

Here's another challenging assignment for a product owner role I went for in 2021.

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1. Case Study Description:

Your goal is to build two microservices. A **Producer Microservice** and **Consumer Microservice** as described below

1. Producer Microservice
 - a. Picks a file from the Producer Folder on the PC
 - b. Uploads the file to an S3 bucket
 - c. Posts the path (key) to the file to a queue
2. Consumer Microservice
 - a. Reads the path (key) to the file from the queue
 - b. Downloads the file from the S3 bucket
 - c. Saves the file to Consumer Folder on the PC

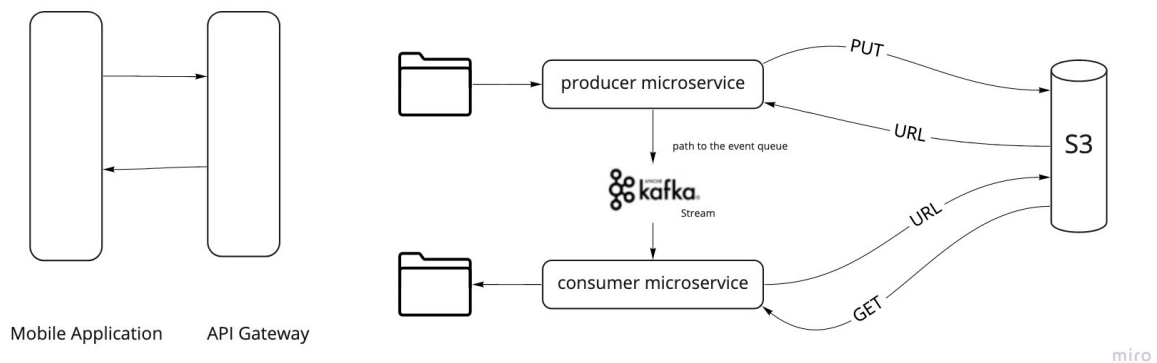
In your interview we will discuss the following.

1. Define your Minimum Viable Product (MVP) for the above need. Please watch [this 15 min video](#) to define your MVP
2. Draw a diagram that depicts your understanding of the problem
3. Write user stories for the work you will complete. Your user stories should clearly express the following
 - a. Whose pain are you solving and Why (i.e. it is important for the story has a construct "As a..., I want to...so that)
 - b. Each story must have story points
 - c. You should be clear about the order in which you will work the stories
4. You should be able to talk through the acceptance criteria for your MVP. Your ability to do this well depends on how well you are able to visualize the end in mind (i.e. visualize the demo of what you built)
5. You should be able to provide an estimation of time. As depicted in the MVP video, you need to be clear on whether you are estimating time for your skateboard, scooter, or motorbike.

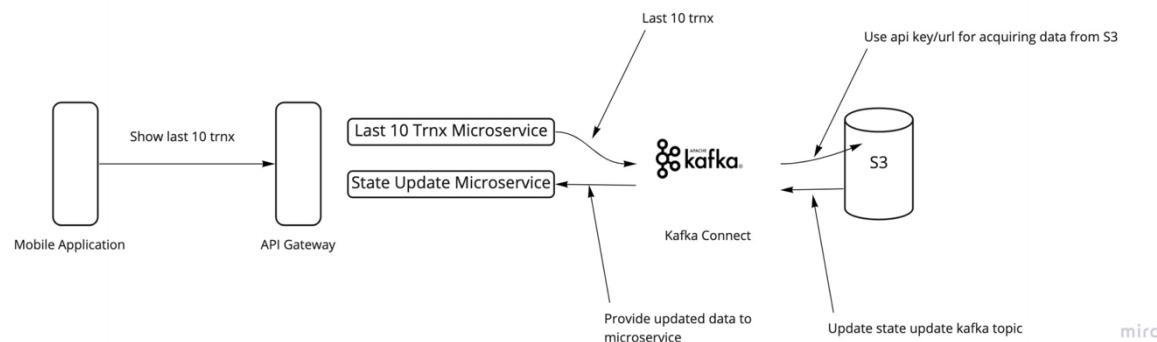
2. PART I Discussion with Development

1. producer microservice that picks up a file <insert file name> from the folder <insert folder path> and this file will be uploaded to an S3 bucket using API key <insert API key> in the AWS region using credentials <insert creds here> so that a
2. consumer microservice can use the API key < insert API key> to access the S3 bucket and upload the file into the folder <insert the folder path>

2.1. Approach 1 - microservices



2.2. Approach 2 - event-based microservices, a more optimal architecture than above as kafka connects directly to S3 ref (1)



Notes use of streams (ref 2): *Many users of Kafka process data in processing pipelines consisting of multiple stages, where raw input data is consumed from Kafka topics and then aggregated, enriched, or otherwise transformed into new topics for further consumption or follow-up processing. For example, a processing pipeline for recommending news articles might crawl article content from RSS feeds and publish it to an "articles" topic; further processing might normalize or deduplicate this content and publish the cleansed article content to a new topic; a final processing stage might attempt to recommend this content to users. Such processing pipelines create graphs of real-time data flows based on the individual topics.*

Ref

1. <https://docs.confluent.io/kafka-connect-s3-sink/current/index.html>
2. <https://kafka.apache.org/documentation/#gettingStarted>

PART 2. User Stories

Use design thinking on an EPIC of my choice. Describe the problem, user stories, acceptance criteria, MVP

2.3. EPIC

Singapore Poly (SP) started SGUS programs to help students (PMET) develop skills and employability. Tuition disbursements are offered to those who qualify. To get the SGUS disbursement students must attend 75% of the course and pass each module. This is evaluated monthly by the course program manager and allows disbursement of stipend by SGUS and also the issue of the certificate by SP PACE Academy.

