



Integrating Cognitive Services into your DevOps Strategy

IT Infrastructure and Application
Support Services Director:
Ananth Krishnamoorthy

Author:
Karthik Jaganathan
Sr. Analyst

C O N T E N T S

- What is DevOps?
- DevOps Benefits
- What is Cognitive Services?
- Think Big: DevOps with Analytics
- Real Power of IT Analytics
- How IT Analytics tools can help IT Operations
 - Statistical pattern analytics
 - Textual pattern analytics
 - Configuration analytics
- Five Fingers Theory for DevOps Success
 - Monitor your Pre-Production environment
 - Collaborate with Dev, Ops, Biz
 - Monitor the service and end-users post deployment
 - Understand the end-users
 - Hear from end-user needs and optimize the application features
- Conclusion



Integrating Cognitive Services into your DevOps Strategy

In this paper we aim to explain about the possible benefits of adopting DevOps Practices with the best-in-class Analytical tools (cognitive computing).

Why do we need DevOps in our organization? Well we may have expert team in software development, Release management, QA and IT Operations. Is this really enough to deliver the product on time when we use traditional agile software development approaches alone?

The answer is NO. In general, DevOps practice impacts major changes in IT culture and helps them in rapid service delivery through the adoption of agile and lean practices with a fully automated lifecycle.

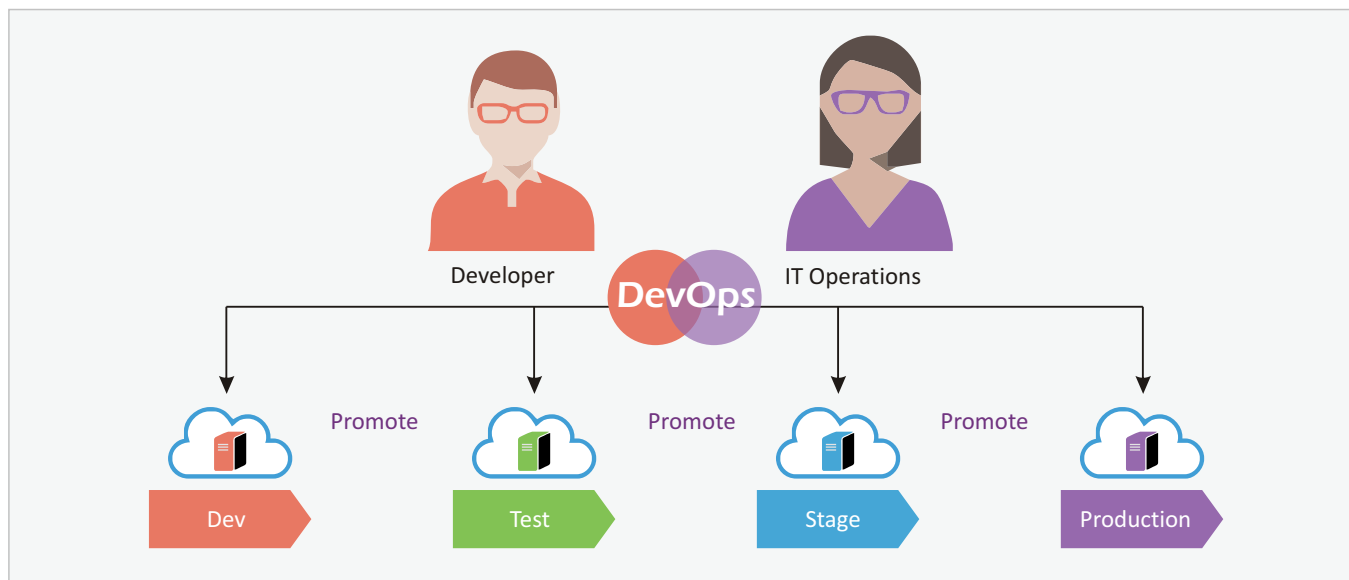
What is DevOps?

