Cloud Services Delivery Models

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Cloud Delivery Models

- Software as a Service (SaaS)
- Platform as a Service (PaaS)
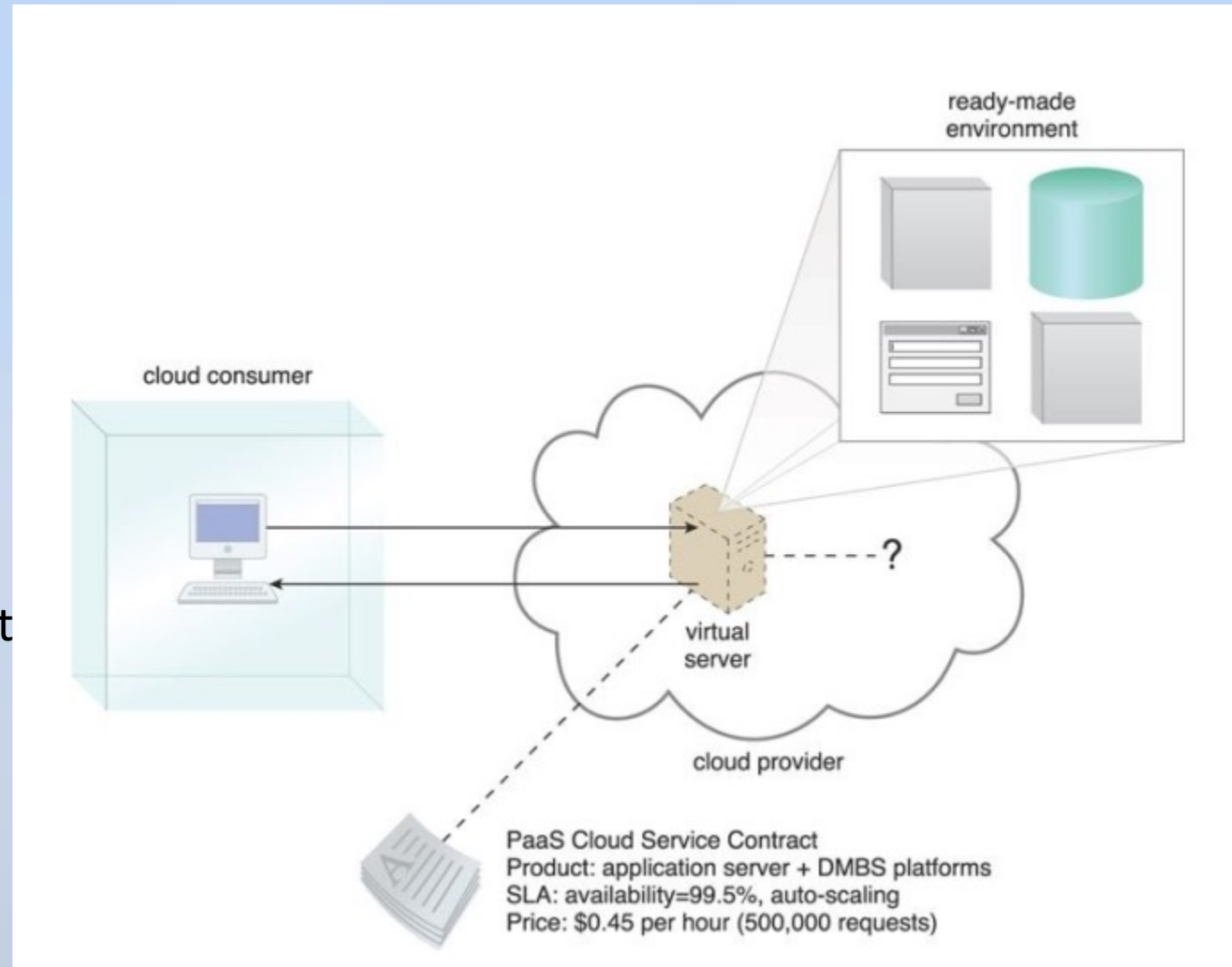- Infrastructure as a Service (IaaS)

SaaS

- A software program positioned as a shared cloud service and made available as a "product" or generic utility

- The SaaS delivery model is typically used to make a reusable cloud service widely available (often commercially) to a range of cloud consumers.