The new application will have a simple, effective interface that is web-based, allowing a new user to become familiar with it in a matter of minutes. The new application will help the program manager to provide approvals by referring to critical information to help in the decision-making process. There are about 20 students in each cohort so each can be considered individually however eventually bulk approvals may be enabled. But scales to many programs.

The following are the key functionalities expected from this app in no specific priority but based on say a user(s) discussion:

- View approved training program details with course unit details.
- The only courses mentioned in the program details will be considered for approval.
- This app will help the program manager to adhere to SGUS disbursement policies (which dictates attendance 75% and pass of all modules).
- Approve/ Reject pending disbursement.ts
- Each lecturer documents things (attendance, scores) slightly differently based on how the course was conducted online or in the classroom. Overall the records have to be kept in central storage (S3) for govt recording purposes.
- Key documents used for approval processes like electronic or physical attendance records, online video attendance taking, digitally online or manual assessment results will be stored on teams in folders, SP Polymall, paper, via third-party training companies using their own LMS.
- Ideally, we want to get to the point of fast automated processing.

Persona: for this exercise, I consider the program manager (I would explore via persona map). There is also a lecturer who has to provide a folder location and files for attendance, video evidence, student exam grade.

Problems: the program manager faces these issues.

(I would further explore more to create problem statements) :

- Can't find the documents needed to see if the approval criteria are met.
- Must be able to find and audit the documentation or for spot governance and student management.
- Not sure if a student met the criteria to get the disbursement and certificate.

- Doesn't want to contact the lecturer or student for missing information so has to collate from many sources.
- Has to approve dozens of students quickly at the end of the month.

Actions: All approvals are done by the end of the month for submission to SGUS.

- See pending requests for approval.
- Validate required information (attendance, pass mark).
- Check past approval history and items that need attention.
- Reject or Approve to SGUS and pace academy.

2.4. Feature Stories:

This example has 6 user stories and UAT at this google sheets link. I've numbered them and they are in no particular order (I would ideally have a taxonomy and use a tool like <https://www.pivotaltracker.com/blog/principles-of-effective-story-writing-the-pivotal-labs-way>)

Here are the featured 6 user stories and acceptance tests.

<https://docs.google.com/spreadsheets/d/13HBEdJsCucyka2gXYFkBjk3MwDurlXo-gkQ0oAc1txA/edit?usp=sharing>

2.5. MVP

US 6 attachments page for the student: Validate required information (attendance, pass mark)

US 5 pending approvals page: Reject or Approve to SGUS and Pace academy

US 1 identifies students for approval: applies approvals to the selected program and students under SGUS and under this program manager's governance

2.6. WIREFRAME (browser)

Search

Student ID:
Name:

Student ID:
Name:

Student ID:
Name:

Student ID:
Name:

Student ID:
Name:

Name:
Student ID:
Program:
Intake:

Program Disbursement Attention Pending Approval Attachments

Summary Information area

ID	Description
567	BS567 - BS Accounting
457	BS457 - BS Mathematics
569	BS569 - BS Computer Science
789	MS789 - MS Information Technology

3. Detailed User Stories

		The title should be short, descriptive		
		Who wants the functionality, why, and to what end?		This defines what you will walk through to make sure that the story is completed.
Persona	Sr No.	User Stories	AC No.	Acceptance Criteria
program manager	US1	Identify students for approval		
		as a program manager I want to identify classes and students for approval		
			1	All the students under my program will be listed in the left master navigational section and details in the right with icon tab bar used for navigation between functions
			2	on clicking on the student information relate to them and their courses will be populated on the main panel
			3	top quarter is the student details like photo, name, id, address and bottom part is an icon tab bar used for navigation to fields program details, disbursements, attention, pending approval, attachments
			4	the icon tab bar will consist of meaningful icons and number of items in the list related to each navigation function

program manager	US2	Program details for the student		
		will have course , units information. Navigational history will be used to navigate back to Program master		
			1	the list will show the ID and description of the course unit
			2	on clicking on the course it will expand below to show the dates the course is conducted and information on the course unit
program manager	US3	disbursement details for each student		
		will help program manage keep track of all approved transactions such that fall within SGUS policy		
			1	it will list the course ID, date, payment made y/n as green or red or amber
			2	data is populated based on validation of attendance and completion of unit, actual funds transfer is not captured here for now

program manager	US4	Attention Needed page for the student		
		will provide information related to SGUS policy related criteria , available disbursement history and reason being listed on the attention list. Student are not allowed to get further disbursements unless all issues are resolved		
			1	in the list it will list the course ID, course name, comments related to attention needed
			2	there will be a summary display field showing summary information related to percentage attendance for the month and pass rate of the student
program manager	US5	Pending approvals page for the student		
		will display all the requests that Approver need to approve/reject. The approval is based on the attendance and expected approval date .		
			1	lecturer need to submit the attendance and grade sheets within one week of the course completion, otherwise information will be listed in the 'Attention '
			2	The approved student once approved will be moved to the disbursed list
				there will be an approve and reject button for
			4	upon selecting approve there will be a popup asking for confirmation and on confirming Ok a success popup and the record will be removed from the list
			5	the list will show the courseID, course name, approval needed by date, approve or reject item
program manager	US6	attachments page for the student		
		this will contain information related to the approval process		
			1	information can be viewed
			2	information is added from various sources representing attendance, pass mark, other documentation related to the student and eligibility, attendance e.g. LOA
			3	this page will not contain certification as this is built into the workflow but will show grade sheets
			4	the list will show small image of the document, document type, document name and search icon for the document