DevOps simply emphasizes people and culture, seeks to improve collaboration between the operations and development teams. DevOps implementations utilize technologies, especially the major automation tools that can leverage an increasingly programmable and dynamic infrastructure from a software development life cycle perspective.

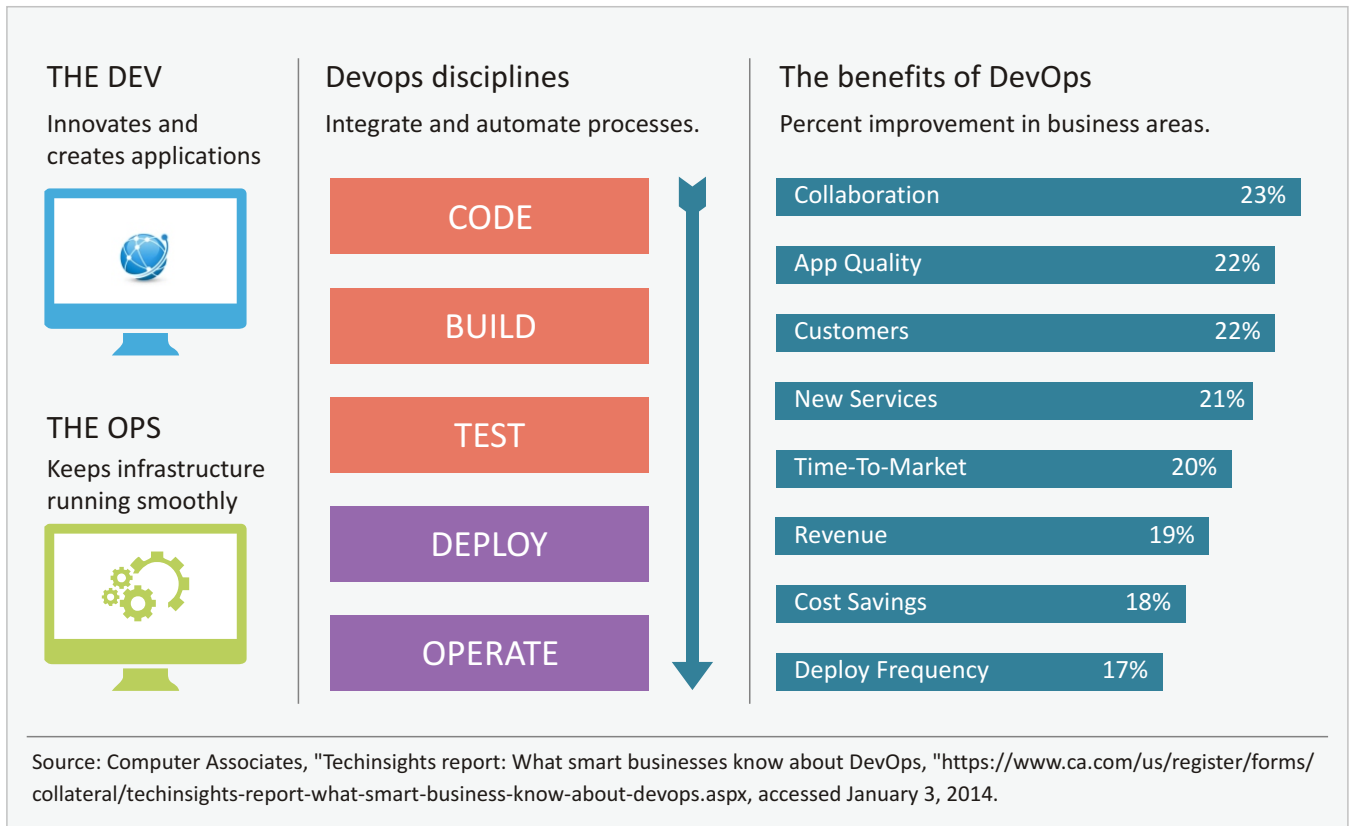
DevOps Benefits

Some of the key benefits when we adopt DevOps in our Organization.

