Insight

DevOps and the Cost of Downtime: Fortune 1000 Best Practice Metrics Quantified

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IDC OPINION

Based on a research survey conducted during October and November of 2014 across multiple industries and with respondents across development, testing, and operations, this document identifies for the first time critical DevOps metrics from 20+ Fortune 1000 organizations with revenue of at least $1.39 billion. On average, 50 respondents answered each question. However, we used only the Fortune 1000-qualified respondents and utilized the broader segment to provide an additional baseline. The results show:

- For the Fortune 1000, the average total cost of unplanned application downtime per year is $1.25 billion to $2.5 billion.
- The average hourly cost of an infrastructure failure is $100,000 per hour.
- The average cost of a critical application failure per hour is $500,000 to $1 million.
- The average number of deployments per month is expected to double in two years.
- IT organizations that have tried to custom adjust current tools to meet DevOps practices have a failure rate of 80%, thus making tool replacement and/or addition a critical requirement.
- There is an expectation that DevOps-led projects will accelerate the delivery of capabilities to the customer by an average of 15-20%.
- The average cost percentage (per year) of a single application's development, testing, deployment, and operations life cycle considered wasteful and unnecessary is 25%.
- Development teams are the leading sponsors of DevOps teams, with operations and architecture teams close behind.
- Over the next two years, DevOps teams will increasingly bring security, compliance, and audit teams into the project-planning cycle to embed some of these requirements in automated processes to reduce business and security risks.
- There are significant acceleration advantages for IT leaders that decide to create a DevOps team or center of excellence versus a less-organized DevOps organizational approach.

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IN THIS INSIGHT

This IDC Insight provides best practice metrics for development, testing, application support, and infrastructure and operations teams from 20+ Fortune 1000 organizations with at least $1.39 billion in revenue – a set of baseline metrics collected from the peer group. It offers a set of guides to help drive business and technology objectives and judge success and provides a peer perspective for DevOps metrics.

Table 1 shows the titles of the respondents.

Note: All numbers in this document may not be exact due to rounding.

TABLE 1

Respondents by Title

Q. What is your title?

	% of Respondents
Application developer	3.3
Application testing	6.7
Quality assurance	16.7
IT operations	10.0
DevOps manager/engineer	6.7
Systems engineer	3.3
Enterprise architect	10.0
Application manager	3.3
Engineer	6.7
IT director	13.3
Infrastructure manager	3.3
DevOps consultant	3.3
Line-of-business manager	6.7
Automation architect	6.7

n = 30

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey*, December 2014

SITUATION OVERVIEW

Table 2 shows that the development team is the most common starting point for DevOps projects; however, IT operations and enterprise architecture teams are also driving project sponsorship.

TABLE 2

Primary Sponsor for DevOps Practices

Q. Which team is the primary sponsor for setting up DevOps practices?

	% of Respondents
Development	40.7
IT operations	33.3
Architecture	25.9
Build engineering	18.5
Line of business	14.8
Quality assurance	7.4
Testing	7.4

n = 27

Note: Multiple responses were allowed.

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 3 shows that 43% of the respondents are currently using DevOps practices, while another 40% are currently evaluating DevOps as a way to extend their existing agile investments across silos, include business executives earlier in the cycle, and deliver more business value. There is no doubt that this trend will continue, with more organizations adopting DevOps practices and organizing themselves around it. The business value is too much to ignore.

TABLE 3

DevOps Practices Timeline

Q. How long have you been using DevOps practices?

	% of Respondents
Currently evaluating DevOps practices	40.0
Less than a year	10.0
12–24 months	13.3
25–48 months	13.3
More than 4 years	6.7
Don't know	16.7

n = 30

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 4 shows what we would expect from an evolving trend that is impacting budget allocations and the projects receiving funding. Automation is a key investment area across both development and operations teams, as the notion of continuous delivery remains a focal point.

TABLE 4

Initiatives to Implement DevOps Projects

Q. What specific initiatives are you looking to implement as part of DevOps?

	% of Respondents
Automation	60.0
Continuous delivery	50.0
Continuous integration	43.3
Automated testing	43.3
Application monitoring/management	43.3
IT operations	33.3
Git branch builds	26.7
Log analytics	23.3

n = 30

Note: Multiple responses were allowed.

