

# Digital Talent Scholarship 2022

## Advanced Deployment with TF

Lead a sprint through the Machine Learning Track

# Agenda

- Tensorflow extended
- Sharing pre trained model with TF Hub

## Objektif Pembelajaran

- Menggunakan TensorFlow Serving untuk melakukan inference di web
- Navigate di TensorFlow Hub, sebuah repository model yang berguna untuk transfer learning
- Mengevaluasi cara kerja model dan membagi metadata model dengan TensorBoard
- Eksplorasi Federated Learning dan mengetahui cara retrain deployed models sambil menjaga privasi data

# Are your students ML-ready?

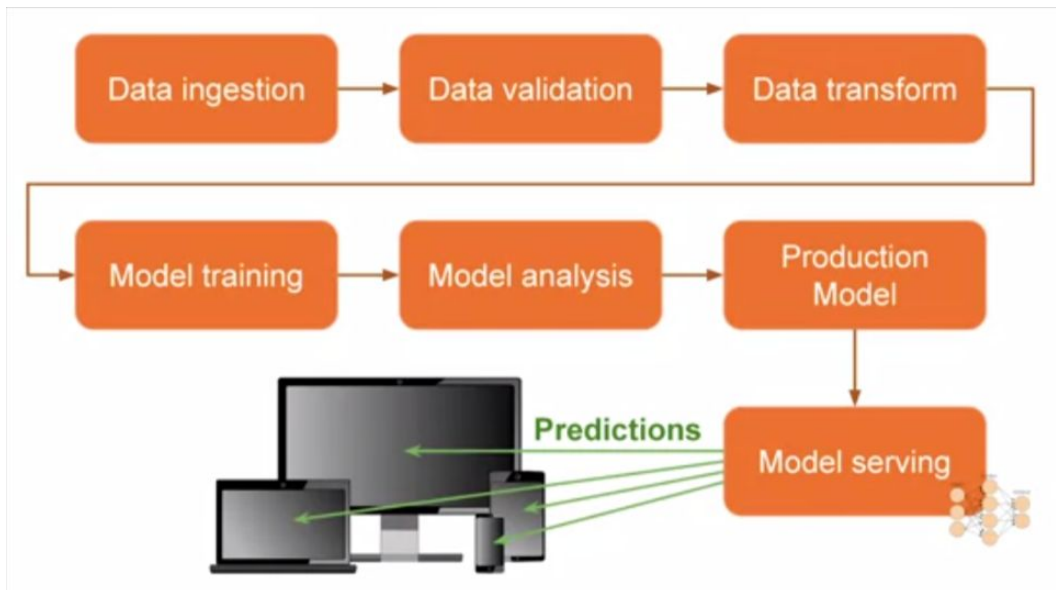
# Recap

## In this Week, we'll learn...

- TensorFlow Serving, a technology that lets you do inference over the web.
- TensorFlow Hub, a repository of models that you can use for transfer learning.
- TensorBoard to evaluate and understand how your models work, as well as share your model metadata with others.
- Federated learning and how you can retrain deployed models with user data while maintaining data privacy.

# TensorFlow Serving

TensorFlow Serving adalah bagian dari TFX, atau TensorFlow Extended, sebuah API yang membantu client mengakses model dengan web atau Cloud call.