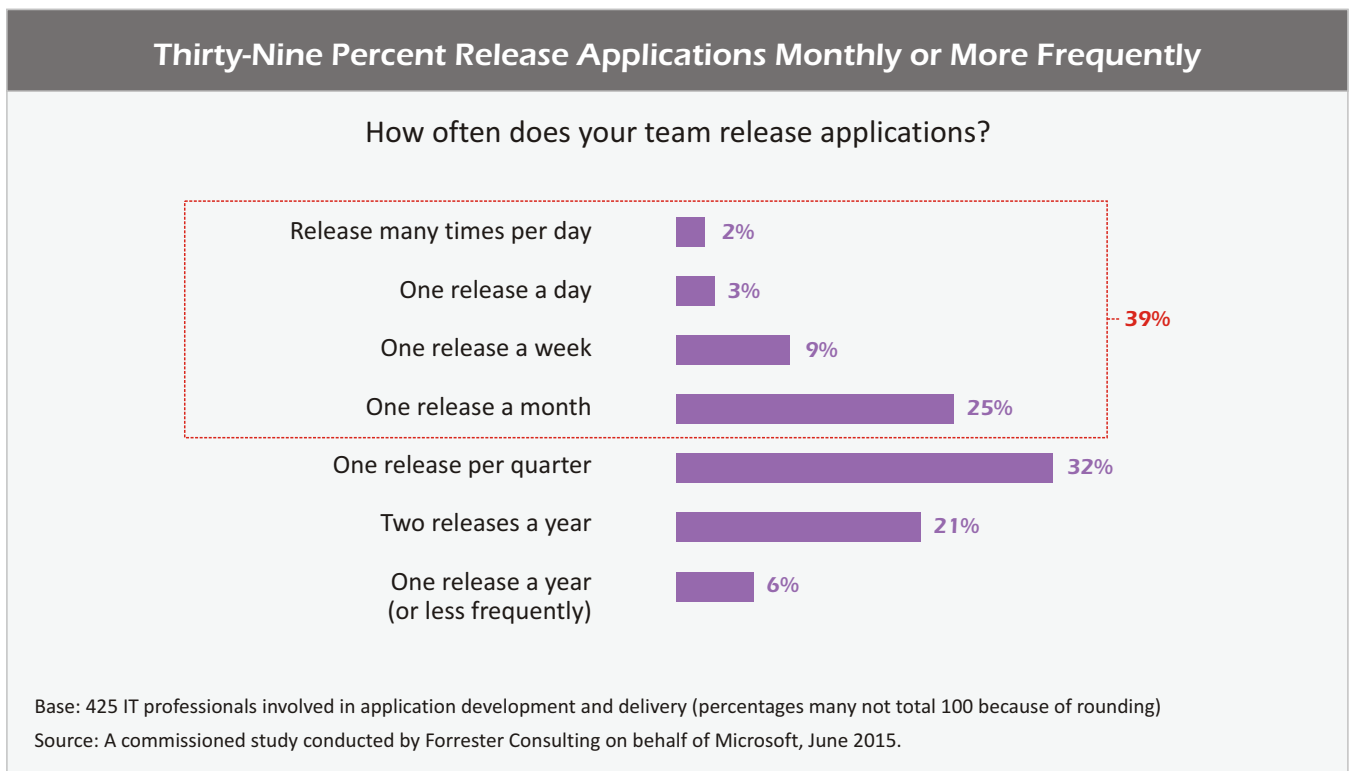
1. Increased service quality
2. Increased reliability of service delivery
3. Increased customer value through responsiveness to change
4. Better usability with improved customer satisfaction
5. Efficient operations
6. Reduce bottlenecks through cross-pollination of skills
7. Holistic value creation increasing employee satisfaction
8. Collaboration improving employee attitude
9. Constant learning and improvement
10. Reinvigoration of your employees