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 5 shows DevOps challenges. Three leading DevOps challenges have remained consistent for the past few years. They are cultural inhibitors that prevent risk taking and teamwork, fragmented processes that inhibit automation and cross-silo collaboration, and the need for strong executive (business and technology) stakeholder support to work through political barriers.

TABLE 5

Biggest Risks for DevOps Implementation

Q. What are your two biggest risks for DevOps implementation?

	% of Respondents
Cultural inhibitors	56.7
Fragmented processes	43.3
Lack of executive support	26.7
Lack of budget for new tool purchases	16.7
Weak existing tools	13.3
Security and compliance teams pushback	13.3
Development and operations teams tool disagreements	10.0
Lack of IT analytic tools	6.7

n = 30

Note: Multiple responses were allowed.

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 6 indicates that there are many areas where tool replacement is likely to occur, including application management, testing and QA, and operations. This follows user feedback we have over the past year. In fact, IT organizations that have tried to custom adjust current tools to meet DevOps practices have a failure rate of 80%, thus making tool replacement and/or addition a critical requirement.

TABLE 6

New Tool Investments

Q. In which discipline will you likely purchase new tools to accelerate DevOps?

	% of Respondents
Application management	25.0
Testing/QA	21.4
Operations	21.4
Development	14.3
Integration	14.3
IT analytics	3.6

n = 28

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 7 indicates that cloud-based delivery for DevOps capabilities will be significant over the next two years, as IT leaders consider the best-fit delivery model (private, hybrid, and public that the IT leaders will adopt for various capabilities).

TABLE 7

Cloud-Based DevOps Tools in Two Years

Q. What percentage of your DevOps tools will be cloud based in two years?

	% of Respondents
1–10%	11
11–20%	7
21–30%	25
31–40%	10
41–50%	7
Don't know	40

n = 28

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 8 shows that 36% of the respondents have a DevOps team at their organization, and we expect this to increase over time. For companies that have established DevOps teams, there are six major advantages and acceleration points associated with the focused team:

- The focus is on new tool purchases as well as accelerated automated deployments due to strong teamwork and collaboration.
- Empathy increases across domain expertise owners, driving more trust – at a faster rate – among the IT and business stakeholders.
- IT project success increases, and there is acceleration in the speed of success because of the focus and common metrics the team is judged on.
- Shadow or stealth IT decreases as more business stakeholders are included early in the process, and communications of requirements between the business and IT are stronger.
- Allocation-based cost models are utilized more often as IT looks to better define the cost per service delivered and uses the language of business (finance) to improve IT budget and staff allocations and project prioritizations.
- IT's job satisfaction and career development improve as IT staff now clearly understand what they are judged on and recognize that failure is ok as long as they keep trying and improving.

TABLE 8

IT Organizations with DevOps Teams

Q. Does your IT organization have a defined DevOps team?

	% of Respondents
Yes	36
No	54
Don't know	10

n = 28

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 9 shows the average time to repair an infrastructure failure. Table 10 shows the average amount of time to fix an application failure. Over the past five years, the average time to repair on the infrastructure side has improved faster than on the application side. However, we expect DevOps practices, and the associated tools, to exponentially improve the average time it takes to repair application failures.

TABLE 9

Average Time to Repair an Infrastructure Failure

Q. What is the average time to repair an infrastructure failure?

	% of Respondents
1–5 minutes	9
11–59 minutes	17
1–12 hours	35
2–7 days	17
Don't know	22

n = 23

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

TABLE 10

Average Time to Repair an Application Failure

Q. What is the average time to repair an application failure?

	% of Respondents
6–10 minutes	4
11–59 minutes	9
1–12 hours	35
More than 12–24 hours	4
More than 1–7 days	13
Don't know	35

n = 23

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

To examine application downtime impact per year across the Fortune 1000, we conducted the following analysis:

- 1,000 companies multiplied by an average of 250 critical applications per company equals 250,000 total applications. 250,000 multiplied by an average of $500 to $1 million per hour of downtime cost equals $1.25 billion to 2.5 billion of unplanned application downtime costs per year.

