Telcos: Using DevOps to Answer the Call for Fast Innovation

CloudBees.

Contents

Introduction

Telecommunications – the Impact of the Digital Economy

Strategic IT and technology leadership in the telco industry has been challenging over the last few years. Leaders have been tasked with maintaining momentum in the core businesses of voice and data, while expanding into non-traditional businesses such as the Internet of Things (IoT). These areas are strategic necessities. The challenge will be to accomplish these dual imperatives in a market characterized by increasing usage, downward pressure on rates and scarce spectrum.

All of this means a continuing increase in traffic, and carriers are looking to offload a lot of this traffic onto broadband networks, particularly fiber. Carriers are also considering newer spectrum efficiency technologies, including Voice over LTE (VoLTE) and Voice over Wi-Fi (VoWi-Fi). To further complicate matters, the Over-the-Top (OTT) players, such as Netflix and HBO Go, are streaming their content over existing networks for free.

These technology changes are all being driven by the dramatic growth of the digital economy, and we're not just talking about mobile phones. IoT encompasses things like connected cars, smart homes and appliances. It also includes business and industrial applications in utilities, logistics and even hospitality. It's integral to making trucks. Governments, especially in Europe, are investing in smart cities.

But let's not forget the consumer. Consumers are interacting with connected devices in new ways. Think about mobile devices. Whether for fun or business nearly everyone is constantly tethered to their mobile phone to check email, business and entertainment applications, and to interact via text and voice. In addition, all of these mobile apps are introducing real-time data, pictures and video. US consumers look at their mobile devices over 8 billion times a day, in aggregate. And they're not looking at the device to admire its design – they're consuming network capacity.

Redefining the Customer Relationship

The benefits of creating and maintaining great relationships with customers are well understood – less churn, more potential revenue streams. But this isn't just about enhancing the digital experience. As we all know, customer service and billing are two big flash points for consumers. Improved service automation, seamless escalation and streamlined financial processing will go a long way, but most carriers are saddled with complex legacy architectures and systems. (Remember all of that industry consolidation?)

Beyond Consumers

As mentioned above, businesses and governments are big players in the digital economy. There are two sides to this coin: by offering services targeted to business and government, service providers leverage existing (and future) infrastructure investments; at the same time, these services can capture new and emerging opportunities.

Three examples are:

- Microsoft has been aggressively recruiting telcos around the world to offer Microsoft cloud-based office and productivity suites with voice and data services in the SMB market. These are hybrid, bundled offerings designed to provide a seamless, comprehensive digital experience for SMBs in all geographic areas
- The City of York, in the U.K., is in the process of building a new city-wide fiber to the premises (FTTP/H) broadband network for homes and businesses. The consortium that was awarded the contract includes telcos such as, the TalkTalk Group, a U.K. based telco; CityFibre, a fiber network builder; and Fujitsu Services, the global systems integration arm of Fujitsu, a leading Japanese IT firm.
- Daimler Trucks North America turned to the IoT to help them compete. They needed to deliver customized vehicles better and faster, while controlling costs by boosting manufacturing efficiency. They used wireless connectivity between workers and machines for tasks like retooling, at a fraction of the cost of doing this manually.

Providing reliable voice and data services has become a commodity for many providers, and therefore developing software solutions can differentiate them and add value. Accelerating the development of software and creating it in tandem with business strategy teams is a key to success in the telco industry. Industry leaders are tightly coupling development and business teams and adopting DevOps practices. The DevOps movement is ideal for the telecommunications industry for reasons we will explore in this whitepaper.

Moving the Needle – The Role of DevOps

Providing enhanced services and an improved customer experience that moves the needle in satisfaction and stickiness requires the continual delivery of new and improved applications. When everything is critical – improving core services, meeting demand for new and enhanced services, fending off competitors – executives demand speed from their IT teams. Therefore, IT development and operations teams are under great pressure to deliver. They're being tasked to build, test and release more applications in shorter cycles. DevOps practices are the key for many organizations today in being able to deliver a continual stream of mission-critical applications.

DevOps is a movement which promotes a culture and practices for rapid and frequent application development. DevOps practices enable IT teams to deliver more reliable releases through improved productivity and efficiency. A DevOps culture emphasizes more effective communication and collaboration between diverse teams such as development, operations and QA. DevOps adoption requires an organizational culture shift, which is usually the most significant challenge to adoption.

As we've seen with the examples given above, competing effectively requires telcos to partner and even integrate with others. This adds another dimension of difficulty in the application delivery process. Amidst all of this, the telco sector has been through a series of mergers and acquisitions, which means fighting an ongoing battle to rationalize disparate systems and applications.

