Lufthansa Systems

Falling in love again!

DevOps – Development and Operations

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“DevOps” is a term that was omnipresent for the last months and years when talking about application management and software development. Especially in the last year (2015) many theories, processes and even software solutions came up to solve the gap between software development and operations. Many IT providers consider their solutions to be the ultimate approach for a modern application management. This whitepaper takes a closer look on the background of DevOps as well as on the significance of different approaches.

01. Historical separation of Development and Operations

Historically, Development and Operations started as two hearts beating in one chest. Rooting back to the time before IT taylorism it was natural that the same persons were developing on one machine while maintaining and operating its infrastructure. Due to the increasing complexity of software, the correlating changes and the risk of endangering the day-to-day-operations the hearts had to be torn apart forcefully. A safe distance was the key to ensure the IT infrastructure’s stability as much as the obstacle-free development.

In the following years the development branch has become more and more innovative, flexible and dynamical. Agile development methods made it possible to have several final tested software packages in a week. The pursued goal was fulfilling as many customer requirements with high quality in a most efficient way as possible. However the development team is not the one responsible for making new features accessible to the customer. For this purpose Operations is needed.

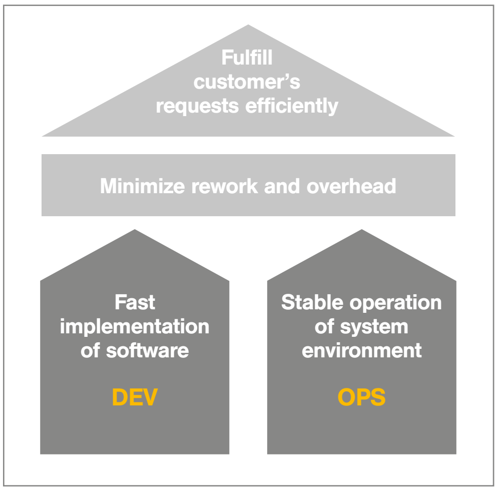
While Development grew more agile, Operations aimed on getting the most stable IT environment possible. Processes, regulations and explicit responsibilities became the corset and life insurance of the department. New software components must be tested and stabilized as well as documented thoroughly. Processes follow guidelines as the ITIL framework; nothing is left to chance. Due to this approach incidents became less threatening and easier to cope with. Consequently the customer could count on a better service hence a higher availability and usability.

02. Development of the DevOps movement

A massive goal conflict transpires: Development works on getting faster and meeting the customer needs in regards of functionality whereas Operations aims on stability and complex regulations. This conflict becomes visible by means of frustration, finger pointing and rising failure rates. The cooperation is disturbed which leads to inefficiency. However not only the departments suffer from this malfunction but the customer is the primary victim.

Since members of Operations mainly from IT infrastructure operations got fed up with the situation a movement towards getting the units closer again was raised. The first action had been to talk about this specific challenge. At first existing forums and events where used as platform. Not much later the first conventions for DevOps topics had been established.

Responsibles of development teams as well as of operation teams started to get together and analyzing the problems, discussing the ever-present issues and defining solutions. Since different people from different companies with different roles evaluated the topic, the approaches vary widely. Eventually the process of developing approaches shows that there is not only a Dev-Ops-Symptomatology but also many other parties involved, e.g. “Biz” for Business, that need to be included in a transformation.


Fulfill customer’s requests efficiently
Minimize rework and overhead
Fast implementation of software
DEV
Stable operation of system environment
OPS

03. DevOps characteristics and strategies

When analyzing the different solution approaches it becomes obvious that there are contrasting strategies to reduce incidents and to get the fields move closer together again. Although these strategies are most often heavily individual, on a high-level consideration the following clusters can be identified:

Organizational driven DevOps

Process driven DevOps

Tools and automation driven DevOps

Organizational driven DevOps

In this approach the key to success is reorganizing the application management department(s). To name just a few, this can be done by defining mixed teams, location changes or new leadership structures. As simple as it sounds, various parameters have to be considered, e.g. external providers and offshore departments.

Process driven DevOps

Since the different parties work with their sets of process frameworks, these need to be connected or at least aligned, e.g. by an extra transition process or a whole new process landscape. When working on the processes it is highly relevant to pay attention to all involved roles, tools and interfaces.

Tools and automation driven DevOps

A widely accepted understanding of DevOps is using tools as connection between the areas. With this approach friction and delays shall be eliminated. This may be tools for continuous integration and continuous delivery.

Depending on the organizational complexity, roles and processes as well as on the maturity level of the existing collaboration, a different approach must be set in place. Therefore it is important to take in consideration that there is no universal remedy to solve inefficiencies in the collaboration of development and operations. Most often it is the right combination of these approaches that solves the company specific challenges.

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04. Approaching DevOps for the own organization

As the DevOps movement is characterized by many different views and opinions it is important to start with identifying the root cause of actual problems in one's own scenario. Hence an end-to-end analysis of the value chain is necessary.

Starting with the functional responsibles in the business process, going on to the interfaces between business and IT, to the development teams, testing teams, deployment teams right up to the operations team. In many companies there are several more roles and teams involved that have to be considered.

The analysis can be conducted by means of different tools, e.g. evaluation of process documentation, KPIs or performance reports. However one should not underestimate the value of interviews and discussions. Especially in cases of concrete disagreements it is recommended to have face-to-face interviews as well as discussions with different roles in the process chains. While discussing different views on the topic can be aired and insights be understood. For example do functional business analysts rarely get the chance to exchange view with infrastructure operations and the other way round.

Consequently there is no best practice exchange or even understanding of challenges and pains between the parties. This hints at one of the main problem driver: Communication and organizational development.

Since the parties concerned usually consider different aspects to be the source of a malfunctioning process it is important to keep a certain distance when evaluating the analysis' results. Again it is necessary to combine the fields of action such as processes and tooling. As much as some tend to insist on automation as the solution for everything others maintain the opinion that only the counterparts have to communicate more precisely. Commonly there are many accusations that can be solved easily but point to the core issue.

Eventually these contrasting opinions and approaches show that DevOps is not only a technical issue but more a cultural topic. When approaching an inefficient application management organization or by having the aim to become even better as the current state this should be always kept in mind. The same aspect applies when executing the actual change. Do not underestimate the relevance of professional change management event though one might want to solve a potentially technical problem.

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05. Background

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Lufthansa Systems is part of the Lufthansa Group. The consulting arm of the company was established when the IT subsidiary was founded in 1995, and it has continued to evolve ever since. This background has produced a unique combination of well-founded expertise in every aspect of airline IT as well as extensive consulting experience covering all airline processes, including operational flight management, passenger service, crew planning, ground handling and revenue management.

Corinna Mehl has a background of quality management and governance within an application management organization focusing on service transition and process management. In addition to the practical experience in DevOps processes she worked on the scientific background of DevOps and its contrasting aspects in the context of her studies as Master of Business Consulting. Currently she works as a consultant in project services at Lufthansa Systems Airline Competence Consulting.