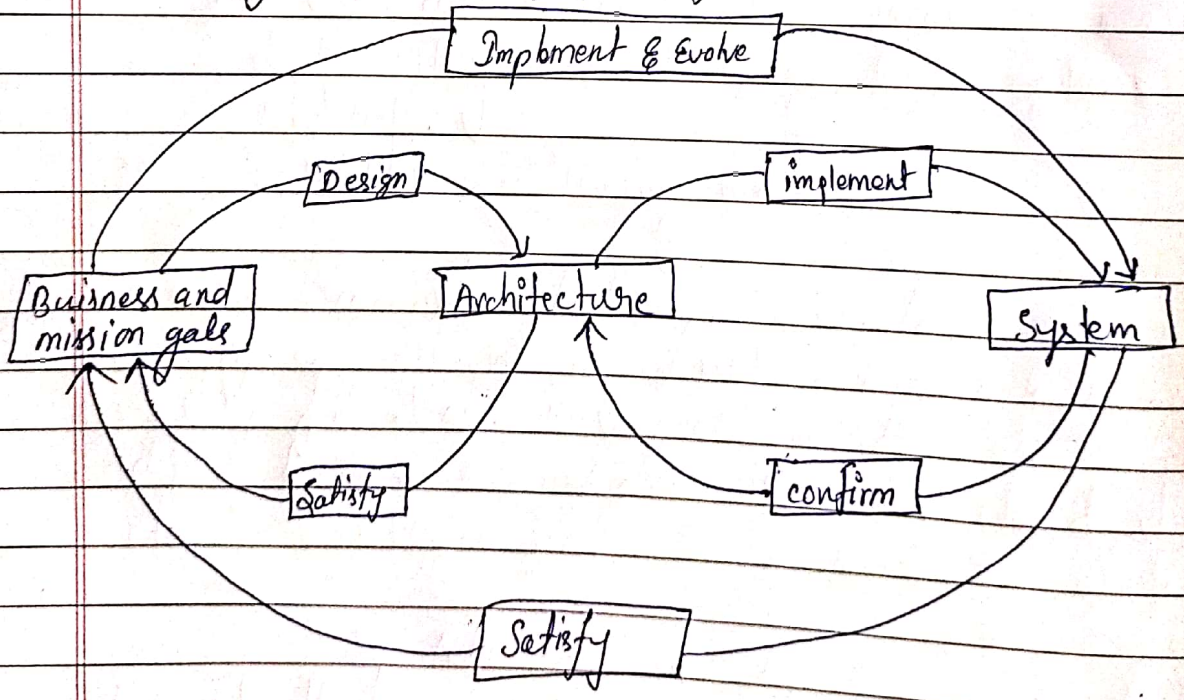
Name: Dharamraj Bhatt
Reg. No: 19472116

Software Architecture

As we all know that quality and longevity of a software-reliant system is largely determined by its architecture. The Architecture is right abstraction for performing ongoing analysis throughout a system lifetime!

So Software architecture is High level system design providing system-level structural abstraction and quality attribute which helps in managing complexity. It allows us to make engineering tradeoffs.

tradeoffs it not only about its functionality, it is also about quality attributes. quality attributes are properties that systems needs for high quality such as its performance, availibility, interoperability etc.



Central role of Architecture.

when we think about system, we have some business and mission goals and we ~~had~~ like to implement it - to develop our software to get the system that satisfies us. the central role architecture shows us the way of implementing our business and mission goals.

So we can say that Architecture-Centric Engineering Explicity focus on quality attributes, Directly links to business goals and Explicity involves system stakeholders. the Advancement has happened over the years in Architecture and its pattern, component based approaches, ~~is being used~~ model based approaches, framework and its platforms and standard interfaces are some of the advancement. ~~these advancement has brought~~ After these advancement lot of changes happed in tech such as increased connectivity, scale and complexity and Disrupting and emerging ~~technologies~~ technologies.

Some of the ~~Added~~ software Development trends such as application framework, open source, cloud, NoSQL, M2, Dashboards, DevOps etc. has brought some of the new technical challenges such as software assurance, scale and accelerating capability etc. and we can say that Architecture is the enabler for tradeoff analyses.

moving to the first challege which is accelerating capability. In fact architecture was developed incremently, the quility of the system was delivered as expected.

~~there are~~ DevOps is one of the most used incremental model used for software architecture development

DevOps has different states and follows certain practices. it is focus on culture and teaming, process and practices such as value stream mapping, lean thing and it also focus on tooling, automation and measurement. if we talk about Architecture and devOps, we can say that Design decisions that involves deployment related limitation can blindside teams.

There are some good practices which can help devOps -

- Don't let designing for deployability be an afterthought.
- Use measurable deployability quality attributes.
- consider architectural tactics that promote modifiability, testability and operational resilience.
- Use architectural abstractions to reason about deployability implications of design options and tradeoff.
- Establish monitoring mechanism.

Moving to second challenge - scale. "scale changes everything" which is not a hyperbole, because in reality it does. This problems of scale occur in different new technologies such as cloud strategies, cloud strategies for mobility and big data.

So lets conclude by saying that if we thought that software architecture was an old idea, something that started in the 80's and maybe best left to the early 2000s, before our brave new world of social media and cloud computing

and mobile computing and all of the rest, the principles of software architecture and their importance persist. The challenges are different but need to be able to do ongoing analysis, to do tradeoff analysis, is still very key. The demands ~~of~~ ~~the~~ on our systems are very much higher than system of the past, and in fact system themselves are much more prolific and much more important to life as we know it.

So there ~~are~~ is lot to be done what I see in the future are much more fluid architectures, much more tool support, adaptive architectures, architectures with lots of runtime monitoring built into them, so they are capable of internal monitorability.

Name : Dharamraj Bhatt
Reg No : 1947216