

Machine Intelligence
Modern Infrastructure

<http://mi2.live>

Building Event-driven Apps with Google Cloud Functions



What is MI2?

MI2 Webinars focus on the convergence of **machine intelligence** and **modern infrastructure**. Every alternate week, I deliver informative and insightful sessions covering cutting-edge technologies. Each webinar is complemented by a tutorial, code snippets, and a video.

MI2 strives to be an independent and neutral platform for exploring emerging technologies.

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Objectives

- What is Serverless Computing?
- Overview of Functions as a Service (FaaS)
- Getting started with Google Cloud Functions
- Key Concepts & Terminology
- Demo
- Summary

Running Code in Cloud

IaaS

- Amazon EC2
- Azure VMs
- Google Compute Engine

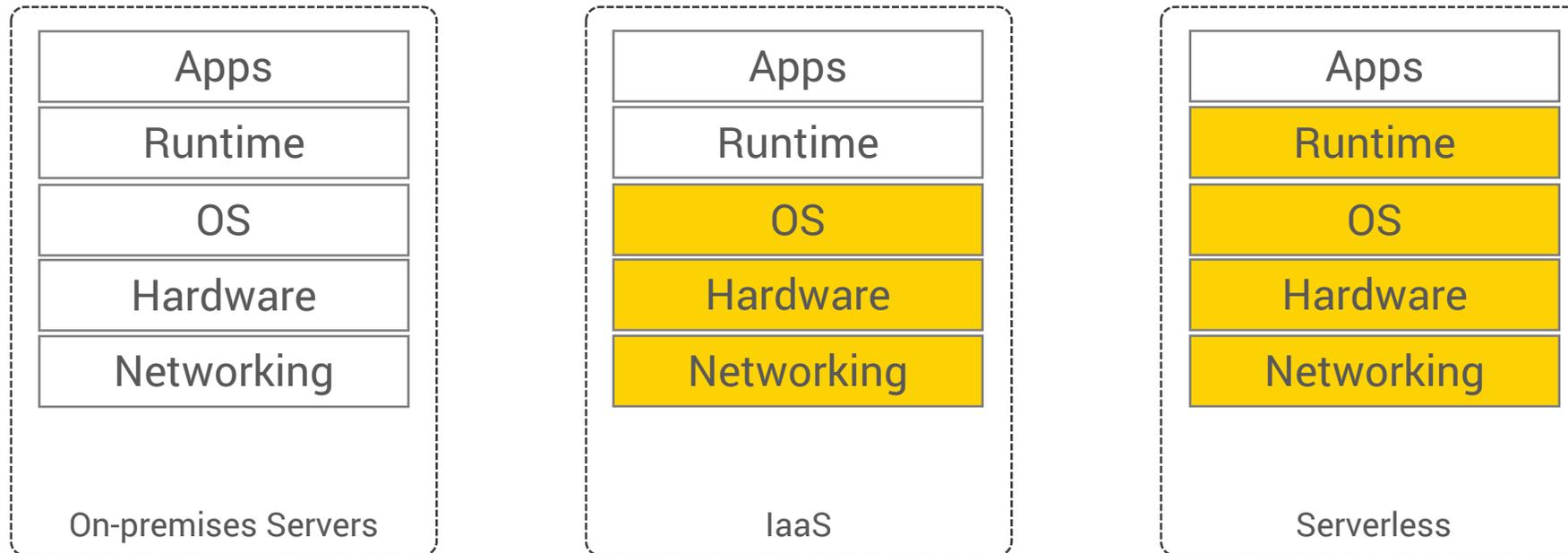
PaaS

- AWS Elastic Beanstalk
- Azure App Services
- Google App Engine

CaaS

- Amazon ECS for Kubernetes
- Azure Kubernetes Service
- Google Kubernetes Engine

What is Serverless Computing?