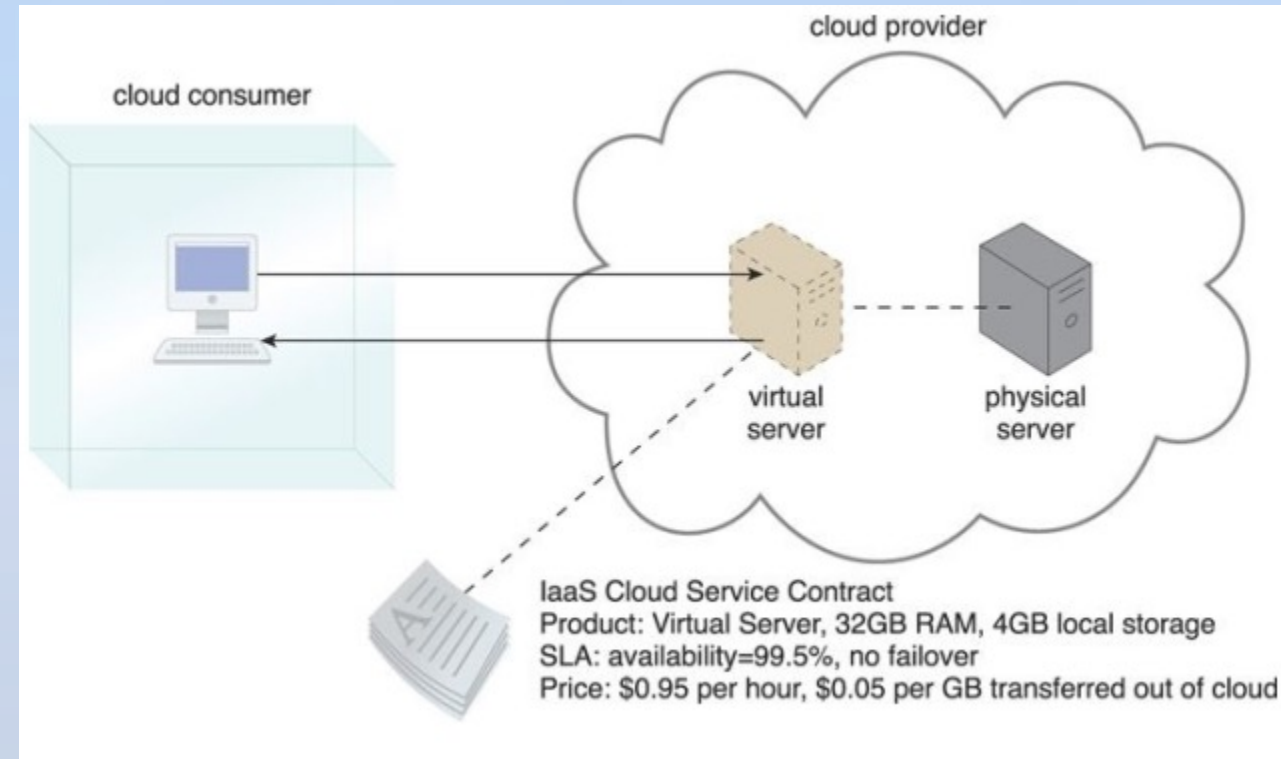- Products: Google Workspace, Salesforce, Trello, Zoom, DocuSign, Slack.
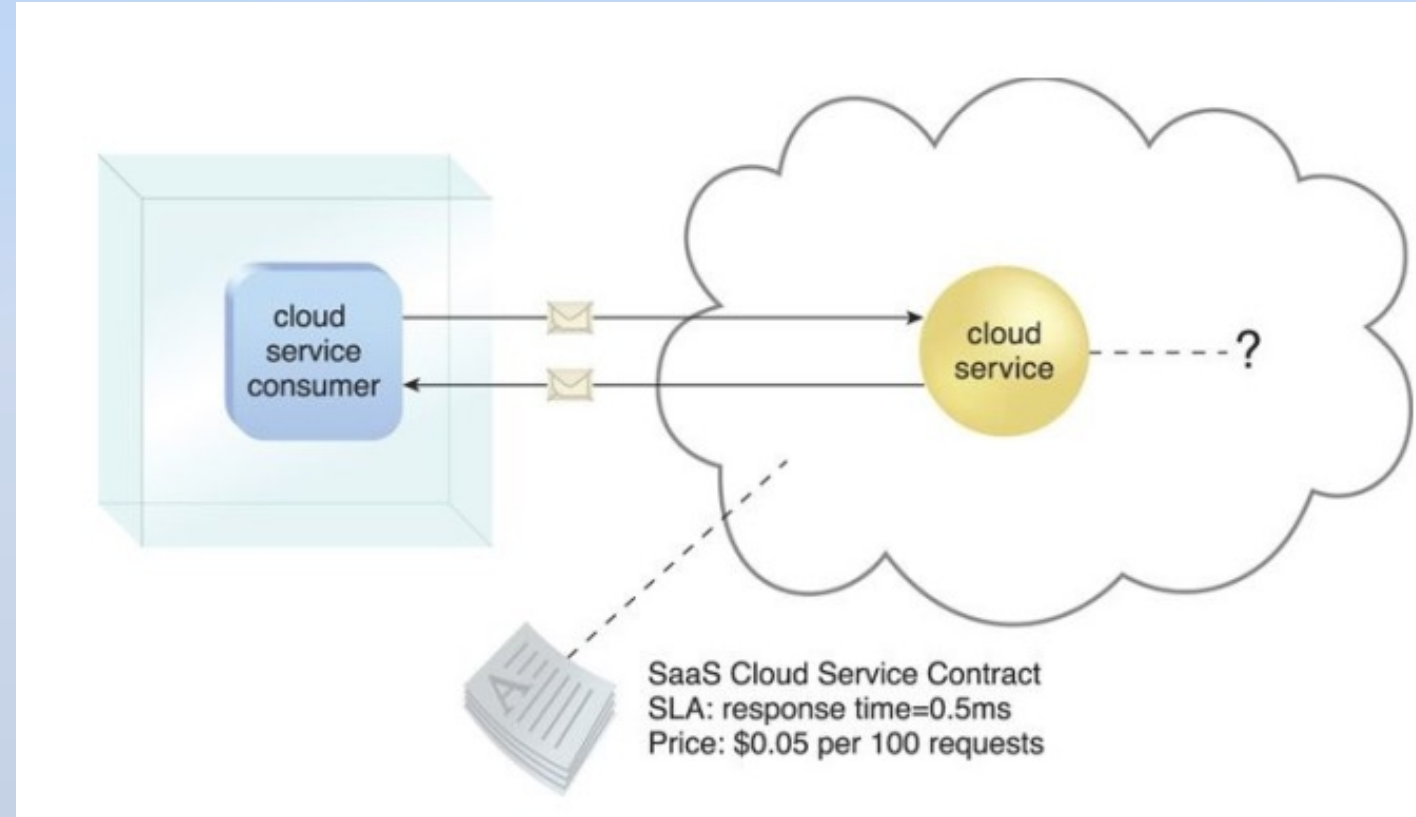
PaaS