DevOps and Continuous Deliverys

DevOps centers around the collaborative effort required for rapid and frequent application development, testing and delivery. It's a cultural shift; a better way of working across functions. Because it's about culture, there is no single DevOps tool, per se, but there are available tools to enable and support a DevOps culture. There are both open source and proprietary tools, and they are used for specific tasks across the entire software development and delivery process. And speaking of process, let's look at continuous delivery.

Continuous delivery is all about process, and automation is the enabler for it. Continuous delivery processes are a fundamental component to a DevOps transformation. Continuous delivery and DevOps enable development teams to greatly accelerate delivery of software. With continuous delivery processes and a DevOps culture, teams can continually deliver secure and tested code that is in a production-ready state at all times. This includes the delivery of software updates, which for a telecommunications company can be as frequent as three or more times per day.

Going back to tools, as the pressure continues to build from business leaders for the delivery of new and improved applications, a very pragmatic tools-based approach is required, in order to avoid:

- Higher costs of support and training inherent in the deployment of a variety of tools
- Risks related to the overwhelming task of managing updates and patches
- Barriers to collaboration resulting from the use of disparate toolsets

So, let's review: DevOps is an organizational set of practices that accelerates application delivery while ensuring more reliable releases. DevOps is achieved through a culture of collaboration and teamwork. Continuous delivery is the end-to-end process enabled by DevOps organizational practices. Finally, to achieve both continuous delivery and ultimately a DevOps culture, the right tools will expedite the transformation. We have lots of tools to support these goals, and that's part of the problem in transforming to a DevOps culture. If these toolsets are not rationalized, there are higher costs, risks and barriers to achieving a DevOps culture.

Jenkins – The Open Source, Reliable Tool for Continuous Delivery

Jenkins is the shepherd of software application development and delivery. Imagine a tool that can round up snippets of code from various modules, and get that code to where it belongs – much like a shepherd herding their flock. That's Jenkins.

Jenkins is already the de facto continuous delivery tool of choice. According to a ZeroTurnaround survey, 70% of developers use it. Why? Jenkins is open source, and is supported by an involved and active community. Jenkins also has an extensible architecture, giving it the ability to integrate with a wide array of code from disparate tools and sources. Owing to this ubiquity, Jenkins is likely already used within telcos amongst teams involved in the software delivery pipeline, from development to production.

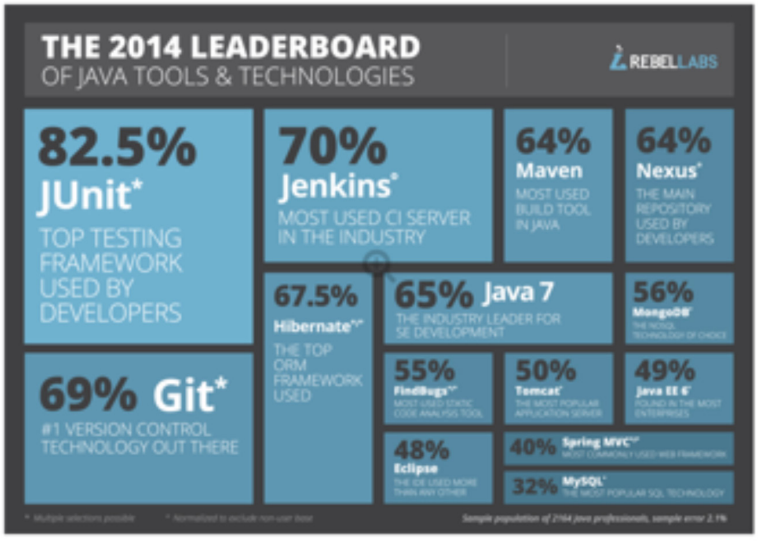

Figure 1: The Leaderboard of Java Tools and Technologies - from a survey conducted by ZeroTurnaround

Earlier, we looked at the huge changes occurring in the telco sector. Of course, this translates into a big job for software delivery teams. Not just big, but complex, with an inordinate number of stakeholders, each with critical goals – maintaining and improving core services, offering new innovation, improving customer experience, replacing or re-architecting infrastructure, developing strategic partnerships – the list goes on.

Open Source and the Enterprise

The open source movement means different things to different people. There are many software applications that are open source. In some cases, these are highly valuable products with a strong ecosystem of contributors. The most valuable of these offerings are also supported by industry organizations, such as the Apache Foundation and Software in the Public Interest. While companies typically experiment with a variety of open source options, they are most likely to select open source that is backed by a commercial vendor, from whom they can get formal technical support.

