

DevOps: How to utilize it in your IT workspace



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The DevOps space is red hot, but as many enterprises are quickly beginning to learn, it's not easy, so it's critical to ensure that your environment is prepared. Being able to accurately assess if it is right for your company and implementing a DevOps strategy with the correct tools will directly impact the future success of the project.

This comprehensive guide helps readers determine the pros, cons and key considerations of DevOps by offering up 5 important questions you should be asking in order to create a realistic DevOps assessment.

In addition, explore expert advice and best practices for achieving DevOps career success.

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Conducting an impartial DevOps assessment for your organization

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DevOps isn't easy: It can be a struggle to implement and manage successfully. A DevOps assessment will tell you if the business and its IT organization are ready to make changes.

The rapid cycle times embraced by the DevOps software development and deployment methodology allow businesses to capture opportunities faster than traditional software development approaches. Small, incremental changes with DevOps mean that a business can try new ideas, take more risks -- even fail without dire consequences, which are some of the reasons why it has supplanted traditional waterfall-style development.

While DevOps has proven effective for accelerating software development and streamlining the interaction of operations and quality assurance (QA) teams, it also imposes demands that every organization must be ready to address.

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Answer these five questions to perform a realistic DevOps assessment before making the shift.

1. Does DevOps bring value to the business?

Consider long-term project returns. Traditional software development cycles take years of coding and testing before a release candidate is ready for distribution. This commits a tremendous amount of labor to a product when sales are not guaranteed. Issues such as defects and oversights in the release - - bugs -- and competition potentially erode the return on this investment.

DevOps changes the business implications of software development by implementing smaller, shorter development and release cycles. Developers, quality assurance and operations staff work constantly on parts of the product's continuous release pipeline. Each release adds meaningful features and functionality to the product. It gets to market faster, avoiding that long, risky investment period.

2. Is IT flexible enough to support DevOps?

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The IT organization must deploy each small, rapid software release. This means installing the new application version on one or more servers in the data center or cloud, and interconnecting supporting databases, storage, performance monitoring and other resources. These activities are core functions of IT administrators; what's new is the pace of change that DevOps sets, which may tax traditional operations processes.

The traditional siloed processes to provision and deploy a typical enterprise application take months. The IT organization determines application requirements; specifies requisitions and approves new servers and other equipment; acquires OS and other software licenses; installs any new gear; and actually performs the deployment for the approved release candidate. There is little if any interaction with developers during this effort.

Such rigid processes work fine when the IT staff works on occasional software releases, but implementation strategies quickly become overwhelmed and collapse when the team deploys a new application version each month, or several times per month.

The move to DevOps must involve more than just a new development cycle. In your DevOps assessment, consider how the current IT team would function if

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maintained as-is and how it would change. IT works and interacts with developers and QA staff differently in a DevOps shop to provide storage, computing and networking resources on a much faster timetable to test and support each new release.

3. Is the company large enough for DevOps?

DevOps only works when there is a cyclical pipeline of development, testing and deployment filled by one or more software development project. Gaps in the pipeline leave staff sitting idle.

The move to DevOps demands an organization large enough to support the staff, processes and tools that keep DevOps productive. Balancing staff and project demands can be startlingly difficult for small businesses -- perhaps up to 250 people -- where the costs of talent significantly affect the overall budget. Small businesses often subcontract application development or invest in packaged applications, such as Salesforce rather than an in-house customer relationship management package.

Filling and maintaining a DevOps pipeline usually involves a larger organization which is better able to acquire and adjust staffing levels to meet project timeline

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demands. Companies with 250 to 1,000 people may be better able to integrate a DevOps process, and businesses with more than 1,000 people may well have the scale needed to embrace and leverage a DevOps strategy.

4. Does the company know its DevOps strategy?

DevOps isn't a single initiative or event -- you won't successfully implement DevOps with one software tool or one plan laid out in a book. DevOps is an amalgam of people, tools and processes.

It takes talented developers, relentless testers and knowledgeable operations personnel. It takes automation, workflow, collaboration and related tools. It takes dynamic and flexible business processes to eradicate traditional silos and get multiple teams working together. With all these elements, DevOps dramatically accelerates software development and deployment cycles and brings tangible benefits.