Integrating Cognitive Services into your DevOps Strategy



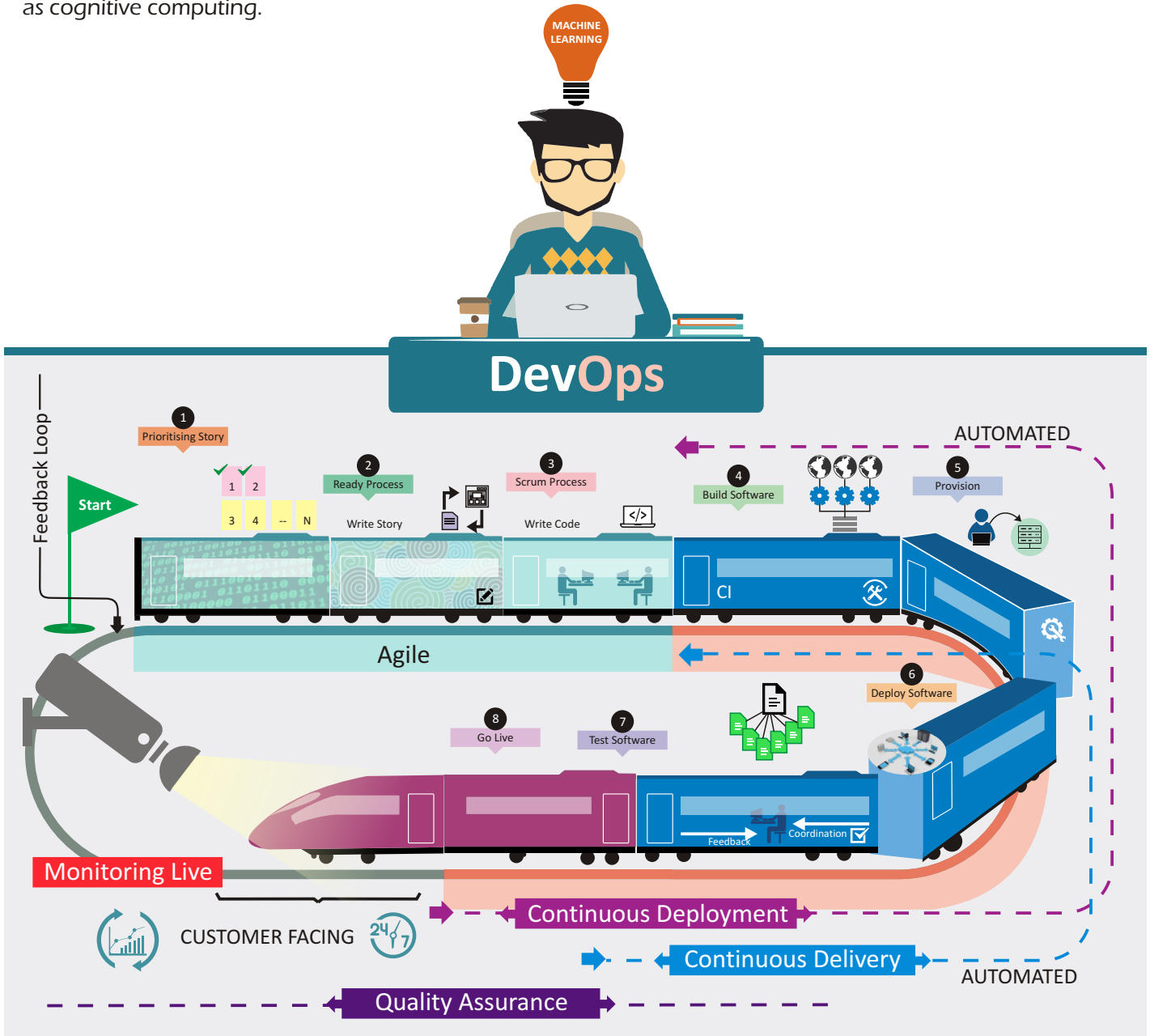
According to a Forrester study, 39% of product development companies are releasing applications monthly or more frequently. Another one-third 32% reported that their average release would be one per quarter, while 27% reported that their average release would be one or two per year.



