

## **What is a cloud ecosystem?**

A cloud ecosystem is a complex system of interdependent components that all work together to enable cloud services. In nature, an ecosystem is composed of living and nonliving things that are connected and work together. In cloud computing, the ecosystem consists of hardware and software as well as cloud customers, cloud engineers, consultants, integrators and partners.

Werner Vogels, CTO at Amazon, first compared the cloud to an ecosystem in a keynote address at the Cloud Connect 2011 conference. At the time, enterprise cloud computing was usually thought of in terms of three broad service areas -- infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS) and software-as-a-service (SaaS). Vogels proposed that the cloud was really more complex and its description also needed to include the array of service providers that companies rely on to operate in the cloud.

## **How a cloud ecosystem works**

The center of a cloud ecosystem is a public cloud provider. It might be an IaaS provider such as Amazon Web Services (AWS) or a SaaS vendor such as Salesforce. Radiating out from the center of the cloud are software companies that use the provider's anchor platform, as well as consultants and companies that have formed strategic alliances with the anchor provider.

There is no vendor lock-in because these companies overlap, making the ecosystem more complex. For example, AWS is the center of its own ecosystem, but it's also a part of the Salesforce ecosystem. Salesforce runs a number of its services on AWS's infrastructure, and Salesforce customers can gain access, through devices called connectors, to pieces of AWS, such as its Simple Storage Service (S3).

A robust ecosystem provides a cloud provider's customers with an easy way to find and purchase business applications and respond to changing business needs. When the apps are sold through a provider's app store such as AWS Marketplace, Microsoft Azure Marketplace (for cloud software) or Microsoft AppSource (for business applications), the customer essentially has access to a catalog of different vendors' software and services that have already been vetted and reviewed for security, risk and cost.

## **The benefits of a cloud ecosystem**

Companies can use a cloud ecosystem to build new business models. It becomes relatively easy for a medical device manufacturer, for example, to launch a heart-monitoring service on its cloud service provider's cloud infrastructure and then sell the service alongside its main business of manufacturing heart monitors for hospitals.

In a cloud ecosystem, it is also easier to aggregate data and analyze how each part of the system affects the other parts. For example, if an ecosystem consists of patient records, smart device logs and healthcare provider records, it becomes possible to analyze patterns across an entire patient population.