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Presentation of CI / CD

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what does ci/cd stand for?

The practice of merging all developers' working copies to a shared mainline severaltimes a day. It's the process of "Making". Everything related to the code fits here, and it all culminates in the goal of CI: a high quality, deployable artifact! Some common CI-related phases might include:

1. Compile
2. Unit Test
3. Static Analysis
4. Dependency vulnerability testing
5. Store artifact

Continuous integration

Its belongs to the integrating and testing the new changings to the code and validating it , which means that the integration should meet the requirements

- Once all this is ok then it can moved to the cd pipeline to be deployed

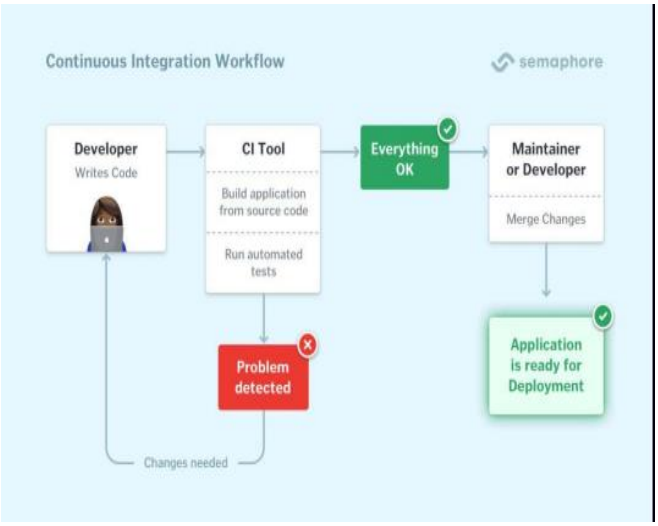
Continuous deployment

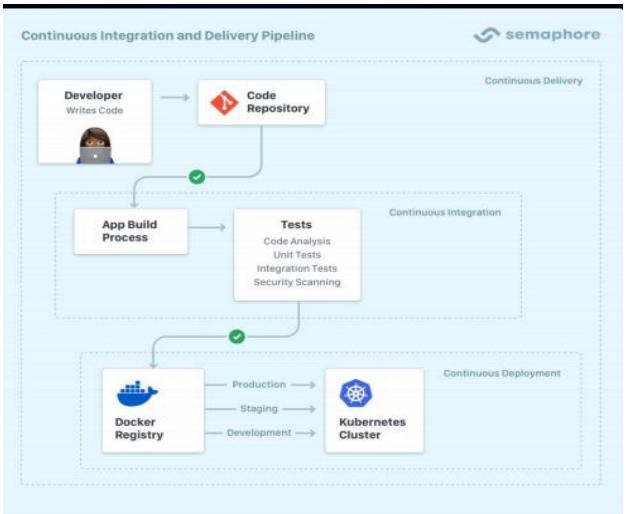
A software engineering approach in which the value is delivered frequently throughautomated deployments. Everything related to deploying the artifact fits here. It'sthe process of "Moving" the artifact from the shelf to the spotlight. Some commonCD-related phases might include:

1. Creating infrastructure
2. Provisioning servers
3. Copying files
4. Promoting to production
5. Smoke Testing (aka Verify)
6. Rollbacks

It is only works when the ci works perfectly and the code integrated well and pass the tests

It is make the app publish more quickly and being available for users





Why is CI/CD important?

CI/CD allows organizations to ship software quickly and efficiently. CI/CD facilitatesan effective process for getting products to market faster than ever before, continuously delivering code into production, and ensuring an ongoing flow of newfeatures and bug fixes via the most efficient delivery method.

1. No more manual deploying to environments
2. No more modifying environment settings in GUI's
3. No more neglecting the unit tests
4. No more leaving broken code in place
5. Requires a high level of discipline
6. Requires additional skills to maintain and extend automation

Why Is Translation Important?