Integrating Cognitive Services into your DevOps Strategy

What is Cognitive Services?

In general, a Cognitive service is a simulation of human thought process in a computerized model, also known as cognitive computing.



The main goal of cognitive computing is to create an Automated IT System that should be capable of solving problem/providing solution without human assistance. It uses machine learning algorithms;

“39% of product development companies are releasing applications monthly or more frequently”

These systems acquire knowledge from the data fed into them by mining data for information. The systems refine the way they look for patterns and as well as the way they process data so they become capable of anticipating new problems and modeling possible solutions. Cognitive computing is used in numerous artificial intelligence (AI) applications, including expert systems, natural language programming, neural networks, robotics and virtual reality.

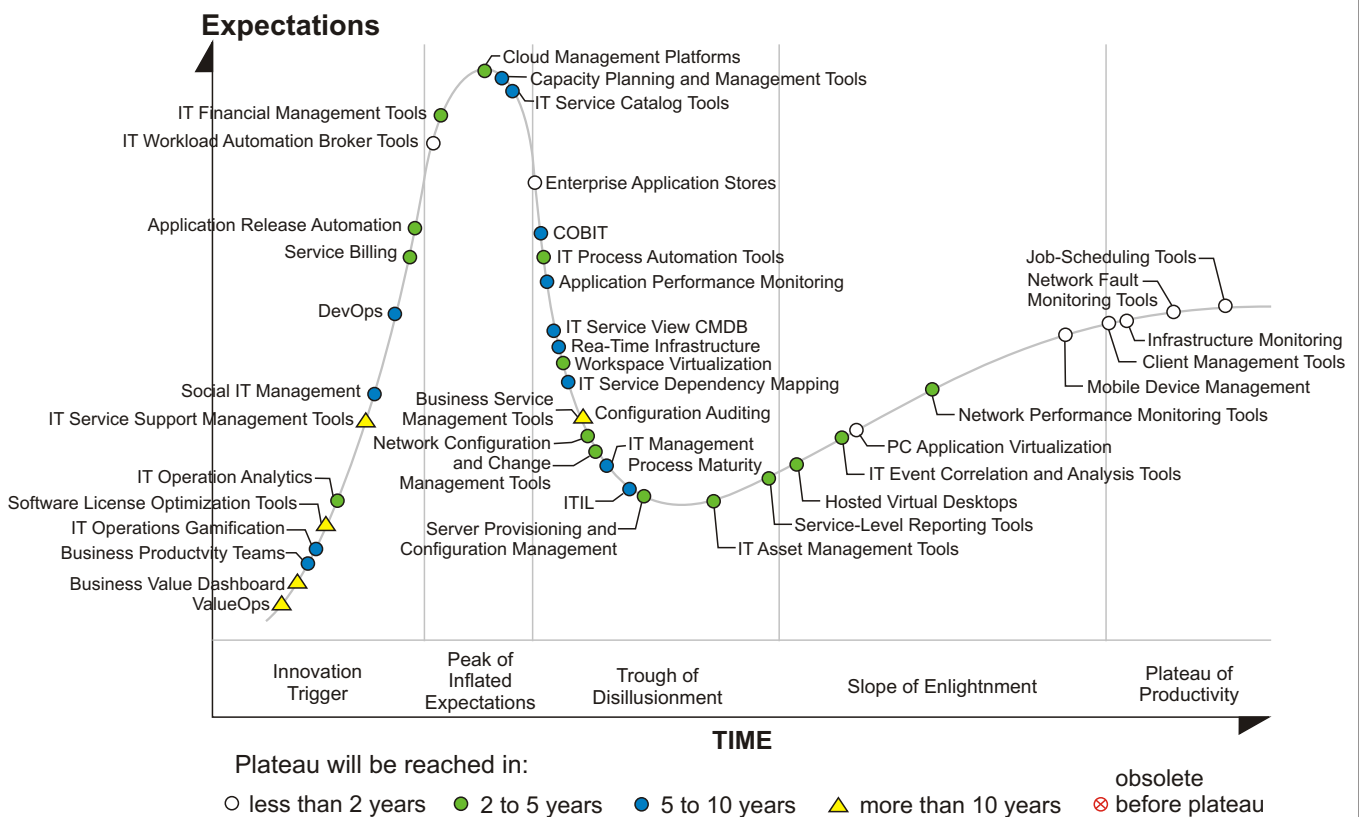
Integrating Cognitive Services into your DevOps Strategy

