



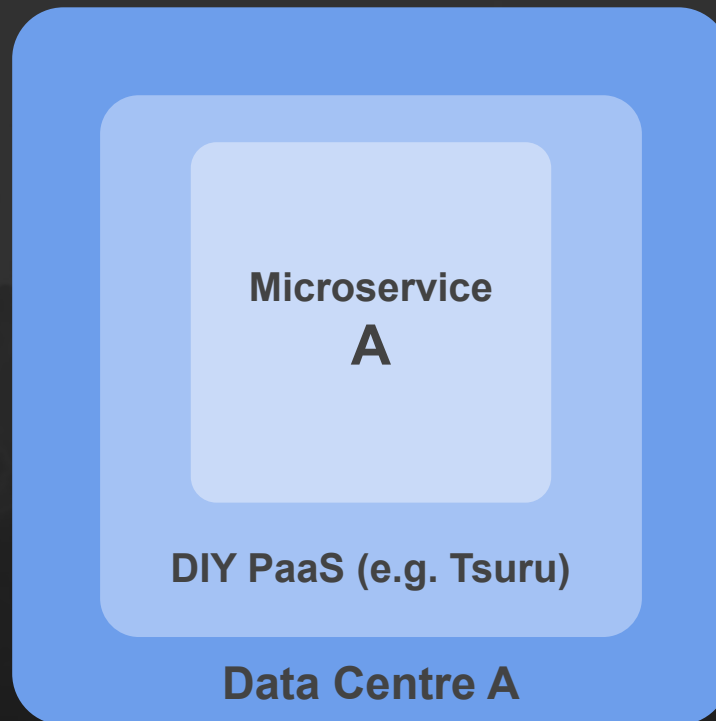
*"One for the Road"*

#3: CLOUD @ 08/10

# Cloud Service Deployment Models

## **Private:**

Install a DIY cloud service in one's own data centres or deploy it on the public cloud.



# Cloud Service Deployment Models

## **Public:**

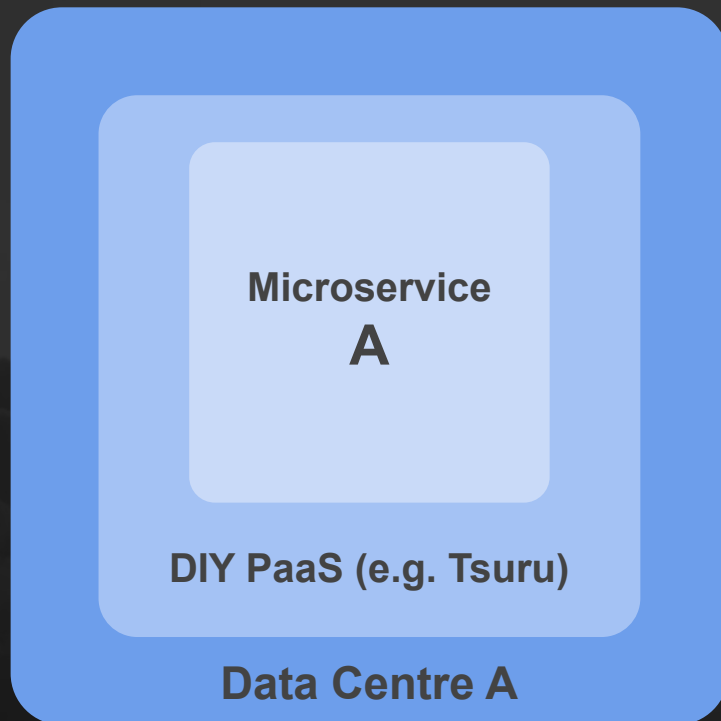
Use public cloud service (e.g. Azure, AWS, GCP).



# Cloud Service Deployment Models

## Hybrid:

Public + Private.



# Cloud Service Deployment Models

## Multi:

Use more than one cloud service provider (Public, Hybrid or otherwise).



# Why using **Hybrid** or **Multi**?

## **Security:**

Each provider can have different configurations/technologies. This can lower the chance that one attack chain will take over all microservices.



E.g. Exploit for AWS EC2 is inapplicable to Heroku's and Tsuru's.

# Why using Hybrid or Multi?

## Availability:

When deploying the same microservice as containers in Hybrid or Multi-cloud, if one provider is inaccessible (e.g. Change in DNS server, Expired SSL cert.), some instances in different providers can still be reachable.



E.g. If Heroku is unreachable, A (i.e. A-1) is still reachable.

# Why using Hybrid or Multi?

## Separation of Concern:

When deploying different microservices as containers in Hybrid or Multi-Cloud, if one provider is inaccessible, the other parts of the system (in other providers) can still be developed/used.



E.g. If A is unreachable, B still can be developed, access and use.



# Cloud Migration Strategy:

Migrate to One Cloud Provider in All Cases

**Replatform:** Change the underlying technology (OSes, Middleware)



# Cloud Migration Strategy:

Migrate to One Cloud Provider in All Cases

**Replace:** Outsource the component with a commercial or open-source counterpart.



# Cloud Migration Strategy:

Migrate to One Cloud Provider in All Cases

**Refactor:** Redo the software architecture.

Example: Refactor/splitting a monolithic A to a microservices system (A-1, A-2, A-3).



