

Cloud Computing

What It Is, What It Isn't and Why It Matters

Presented At:

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James Santagata



<http://www.CareerOverDrive.com>

I. What is Cloud Computing?

Everybody has a different definition:

What the hell is Cloud Computing?... We've re-defined Cloud Computing to include everything that we currently do... I can't think of anything that isn't Cloud Computing...



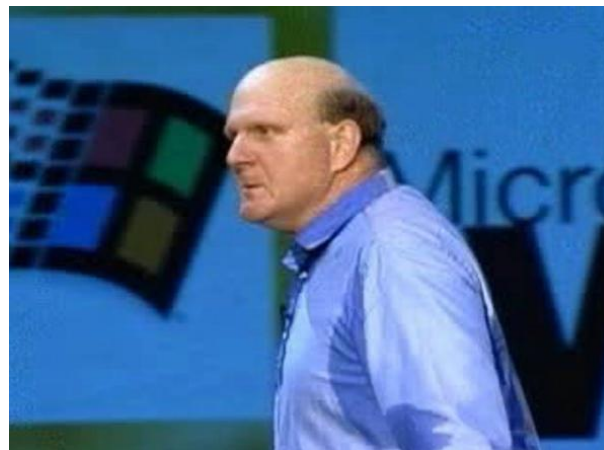
-- Larry Ellison, Oracle CEO
(In remarks to financial analysts on September 25, 2008).



I. What is Cloud Computing?

Everybody has a different definition:

“I would have thought I knew what Cloud Computing meant until I sat with Ann (Winblad) and a bunch of Venture Capitalists this morning, who used the word completely differently than I would have used it.”



-- Steve Ballmer, CEO Microsoft

September 25, 2008 at the Churchill Club (Silicon Valley)

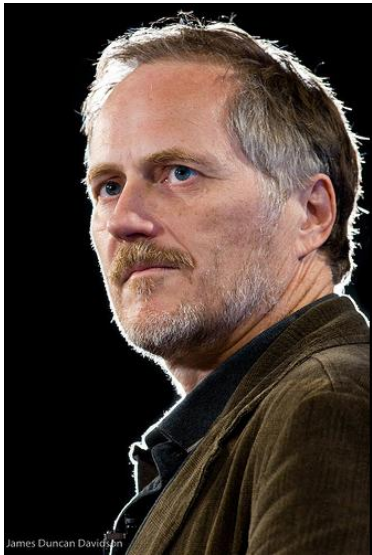


Microsoft

II. What is Cloud Computing?

Over 15 tech writers, pundits and technologists (including Tim O'Reilly and Dave McClure) at the 2008 Web 2.0 Expo were asked “What is Cloud Computing?” most appeared stumped with no consistent definition.

“Cloud Computing (is) Platform as a Service, foundation of Web 2.0”



-- Tim O'Reilly, Founder O'Reilly Media/Associates

II. What is Cloud Computing?

I don't care what's up there just so long as it works...so I've got a way to plug into this amazing set of connections and computing and other things...and if there are a zillion connections between me and somebody else on the other end, I'm still happy cause I don't have to mess with this stuff in the middle.



-- Jay Cross, Champion of Informal Learning, Web 2.0

II. What is Cloud Computing?

“Today you could say we have a form of cloud computing...we've hosted servers now for a number of years. Why haven't hosted servers historically been called Cloud Computing?”

*Because nobody went back and **re-architected** the underlying Server Software **designed specifically** for the kind of **scaling, fault tolerance, geo-replication, security**, that you would want in an environment that is **multi-tenant and shared**.*

*When people talk about Cloud Computing they're really talking about **outside the firewall** and software that's been **specifically architected** to be **managed and propagated** in a certain fashion.*

*People **don't want to re-write the applications** depending on where they want to instance the software.”*

-- Steve Ballmer, CEO Microsoft on Cloud computing
September 25, 2008 at the Churchill Club (Silicon Valley)



III. What Isn't Cloud Computing?

- A. “A panacea to all IT and Business problems...”
- B. “ I'm gonna access data on a server on the internet, that's the Cloud.”
- C. “Using any computer that's out there...that's the Cloud.”

Market Response To Cloud Computing: Jump On The Bandwagon:

- A. Cloud Envy
- B. Cloud Washing / Cloud Spray



IV. Characteristics and Comparisons:

A. Cloud Computing:

Primarily On-Demand computing that is (often) Outside the Firewall:

- Dynamically Scalable / Highly Available / Fault Tolerant
- Delivered as a Service
- Multi-tenant / Shared
- Often utilizes virtualized resources (e.g., computation, storage)
- Supports Geo-replication (ideally)
- Users do not need to understand or have experience in managing or setting up the tech infrastructure the Cloud is built upon.

