CLOUD COMPUTING APPLICATIONS

SOFTWARE DEFINED ARCHITECTURE

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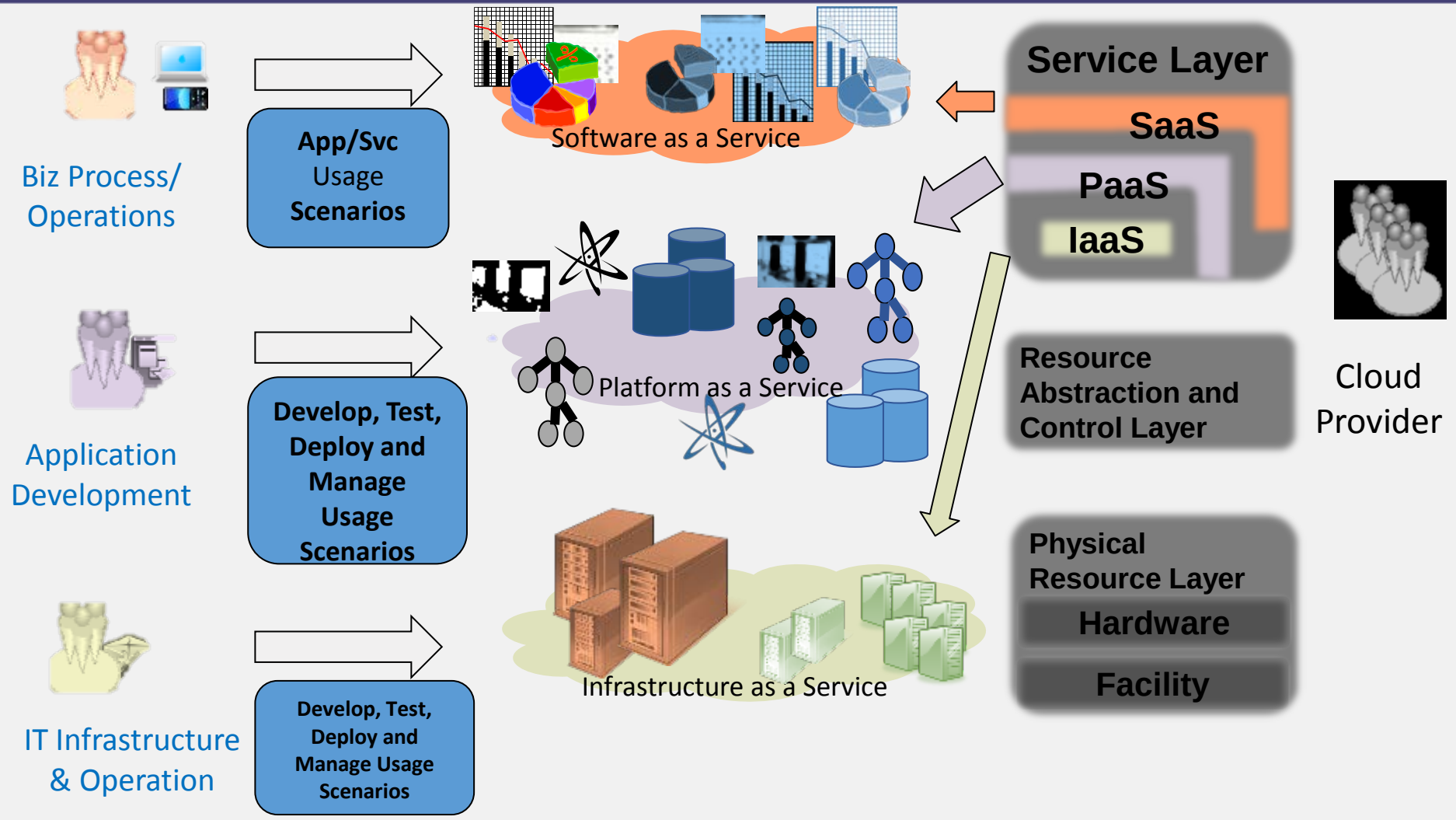
Learning Objectives

