# **Fellowship Report:** APRICOT 2024

**Kuzuzangpo**.. This is Jeevan Gurung from the College of Science and Technology, Royal University of Bhutan.

I am pleased to provide a report on my participation in the recent APRICOT 2025. I received a fellowship and I chose to attend a Masterclass on Practical Virtualization with Hybrid Strategies. The event was held at M Hotel, Petaling Jaya, Malaysia from 20-22nd February which was followed by a soft skills session on 23rd February 2025.

The event was an enriching experience, offering both technical insights and opportunities for professional growth. Below is a summary of the workshop, its value, and the impact it had on networking with other fellows.

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**Workshop Overview**

The workshop focused on **Practical Virtualization with hybrid technologies**, covering key topics such as:

- Hypervisors (including Proxmox with KVM)
- Containers (Proxmox/LXD system containers and Docker application containers)
- Object storage (Amazon's S3 API with a focus on the client side)
- Distributed storage (Scalable/Replicated. Ceph: rbd, cephfs, radosgw)
- Public cloud solutions (Focus on AWS with short references to Google, Azure, smaller options like Linode, Backblaze, Cloudflare)
- Public cloud management (authentication, access control, cost control, IP address management)
- Application development (CI/CD, containerisation, develop and test environments)
- Application deployment (config mgmt e.g., ansible, stack management e.g., terraform, container management e.g., kubernetes)
- Data and risk management (backups and recovery, monitoring, security)

The session was led by Hervey Allen (NSRC), Brian Candler (NSRC), Carlos Armas (NSRC) and Paul Ooi Cong Jen (Takizo Solutions Sdn Bhd) who are the experts and provided a blend of theoretical knowledge and practical examples, making the content highly engaging and applicable to our work.

Day 1: We were made of aware of the many aspects of virtualization solution (cloud, self-hosted virtualisation, or hybrid solutions) and selecting the solution that best fits our organization

depending upon the uses cases and other factors, such as cost, authentication, access control, application development and deployment strategies, data and risk management strategies, types of file systems available, and much more. There were hands on session on AWS system where we were shown how to create an account, an instance also called an EC2 Instance (EC2 = Elastic Compute Cloud) and also Amazon Simple Storage Service (S3) by creating s3 buckets followed by Cloud Management Lab.

Day 2 included the concepts on Containers and Application Developmen where we got an Introduction on Docker and why a Docker useful for deploying applications and what are the most important keywords Dockerfile while deploying it. As an exercise there was a lab on how to build and deploy Zabbix monitoring server using Docker and accessing it after a successfully installation. This was followed by the concept of Automating Infrastructure as Code (IAC) and its benefits. As part of the IAC tools, we learned about Terraform which is an infrastructure as code tool that lets us build, change, and version cloud and on-prem resources safely and efficiently. Terraform is written in HCL (Hashicorp Configuration Language) whose syntax is similar to JSON. As a practice a practical session on Terraform remote lab with the goal to familiarize with terraform remote state storage. It was quite exciting to learn all these tools. VM and Containers concepts were also introduced along with its advantages and disadvantages.

Day 3 started off on Networked Storage. The concept of Networked block storage, Networked file storage and Object storage were introduced. Ceph, Software Defined Storage was something I was looking for and this was covered (architecture, components etc.) well. This was implemented using proxmox in the lab environment using clusters and how to monitor it with Prometheus. This was one of the parts which I really want to replicate in my workplace.

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**Soft Skills Session**

Following the technical workshop, a **soft skills session** was conducted, focusing on:

- Effective communication and collaboration in cross-functional teams.
- Problem-solving and decision-making in complex environments.
- Building resilience and adaptability in the face of technological changes.

This session was particularly valuable as it complemented the technical knowledge gained earlier, emphasizing the importance of interpersonal skills in driving successful outcomes. Usually, articulation skills are not a strength of engineers and this session really helped us click together with other participants. There were several group activities which helped the team come together and work collaboratively.

**Key Takeaways and Value of the Workshop**

1. **Technical Knowledge Enhancement**:

   The workshop deepened my understanding of virtualization and hybrid technologies, equipping me with practical tools and strategies to address challenges. The lab session were carefully planned making the learning experience highly relevant.

2. **Networking Opportunities**:

   One of the most valuable aspects of the workshop was the opportunity to **network with other fellows from diverse backgrounds**. Despite coming from different industries and regions, we discovered common issues and challenges, such as:
   - Managing the transition to hybrid cloud environments.
   - Ensuring data security and compliance in virtualized systems.

   These discussions fostered a sense of friendship and collaboration, allowing us to share insights and learn from each other's experiences.

3. **Soft Skills Development**:

   The soft skills session reinforced the importance of communication, teamwork, and adaptability. It also provided practical techniques for building stronger professional relationships and fostering a collaborative work environment through the groupwork that Terry and Aftab had carefully organized for the participants.

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**Conclusion**

The APRICOT Workshop on virtualization and hybrid technologies, along with the soft skills session, was an invaluable experience that significantly contributed to my professional growth. It not only enhanced my technical knowledge but also provided a platform to connect with other fellows, share insights, and address common challenges. I am grateful for the opportunity to participate and look forward to applying the lessons learned to my work and future collaborations within the Fellowship. I am sure the human network and linkages build over the duration of the workshop will last long and assist in enhanced collaboration in the future.

I am grateful for this opportunity and would like to thank APRICOT 2025 Committee for the fellowship and organizing such impactful events. This experience will undoubtedly help in my career from which I had many take-aways.

**Kadrinchey**