There are several "warning signs" that teams exhibit that suggest they would be good candidates for CI/CD or Continuous Delivery. If you identify with any of these items, you should consider CI/CD an essential piece of your development workflow.

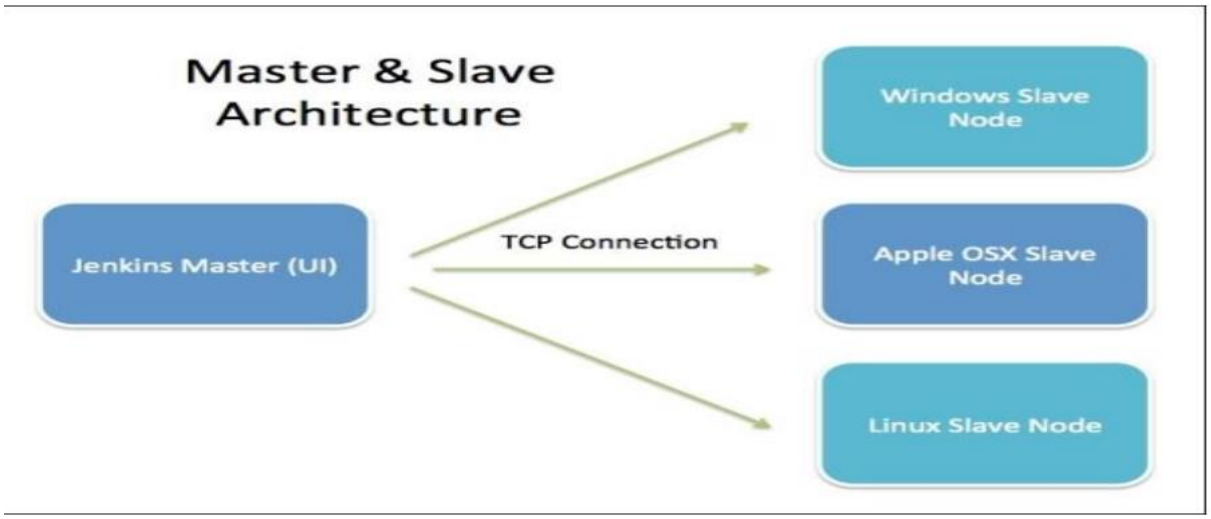
1. Investing more time in a release cycle than delivering value
2. Going through integration hell every time we finish a feature
3. Code gets lost because of botched merges
4. Unit test suite hasn't been green in ages
5. Deployments contribute to schedule slip
6. Friction between ops and development departments
7. Only one engineer can deploy a system
8. Deployments are not cause for celebration

Best Practices for CI/CD

1. Fail Fast
2. Set up your CI/CD pipeline to find and reveal failures as fast as possible. Thefaster you can bring your code failures to light, the faster you can fix them.
3. Measure Quality
4. Measure your code quality so that you can see the positive effects of your improvement work (or the negative effects of technical debt). Only Road to Production
5. Once CI/CD is deploying to production on your behalf, it must be the only way to deploy. Any other person or process that meddles with production after CI/CD is running will inevitably cause CI/CD to become inconsistent andfail.
6. Maximum Automation
7. If it can be automated, automate it. This will only improve your process!

Blue/Green Deployments

Blue/green deployments provide releases with near zero-downtime androllback capabilities. The fundamental idea behind blue/green deployment is to shift traffic between two identical environments that are running different versions of your application. The blue environment represents the current application version serving production traffic. In parallel, the green environment is staged running a different version of your application. After the green environment is ready and tested, production traffic is redirected from blue to green. If any problems are identified



The benefits

- Find bug those earlier , fixing them
- Everything is can be automated, starts from building ,, testing and deployment
- Deliver the software more often
- Getting the feedback more faster

- All turns into benefits to the business terms like avoiding unnecessary cost ,
- Deliver features more faster to the customers , which in turn to getting more customers ,
- Increase the revenue , and more