

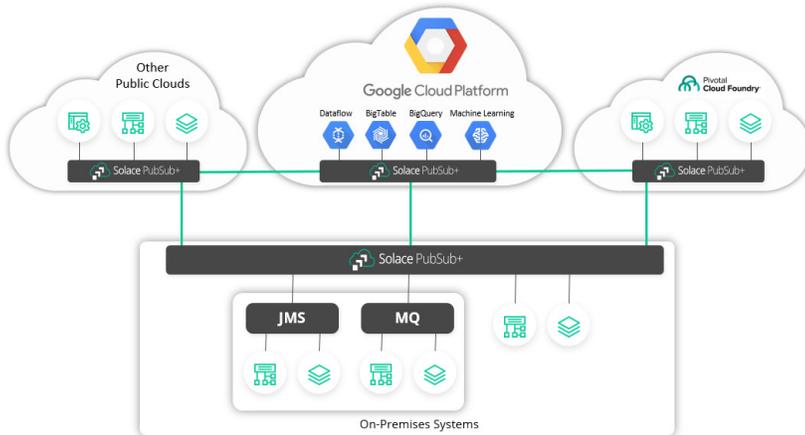
## Solace PubSub+ with Google Cloud Platform

### Use PubSub+ to connect GCP services with apps across your enterprise with little to no coding

Enterprises are moving to real-time machine learning cloud-based services such as BigQuery, BigTable, TensorFlow to gain competitive advantage by analyzing and visualizing massive amounts of information in real or near real time.

Until now, giving your application access to those services meant learning their communications style and SDKs, then building bespoke bridges between each application and target service. That's development effort that could be better spent coding core functionality that delivers business insights.

Hybrid cloud infrastructure that links cloud and on-premises applications requires an event mesh — an architectural layer made up of event brokers that dynamically routes information from any application or device to any number of recipients, no matter where or in what kind of cloud or on-premises they're deployed.



### Benefits

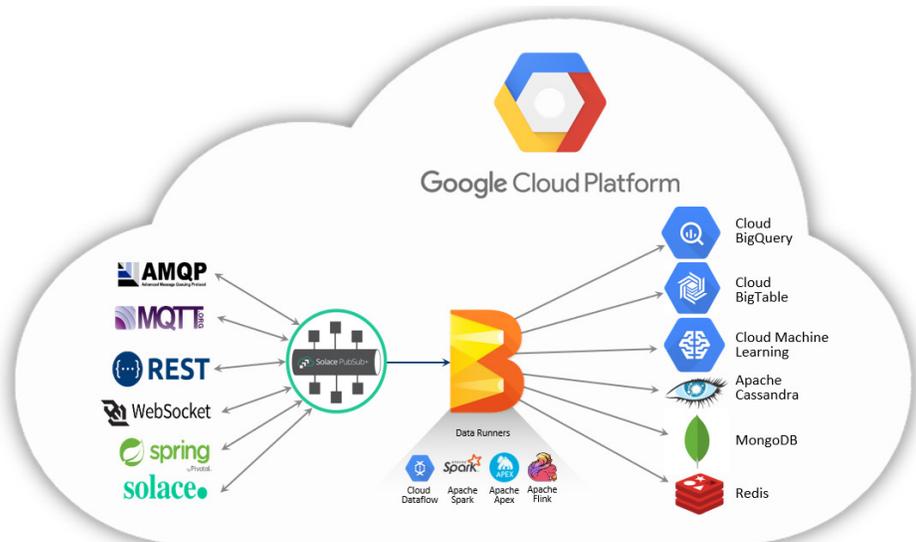
- **Accelerates the deployment of new applications** by reducing the amount of coding it takes to set up event streams between applications and GCP services.
- **Integrates GCP services into your event mesh** so you can stream real-time events between GCP services and systems in cloud, on-premises and IoT environments.
- **Reduces bandwidth and cloud egress costs** by sending events over the event mesh exactly and only where they're needed.

### PubSub+ and Apache Beam using Google Cloud DataFlow

PubSub+ feeds real time data to Apache Beam using a SolaceIO connector running in Google Cloud Dataflow and other data runners. Powerful cloud-based processing and machine learning services use this data to provide business insights.

### PubSub+ and Apigee

Apigee enables request/reply interactions by handling synchronous API management, authentication, analytics and more. PubSub+ can augment that functionality with support for events and persistence. Directing "requests" into PubSub+ turns them into "events" so the API system doesn't need to wait for synchronous delivery.