Every company adopts DevOps differently, adjusting and adapting the people, tools and processes to meet the organization's unique goals. This means hiring developers familiar with DevOps cycles and workflows, organizing an IT staff capable of accommodating dynamic release schedules, implementing a suite of

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tools that facilitate collaboration between developers, QA and IT, and applying clear business leadership that can drive DevOps adoption

For most fledgling adopters, DevOps is not an all-or-nothing endeavor. Organizations often assess DevOps' potential and adopt it by slow degrees, building expertise with groups working on small, low-priority projects and then systematically bringing those skills and tools to bear on more critical projects over time.

5. Can the company commit to constant change?

Implementing a DevOps strategy is not a one-time effort, and organizations must constantly adjust strategies to deal with business changes, technological advancements and even evolving user expectations. After the initial DevOps move, an organization will face a new development language; migrate to another DevOps workflow and collaboration platform; upgrade servers, implement a private cloud or migrate to a public cloud; embrace a wider scope of client devices -- such as software for tablets and smartphones; and even experience a change in business environment and priorities. Optimizing and adjusting the DevOps methodology and tools is an ongoing responsibility.

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Making DevOps and traditional IT operations work properly is usually a thankless job.

End users expect a perfect experience without interruption. To make this happen, end users shouldn't notice that Ops did anything. Doing things correctly, as IT Ops and DevOps professionals know, often turns out to be the hardest thing to consistently achieve. Constantly refocusing priorities, while keeping systems running and making continual changes to a production environment, is stressful.

All environments are different -- there is never a one-size-fits-all answer. Part of a successful Ops career requires the traits of flexibility and good decision making under fire. But there are ways to improve the situation.

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Getting buy-in for resources

Budgetary constraints are a common brick wall for Ops. But the solution could be as simple as buying a small piece of software that allows staff to work proactively and can make everyone's lives easier. Having a request rejected for a \$30 product that will save you hours of work each week can be frustrating. The solution is to make a business case for what you need. Justify why the purchase is necessary, and outline what will happen if it's not spent. Outline other options too, if there are any, and show why your solution is the best. If that gets rejected, seek other input.

Communicate issues to your team so everyone understands your goals. That proposed software that was rejected could have a trickle-down effect with grave consequences on your company and, possibly your Ops career. For example, a well-meaning, but inexperienced, IT employee may try to find a free solution to a problem online. But downloading the wrong free tool online can open the organization up to security issues or malware.

Mitigate risks with vendors

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Vendors can be a great source of pain, and there's a lot that can go wrong when dealing with a third party. However, there are steps you can take to mitigate vendor risks.

Before buying from a vendor, ask for customer references. Test the product and try to poke holes in it. Be sure you fully understand how the product fits into your business plan. Ask about potential problems with the product. And finally, ask to speak to both sales and engineering staff. Engineers are generally not driven by sales bonuses, so can give you more realistic answers to your operational questions.

After buying, be as involved as you can with implementation. Hoping the vendor will make the best decisions for you and your environment is not a safe approach. Limit its access to your systems after implementation, and only grant access when necessary. Insist on change management and being informed before anything gets looked at if it is connecting to your environment, if possible.

Being diplomatic with all end users

To the IT department, everyone is an end user. From the receptionist to the CEO, everyone wants a piece of you. End users can be demanding -- with high

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expectations and unreasonable requests. They can be the bane of existence for Ops, wanting something fixed or changed at unrealistic deadlines. It's rare to see a workplace where one rule can be enforced within all these groups without exceptions. And it can be difficult to understand the requirements, find or create a solution to their problems, and then implement it in a timely way.

My general advice for dealing with end users is to be adaptable. Some users want to have an hour-long meeting discussing a tiny request, and others will give a one liner and expect a whole new system to be implemented based on that. The art of communication, and in turn, managing expectations, is the most important skill in your Ops career. Do it poorly and everyone will notice. An Ops career can be enjoyable and fulfilling, but you have to put a lot in to get something out of it. Shortcuts and temporary fixes are going to make things worse for all involved. Always communicate change; a well-designed solution that provides flexibility will make life in IT Ops a lot less stressful.

