



The changing role of infrastructure organization in an Agile and DevOps world

Digital transformation is a business transformation



In recent years many organizations have chosen to embark on the long, and often treacherous journey called Digital Transformation. The trigger is often the need to implement some new digital platform, with the goal of dramatically improving the digital channels and their impact on the business and eventually revenue.

While digital transformation is not a new phenomenon, making digitization core to the corporate strategy is a fundamental shift for most organizations. Most enterprises today have digital or Agile transformation initiatives that tend to focus on the “change” aspect by taking the same old path of least resistance that agile transformations have historically adopted: by focusing on the “change” and conveniently leaving “Run the Enterprise” units to do their core job. This has led “Run the Enterprise” or IT Infrastructure teams having far less time to adapt than their “change” counterparts.

Today’s rapid pace of application development has strained IT operations to the point where organizations are abandoning traditional shared development models. IT Operations is going through a renaissance right now. With the move to the cloud, the increasing amount of automation, and the increasing importance of automation, IT Ops, as we know it, needs to reinvent itself out of necessity.

Agile & DevOps initiatives are among the top 5 digital transformation initiatives that most enterprises are embracing. While Agile focuses on effective team structures, value focused mindset and greater business alignment, DevOps has taken the principles to the next logical step of delivering value by focusing on flow, amplified feedback loops and building a culture of learning and innovation.

There has never been a need more felt to develop and release applications to market much faster. In terms of architecture, new constructs such as evolving design, microservices, containers and serverless computing are all redefining technology infrastructure needs.

With organizations adopting DevOps visions, the role of the infrastructure teams is increasingly becoming more important to support the enterprise Agile & DevOps transformation initiatives and be part of one.

The challenge that most IT organizations are facing is that they are still using a “plan-build-run” operating model organized by siloed infrastructure components, such as network, storage, and compute, resulting in Agile development teams slamming into a bottleneck when new or updated applications are ready for hosting on the existing IT infrastructure, where the norm is still highly manual processes based on ticket management.

Digital IT organizations can clear this bottleneck by extending the DevOps model so that application development, application operations, and IT infrastructure work as one. Based on our experience, the benefits of this move include a 25 to 30 percent increase in capacity creation, a 50 to 75 percent reduction in time-to-market, and a greater than 50 percent reduction in failure rates.

Here are some fundamental shifts required to extend the DevOps approach into IT infrastructure:

Shift to next-generation technical practices

Infrastructure teams should consider embracing new practices, such as “Automation”, “Self-Service” & “Infrastructure-as-code”, which allows infrastructure teams to adapt software-development engineering practices and ways of working and cast off the less flexible “hardware” mind-set.

- Start working with the **automation of repetitive tasks**. When defining automation tasks, follow best practices for configuration and hardening of the specific task. For example, if you are handling storage, automate the provisioning of storage and the definition of the access rules. If you are handling networking, automate the provisioning of VLAN, ports or BGP sessions following best practices.



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- Start working towards **achieving Infrastructure-as-code (IaC)**. Orchestrate the automation tasks into workflows that deliver consumable resources (compute, storage and network) with consistent and predictable results. Note that this is not only about virtual environments; it is both physical and virtual resources.
- **Adopt Software Defined Everything (SDx)**. The software defined data center provides the organization with the ability to be agile and to adapt to the ever-changing requirements.
- **Enable abstraction of the infrastructures**. Enable APIs, especially integration with RESTful API interfaces. Think of APIs as the hooks or venues to provide on-demand consumable resources. Platforms and tools higher in the stack consume APIs.
- Enable the **ability to consume infrastructure resources over self-service portals** or service-catalogue as a self-service consumable item.
- Identify **organizations policies** that impact tools and frameworks used by developers and get right enterprise products supporting those frameworks.
- **Create a cloud experience for your organization**. The infrastructure teams need to become a service brokerage for the organization.

Delivering the cloud experience should contemplate designing for service availability, even during failure of components.

Invest in building software engineering talent

Infrastructure-as-code and building out cloud software platforms at scale have shifted talent demand from pure system administrators to software engineers skilled at building and managing code. To manage this shift, it helps to invest in in-house immersive boot camps that use real-life work examples to teach IT infrastructure staff the latest and best software-engineering practices. This also goes to changing talent-acquisition strategies and seeking out DevOps, automation and cloud engineers with software engineering experience that they can apply to new Infrastructure-as-code technologies.

Invest in culture change

Leading IT infrastructure organizations aren't just introducing new tools and processes; they're investing in culture change. That starts with senior executives clearly and frequently articulating the program vision and modelling the DevOps way of working. At the operational level, in addition to providing teams with DevOps coaches and structured programs to build capabilities, evolving IT infrastructure organizations are forming service teams focused

on specific end-to-end customer journeys and updating processes and KPIs to accurately track and measure adoption of the DevOps methodology.

Work as one team

Rather than organize themselves by highly specialized functions, IT infrastructure teams need to come together to work as one unit whose top priority is to provide end-to-end value to the customer, not to optimize discrete infrastructure components. By pulling together their aggregate skills—infrastructure automation, information security, IT networking, and others—into one team that eliminates hand-offs, IT can deliver the entire infrastructure solution rapidly, often in the form of an API that other teams can use.

Apply design thinking to IT infrastructure

Digital infrastructure organizations can help businesses deliver faster solutions with more self-service and an exceptional user experience. That requires a customer-centric approach rooted in a deep understanding of all the actions customers take to accomplish a task. They can gain that understanding the same way application developers do: by creating user personas, mapping journeys to identify pain points and delighters, and running rapid test-and-learn cycles. This approach helps prioritize the initiatives that deliver better and faster customer and business outcomes.

DevOps has had great impact for developers and operations teams. Extending that way of working across IT infrastructure and other elements of the business is the next source of value for IT.

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Amit Nahar is leading DevOps and Emerging Technologies portfolio for Cloud & Infrastructure Services horizontal at Wipro. Amit is a distinguished leader handling Solutioning, Pre-Sales, Consulting and Practice development functions for emerging and niche technology areas. He is responsible for driving Business Development & Transformation initiatives for the accounts and generating new business and revenue for Wipro in North America geography.

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