A significant leap in productivity for toll provider

T-Systems introduces Amazon Q Developer for AI-powered software development lifecycle

powered by **aws**

"Our customer reaches a new level of code quality and productivity for code generation using Amazon Q Developer, which we have seamlessly integrated into its existing development environments and organizations."

Lydia Delyova, T-Systems AWS AI expert

We are still in the era of mobility, with individual traffic on the rise globally. Despite advancements in vehicle technology that have reduced green-house gas emissions per vehicle, overall carbon dioxide emissions from road freight transport continue to climb due to the sheer increase in traffic volumes. This growing traffic not only escalates carbon emissions but also strains infrastructure, requiring significant investments to maintain and modernize national traffic systems.

Intelligent tolling systems are emerging as a critical solution to regulate traffic and transform the mobility sector. These systems not only help manage traffic flow but also generate essential funds for infrastructure maintenance and the development of more environmentally friendly transportation options. In Europe, numerous tolling companies play a vital role in national traffic systems. These companies rely heavily on digital infrastructure, with software serving as the backbone of their operations to monitor traffic and collect usage-based tolls. Their business models are deeply intertwined with digitalization, enabling them to offer valuable in-sights and solutions for innovative mobility and traffic management.

One such toll provider is leading the charge in transforming road user management through digital innovation and strategic partnerships. Committed to enhancing the efficiency and sustainability of transporta-tion networks, the company is continuously advancing its software to meet the demands of a rapidly evolving mobility landscape.

At a glance

- Software is at the heart of the tolling business and the basis for continuous innovation of services
- Ensuring high code quality
- Reducing employee burden for code review, generation, testing and debugging
- Avoiding inconsistencies and inefficiencies
- Introducing Amazon Q Developer to accelerate software development
- AI-assisted inline code generation, testing, debugging and review of code
- Integration of Amazon Q Developer Pro into existing organization that allows you to gain comprehensive control over the activities of your accounts, users, and groups, ensuring organization-wide capabilities for efficient management
- Integration with developer's IDE and many other AWS services such as AWS Lambda, AWS Glue, Amazon CodeCatalysts, Amazon QuickSight, Amazon SageMaker Studio and many more
- Usage of additional capabilities as an extension of existing environment
- Significantly faster code generation, test implementation and automated documentation, easier code maintenance and swifter debugging of issues
- Improved code quality
- Faster onboarding of new developers
- Great user experience

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Reference in detail

⊙ Customer pain points

The tolling provider faces challenges in maintaining and enhancing their code quality while striving to improve the code generation processes. The existing methods for code review and generation are labor-intensive and prone to human error, which can lead to inconsistencies and inefficiencies. The company recognizes the need for a more automated and reliable solution to ensure high standards of code quality and to accelerate the development lifecycle.

The software provider intends to leverage the advantages of artificial intelligence (AI) to automate code reviews, enhance code generation, and ultimately improve the overall efficiency and quality of their software development processes. This shift towards AI-driven solutions is critical for maintaining their competitive edge and meeting the growing demands of the transportation technology sector. The company approached T-Systems to introduce AI capabilities to their software development.

💡 How T-Systems solved it

To enhance software development efficiency, T-Systems implemented Amazon Q Developer, a generative AI-powered assistant, designed to streamline various tasks throughout the development lifecycle. Amazon Q Developer aids developers and IT professionals with coding, testing, upgrading, troubleshooting, security scanning, AWS resource optimization, and data engineering pipeline creation.

The service is available directly from AWS and thus integrated into the AWS console as well. T-Systems seamlessly integrated the service into the company's existing development environments and command-line interfaces. An additional single sign-on service (AWS SSO) allows for easy, efficient and secure usage. AWS SSO manages user identities and permissions across the AWS services according to the respective user's rights and permissions.

Amazon Q Developer provides real-time code suggestions and recommendations, helping developers build faster and more securely. It is envisioned to be integral across research, design, development, testing, and maintenance stages, from finding information and understanding code to brainstorming improvements and conducting code reviews.

? Why T-Systems?

Profound knowledge of AWS AI capabilities and expertise to integrate the AWS services into the customer's existing development processes and tools for convenient usage and great user experience.

☆ Business impact

The implementation of Amazon Q Developer has yielded significant benefits, notably improving developer productivity and code security. It speeds up deployment and enhances the quality of the code, leading to a more robust and reliable software development environment.

By automating the creation of new code based on inline code suggestions (during code writing), developers can focus on more complex and innovative tasks, accelerating the overall development process. Additionally, the Amazon Q Developer Agent for software development speeds up and automates the creation of essential documentation and unit tests. This agent also helps to build AWS projects or own applications after an explanation of the expected feature in natural language.

The troubleshooting capabilities for Lambda, EC2, Amazon ECS, Amazon S3 or network-related issues enable developers to identify root causes faster, reducing downtime and operational inefficiencies. Developers can diagnose console error messages directly in the AWS Management Console. Amazon Q provides information about the error and the steps to resolve it. All these services, and some more, are directly available within the familiar development environment, creating an excellent user experience.

Utilizing the Explain feature, Amazon Q Developer accelerates the onboarding process of new developers, helping them become productive more quickly and gain a clearer understanding of new projects, which is a huge efficiency boost.