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Most organizations would appreciate a faster response from those in charge of the IT platform. Although IT is critical to enterprise operations, it can be far more of a business constraint than an enabler.

Waterfall approaches to business-critical application development provide an answer that is too late to solve the problem. DevOps is a methodology that aims for greater speed of response. Developers push code into the operations infrastructure more quickly, enabling IT to respond to problems and opportunities as they happen.

The DevOps mind-set of incremental, continuous integration and delivery is familiar to consumers, but faces challenges when it comes to application testing and training in enterprise settings. The business has to move to a continuous

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delivery mind-set with an entire DevOps tools list for support: Small changes delivered rapidly and effectively on a regular basis are easier for the help desk and end users to adopt.

Developers must be more business-savvy in DevOps deployments -- structuring efforts around business impact rather than technically appealing projects.

Operations technicians can't be scared of changes to production, even with the complex interdependencies of a modern IT platform. With the right checks and balances in place and tools that get the right information in the right places, small changes are easier to deal with than a massive, full version upgrade where rollback may be a long, drawn-out issue.

DevOps is no easy way to a better IT environment. It requires a complete rethink of how IT delivery is managed, and coherent and strong process management tools.

Make a DevOps tools list

What makes a good DevOps implementation versus a route to chaos? Rather than give either group free rein over IT, the enterprise requires a full set of

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processes to capture and prioritize business needs, plan what is required for new or changed technology, test this effectively, and provision and stage the resulting code while implementing it at the lowest possible cost and risk.

Big, long drawn-out projects have to die. IT organizations must break business requirements down into necessary processes, and then break processes down into tasks. Look at the tasks and identify if there are already services within the IT environment that fulfill those needs. Do not allow development to create yet another similar function -- reuse makes support and workload portability happen. Look to external services, callable via application program interfaces (APIs). Evaluate API management tools, such as those from Apigee and TIBCO Mashery, to monitor and manage what is happening with these APIs.

Then, choose the developers' tools for DevOps. Many developers have built up custom toolkits rather than using the old-guard vendor toolkits from Microsoft, IBM and others. They may use open systems such as Ruby on Rails or Python, along with version control and configuration management systems such as Jenkins, Chef and Puppet to provide individual control of the development-to-operations processes.

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Due to the team nature of development, collaboration management is key. This can be at a simple level, such as through the use of an online tool like Redbooth (formerly Teambox) or Basecamp, or on-site or hybrid tools such as CA PPM or Clarizen. These latter tools allow the team to store code in a single place, along with documents and peripheral information, and with the capability to manage the progression of project tasks. There are also full-scale source code management (SCM) tools, such as those from Serena Software and IBM Rational, as well as open source tools like DCVS developed by elego Software Solutions or Git.

Don't rush getting the code through user acceptability testing and staging into the operations environment. Checks and balances are imperatives, with automation ensuring that every process step is monitored, and issues are raised for immediate action as necessary. For systems that provide automation and monitoring of DevOps processes, look to vendors such as HashiCorp, with its Atlas product -- a collection of its individual tools, such as Vagrant, Packer and so on -- Electric Cloud with its ElectricFlow or the likes of IBM, which offers Bluemix as a development, packaging and provisioning platform. Atlassian is another company that provides automated testing and provisioning tools.

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Use virtual containers wherever possible for DevOps applications. Containers allow for greater control and management of code, pushing developers toward a more flexible microservices model. The leader in this space is currently Docker, but the CoreOS Rocket project also shows promise. Apache Tomcat is also a contender, but does not seem to be keeping pace with Docker.

Link up your DevOps toolchain

At the moment, DevOps is still an emerging approach. As such, there is a lack of overall maturity in the market, and it is unlikely that any organization will find a single tool to give them the perfect DevOps strategy. Flesh out your DevOps tools list with the best platform for each given task, with an eye to the future. Do not take tools that look as if they have been renamed from old-style SCM systems to include DevOps as a marketing ploy; ensure that anything that your developers and IT operations staff use has the flexibility to adapt to new technologies as they come through.

Stop looking for one comprehensive DevOps tool -- there isn't a silver bullet -- yet. Instead, make sure the bullets you choose do not end up shooting you through the foot.

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