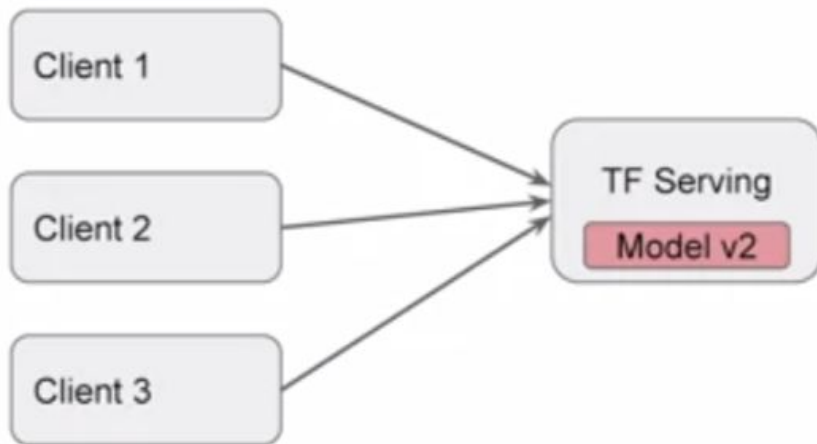


# TensorFlow Serving Infrastructure

- Semua client menggunakan model yang up-to-date



Tanpa TensorFlow Serving

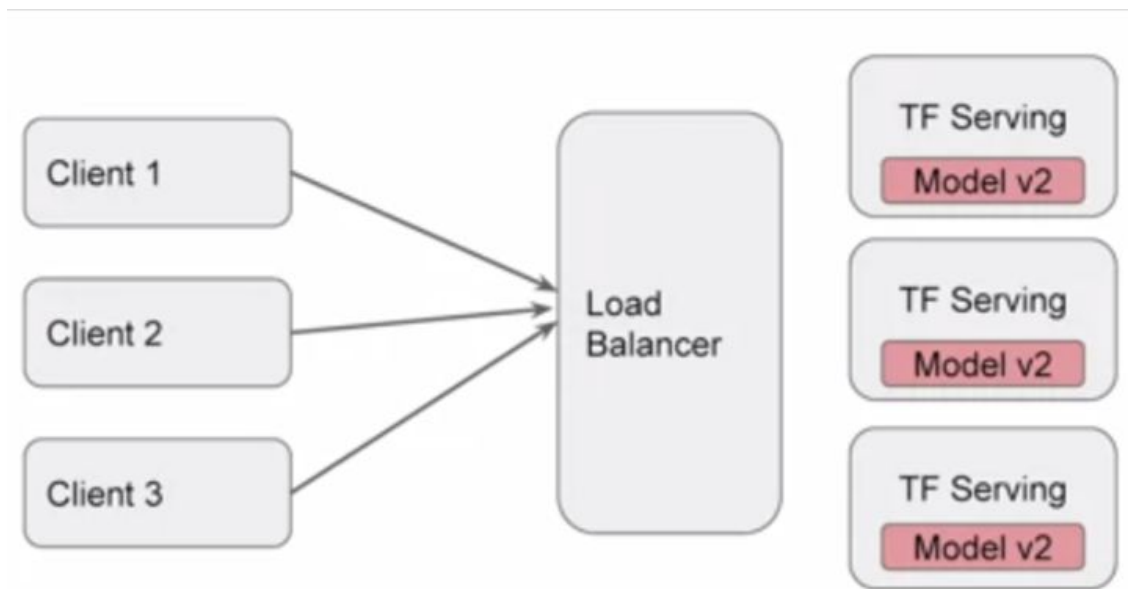


Dengan TensorFlow Serving



# TensorFlow Serving Infrastructure

- Bisa menggunakan Load Balancer



# Tensorflow Serving

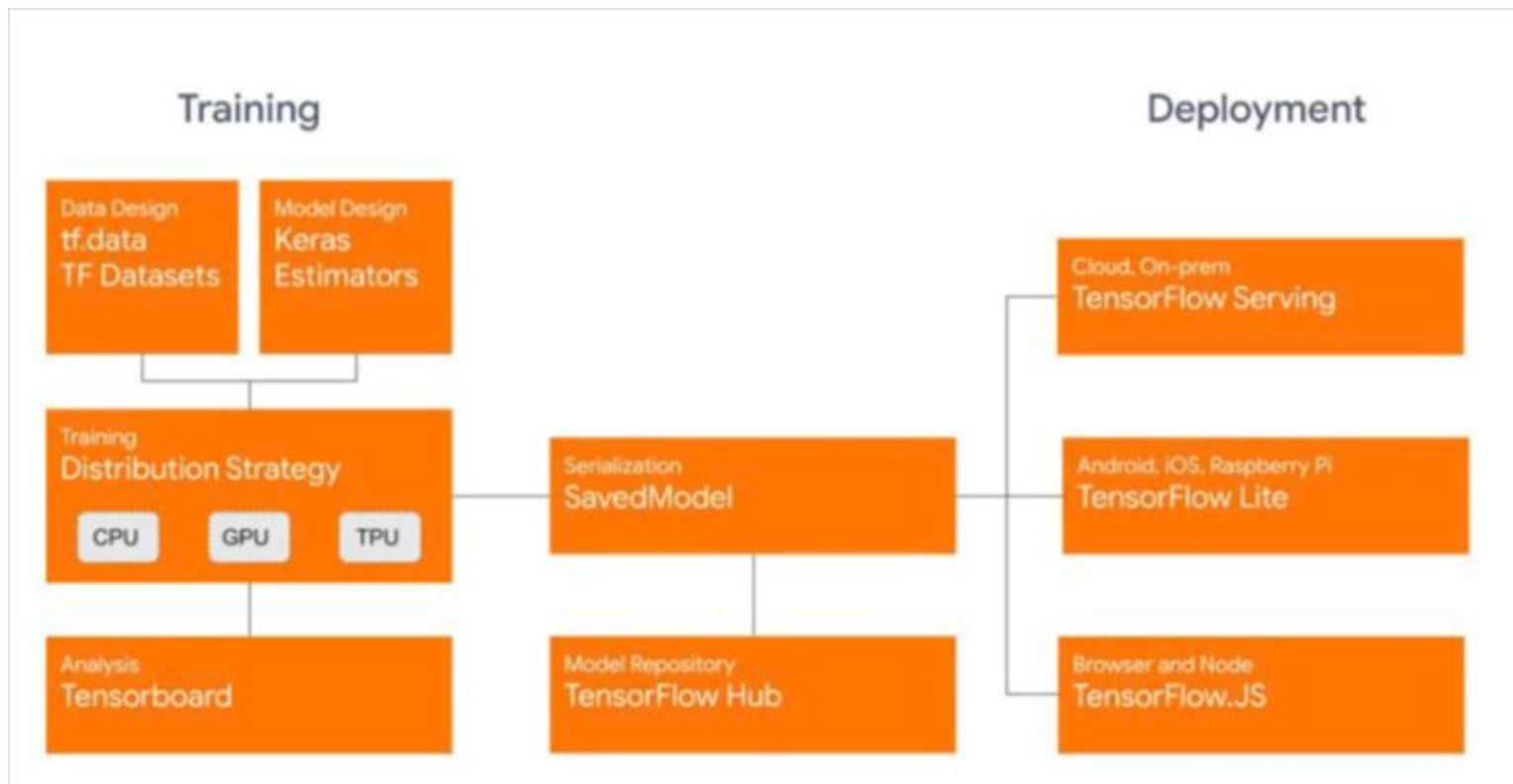
# DEMO TensorFlow Serving

# DEMO Fashion MNIST

# TensorFlow Hub (tfhub.dev)

- An extensive library of existing modules
- Well-tested modules designed for better accuracy
- Easy to use and integrate with your model API

# Ecosystem of TensorFlow



## Who published the modules?



BigGAN

Inflated 3D

Wide ResNets



MobileNet

Inception

NASNet



TF-GAN

And Many More!

# Transfer Learning with TF Hub

- Train models with less data
- Improve generalization
- Speed up training



# Problem Domains

Text

Embedding

Image

Classification

Feature vector

Augmentation

Object Detection

Generator

Style Transfer

Video

Classification

# Tensorflow Hub

# DEMO Text Based Models

# DEMO Image Classification

# Intro to Tensorboard

# Transfer Learning, Fine Tuning and TensorFlow Hub



**Q & A**

# Thank You