DEVELOPER SURVIVAL GUIDE

EXPRESS SERVERLESS PLATFORM vs. APIGEE EDGE

LunchBadger

Express Serverless Platform vs Apigee Edge

ABSTRACT

We've created this comparison page to make it easy to understand the major differences (and similarities) between two popular platforms for API management with microservice development capabilities.

In this review we'll be comparing Express Serverless Platform with Apigee Edge across multiple dimensions and "at-a-glance".

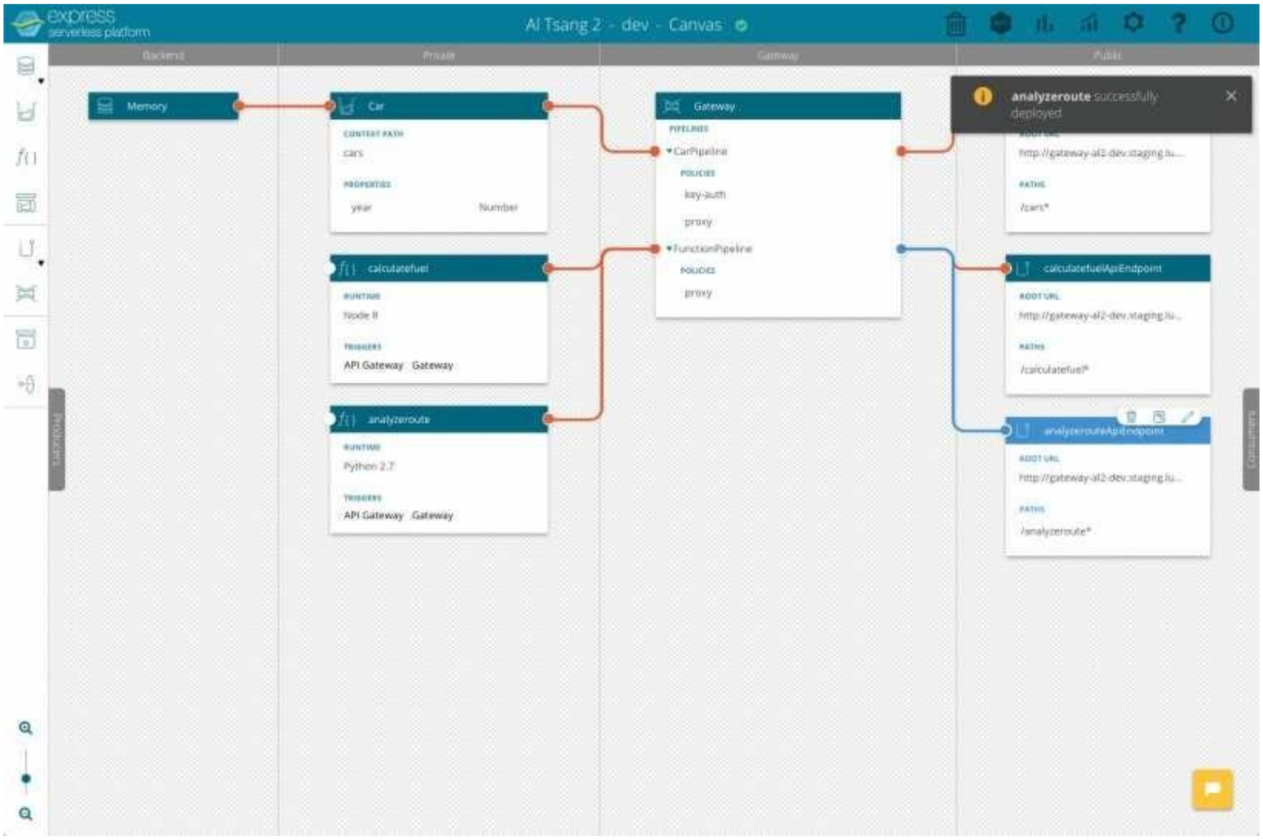
What is Express Serverless Platform?

Express Serverless Platform provides a uniform and seamless development experience for microservices and APIs as simple functions.

Express Serverless Platform can be deployed to any public or private cloud.

Enterprises can have multiple deployments of Express Serverless Platform at the same time to achieve a multi cloud and or hybrid cloud strategy.