Table 11 indicates the amount of time it takes to restore a service in production that has failed. Table 12 indicates how long it takes a code change to reach the customer. Table 13 indicates the average amount of time spent on unplanned work on an application per year.

TABLE 11

Average Time to Restore a Production Failure

Q. What is the average time to restore service when a production failure occurs?

	% of Respondents
Less than an hour	19
1 to <3 hours	33
3 to <8 hours	14
8–24 hours	5
Don't' know	29

n = 21

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

TABLE 12

Timeline for Code Change Impact on Customers

Q. Once a code change is committed, how long does it take to reach the customer?

	% of Respondents
0–60 minutes	14
61 minutes–24 hours	10
More than 1–6 days	10
1–2 weeks	24
More than 2–4 weeks	5
More than 1–3 months	10
More than 3 months	5
Don't know	22

n = 21

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

TABLE 13

Average Time Spent per Application on Unplanned Work

Q. What is the average time spent per application in a year on unplanned work?

	% of Respondents
Less than 24 hours	10
1–6 days	10
1–2 weeks	14
More than 2–4 weeks	29
More than 1 month	10
Don't know	27

n = 21

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 14 shows that only 24% of DevOps team have a formal inclusion process for compliance, audit, or security team input. We expect this number to accelerate over the next two years as DevOps teams consider the prerequirements from security, compliance, and audit and start to embed these requirements into the DevOps automated processes.

TABLE 14

Role of Security and Compliance in DevOps Projects

Q. What role do your security and compliance teams have in DevOps projects?

	% of Respondents
Informal/ad hoc	29
Formal team inclusion	24
None	24
Don't know	23

n = 21

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

Table 15 shows the expected business outcomes from DevOps practices, with the top expectations being an improved customer experience, lower costs, and improved employee productivity.

TABLE 15

Expected Business Outcomes

Q. What business outcomes do you expect DevOps practices to deliver?

	% of Respondents
Improved customer experience	67
Lower IT costs	61
Improved employee productivity	44
Higher profits	39
Improved IT employee satisfaction	39
Faster/increased revenue growth	33
Improved security and risk mitigation	33
Improved career development	28
Higher service availability	22
Improved EPS	11

n = 18

Note: Multiple responses were allowed.

Source: IDC's *DevOps Best Practice Metrics: Fortune 1000 Survey,* December 2014

FUTURE OUTLOOK

Fortune 1000 organizations have significant opportunities to drive and deliver business and technology value across their organizations in a plethora of ways. We expect that 2015 will bring a deeper DevOps focus on the role that security, compliance, and audit can play in projects. While today's DevOps teams have "no or ad hoc" involvement, we believe the benefits of getting security, compliance, and audit input early in the DevOps project life cycle offers too many benefits and efficiencies to ignore. Besides an increase in the involvement of these teams, IDC believes DevOps teams will:

- Meet the many preexisting requirements of the security, compliance, and audit teams through embedded process automation
- Learn and communicate in the language of the audience to help establish trust across the functions

- Utilize API wrappers to layer security, compliance, and audit needs across application processes

ESSENTIAL GUIDANCE

Communicating DevOps business value is critical to securing additional funding and accelerating the rate and course of change in an enterprise. Finance is the language of business. As such, DevOps teams should consider the following business metrics to communicate success:

- **Productivity:** Speed, velocity, and how much faster the team is executing through faster code development, impact analysis, build and test automation, configuration automation, and time to market
- **Quality:** Improved availability, deeper requirements analysis, early business stakeholder support and involvement, security and compliance risk reduction, and identifying issues earlier through continuous testing and integration
- **Operating expense:** Cost avoidance/optimization, doing more with what you have, fail fast and fail cheap, cost modeling, and allocation/bill of IT
- **Capital expense:** Improved utilization, cloud-based systems, and convergence

LEARN MORE

Related Research

- *Best Practice Guide: Reevaluate Vendor Selection Criteria to Accelerate Business Outcomes* (IDC #250453, September 2014)
- *DevOps Requires New Product Selection Criteria to Optimize Business Benefits* (IDC #249748, July 2014)
- *IDC MaturityScape: DevOps* (IDC #249471, June 2014)

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