

Cloud computing: definizione

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model is composed of five essential characteristics, three service models, and four deployment models.

(The NIST Definition of Cloud Computing, 800-145, 2011)

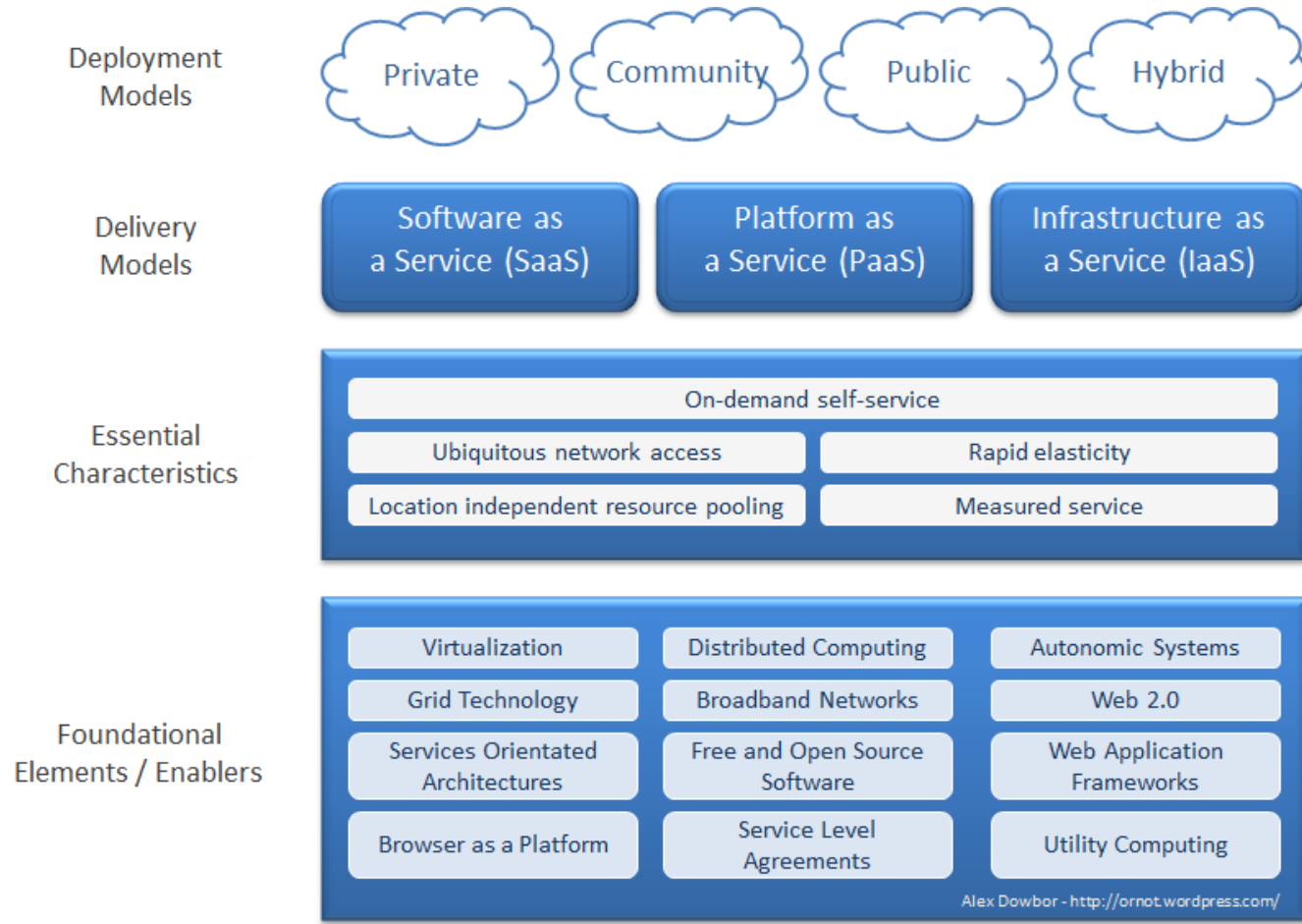
Deployment models

- **Private cloud:** exclusive use by a single organization comprising multiple consumers (e.g., business units)
- **Community cloud:** exclusive use by a specific community of consumers from organizations that have shared concerns
- **Public cloud:** open use by the general public
- **Hybrid cloud:** composition of two or more distinct cloud infrastructures

Service models

- **Software as a Service (SaaS):** The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure
- **Platform as a Service (PaaS):** The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider
- **Infrastructure as a Service (IaaS):** The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications.

Cloud computing: visione d'insieme



Cloud computing: aspetti tecnologici

- Il cloud computing si basa su concetti e tecnologie non nuove quali:
 - Virtualizzazione e astrazione
 - Middleware
 - Bilanciamento del carico
 - Fault tolerant computing
- Innovativa è la combinazione (anche molto complessa) di questi concetti e tecnologie per offrire un nuovo paradigma di servizi

Cloud computing: vantaggi

- Economie di scala da parte dei "big provider"
- Delega "a basso costo" di aspetti non centrali per la propria attività o non gestibili individualmente (ridondanza, backup, scalabilità, manutenzione, aggiornamento)
- Facilità di utilizzo
- Livelli di qualità contrattualizzati

Cloud computing: elementi critici

- Disponibilità del servizio
- Lock-in / Costi crescenti
- Riservatezza e verificabilità dei dati
- Colli di bottiglia
- Regolamentazione licenze