Each deployed instance of Express Serverless Platform allows you to take advantage of a cloud's native infrastructure without coupling your code to its proprietary interfaces.



analyzeroute successfully deployed

Memory

Car
CONTEXT PATH
cars
PROPERTIES
year Number

calculatefuel
RUNTIME
Node 8
TRIGGERS
API Gateway Gateway

analyzeroute
RUNTIME
Python 2.7
TRIGGERS
API Gateway Gateway

Gateway
PIPELINES
▾CarPipeline
POLICIES
key-auth
proxy
▾FunctionPipeline
POLICIES
proxy

ROOT URL
http://gateway-al2-dev.staging.lu...
PATHS
/cars*

calculatefuelApiEndpoint
ROOT URL
http://gateway-al2-dev.staging.lu...
PATHS
/calculatefuel*

analyzerouteApiEndpoint
ROOT URL
http://gateway-al2-dev.staging.lu...
PATHS
/analyzeroute*

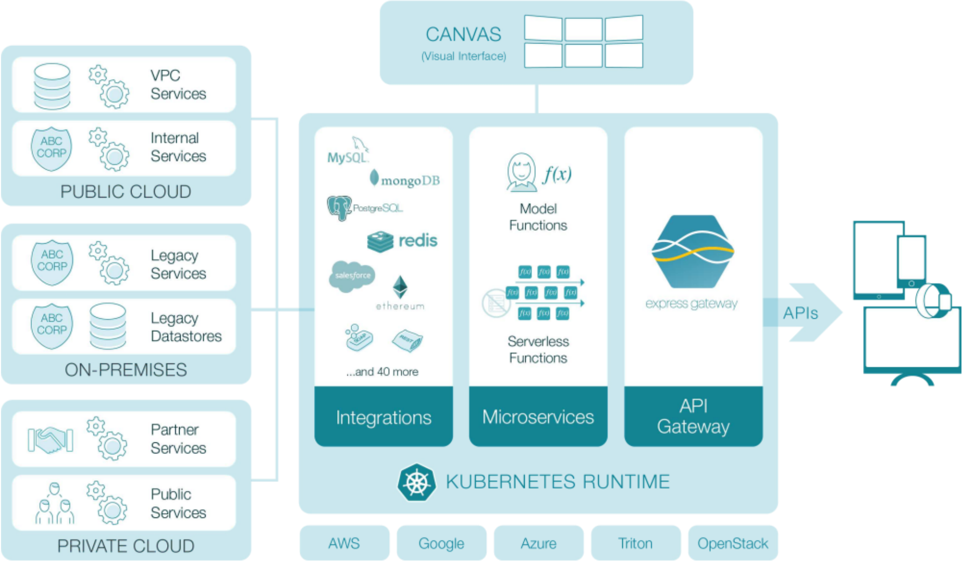
Express Serverless Platform’s GUI is called the Canvas. Actions done inside the Canvas are orchestrated and automated within Kubernetes as pods running container based microservices in real time for development and modeling purposes.

Other actions in the Canvas can also automate and deploy native cloud infrastructure such as serverless offerings (e.g. Google Cloud Functions) running alongside the cloud’s Kubernetes offering.

Express Serverless Platform automates and manages both container and serverless microservices seamlessly giving you a unified view of what your microservices application looks like and how they’re orchestrated across different pieces of infrastructure.

Features & Architecture

Express Serverless Platform Features & Architecture



Express Serverless Platform is fully self-contained. Express Serverless Platform can be installed on bare metal or VMs with all the necessary infrastructure components included: an API Gateway, Kubernetes Runtime, Serverless Engine and visual Canvas that serves as a "single pane of glass" to visualize your microservices and API development.

Express Serverless Platform is fully modularized and integration ready. Any deployment of Express Serverless Platform can take full advantage of a particular public cloud’s native proprietary offerings such as its own serverless infrastructure.

The Express Serverless Platform utilizes the best of breed open source technologies in its reference implementation that is ready to be used out of the box as is:

- Express Gateway, an open source API Gateway written in Node.js and built on top of Express.js
- Loopback.js, an enterprise Node.js framework for building microservices as model based functions and vast microservice integration library of connectors
- Kubeless, a Kubernetes native serverless engine to run polyglot functions
- Serverless (the framework), a framework that provides abstraction of functions to multiple serverless implementations - AWS Lambda, Azure Functions, Google Cloud Functions, Openwhisk, Kubeless and others
- Kubernetes, the leading container orchestrator to run microservices running in containers, supported by all public and private clouds

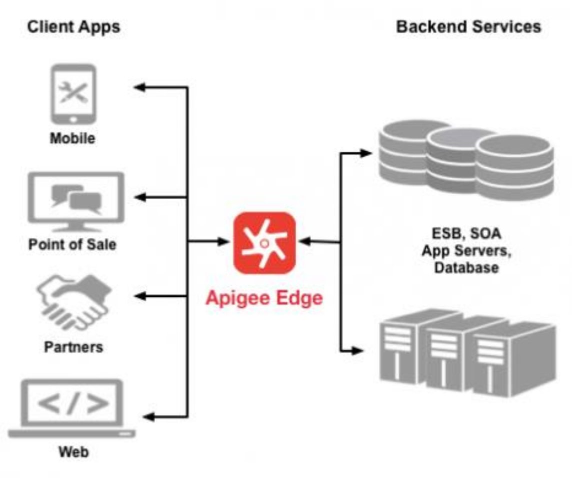
Express Serverless Platform Features & Architecture Cont.