- How services are created
- How services can control other services
- The principal architectural components of a cloud and their organization
- How services and orchestration play a role in each layer of a production cloud: IAAS, PAAS, SAAS

Software Defined Architecture

- Cloud provides services, service orchestration, and provisioning
- A Cloud may provide IAAS, PAAS, SAAS and have both internal and external Application Programming Interfaces
- The mechanisms and concept of providing services, orchestration, and provisioning is called a Software Defined Architecture
- A Cloud may contain other software defined entities:
  - Software Defined Network
  - Software Defined Storage
  - Software Defined Compute

Cloud Provider: Service Orchestration

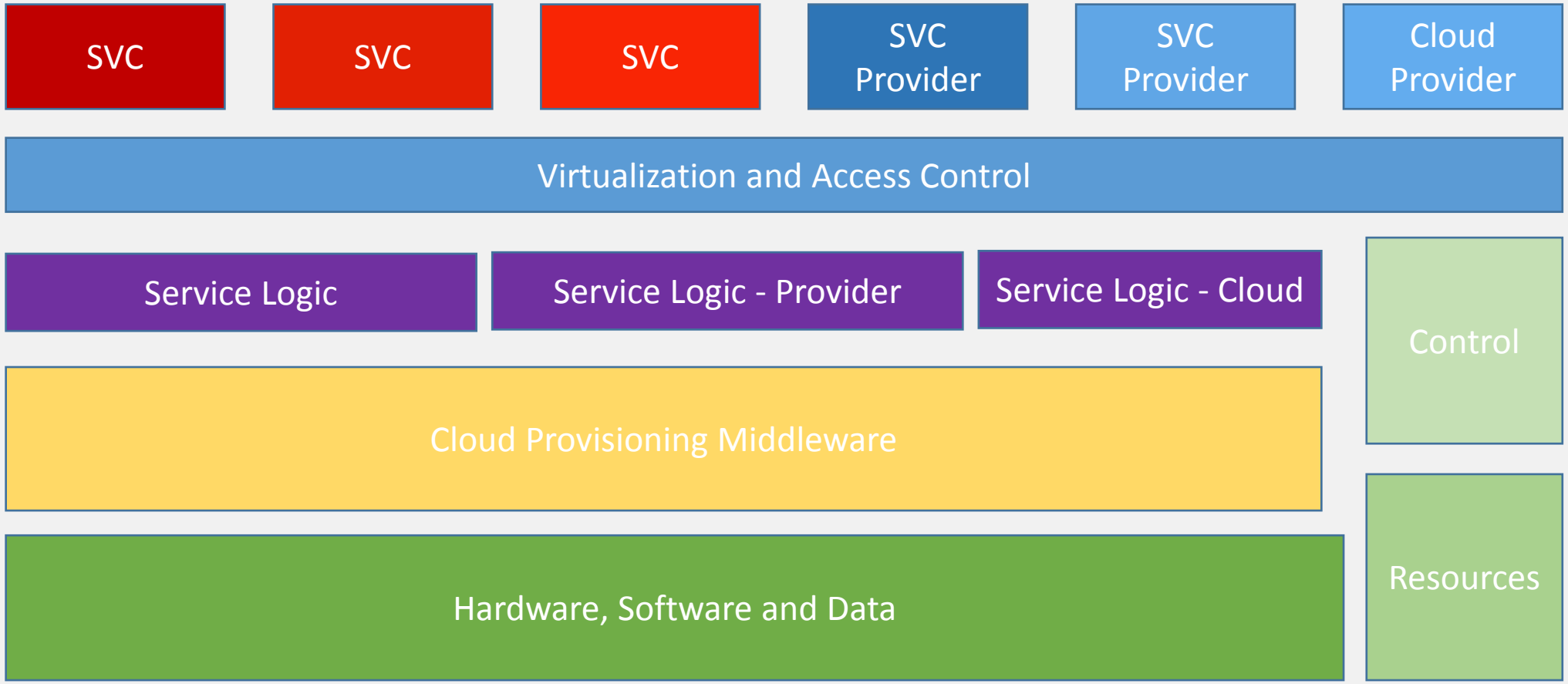


Orchestration

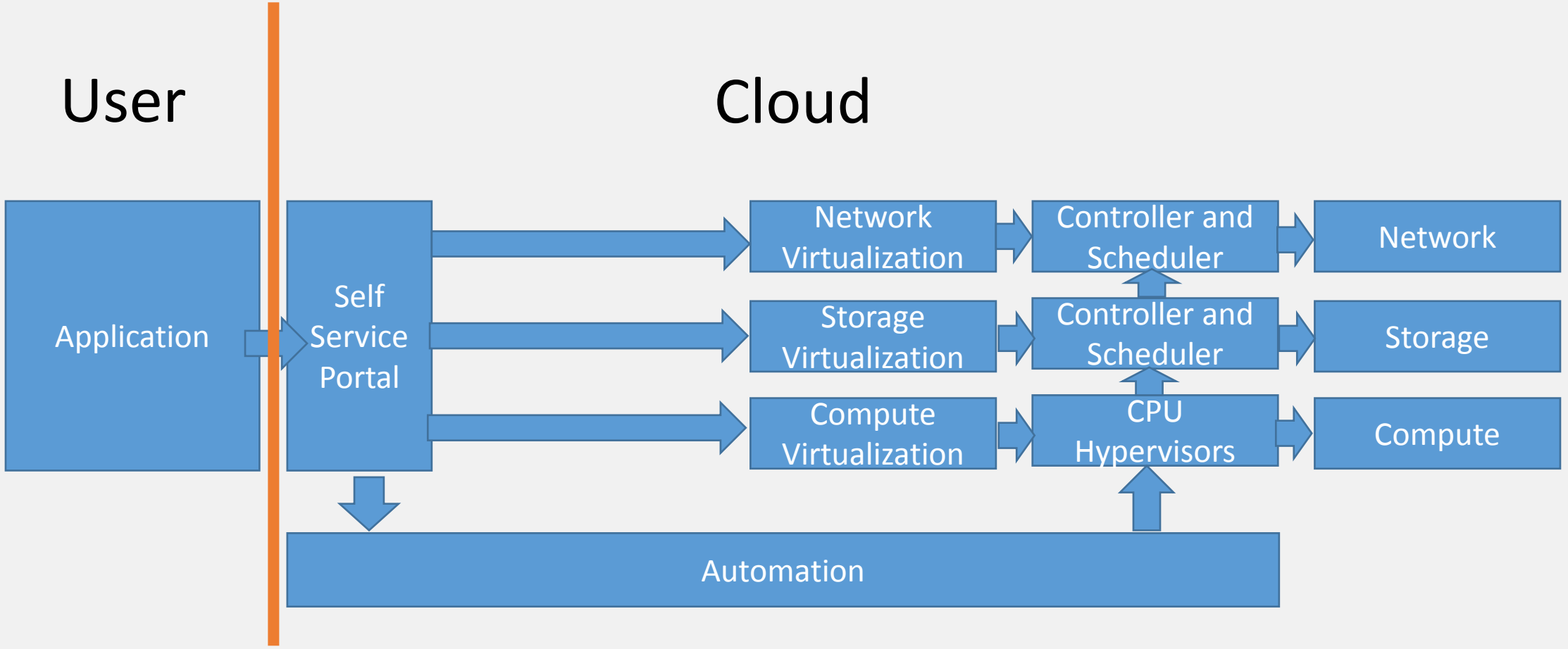
Cloud service orchestration is the:

- *Composing* of architecture, tools and processes used by humans to deliver a defined Service.
- *Stitching* of software and hardware components together to deliver a defined Service.
- *Connecting* and *Automating* of work flows when applicable to deliver a defined Service.
- Provides: up and down scaling, assurance, billing, workflows

Software Defined Architecture



Software Defined Data Center



Content and Learning Objectives

1) Virtualization is a key abstraction in building software defined architectures:
    1) Software Defined Networks
    2) Software Defined Storage
    3) Software Defined Compute
2) Web Service: A Simple Application built on a Data Center
3) Load Balancing: A simple scheme to distribute the load of multiple servers
4) Infrastructure as a Service
5) Mirantis and OpenStack
6) How systems are structured with orchestration

The Combined Conceptual Reference Diagram