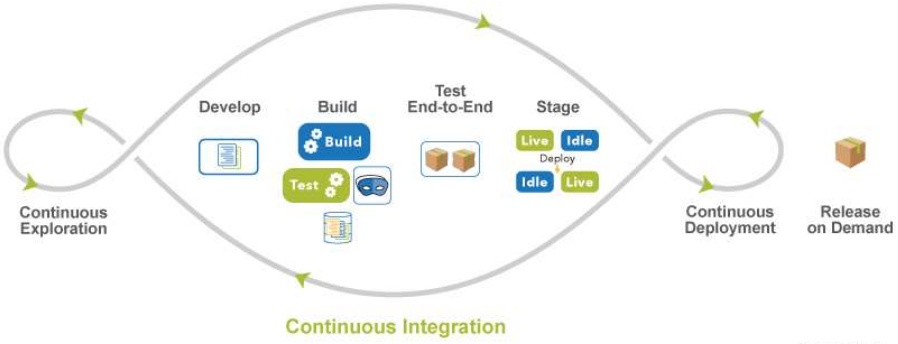
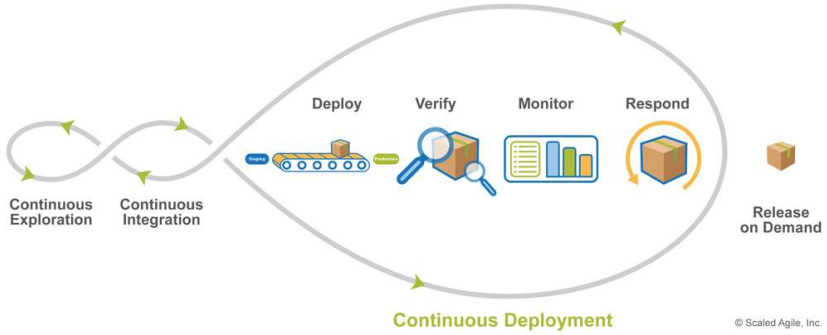
New Approaches to Software Development Lifecycle and Application Lifecycle Management

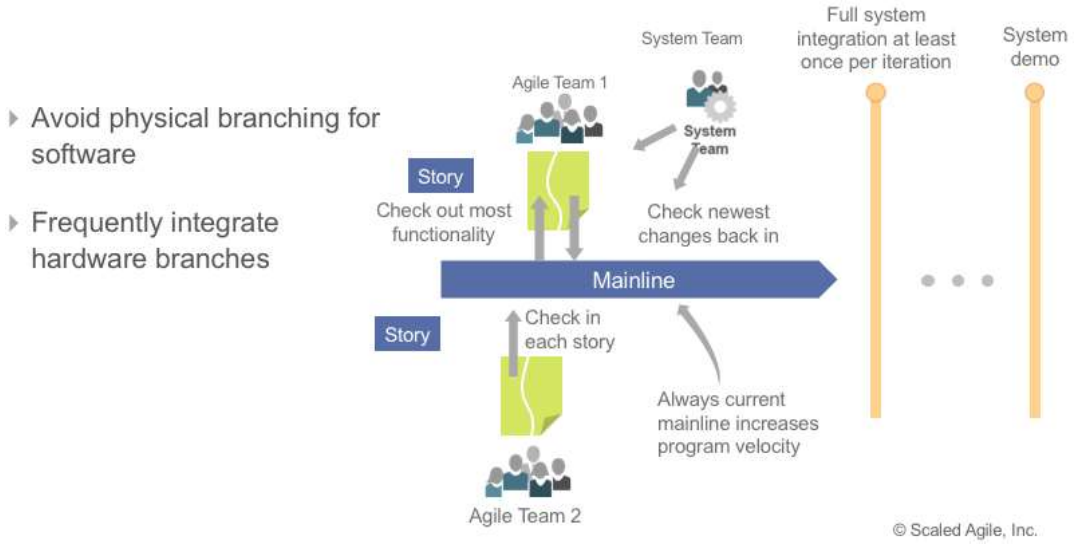
This is a discussion post from a former student of this class, Josh Uda. I could not have said this any better myself so I have included this content as he wrote it with his permission.