Features Include

- Composition of Serverless Functions
- Composition of Model based Functions
- Supports Node.js, Python, Ruby, Go, PHP, .Net Core, and Java
- Completely extensible through open source modules
- Suite of Enterprise connectors to tap into legacy systems for Model based Functions
- Connects multi-cloud environments (private or public cloud)
- Supports any microservice use cases, patterns and designs
- Auto deployment to a Kubernetes Runtime
- Works with any Kubernetes cluster (EKS, GKE, etc)
- Auto exposes functions as APIs through the gateway
- Plugs directly into existing DevOps tooling and pipelines
- Can take advantage of public cloud's proprietary infrastructure services
- Reference implementation comes complete with all infrastructure components like API gateway, serverless engine, container orchestrator, and GUI

Further reading: Express Serverless Platform Documentation

Apigee Edge Features & Architecture



Apigee Edge (acquired by Google in 2016) is a popular platform for deploying API proxies. Express Serverless Platform, like Apigee, allows you to build and deploy API gateways on their internal cloud computing service. At a high level, Express Serverless Platform and Apigee are similar, but there are several key differences in terms of Node.js version compatibility and vendor lock-in that you should be aware of before choosing one or the other.

Features Include:

- Expose services as a set of HTTP endpoints and make HTTP requests to these endpoints.
- Return data formatted as XML or JSON, back to a client app.
- Make it easy for app developers to consume your services.
- Change the backend service implementation without affecting the public API.
- Analytics, monetization, and a developer portal so developers can access your services with an API Proxy created on Apigee Edge
- Use policies on the API proxy to add functionality to a service without having to make any changes to the backend service
- Group one or more API proxies into an API product and combine with a service plan.

Further reading: Apigee Edge Features

Features Comparison

The following table has just Apigee Edge compared with the Express Serverless Platform.

Google also offers Google Cloud Functions for more serverless capability, but this is again another product all together.

🟢= Supported

🟠= Supported with caveats

🔴= Not supported

Feature	Apigee Edge	express serverless platform
General		
On Premise	🟢	🟢
Runs on any Public or Private Cloud	🟠[1]	🟢
Kubernetes Support	n/a	🟢
Configuration & Administration	GUI, CLI, API	GUI, YAML, CLI and API
Auto Scaling	🟢	🟢
Visual Designer	🟢	🟢
Visual Orchestration	🔴	🟢
Git Access	🔴	🟢

Serverless	Apigee Edge	express serverless platform
HTTP Functions	🟢	🟢
Event Functions	🔴	🔴
Model Functions	🔴	🟢
Node.js Functions	🟠[2]	🟢
Python Functions	🟠[2]	🟢
Go Functions	🔴	🟢
.NET Core	🔴	🟢
Ruby Functions	🔴	🟢
PHP Functions	🔴	🟢
Java Functions	🟠[2]	🟢
Docker Image	🔴	🔴
Auto REST Scaffolding	🔴	🟠[3]
Events and Triggers	🟠[4]	🟠[4]
Pre-Built Connectors	🔴	8/20+[4]

API Management	Apigee Edge	express serverless platform
HTTPS	🟢	🟢
CORS	🟢	🟢
Basic Auth	🟢	🟢
OAuth2	🟢	🟢
Key Authentication	🟢	🟢
JWT	🟠[5]	🟢
Finegrain Access Control	🔴	🟢
Rate Limiting	🟢	🟢
Quotas	🟢	🔴
Request Transformation	🟢	🟢
Response Transformation	🟢	🟢
Pipeline Driven Conditional Actions	🔴	🟢
Pipeline Driven Expressions	🔴	🟢
Consumer Management	🟢	🟢
API Portal	🟢	🔴[6]
Plugins Framework	🔴	🟢
Open Source Ecosystem	🔴	🟢
Configuration Database	Cassandra	In-Memory Redis

1. Public Cloud only through GCP for Apigee Edge, the Microgateway can run anywhere
2. Apigee Edge has callouts to Node.js, Python and Java
3. Auto REST scaffolding for Models only
4. HTTP triggers only at this time (general pub/sub in roadmap)
5. JWT is inspection only and issued by GCP Partner like Auth0 or another offering
6. API REST Testing Interface can be integrated into an existing portal

Getting Started with the Express Serverless Platform

Getting started with Express Serverless Platform is dead simple.

