What is a system?

A set of things working together as parts of a mechanism or an interconnecting network; a complex whole.

We often only focus on parts of a system relevant to us. In CS we need to truthfully describe a system but only what is relevant to us.

Use of abstraction:

Thinking in Layers – Focus on task at hand, rely on layer directly below, hide details of lower layers

* Application
* Operating system
* Hardware system

Cloud systems

For messages to be transmitted from client to client, many computers are involved. These computers communicate using protocols. A protocol is a set of rules governing the exchange or transmission of data between devices. Technical protocols make use of layers that have specific responsibilities and solve problems.

XMPP: Extensible messaging and presence protocol defines how to exchange messages between a client and server.

IP: Internet Protocol defines how to exchange data packets between internet addresses.

The cloud software stack:

* Application – Provides some desired functionality, usually to a user
* Containers – Isolate applications, their libraries, and dependencies
* Operating system – Manage hardware, and provide common services:  
  drivers, file systems, scheduling…
* Virtual machines – Share computing/storage between multiple tenants
* Hardware systems - Provides computing and storage capacities