



Digital Transformation in the Cloud

This whitepaper creates a strategic dialog for the Digital Transformation of the Cloud. This document represents the collective wisdom of DevOps leaders around the globe. The whitepaper is copyright ©DevOps India Summit and Intellectual Property rights for this publication belong to Xellentro. The whitepaper is curated by Canada Community of Practice, lead author & founder Garima Bajpai with the support of the community members.

Purpose – *The whitepaper provides insights to the strategic leaders, communities, capability developers, and policymakers (not limited to). It aims to explore new pathways for Digital transformation on the cloud & how we can improve our digital posture in line with the evolving technology trends and future choices. The document can also be a supporting artifact for various strategic initiatives, including identifying strategic gaps in areas of governance, tools, and upskilling initiatives. It highlights topics for future studies and technology trends.*

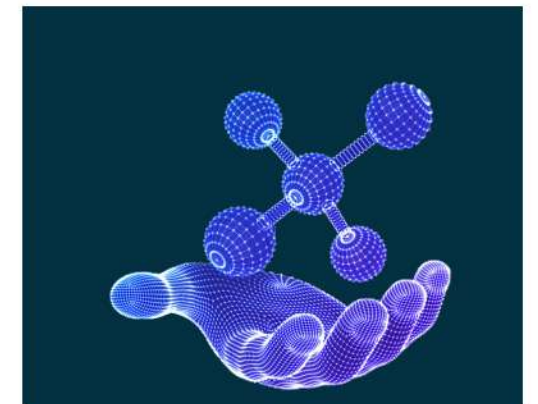
Scope – *This whitepaper augments the crowdchat concluded on Saturday, April 16th, 2022, and May 16th, 2022. The various perspectives were considered and curated and put into a single paper.*

Collaboration & Validation – *To eliminate the validation gaps, this whitepaper will be considered as a foundation for further dialog, and we propose to create surveys and workshops to validate and solidify the findings and perspectives. During the crowdchat collaborated with several technology practitioners from various industry segments.*

Digital Transformation is presenting several new opportunities, promising new services, products, and business models. New sources of revenue are getting generated through connecting existing and new value chains. As we recognize the opportunities, it is important to create a sustainable ecosystem of enablers to harness the potential.

Digital Transformation, an emerging system of the value chain

As we enter into the post-covid era, it is evident that Digital Transformation is one of the topmost priorities for organizations. Organizations are steering value through embracing digital transformation of existing offerings and innovative ways to deliver the existing services, and on the other hand, realizing the potential of digital by creating new offerings through integration of emerging technologies.



The value chain of Digital Transformation comprises some new and transformed perspectives

- 01** *Emerging global, digital service industry which comprises remote, anywhere, cost-optimized and lean characteristics.*
- 02** *Enabling marketplace for local businesses and micro product companies to foster through integration with the digital ecosystem.*
- 03** *Massive growth opportunities for critical infrastructure, digital security, and cloud service providers.*
- 04** *Intense competition and rapid cycles of innovation to disrupt the status quo as the new norm.*

Let's dig deeper into the disruption and understand what it means for DevOps practitioners, Change agents, and an ecosystem of tools and services.

Role of DevOps in Digital Transformation in the Cloud

Digital Transformation is an enabler to the next-generation economic landscape and it must be residing on a strong and resilient foundation. Accelerating the transformation journey is accompanied by an assessment of the challenges and planning the right strategy for the foundation. Let's look at what analysts and research firms highlight about the core challenges of Digital transformation initiatives before understanding the role of DevOps.

- From Gartner's perspective, "the transformation journey is taking large enterprises especially at least twice as long and costing twice as much as they originally anticipated." In large part this is due to cultural readiness — "53% of the organizations surveyed remain untested in the face of digital challenge and their digital transformation readiness therefore uncertain."

- From Mckinsey perspective, all of the digital transformations are easier said than done – according to digital transformation statistics, 70% of all digital transformation

transformation programs fail due to employee resistance and lack of support from management (McKinsey) and only 16% of employees said that their company's digital transformation efforts improve their performance or are sustainable.

- Another perspective from Forrester, in 2022, cloud-native adoption will rise to half of the enterprise organizations. More importantly, enterprises will refactor/re-platform their cloud strategies to be based on cloud-native, rather than layering cloud-native onto their existing plans.

The above research reflects a connection to DevOps. The cultural transformation accompanied by cloud-native architectural principles, accelerated adoption of modern software practices, and the role of DevOps is central to the Digital transformation initiatives.

Quoting Mandeep Ubhi, Founder DevSRE.org - "DevOps is redefining what Digital Transformation means in the cloud era."

To elaborate further, DevOps practitioners and leaders have emphasized the following factors during our crowdchats as an important pillar for successful digital transformation and the top reasons why DevOps is a priority for organizations investing in the digital transformational journey.

