

Week_3_pf

Review the article [Top 7 Software Development Methodologies With Pros and Cons \[2021\]](#). You have been asked to create a website for an online business. Choose one of the seven methodologies and provide a response to the following:

- What advantages do you see using the application you chose over the others?

Let's start over and have a look at one by one.

The first one in our list is waterfall. It is probably an ancient methodology. Basically it is good, except for some drawbacks. Steps go one after another, you cannot start development, before requirement gathering and analysis. Very badly handled risks, like a customer changing its requirement for example UI/UX when we are in the middle of coding.

Next one is agile. I am a big fan of agile methodology, however it is required from the team to be trained, developers should be skilled. But because in the current state, QA as a department is gone, at least in my organization, this work is done by developers. The same is relevant for DevOps. No need.

DevOps methodology - I am very skeptical. Probably if we do not write code, test it and do design, and the only thing we do is delivering the software, creating pipelines, then such methodology makes sense. I agree that for our specific task, downloading a template of a site, unzipping it and uploading it to github, is the best methodology.

RAD - rapid software development. About 10 - 15 years ago this methodology was promising. It is more for UI/UX, where the user is involved. Objectives should be well defined. On the other hand it "eats" the budget, which is very costly.

Next candidate is Lean. It seems to be ok also, if the budget is low and time is short. I like - do what the customer wants. Software engineers often choose technological challenges instead of customer's needs. Quality also matters. It is so true. We should do our best and even a little more. Documentation should be part of the process. Delivery should be as quick as possible. For our task such methodology has big overhead.

Dynamic System Development - as RAD, requires better documentation. Bright side of this methodology is involvement with customers, fast delivery, reversible changes during the development. The last I think is quite an important aspect. We saw a waterfall and we could not make changes at all. Here, we solved such a problem.

However, it is not suitable for small companies and the method itself is too expensive.

FDD - feature driven development. If you have a large team, and can afford to divide the entire work into features, each member takes it and implements it. It gives a power of parallelisation.

On the other hand, it depends on the lead developers and number of teams. For small teams it does not fit.

- How are you going to utilize the advanced encryption standard (AES)?

What is AES - it is a block cipher which transforms a plaintext into ciphertext. Allowed by NIST. One of the problems of encryption algorithms is speed. To work it fast, added native support on CPUs. On top of that, AES developed secure protocols like: TLS (browsers support it), SSH, IPSec and such. In other words every secure protocol uses AES. Such protocols make the internet a more secure place. It makes the lives of attackers miserable. They should look for more simple methods to attack.

AES based on randomness. Attacker tries to guess a key, but cannot.

We are encrypting each packet by HTTPS, connection to the virtual machine done by SSH. Network layer guarded by IPSec. Operating Systems like Linux, uses iptables, as a firewall.

Self reflection

My major problem was finding an article about software security and privacy. I wanted something interesting and not so difficult. I started with Android but the article was around 2002. After the 5th article I found what I wanted, an e-voting system based on blockchain. I liked a question related to the comparison of SDLCs. I knew a new methodology - DevOps methodology, I always was thinking that DevOps is a part of entire development.

References:

1. <https://adevait.com/blog/workplace/7-software-development-methodologies>
2. Nicky Mouha, (Jul, 2021). Review of Advanced Encryption Standard - <https://nvlpubs.nist.gov/nistpubs/ir/2021/NIST.IR.8319.pdf>