance with transformation initiatives, nearly 50% of the respondents indicated that working in a virtualized operations model was the top area of concern. Given the challenges that many service providers have experienced in the journey to cloud, IDC believes that they will increasingly partner with managed service providers that have a demonstrated framework for delivering the business value of cloud while minimizing the inherent risk associated with the transformation.

AMDOCS CLOUDOPS SERVICES: ENABLING EFFICIENCY IN COMMUNICATIONS SERVICE PROVIDER CLOUD OPERATIONS

Amdocs is a recognized leader in telecom IT managed services and has extensive experience enabling communications SP transformation initiatives through its SmartOps managed service. With a broad base of customers in various stages of cloud migration, Amdocs has developed a comprehensive approach to helping customers operate successfully in a hybrid operating model.

Amdocs' vision for the future mode of telecom operations is based on driving operational agility and efficiency in a cloud operating model through a zero-touch environment that embraces automation for self-healing, continuous development, and testing to improve the quality of software development. This vision supports communications SPs' strategies for driving improved customer experience, business innovation, and operational excellence.

The key to Amdocs' approach is the development of a set of cloud-based services and practices specifically designed to address the inherent challenges that communications SPs face when working in a hybrid cloud operations model. These specialized practices accelerate the value of cloud by focusing on key components needed to operate effectively in a hybrid operating model such as cost optimization, security, governance, change management, and DevOps. In addition to these new ways of working, Amdocs has recognized the cultural challenges that exist in the communications SP organization when moving to a new mode of working. Subsequently, the company has also developed a change management strategy to address organizational inhibitors to change.

The CloudOps practices work together to ensure service reliability, high performance, operational excellence, optimized costs, secured code, and protected data. During the planning phase of a cloud migration and operations strategy, the CloudOps practices are involved at the outset where applications' landing zones are determined, and best practices and policies are developed in each of the practices.

Cloud Center of Excellence

The Cloud Center of Excellence (COE) service is a centralized team of cloud experts that creates a standardized set of requirements for all cloud-related activity, working closely with business units, developers, and cloud providers. The COE designs the initial cloud architecture and provides tools and best practices to the DevOps team for security and overall governance for the usage of cloud resources. A critical part of the governance activity is injecting financial discipline into the usage of cloud to ensure that budget allocations for cloud-related activities are not exceeded.

Cloud Admin

The Cloud Admin acts as a liaison between the cloud vendor and internal teams and is responsible for incident management, including prioritizing and managing incidents from inception to resolution and assigning incidents to the appropriate teams. The Cloud Admin also performs ongoing monitoring of cloud platform services to ensure cloud vendor service-level agreements (SLAs) and KPIs are met for engineering projects.

Cloud Security

Security continues to be a top-of-mind concern for communications SPs, and the concern is amplified when moving to the cloud. The shared responsibility model in cloud for security can present challenges around governance and accountability, particularly when adherence to compliance mandates is an

important consideration. While security concerns are addressed by the Cloud COE service from an overall governance standpoint, there is also a dedicated group of security architects who have the responsibility for ensuring end-to-end security across on-premises and cloud domains. The cloud security team is responsible for assessing the cloud environment, identifying potential vulnerabilities, and developing risk mitigation strategies. As the role of developers expands and includes the implementation of security requirements, CloudOps Security provides guidance and recommendations to the DevOps team around security best practices for protecting information and systems infrastructure.

FinOps

Once the initial cloud architecture has been designed, establishing strong financial management in cloud operations is critical to optimize costs and maximize the return on investment. FinOps provides tools and a set of policies and procedures for tracking cloud spend, analyzing historical spending patterns, and predicting future spending requirements. The FinOps experts are responsible for understanding the contracting arrangements with the cloud providers, and the deep knowledge of the cloud pricing models allows FinOps experts to make recommendations for the optimal use of cloud resources. During the cloud planning process, FinOps works with the business units to drive budget requirements to developers working on specific cloud projects and will alert developers when the cloud costs being incurred are in danger of exceeding the budget. While FinOps develops best practices and recommendations for meeting budget goals and optimizing cloud costs, FinOps experts can also act when new requirements drive the need for changes to the architecture. In this instance, FinOps experts can recommend a new architectural design that stays within the original budget or reduces costs.