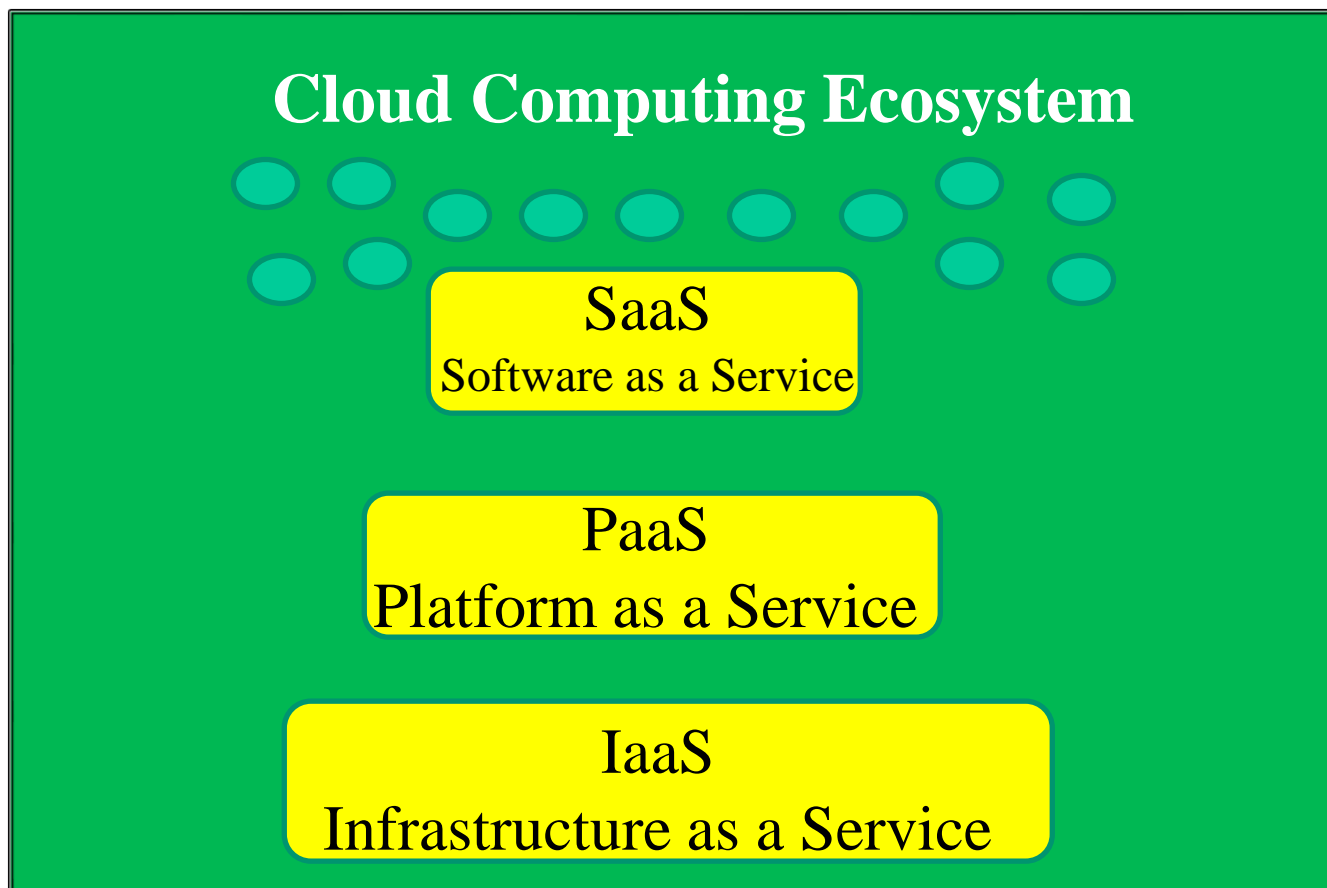
B. Utility Computing: A system whereby computer resources are packaged and sold as metered service, similar to water, gas, electricity.

C: Grid Computing: A system of distributed computing whereby various networks and clusters of computers act together to perform very large tasks.

V. Layers of Cloud Computing:

(Analogous to OSI Reference Model Layer 1 ~7)

- A. Applications (SaaS)
- B. Platform (PaaS)
- C. Infrastructure (IaaS / HaaS / STaaS)



V. Cloud Computing Layers:

SaaS

Salesforce.com
 Google Apps
 NetSuite
 Microsoft Office Live

PaaS

Force.com
 (Salesforce.com)
 Azure (Microsoft)
 Google App Engine
 Mosso
 (Rackspace)
 Google Apps
 NetSuite

IaaS

EC2 / S3
 (Amazon.com)
 Rackspace Cloud
 Microsoft
 VMware vCloud

Notes:

1. Virtualization plays large part in Cloud Computing at IaaS-level (e.g., VMware, Citrix/Xen, etc.)
2. Expect IaaS providers to move upstream to PaaS and later SaaS plays as IaaS and then PaaS layers becomes commoditized

A. Public Cloud-1

**B. Private Cloud-2 (On-premise /
Off-premise)**

C. Hybrid-1 (Public + Private)

**D. Hybrid-2 (Public + Private On-premise
+ Private Off-premise)**

VII. Obstacles & Opportunities / Principle Threats & Risks:

“The Future Is Already Here, It Is Just Unevenly Distributed...”

-- William Gibson



“The impact (of Cloud Computing) is revolutionary in the long run...but all this hype in the short run is overblown... We didn't push the mainframe into a corner in a couple years, that took over a decade and this will, too.”

-- Frank Gillett, Forrester VP and Principal Analyst



Results:

All of this causes pain...



And Pain always = Potential Profit ...

VII. Obstacles & Opportunities / Principle Threats & Risks:

- A. Vendor Lock-In / Data & Logic-Program Portability
- B. Security: Store it and they (thiefs) will come:
(*Data-at-rest, Data-in-flight*)
- C. Government Surveillance, Legal Compliance, Privacy in a Multi-tenant environment
- D. Performance Monitoring
- E. Tracking / Reporting / Analytics
- F. Design Patterns (Multi-tier/n-tier Architectures, etc.)
- G. Technology Stacks (LAMP, etc.)

VIII. Everything is New Again:

A. *New Deal* Versus *New Deck*



B. First Mover Advantages / First Mover Disadvantages (*Early Bird* versus *Second Mouse*)



C. Cannibalism / Graceful Implosions / Re-inventions

D. Fiefdoms / Office Politics

Thanks for your Time!



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