- A pre-defined "ready-to-use" environment typically comprised of already deployed and configured IT resources.

- PaaS relies on (and is primarily defined by) the usage of a readymade environment that establishes a set of pre-packaged products and tools used to support the entire delivery lifecycle of custom applications.

- Products: Google App Engine, AWS Elastic Beanstalk

ready-made environment

cloud consumer

virtual server

cloud provider

PaaS Cloud Service Contract
Product: application server + DMBS platforms
SLA: availability=99.5%, auto-scaling
Price: $0.45 per hour (500,000 requests)

IaaS

- A self-contained IT environment comprised of infrastructure-centric IT resources that can be accessed and managed via cloud service-based interfaces and tools.

- This environment can include hardware, network, connectivity, operating systems, and other "raw" IT resources.

- These IT resources are typically virtualized and packaged into bundles that simplify up-front runtime scaling and customization of the infrastructure.

- Products: Amazon EC2, Google Compute Engine, SAP Business Technology Platform

cloud provider

cloud consumer

virtual server

physical server

IaaS Cloud Service Contract
Product: Virtual Server, 32GB RAM, 4GB local storage
SLA: availability=99.5%, no failover
Price: $0.95 per hour, $0.05 per GB transferred out of cloud

A comparison of control levels in cloud delivery models

Cloud Delivery Model	Typical Level of Control Granted to Cloud Consumer	Typical Functionality Made Available to Cloud Consumer
SaaS	usage and usage-related configuration	access to front-end user-interface
PaaS	limited administrative	moderate level of administrative control over IT resources relevant to cloud consumer's usage of platform
IaaS	full administrative	full access to virtualized infra-structure-related IT resources and, possibly, to underlying physical IT resources

Typical activities

Cloud Delivery Model	Common Cloud Consumer Activities	Common Cloud Provider Activities
SaaS	uses and configures cloud service	implements, manages, and maintains cloud service monitors usage by cloud consumers
PaaS	develops, tests, deploys, and manages cloud services and cloud-based solutions	pre-configures platform and provisions underlying infrastructure, middleware, and other needed IT resources, as necessary monitors usage by cloud consumers
IaaS	sets up and configures bare infrastructure, and installs, manages, and monitors any needed software	provisions and manages the physical processing, storage, networking, and hosting required monitors usage by cloud consumers