Think Big: DevOps with Analytics

Sales and demand are heavily time dependent. Sales fluctuation at different seasons of the year is one of the hardest challenges for good forecasting and demand planning initiatives.

Over the last several years DevOps teams focused on automating the application delivery using a few provisioning, release and automation tools. Now it's time for DevOps team to automate the way we support applications in production by leveraging application/software analytics and machine learning to automate the manual tasks involved in incident detection, troubleshooting and root cause analysis. Very soon we expect to see a new concept of Analytics- powered by DevOps and ITOA (IT Operations Analytics) tools that will help deal with the actual challenges faced in DevOps by collecting and analyzing all the changes across entire environments. Monitoring all actual changes and analyzing them together with release and deployment data, will allow for smooth, error free releases. Think about a scenario, A person sitting in a remote location and monitoring the complete delivery pipeline through an Analytics tool.

"Gartner recognized IT Operations Analytics as an area on the rise with high impact on IT operations. So the analysts recognized that analytics will enable to perform processes that will significantly increase revenues or cost savings for the enterprise."



Source: Gartner

Integrating Cognitive Services into your DevOps Strategy

Real Power of IT Analytics

When using mathematical algorithms and other innovations, IT Analytics tools can carry out the calculations that churn through these immense amounts of data and extract valuable information from tons of raw data.

How IT Analytics tools can help IT Operations

➔ Statistical pattern analytics

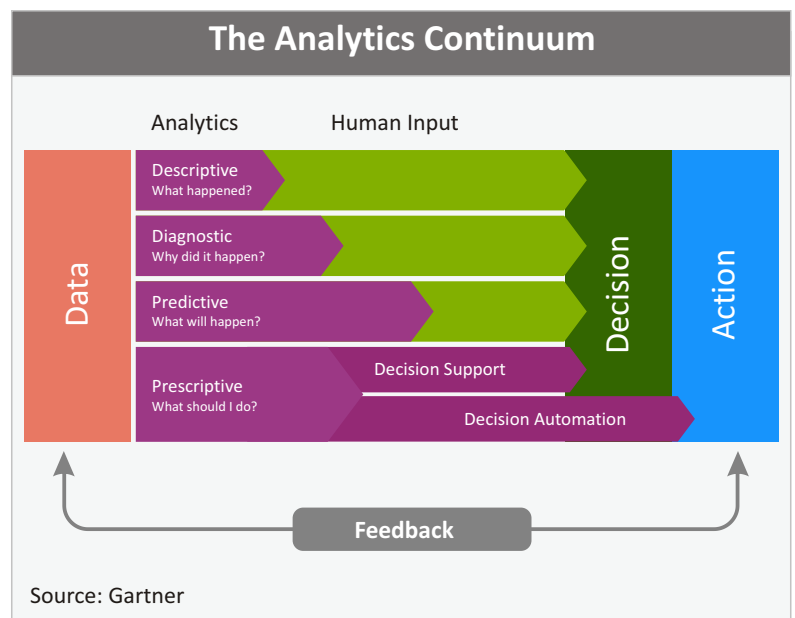
Statistical pattern analytics evidence the existence of relationships where explicit relations are either weak or missing, statistically comparing performance patterns to identify common behaviors and therefore, implicit relationships.

