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Assignment: Operation Inversion at LinkedIn

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Chapter 6 of "The DevOps Handbook" talks about LinkedIn’s Operation InVersion, showing why it’s important to fix technical problems regularly. Six months after LinkedIn's IPO in 2011, the company had big issues with their software deployments. To fix this, LinkedIn started Operation InVersion, stopping all new feature development for two months to improve their computing systems, deployments, and architecture. LinkedIn, started in 2003 to help people network for jobs, grew quickly. By 2015, it had over 350 million members making tens of thousands of requests per second. At first, LinkedIn used a large, complex Java application called Leo to handle all page requests and database connections. As traffic increased, two important services were separated from Leo to handle specific tasks.

On 2010, LinkedIn was creating new services outside of Leo, with about 100 running separately. However, Leo was only updated every two weeks and had many problems. Josh Clemm, a senior engineering manager, said Leo often crashed, was hard to fix, and new code was difficult to release. This led to the decision to break Leo into smaller, independent services. Then on 2011, the problems had become too much. Engineers were working long hours to fix issues. Kevin Scott, LinkedIn’s VP of Engineering, decided to stop all new features to focus on fixing the main infrastructure. This project, called Operation InVersion, aimed to create a new, more efficient engineering culture.

Stopping new features after going public was risky, but Operation InVersion was very successful. LinkedIn created new tools to make developing and deploying code faster. Engineers could now develop, test, and launch new services much quicker, improving productivity and reliability. LinkedIn was able to do major upgrades three times a day. Operation InVersion helped LinkedIn improve its engineering processes, making it easier to develop and deploy code. Before this project, LinkedIn's main system, Leo, was a large, complex application that was hard to manage and often crashed. They decided to break this big system into smaller, independent services. This change made LinkedIn more flexible and reliable. By 2015, they had grown from 150 to over 750 services. This new setup allowed each service to be

developed, tested, and deployed on its own, reducing the risk of big system failures and making it easier to expand.

This project also helped LinkedIn fix many years of technical problems. Technical debt refers to the problems caused by old or bad design and development practices, which can slow down progress and cause frequent issues. By stopping new feature development and spending time to improve their system, LinkedIn created a more stable and strong system. This new foundation not only solved old problems but also made it easier to add new features and improvements in the future. Kevin Scott, LinkedIn's VP of Engineering, stressed the importance of engineers focusing on what the company needs to succeed. He encouraged a strategic approach to engineering work, where the goals of the engineering team match the broader goals of the company. Scott believed engineers should think like CEOs, understanding the business and market needs and applying this understanding to their work. This way, engineers prioritize work that helps the company succeed, ensuring technical decisions support the overall business strategy. The cultural change started by Operation InVersion led to a new way of thinking within LinkedIn's engineering teams. It encouraged continuous improvement, better collaboration, and stronger alignment between technical efforts and business goals. This strategic focus helped LinkedIn build a more efficient and innovative engineering culture, positioning the company for long-term growth and success. By creating a safer and more efficient system, LinkedIn not only improved its current operations but also prepared for future technological advancements and business achievements.

In summary, LinkedIn’s Operation InVersion showed the importance of fixing technical problems regularly to avoid major failures. The project highlighted the benefits of focusing on important technical improvements to ensure long-term stability and growth, even if it means delaying new features.

**References**

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