 Self-managed

 Platform Managed

Key Attributes of Serverless Computing



Transparent resource
provisioning



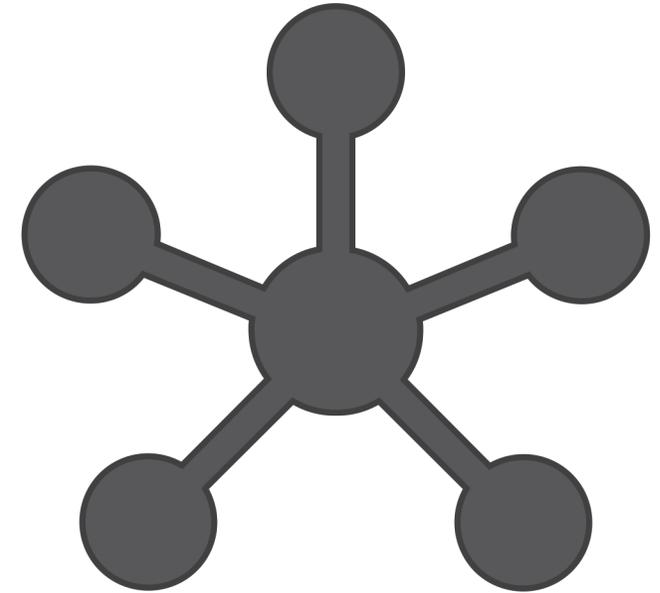
Per-second billing



Event-based execution

Functions as a Service (FaaS)

Compute service to build and host applications that respond to events



FaaS is a delivery model based on **Serverless Computing**

Introducing Google Cloud Functions

- FaaS offering from Google
- Built on top of App Engine
- Supports Node.js 6, Node.js 8, Python, and Go runtimes
- OS is based on Debian or Ubuntu
- Supports interactive and background functions

FaaS vs. IaaS

Google Cloud Functions

- Request-driven
- Fixed OS, fixed language
- Managed infrastructure
- Implicit scaling

Google Compute Engine

- Infrastructure rental
- Choice of OS, language and instance types
- Customer manages infrastructure
- Scale by launching more instances

Key Concepts & Terminology



Function

Code snippet with well-defined entry point



Event

Raised by cloud services in response to change in state



Trigger

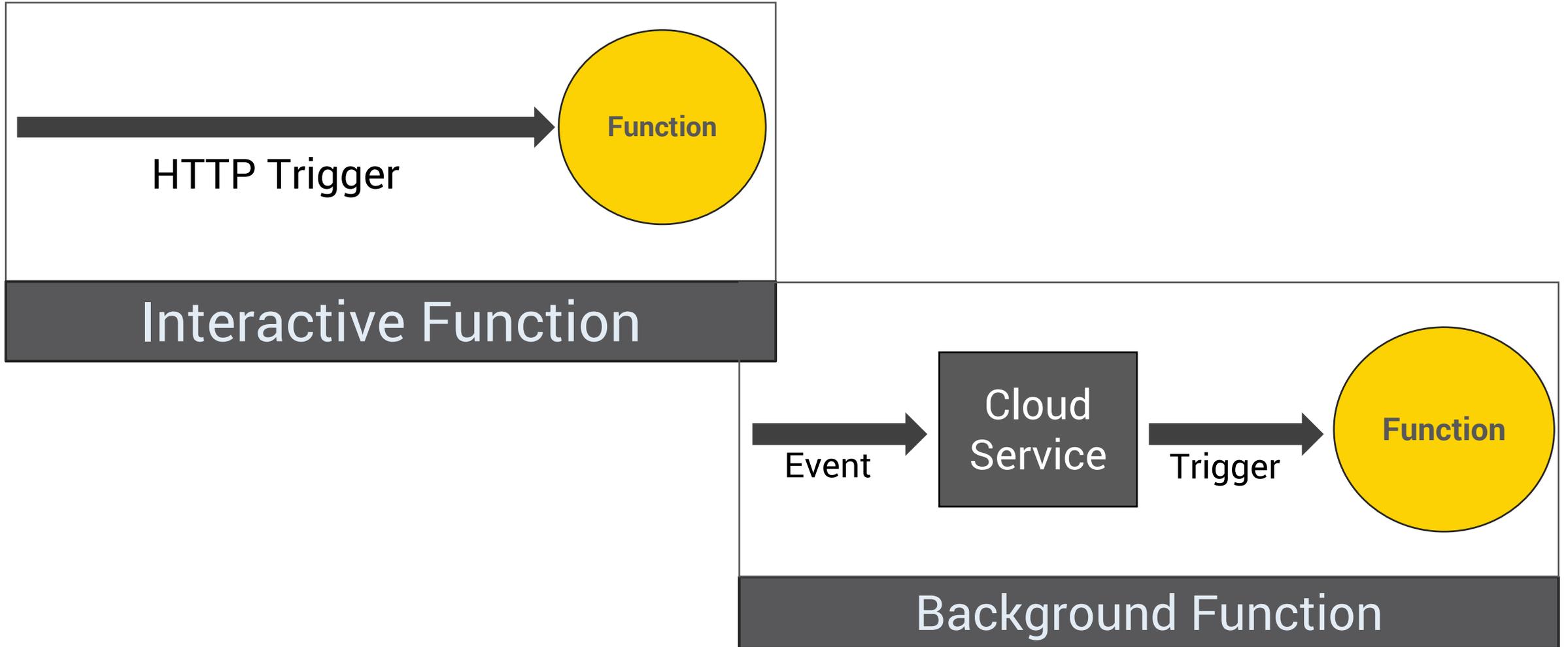
Events are connected to Functions via Trigger