Jenkins is a widely-accepted open source automation server. Large telcos, may need more functionality and support than can be provided from the Jenkins community. To satisfy those needs, CloudBees provides CloudBees Core, a commercial version of Jenkins that is verified and tested. CloudBees adds technical support for Jenkins and community plugins, as well as additional enterprise functionality in the areas of security, scalability, manageability and resilience. CloudBees Core delivers Jenkins for the enterprise.

Continuous Delivery and Telecommunications – Success at the Enterprise Level

Telcos sit in the middle of the digital revolution. They literally keep the digital trains running. Their offerings not only enable innovation; they drive innovation. What is their business, really? It's voice and data, of course, but it's also entertainment, public safety, financial services and education. They're subject to regulation at the national and international level. They depend upon the assignment of spectrum. The stakes for telco executives are high, meaning that the stakes for application teams are just as high, if not higher.

Success in leveraging the benefits of continuous delivery processes depends upon several best practices, especially in telecommunications.

These best practices include:

- **Ensure a strong, ongoing commitment to DevOps.** The outside looks chaotic – the inside should not.
- **Extend meaningful collaboration to include line-of-business executives.** As we've seen, telcos serve many masters. The diversity of mission-critical telco applications, along with continual revisions, requires an understanding of the business on the part of developers.
- **Use tools that are up to the challenge.** This means scalability, manageability, high availability and world-class support.

In the world of telcos, IT isn't necessarily the weak link in the chain of events if things go wrong. However, IT can – and should – ensure that they are the strongest link.

Telecommunications Trends

Just as software delivery teams should extend their sphere of collaboration to the line-of-business execs, they should also be aware of ongoing telecommunications trends. As pointed out earlier in this paper, there's a lot going on – the trick is to understand priorities. As DevOps teams rationalize current application delivery processes using tools like Jenkins, they should also be aware of what lies ahead. With awareness comes preparedness, and the possibility of providing input at the ideation stage.

As we've seen, there's no shortage of telco trends. Here are just three of the broader ones:

Integrating Connection and Content

The cost of providing voice and data services keeps falling, with connectivity capturing less of the pie, and content, service and product deliverers capturing ever more. Telco players will need to get in the content business, probably through partnerships and acquisitions.

Traffic Implication of IoT

The Internet of Things, made up of countless connected devices, will add a tremendous amount of connected data sources, with enormous growth in data volume. This will push the deployment of next-gen networks.

Security and Threat

Customers (consumer and business) will demand more proactive protection across the entire internet, and carriers will be expected to support this with a range of technical and operational innovations. The desire for greater security is an opportunity for carriers, if they embrace the need.

The Way Forward

There is no doubt that the telecom industry is in the midst of one of the greatest upheavals in its history. The industry has shifted from competing to provide the fastest and most reliable data and voice services, to providing software-based solutions that businesses and consumers expect. To succeed, development teams must have the tools to enable them to create predictable and secure solutions. Much rides on the ability to provide new applications and updates faster; at the same time, new practices, methodologies and tools can be applied to meet the challenges. The most successful companies will be those that bring together software and business teams to work together to create innovative solutions that exceed customer expectations.

DevOps is a movement which promotes a series of processes and methods for rapid and frequent application development; continuous delivery is a process which enables the delivery of code and fixes. With Jenkins, we have a tool that enables the movement, and facilitates the process.

CloudBees Drives Enterprise DevOps and Continuous Delivery

CloudBees is the hub of DevOps, providing companies of all sizes with smarter automation solutions and actionable insights for accelerating software delivery. Our continuous delivery solutions offer DevOps teams the industry's broadest suite of products, from on-premise to cloud native, from self-managed to self-service, from guided best practices to flexible choice. By making the software delivery process more productive, manageable and hassle-free, CloudBees puts companies on the fastest path to transforming great ideas into great software and returning value to the business more quickly.

Learn More

Read how CloudBees customers benefit from DevOps and continuous delivery
www.cloudbees.com/customers

Download the Forrester Whitepaper:
Open Source is Essential for Modern Application Delivery

Read the Whitepaper
The Business Value of Continuous Delivery

Learn more

www.cloudbees.com/products

CloudBees Core is built on top of Jenkins, an independent community project. Read more about Jenkins at: www.cloudbees.com/jenkins/about

0120v01

CloudBees, Inc.
4 North Second Street | Suite 1270
San Jose, CA 95113
United States
www.cloudbees.com
info@cloudbees.com