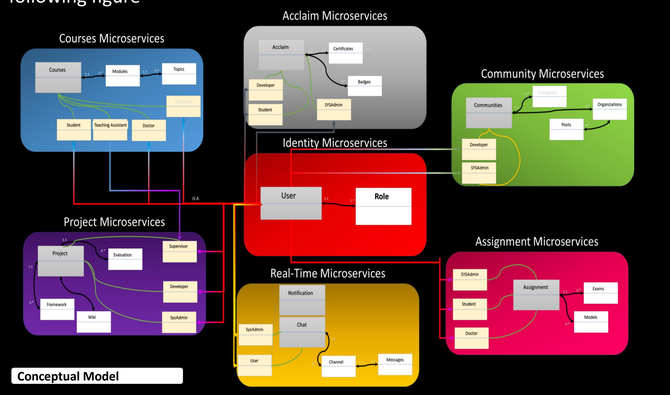
Abstract

The Project is an application and architecture of how to use the Microservices Architecture to build an Interactive Learning services for students of practical faculties to optimize the performance, applying different design patterns that can integrate any type of services or platforms or programming languages, this architecture is composed of internal and external services as components or small projects that interact with each other. the business vision of the project takes the student into a lifecycle of 4 levels (Skills Building – Entertainment - Interaction – Career development) using Internal services like project, course, schedule, tasks, games and assignment management; and external services like communities, teams, companies, training centers, market places and integration by the business using new methods of interaction like evaluation, chatting, blogging and cv development using standards,
the conceptual model show these interactions of Microservices illustrated in the following figure

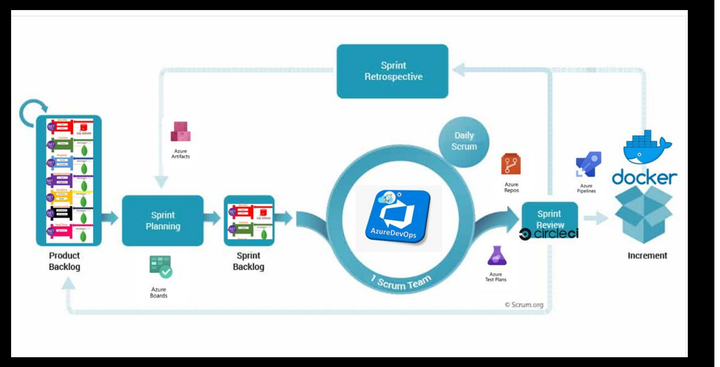


Conceptual Model

Background

- The Traditional Monolithic systems have not the ability to sustain the learning systems and they don't scalable enough to integrate new methodologies of learning from the external environments. Accepting the Microservice architecture and the Agile processes to these environments make a new life for solving all the problems.

- Imagine that the faculty need to adapt a new service, with different development architecture and different programming languages, the traditional systems can't handle it, but the Microservice have this ability to merge and conquer all other systems; make the process of development very easy by divide the development teams to SCRUMS illustrating the process in the following figure.



Objectives

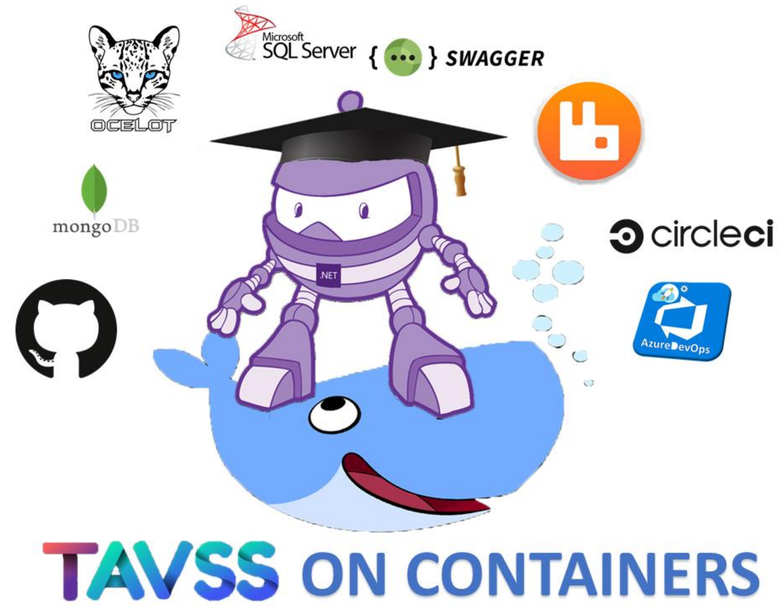
Project Team	Microservices Gaining Know How
Faculty	Improving Teaching Techniques Optimizing System Performance Integrate External Services
Students	Connecting to work places Challenging & interactive Learning