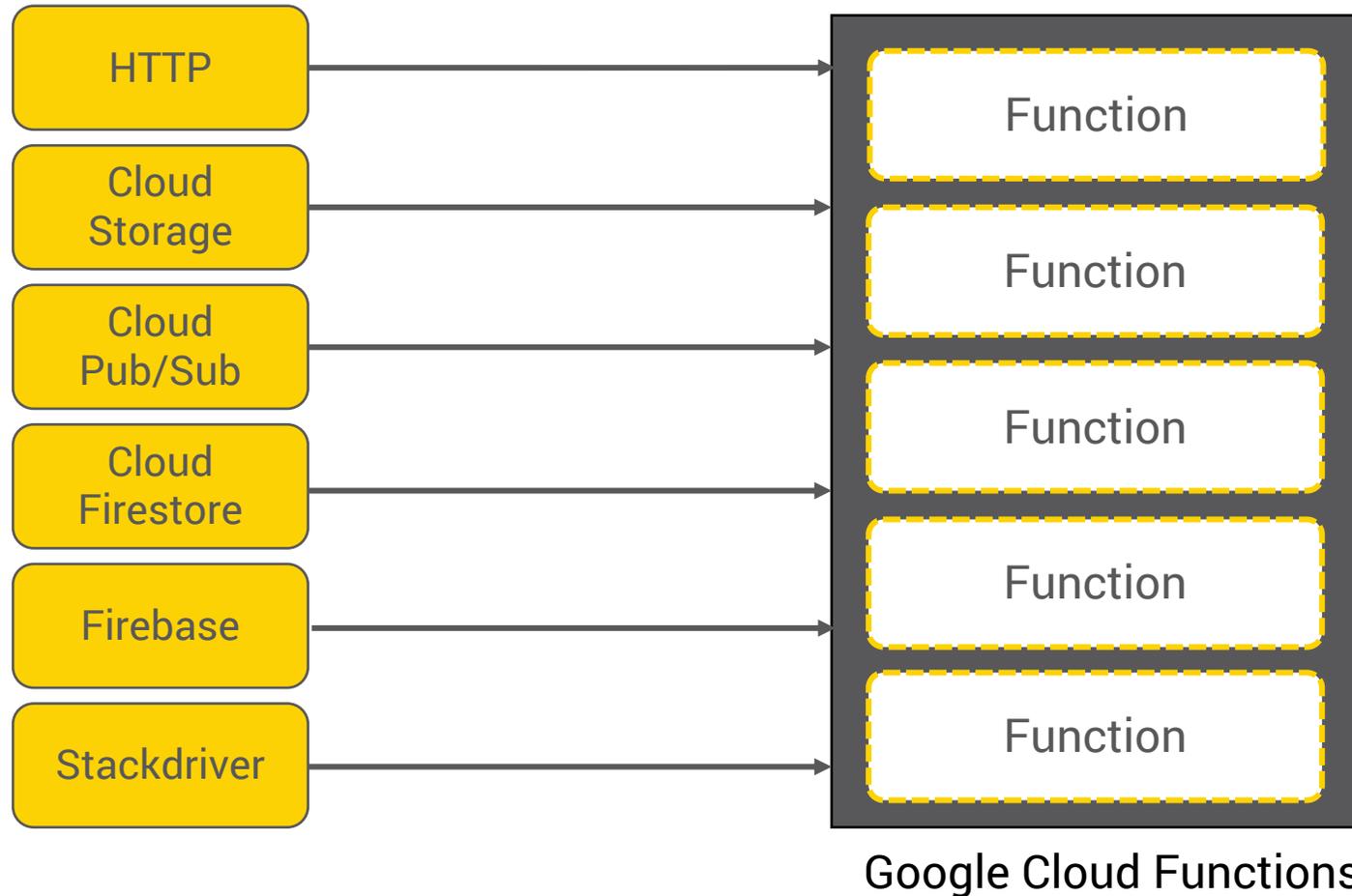
Background Function

Functions invoked indirectly by Events

Background Functions



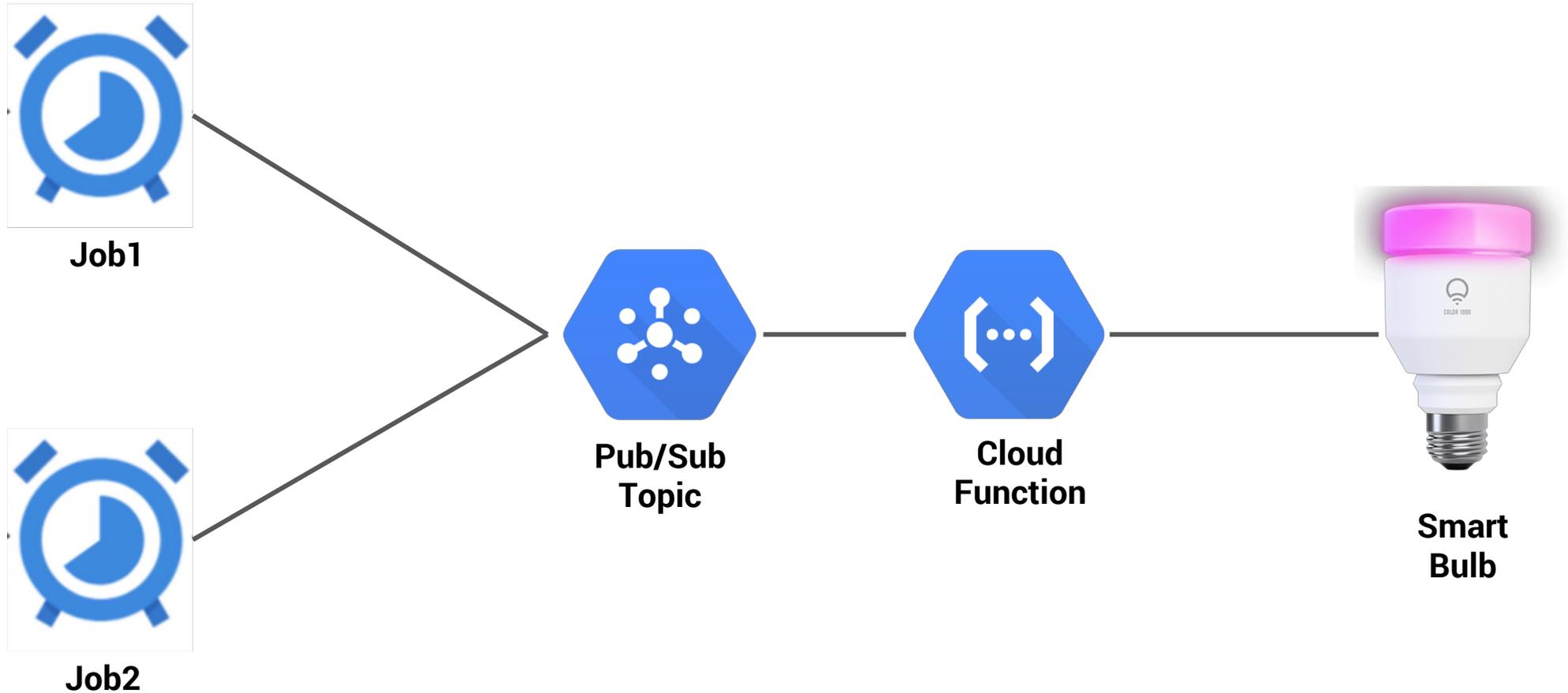
Google Cloud Functions - Events & Triggers



What are we Building?

- A simple, interactive Function invoked via HTTP
- A Function to control the Smart Bulb based on the time of the day
 - Cloud Scheduler
 - Cloud Pub/Sub
 - Cloud Functions
 - LiFX API
 - LiFX Smart Bulb

What are we Building?



DEMO

Building and Deploying Functions in Google Cloud

<http://bit.ly/gcflifx>

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Accelerate Performance of Neural Networks with Intel Movidius

Intel Movidius Vision Processing Units are full-fledged system-on-chips (SoC) designed specifically for on-device computer vision and neural network applications. You can optimize and convert existing Caffe and TensorFlow models for faster inference based on Intel Movidius. In this webinar, I am going to introduce Intel Movidius along with the steps to build an inference application based on an existing Convolutional Neural Network.

Thursday, March 14th, 2019
9:00 AM PST / 9:30 PM IST

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