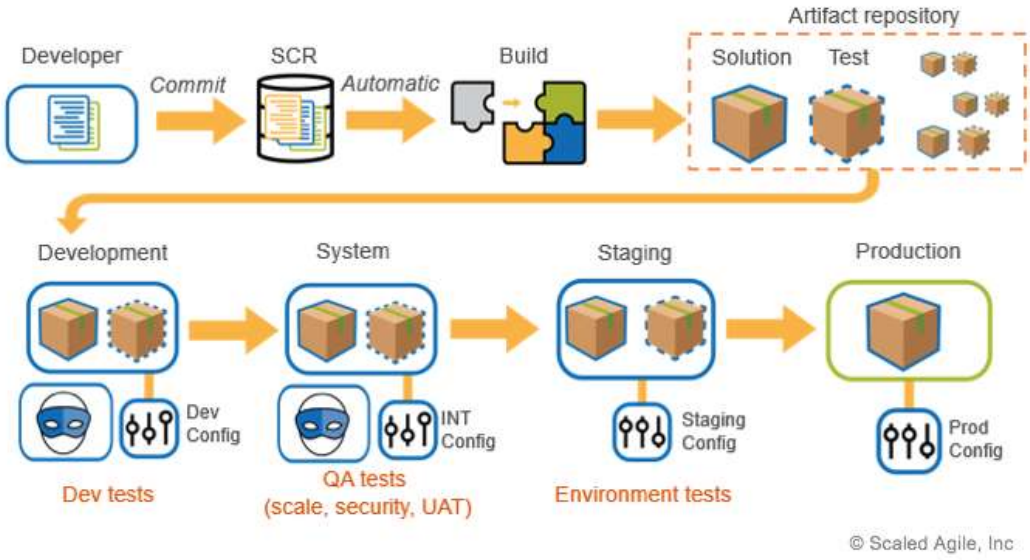
New technologies like **containerization (https://www.docker.com/resources/what-container)** , **configuration as code (https://octopus.com/blog/configuration-as-code-what-is-it-how-is-it-beneficial)** , and cloud-native "**serverless (https://www.redhat.com/en/topics/cloud-native-apps/what-is-serverless)** " architecture have converged and enabled new approaches to the software development lifecycle (**SDLC (https://en.wikipedia.org/wiki/Systems_development_life_cycle)**) and application lifecycle management (**ALM (https://www.redhat.com/en/topics/devops/what-is-application-lifecycle-management-alm)**). In modern Health Tech, we are moving away from the idea of adding more environments and backups toward things like **blue-green deployment (https://www.redhat.com/en/topics/devops/what-is-blue-green-deployment)** with two alternating production environments and continuous integration and continuous delivery/deployment (**CICD (https://www.scaledagileframework.com/continuous-delivery-pipeline)**) with a single staging environment that mimics production, automates tests, and allows frequent release to production with feature toggles, dark launches, and canary releases.



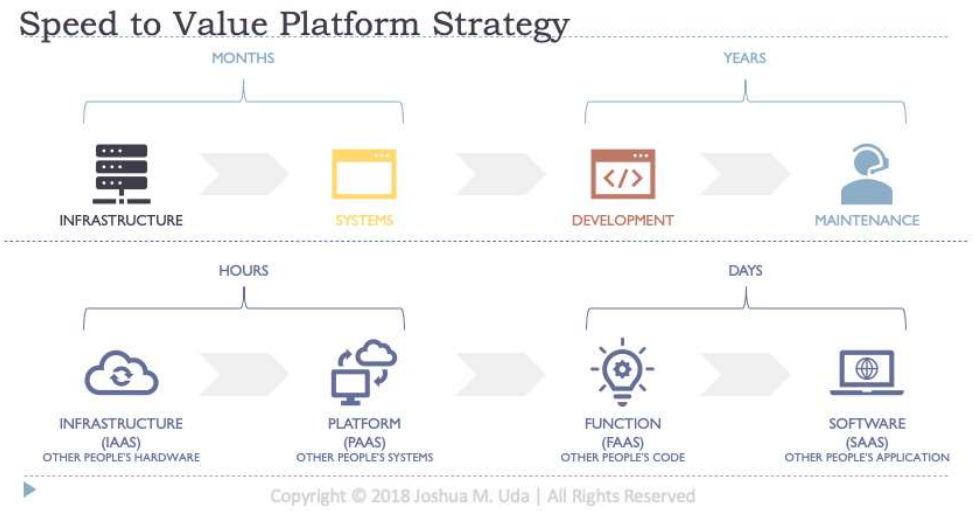


This allows verification, monitoring, and recovery directly in production without high risk of impact to users in the live system, and it also enables release on demand. Companies operating in this way allow individual engineers to deploy to production many times each day, and some of these companies have millions of production deploys every day.





Doing all of this in cloud exponentially increases the reliability, scalability, dynamic elasticity, and recoverability while also reducing the cost and burden on staff. Contrary to a common misconception, modern cloud-native systems and solutions are actually much more secure than any company could afford to reproduce internally. This is why most large health care technology companies are either in or rushing to cloud, especially large payers, analytics and informatics vendors, and integrated delivery and financial systems.



Most large health care companies in the Fortune 100 adopt some version of the Scaled Agile Framework, which promotes DevOps, Built-in Quality, and a Continuous Delivery Pipeline. These are very important concepts for anyone going into biomedical informatics in the modern era. Learn more here:

https://www.scaledagileframework.com/devops/ (https://www.scaledagileframework.com/devops/)

https://www.scaledagileframework.com/built-In-quality/ (https://www.scaledagileframework.com/built-In-quality/)

https://www.scaledagileframework.com/continuous-delivery-pipeline/ (https://www.scaledagileframework.com/continuous-delivery-pipeline/)

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