IOS Developer: Ahmed Abu El-Regal
Android Developer: Islam Khater
Android Developer: Mohammad Anter
UI & UX designer: Heba Esmail
UI & UX designer: Merna Osama
Frontend developer: Noura Abd El-Naser
Backend Developer: Mohammad Ashraf
Solution Architect: Ahmed Khalil
Frontend Developer: Ahmed Abu Zahra
System Analyst: Rana Hesham

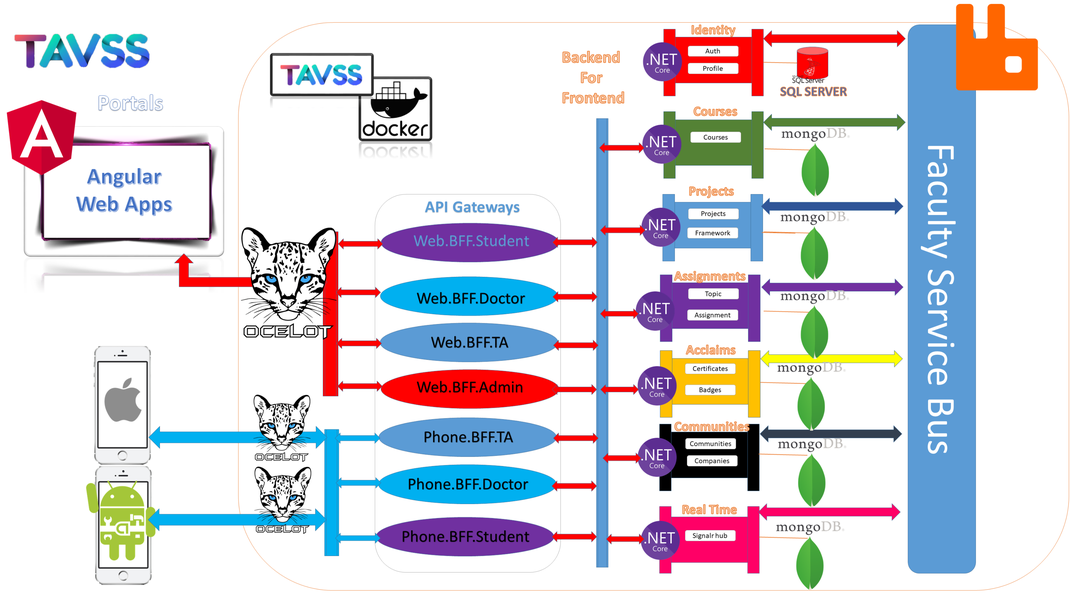
TAVSS

Microservice Interactive Learning System

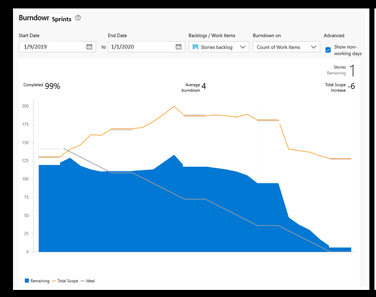
Supervisor : DR Samir Abd El-Razik



System Architecture



RESULTS



Azure DevOps - Build Status

Image	Status
Api Gateway (base)	Azure Pipelines succeeded
Courses API	Azure Pipelines succeeded
Assignments API	Azure Pipelines succeeded
Identity API	Azure Pipelines succeeded
REAL TIME API	Azure Pipelines succeeded
Projects API	Azure Pipelines succeeded
Communities API	Azure Pipelines succeeded
Acclaims API	Azure Pipelines succeeded

Consuming Microservices

Business Model/Cost

Conclusions

TAVSS join the external worlds with the faculty service bus and create a new life for every student to have a realistic learning techniques