Let's start by taking a closer look at a single provider to better understand how it works:

- What is a provider?
- How do you install providers?
- How do you use providers?

What Is a Provider?

When I first introduced providers in Chapter 2, I described them as the *platforms* Terraform works with: e.g., AWS, Azure, Google Cloud, DigitalOcean, etc. So how does Terraform interact with these platforms?

Under the hood, Terraform consists of two parts:

Core

> This is the `terraform` binary, and it provides all the basic functionality in Terraform that is used by all platforms, such as a command-line interface (i.e., `plan`, `apply`, etc.), a parser and interpreter for Terraform code (HCL), the ability to build a dependency graph from resources and data sources, logic to read and write state files, and so on. Under the hood, the code is written in Go and lives in an open source GitHub repo owned and maintained by HashiCorp.

Providers

> Terraform providers are *plugins* for the Terraform core. Each plugin is written in Go to implement a specific interface, and the Terraform core knows how to install and execute the plugin. Each of these plugins is designed to work with some platform in the outside world, such as AWS, Azure, or Google Cloud. The Terraform core communicates with plugins via *remote procedure calls* (RPCs), and those plugins, in turn, communicate with their corresponding platforms via the network (e.g., via HTTP calls), as shown in Figure 7-1.

The code for each plugin typically lives in its own repo. For example, all the AWS functionality you've been using in the book so far comes from a plugin called the Terraform AWS Provider (or just AWS Provider for short) that lives in its own repo. Although HashiCorp created most of the initial providers, and still helps to maintain many of them, these days, much of the work for each provider is done by the company that owns the underlying platform: e.g., AWS employees work on the AWS Provider, Microsoft employees work on the Azure provider, Google employees work on the Google Cloud provider, and so on.

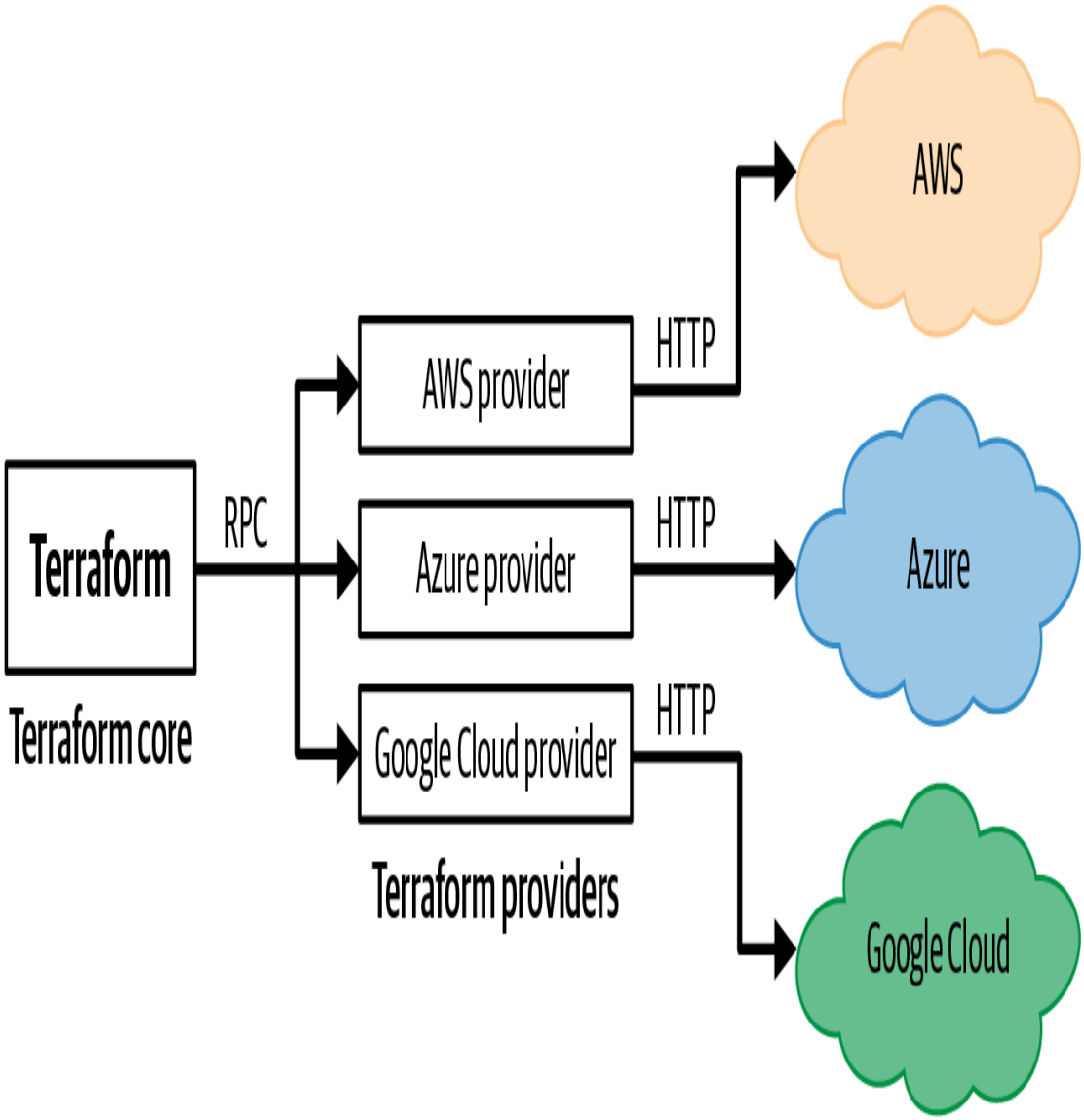

Figure 7-1. The interaction between the Terraform core, providers, and the outside world.