DevOps

As communications service providers evolve from mode 1 to mode 1.5, the role and responsibility of developers changes dramatically, and the move to mode 2 puts a completely new set of requirements on developers. As applications become a key source of delivering value, developers are incorporating many more requirements into the application development process, some of which are entirely new requirements that go beyond developer skill sets. For developers, their expanded responsibilities include functional, nonfunctional, security, and cost aspects of application development. This creates the need for guidelines, best practices, and tight integration with other CloudOps practices to incorporate cost, security, reliability, quality, and agility concerns into the DevOps process.

Change Management

One of the most challenging aspects of any transformation effort is the cultural aspects of an organization that can act as an obstacle to innovation and change. This can take the form of an organizational structure that is siloed with very little cross-functional interaction or an upgrading of existing skills needed to support new technologies.

Conducting a thorough assessment of skill levels to identify areas of change needed to support a successful transformation effort is an important activity to perform early in the development of a cloud transformation strategy.

In addition to the CloudOps practices, Amdocs has developed a comprehensive approach to change management that addresses the presence of organizational issues that represent inhibitors to operating effectively in a hybrid operating model. Much like the CloudOps practices, the change management strategy focuses on technologies, tools, processes, and skills needed for a new working model.

The change management activities are focused in a few areas, all of which are managed and coordinated together to drive a consistent business experience. The first area is breaking the silos and creating an environment for cross-functional collaboration. The next area is changing processes to enable end-to-end visibility across the modes and ensure that business processes are functioning properly. The last area is enabling a cultural shift and change in mindset through reskilling/upskilling IT staff with new capabilities that broaden their responsibilities and expand their roles. The reskilling efforts focus on extreme automation skills, the use of DevOps tools, and site reliability engineering (SRE) for continuously improving reliability by measuring customer experience against established service-level objectives.

The vision for how IT skills will evolve is predicated on the evolution of the hybrid operating model. As communications service providers move more workloads to cloud, the underlying operation processes will change and require different ways of working and different skills. Amdocs has programs in place to support this learning process. The programs include a skills repository that provides a listing of all the coursework associated with gaining proficiency in a skill area – a skills assessment program that provides an inventory of current skills and capabilities that helps determine how the current base of skills needs to evolve to support evolution to the hybrid operating model.

IDC believes that Amdocs has developed the appropriate set of services and practices as part of its SmartOps managed services that can help communications SPs realize the business benefits of moving applications and workloads to the cloud. The company's emphasis on empowering IT staff with new skills necessary for the new ways of work, improving processes to enhance reliability, and implementing new technology to accelerate the time to realize cloud value puts the company in a solid position to be a strong strategic partner for communications SPs pursuing a move to cloud.

IDC Recommendations for Driving Successful Communications Service Provider Cloud Migration Strategies

- Select a partner with experience supporting optimized hybrid operating models.
- Align business and technical goals.
- Centralize key activities to ensure consistency and excellence.
- Develop a strategy to address the coordination of people, process, and technologies as part of the cloud transformation journey.
- Develop metrics for value realization in cloud.

ESSENTIAL GUIDANCE FOR AMDOCS

While cloud offers many operational benefits for communications service providers, the journey to cloud will be challenging. Operators will be at different stages of adoption due to a number of issues, including the nature of their existing architectural environment, the investment strategy developed to support their transformation and, perhaps most important, the level of risk operators are willing to take on to achieve their strategy goals. These factors, and others, must be considered to enable a successful cloud transformation initiative.

IDC believes that Amdocs' vision for the future mode of telecom operations is comprehensive and coordinates the people, process, and technology elements that are essential to helping communications service providers meet their transformation objectives.

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