## Customer Spotlight: Grasshopper

Grasshopper, a leading Singaporean proprietary trading firm, uses Solace as the foundation for an event mesh that intelligently routes data between applications across their enterprise. Grasshopper deployed PubSub+ appliances in their datacenters and exchange co-located sites, and PubSub+ software brokers in GCP.



Real-time market data is streamed from on-premises applications to BigQuery using PubSub+ and SolaceIO connectors running in Google Cloud Dataflow. BigTable and TensorFlow machine learning services then use this data to help Grasshopper make faster and more intelligent trades.

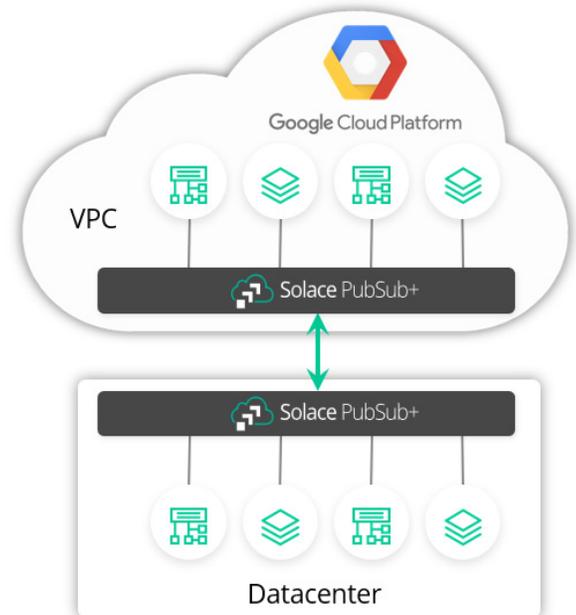
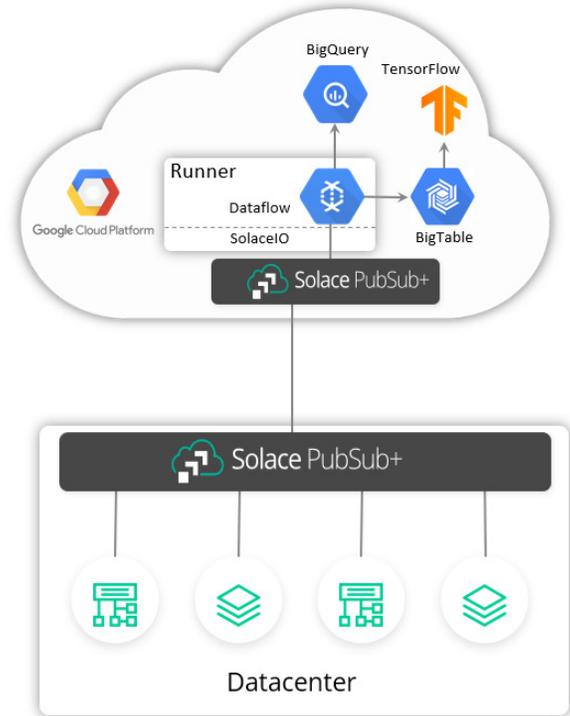
With Solace PubSub+ and GCP, Grasshopper has established itself as a key provider of liquidity in equity and futures markets around the globe. The business is a designated market maker on the SGX, JPY (the Japan Exchange), and the CME Group's options and futures exchange.

## Financial Services Hybrid Cloud Event Mesh

Many of the world's biggest banks use PubSub+ to power event meshes that route information between applications running in diverse on-premises and cloud environments including Google Cloud Platform.

These systems link global data and information services, and applications representing other asset classes and lines of business such as equities, fixed income, foreign exchange and more. Some of these banks have standardized their application integration on Solace, and many use PCF to enable easy deployment into any IaaS.

Solace provides the ability to deploy PubSub+ brokers into virtual private clouds, including Google Cloud Platform's VPC offering.



## Get Started with PubSub+ and GCP

**To get PubSub+ running in Google Cloud Platform:**

<https://github.com/SolaceProducts/solace-gcp-quickstart>

**To launch a PubSub+ broker in Google Container Engine for Kubernetes:**

<https://github.com/SolaceProducts/solace-gke-quickstart>

**To get the SolaceIO connector working with Apache Beam:**

<https://github.com/SolaceLabs/solace-beam-unboundedSource> for quickstart steps

Solace's smart data movement technologies use open APIs and protocols to rapidly and reliably route information between applications, devices and people across clouds. Elite enterprises and high-growth startups around the world use Solace to modernize legacy applications and successfully pursue analytics, hybrid cloud and IoT strategies. Learn more or contact us at <https://solace.com>.