# Cloud Migration Strategy:

Migrate to One Cloud Provider in All Cases

**Rebuild:** Rebuilt from scratch.

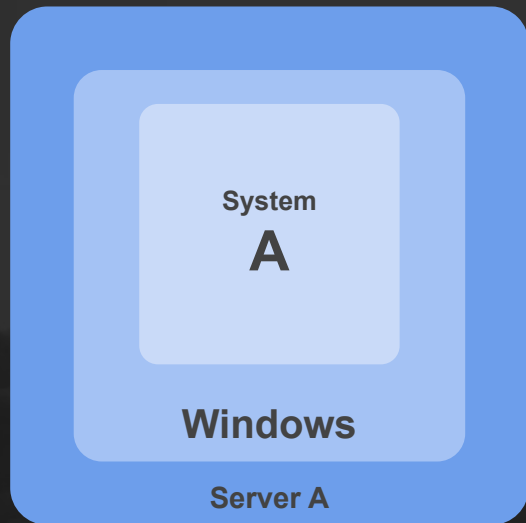
Example: Rebuild a monolithic A to a microservices system (B-1, B-2, B-3).



# Cloud Migration Strategy:

Migrate to One Cloud Provider in All Cases

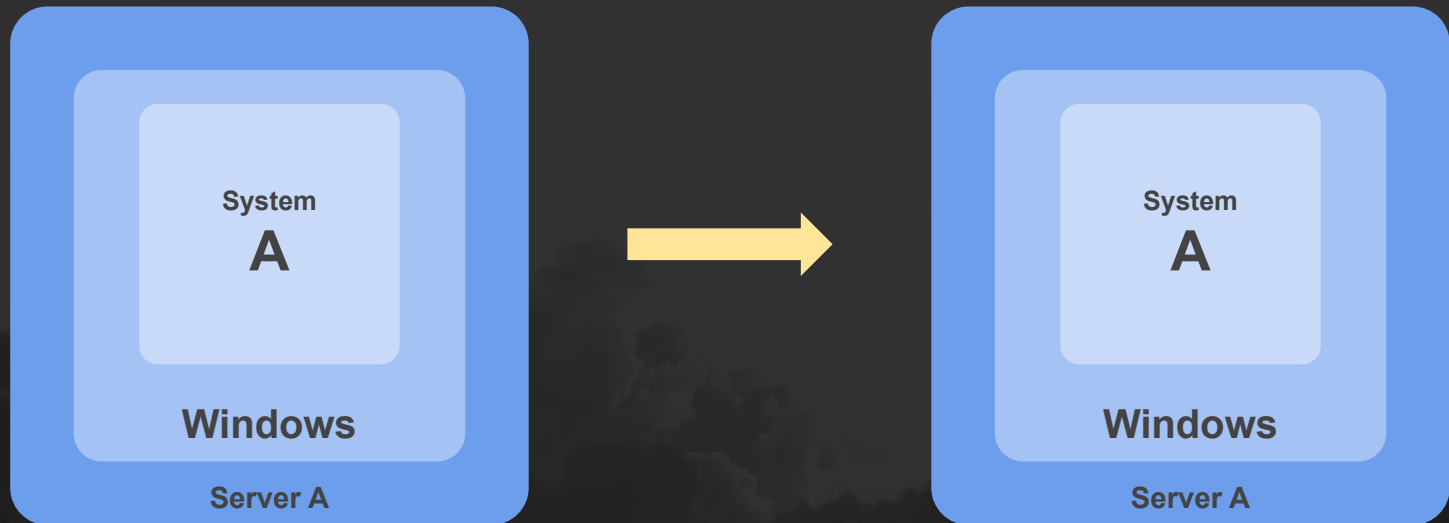
**Retire:** Abandon it.



# Cloud Migration Strategy:

Migrate to One Cloud Provider in All Cases

**Retain:** Do-nothing.



# What Else is There?

We Covered **Everything** That Related to Microservices.

IRL, it will be more complicated and complex than ours  
(obviously).

Time to fly: Use the course knowledge worthwhile  
for the next semester (and beyond).

# lecturer, professor, whatever.

Currently, don't know which course (if any) will be in for the next semester.  
Nevertheless,

All of you will be **unforgettable ones**;  
Once in my life, turning from a PhD student to a lecturer.  
In front of you.

Many of you never miss a week.  
**Thank you** for your dedication to the course!

Apology for any mistake. Am just a 3-month old lecturer 🙄



lecturer, professor, **whatever.**

All in all, hope I brought you a little bit of *joy*  
when going to the campus.



# Easter Egg(s)

The first season has 1. The second season has 2.  
Each is in one of the second season slides.

## **Normal Easter Egg:**

- Easy one.
- Will hint to the ultimate easter egg.

## **Ultimate Easter Egg:**

- May take forever to find (beware of this during the exam period).
- Dedicated to all of you.
- Will forever change your outlook on this course (and yours truly).

For those who found the ultimate easter egg, please let me know (privately).  
And no, easter eggs cannot increase your final exam scores.

# Group Exercise - Week 14

## Main Objective:

- Which type of cloud migration strategy/-ies and how do you plan to use it for your system? Why and why not? Is it related to the problem statement requirement(s)?

## Optional Objective:

- Practice for the presentation and/or the mock exam(s).  
& submit for formal grading.

## For Self-Organised Groups (docker compose down, Skibibdi & SEverse):

- Don't forget to declare your presentation org. by this Friday.

Submit to:  
suwichak.fu(at)kmitl.ac.th

## **Subject:**

[6622][Team Name] Group Exercise Submission