LunchBadger offers a free 14-day trial of Express Serverless Platform with no credit card required.

The trial runs in LunchBadger's cloud so you don't need to have a public cloud account nor worry about installing anything on premises - simply sign up.

The trial provides a complete walkthrough building a microservices application and its API through a series of guided and interactive steps - all in less than five minutes.

Once built, you'll trace your API workflow from public API Endpoints to your in-memory data source and be able to experiment with a live and running microservices application to see the value of the time savings and functionality it provides.

QuickStart

The following is an overview of the getting started experience provided by the self-guided walkthrough.

- Deploy and use an Memory Connector to connect to an in-memory database
- Create and deploy a "Car" that will be a **Model based microservice**
- Connect the Car Model to the Memory Connector to read and write Car data
- Deploy and configure an API Gateway – an instance of Express Gateway
- Connect the Car Model to the API Gateway
- Expose the Car Model microservice as a Car API Endpoint that we can call through an API Request using cURL
- Deploy a Function called MyFunction that will be a "serverless" **Function based microservice**
- Connect the MyFunction Function to the API Gateway
- Expose the MyFunction microservice as a MyFunction API Endpoint that we can call through an API Request using cURL

Running Express Serverless Platform

Express Serverless Platform can run in any Kubernetes cluster on any cloud - private or public. It’s a true multi-cloud solution.

Out of the box, Express Serverless Platform runs serverless functions in the Kubeless serverless engine in your Kubernetes cluster via the Serverless Framework. By auto deploying serverless functions via the Serverless Framework, you can avoid vendor lock in and use any cloud provider or on premise solution.

Express Serverless Platform using the Serverless Framework will also allow you to run serverless functions in a public cloud provider’s proprietary offering if you sign up for an enterprise level plan. In this comparison, the cloud provider’s offering for serverless would be Google Cloud Functions, which is the offering for serverless alongside Apigee Edge in Google Cloud Platform (GCP).

Getting Started with Apigee Edge

Before you deploy a Node.js app to Apigee, you need to be aware that Apigee currently only supports Node.js v0.10.32. There is no way to use another version. Node.js 0.10.32 was released in 2014 and formally deprecated since 2016. Therefore, many modern Node.js libraries will not work on Apigee.

Quick Start:

- Log into the Apigee Edge console and click on "API Proxies."
- Add proxy button on the upper right corner
- Click "Node.js App" to create a new Node application
- Upload the hello-apigee.js file.
- In the "Security" step, select "Pass through" so make it easy to access your API Gateway. (In production you would likely set API Key security)
- For the "Virtual Hosts" and "Build" steps, just hit next and skip those steps.
- When you get to the "Summary" step, Apigee will deploy your API Gateway for you.
- Once your API Gateway is finished deploying, you should be able to access your endpoint using curl.

Further reading: Developer Comparison of the Getting Started Experience

Running Apigee Edge

Getting started with Edge depends on the environment you are targeting. Apigee Edge uses Apigee Edge Microgateway, HTTP-based message processor for APIs, for deployment.

Supported environments include:

- Docker
- Windows
- Kubernetes

Pricing

Express Serverless Platform

Express Serverless Platform is offered as a free 14-day trial.

License plans come packaged with a number of users, microservice functions, and API gateways at a low cost that predictably scales as you realize the value of what the platform brings.

Apigee Edge

Apigee Edge offers a free plan for 1 user only, 1 environment, 100 thousand API calls per month with 30 days of analytics reports. As part of the free plan, you can take advantage of community support and have no runtime SLA or migration to paid offerings.

Additional plans are offered at a Team ($500/month) and Business ($2500/month) for larger installations. Custom pricing begins at 10 organization or environment combinations, approx. 10B API calls per year with additional add-on support offerings

Further Reading: Apigee Edge Pricing

Quick Reference Links

Express Serverless Platform

- Documentation
- Installation & Getting Started
- Free Trial

Apigee Edge

- Documentation
- Installation & Getting Started
- 2-minute Overview Video

For a more in-depth comparison, you can check out the just getting started experience comparison between Apigee Edge and Express Serverless Platform.