➔ Textual pattern analytics

Textual pattern analytics helps to analyze the streams of textual data, such as logs. It can also find patterns that can be used to identify the conditions and behaviors.

➔ Configuration analytics

Configuration analytics can help to capture all the change configurations across the IT environments and analyze configurations to detect what changes have been made when the system was working fine. It also can help to verify the change consistency between environments and identify the discrepancies from desired configuration.



By doing so, analyzing the detailed changes and validating the change configuration across the IT environment (including application deployment) can help the IT Ops team to avoid below scenarios

- Inadequate data of “Infrastructure Changes”, that fails to accommodate the gaps.
- Inconsistent production environment where the changes are made.
- Validating the pre-production environment, i.e. when the changes take place in the production and operations, how do they get back-reflected into the pre-production environment?

As the complexity of the current infrastructure environment and operations process grows, without applying the IT Analytics, we may lead to continually perform repetitive operations, time consuming tasks in order to close these automation gaps.

“ITOA (IT Operations Analytics) tools will help deal with the actual challenges faced in DevOps ”

Integrating Cognitive Services into your DevOps Strategy

Five Fingers Theory for DevOps Success

➔ Monitor your Pre-Production environment

In order to achieve the challenges/goals in the production environment, we should ensure that our application must be tested and ready for the desired performance in the pre-production environment before they go live in production. When using the analytical tools in pre-production environment, it triggers the automated actions and reports the successful failures.

➔ Collaborate with Dev, Ops, Biz

Got an Issue? It is very important to have process and tools that foster collaboration between Dev, Ops and business teams. It helps to make sure everyone is on the same page.

➔ Monitor the service and end-users post deployment

We should always want to monitor, especially in the production environment. If the usage goes down/interrupted, we can identify the root cause for the same. If so then we should know whether the recent deployment changed the behavior. By using some predictive analysis methods this can be auto-corrected from the collection of raw data.

➔ Understand the end-users

From the business perspective, analytics reports should help us to know, who our users are. Where are they coming from? Are they using all the features? Does the performance have an impact on behavior?

➔ Hear from end-user needs and optimize the application features

It is always important to have feedback from end-users. End-users are the key partners for any organization to strengthen our products/services. So the valuable feedback from customer/end-user can help us to optimize the performance and add features to the applications.

Integrating Cognitive Services into your DevOps Strategy

Conclusion

We must adopt forward thinking DevOps with predictive analytical tools to help the organizations business growth. The convergence of ITOA and DevOps will be an exemplary cycle of enhanced speed, smarter IT automation, and have better control of IT operations for more reliable service and more successful customer experiences.



Aspire Systems is a global technology service firm serving as a trusted technology partner for its customers. The company works with some of the world's most innovative enterprises and independent software vendors, helping them leverage technology and outsourcing in Aspire's specific areas of expertise. Aspire System's services include Product Engineering, Enterprise Solutions, Independent Testing Services, Oracle Application Services and IT infrastructure & Application Support Services. The company currently has over 1,600 employees and over 100 customers globally. The company has a growing presence in the US, UK, Middle East, Europe and Singapore. For the seventh time in a row, Aspire has been selected as one of India's "Best Companies to Work For" by the the Great Place to Work® Institute, in partnership with The Economic Times.

SINGAPORE
+65 3163 3050

NORTH AMERICA
+1 630 368 0970

EUROPE
+44 203 170 6115

INDIA
+91 44 6740 4000

MIDDLE EAST
+971 50 658 8831

For more info contact
info@aspire.com or visit www.aspiresys.com