- Cross-Functional Agility - DevOps plays a very important role since it helps in breaking down the silos and expedites the agile way of working with multiple cross-functional teams. It helps support rapid innovation cycles for digital transformation and faster time to market for new and improved services.

- Building Trust - DevOps also means everything is going to be declarative and that means everything can be traced. This ensures all actions are accounted for and everything is logged. This helps keep software and the platform accurate which is essential for Digital Transformation.

- Resilience & Reliability - DevOps requires technology leaders to think about reliability, availability, and performance metrics of technology solutions, when steering Digital transformation not only on the cloud but also on edge infrastructure.

- Innovative Business Modelling – Reducing the digital infrastructure cost through the adoption of cloud-native architecture and leveraging DevOps practices could unlock the full potential of the usage-based, pay-per-use business models. Cost-efficient and optimized transformation support the timely return of investment.

- Security – Resetting the security mindset and bringing DevSecOps into the loop for Digital transformation is not a choice anymore. It is mandatory and one of the first steps in the transformational journey. Growing threat landscape, keeping pace with changing risk environment, increased cost of data breaches, and distributed workforce are some of the factors steering the need to modernize DevSecOps posture for digital transformation.

- Integration with emerging technology – Digital Transformation requires continued investment in emerging technology & its integration with products and services. Successful execution of such a strategy would be established through a DevOps mindset, which will help organizations rise above & beyond the cloud onboarding.

- Enabling net-zero commitment
– Lastly, more efficient use of IT resources, energy-efficient provisioning of IT infrastructure, and centralized usage-based computing to support the green transition, enable an organization to accelerate the net-zero commitment during their digital transformation journey.

Key ingredients of Digital transformation on a cloud at scale

Industry analysts expect cloud computing revenues to grow to \$791 billion by 2028, according to Fortune Business Insights, GlobalNewswire. To add more McKinsey Quarterly February 26, 2021, even estimated it to be one trillion-dollar market by 2030. As more and more Industry segments are starting to realize the benefits of Digital transformation, adoption of the cloud & embracing DevOps act as a catalyst to this journey. It's time to enable cloud onboarding at scale, more important to simplify the journey to the cloud by evolving the standard outlook of cloud services & connected DevOps practices, tools, and applications.

Scaling Digital Transformation on Cloud needs to develop and integrate to Platforms and leverage their capabilities
- Ashwinee Singh, Digital Transformation leader - Infosys

In today's time, almost all cloud journeys are distinct and adoption is steered at a different level and pace. It might be evident that when we scale the cloud onboarding, we must identify, baseline, and evolve the core ingredients. This would facilitate moving the needle from tactical, short-term cost optimization goals of an enterprise to a more mature long-term outlook of cloud at scale. Let's explore the core ingredients, based on the dialog with the DevOps leaders. Practitioners and visionaries.

Pivoting to scale the cloud to embrace the demand for the next decade would mean that we consider baselining the critical core components and establish not only a common vocabulary but a set of guidelines to assess and invest.

- **Establishing critical infrastructure backbone** - Basic network connectivity will continue to play a vital role in scaling Cloud-based services. However, we also expect new challenges to Cloud Computing in the next decade paving the way for new networking services which include minimizing end-to-end latency, segregating & prioritization critical data traffic, supporting immersive applications, and new ways for securing critical infrastructure at scale. Moreover, to support the emerging digital service industry advanced troubleshooting capability over the network for more diverse industry segments -like oil, gas, automotive, agriculture, etc. will shape up the critical infrastructure backbone. DevOps practitioners will constantly work on the second and the third way with feedback and experimentation to advance the current landscape working actively to integrate advanced NetOps portfolio into the mainstream.

- **Standardized, automated, and event-driven cloud platform** – Baseline reference event-driven architecture accompanied by security standards, interoperability guidelines, and data portability. The starting point could be NIST cloud computing definition, which is widely accepted and valuable in providing a clear understanding of cloud computing technologies and cloud services. Cloud auditors would likely play a vital role in maintaining the oversight of governance, evolution, and monitoring of a standardized ecosystem, which will enable building trust. DevOps leaders and practitioners are highly likely to form consortiums to enable auditing services.

- **Interoperability & adoption of multi-cloud** – According to a research insight “Cloud’s next leap” from IBM, enterprises have weaned themselves off single public clouds. During the pandemic, large enterprises have moved beyond single public clouds. DevOps practitioners would support the adoption and evolution of multi-cloud interoperability and ensure plug & play capabilities. DevOps tools and services will adapt to serve the need with loosely coupled features that can be easily deployed on different cloud platforms.

- **Baselining Cloud Operating model with core services** - Cloud operating model (COM) enables organizations to operate applications reliably and securely in the cloud with a faster pace of innovation and value to the business. The operating Model for Cloud will be defined and evolved by DevOps practitioners and would be the key differentiator in the longer run.

“A model that redefines new roles, upscaling teams on new technologies, collaborative structures, and integrated processes with base principles on Agile & DevOps, is highly likely to evolve with the evolution of Cloud ecosystem.” – Raminder Rathore, Head DevOps practice HCL Canada Inc.

Digital Transformation on the cloud, a value-driven ecosystem

A value-based ecosystem which the Digital Transformation journey is crafting for us is based on the collaborative environment between physical and digital world. With different forms of collaboration between digital entities like drone, robots, software, sensor-based devices and people, environment and the physical ecosystem. Digital transformation tends to be complex mesh of mature and emerging technology, the role of DevOps is even more important to bring the cross-functional collaboration to forefront.

In any digital transformation, the goal is to enhance the flow of business value through the organization. So, it is inevitable that democratization of development, integration, and data emerges as a crucial step for transforming the organization – Dr. Gautham Pallapa, Executive Advisor, VMware

Let’s now explore the role of contributing organizations, to understand the opportunities and long-term relationship between the various entities.

- **Role of Service Providers** – DevOps has unleashed a plethora of tools at a rapid pace. A constant challenge is to remain relevant through continuous upskilling & also adopt a cluster of a maturing technology. Look for specialized partners – who can optimize workload, and cost & increase productivity. In the changing context, there are new opportunities for IT service providers, referring to the blog “Reshaping IT services in DevOps World”, there are various new opportunities from shifting from long-term outsourcing contracts to connecting the dots through the T-model approach like Uber.

- **Role of Product Platforms** – Simplifying the Digital Transformation journey is important to remain inclusive and address different industry segments. The role of the product platform is vital to address this important aspect. Enabling a marketplace for local businesses and micro product companies, would require focusing on a platform which user-friendly, secure, and provide enhanced features through a cluster of maturing technologies like AI, Blockchain, and Big data. DevOps practices would help create such product platforms. By 2024 it is predicted, that three-quarters of large enterprises will be using at least four low-code development tools for both IT application development and citizen development initiatives.

- Role of Regulatory & Policymakers – As regulatory and policymakers are carefully analyzing the forward-looking scenarios of Digital Transformation and its implication on overall governance. Changes are coming, as DevOps practitioners and leaders we are pioneering the change. Decentralization and full stack open-source approach to steer low-cost, community-led digital transformation is the new opportunity. Open-source tools and technology onboarding is steered by a community of practices working together to advance the technology landscape for good. It does come with its challenges and the regulators would seek advice and guidance from the DevOps practitioners to close some of the identified strategic gaps in this area as we move along.

Concluding Remarks

With Digital Transformation maturity, it is evident that we are experiencing an on-demand, “nearly-free”, and highly agile ecosystem of digital services. It seems there is exciting time ahead of us. More dialog, research and insights are needed to understand how the new business models tend to capitalize the opportunity for future. We will continue the dialog within the community and would bring more such collaborative whitepapers in future.

Some of the concluding remarks by our experts create further perspective on the topic

- “Digital Transformation is about Transformation in all respect. It is about creating greater value for the Customers,

We need to transform holistically and Leadership needs to transform from “Technology Leaders” to “Business Leaders” and change from a “Building mindset” to a “Learning mindset” to build the innovative culture.” - Dr. Niladri Choudhuri, Founder & CEO, Xellentro Consulting Services.

- “Make people core to digital transformation - enablers, transformers, and consumers.” - Dr. Vashima Shubha, Associate Director, PwC.

- “Focus on not just tools but the human side – people, interactions, and efficient collaboration is as important. Not everything will work on just automation.” - Siba Pulugurty, Co-Founder, Cloud Techner.

- “Sustainable pace is essential. Also, just because some companies deliver 1000 times a day may not be the pace for your organization. One should find the right appetite and speed to deliver value.” – Dr. Gautham Pallapa, Executive Advisor, VMware.

- “As Darwin said – it’s not the strongest that survive, but the most adaptable to change –


- “Technology is clearly transforming the way we do business. Organizations and leaders need to understand that digital transformation is not a project but culture, the only way forward to meet the demands from customers, markets and even from their employees.”- Padma Satyamurthy, Enterprise Transformation Leader, Walmart Labs.

- “Digital transformation needs to be a continuous journey, constantly innovate and improve, ability ship features faster, monitor product and services, performance metrics and security. It’s not like you move your infrastructure/applications to the cloud on Monday and you are digitally transformed, no!” – Gopinath Balakrishnan, Customer Engineer, Google Cloud.


Lastly, we would like to thank all the leadership contributors of the crowdchat, this whitepaper is collaborative perspective.

Chat Ended on Saturday, April 16th, 2022


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