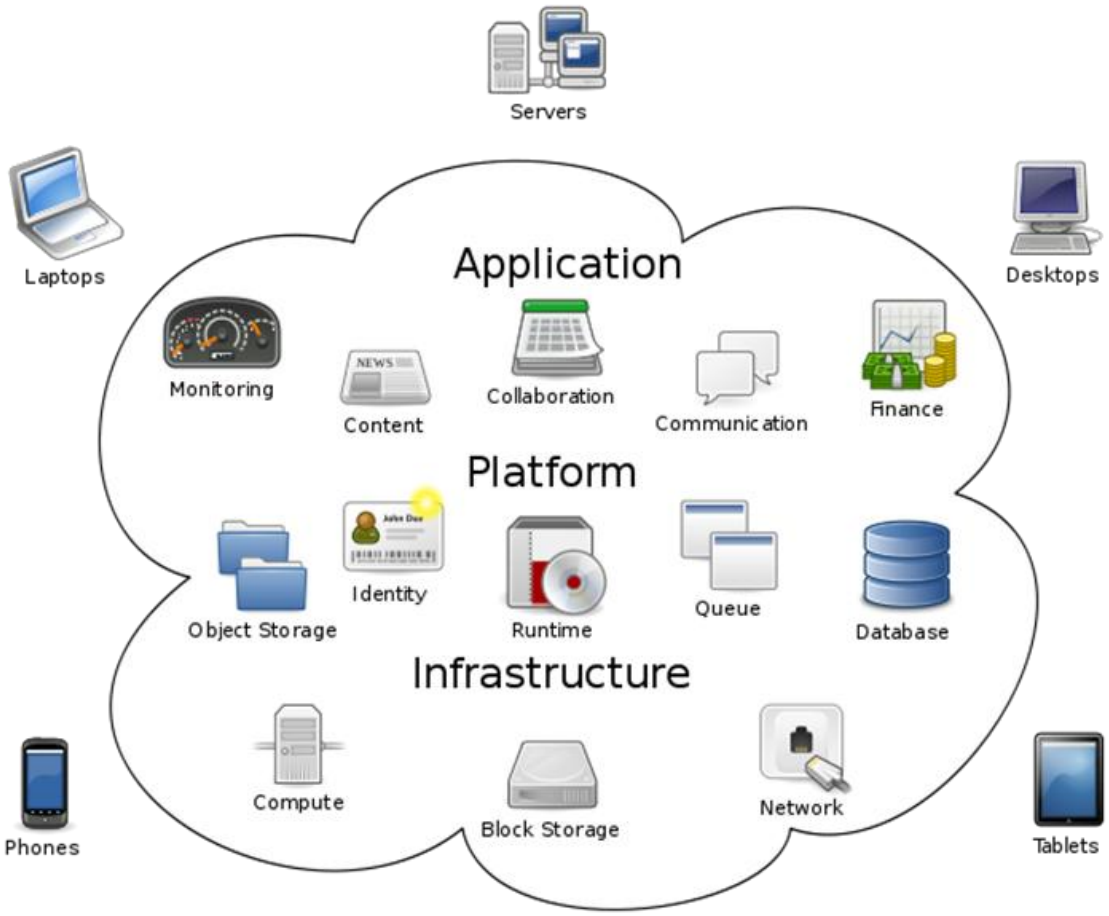
Cloud Computing

With the acquisition of SuccessFactors (SDN) it's time to have a look at some of the basic 'Cloud' theory and terminology.

System Landscape of the Cloud



Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a utility (like the electricity grid) over a network (typically the Internet).

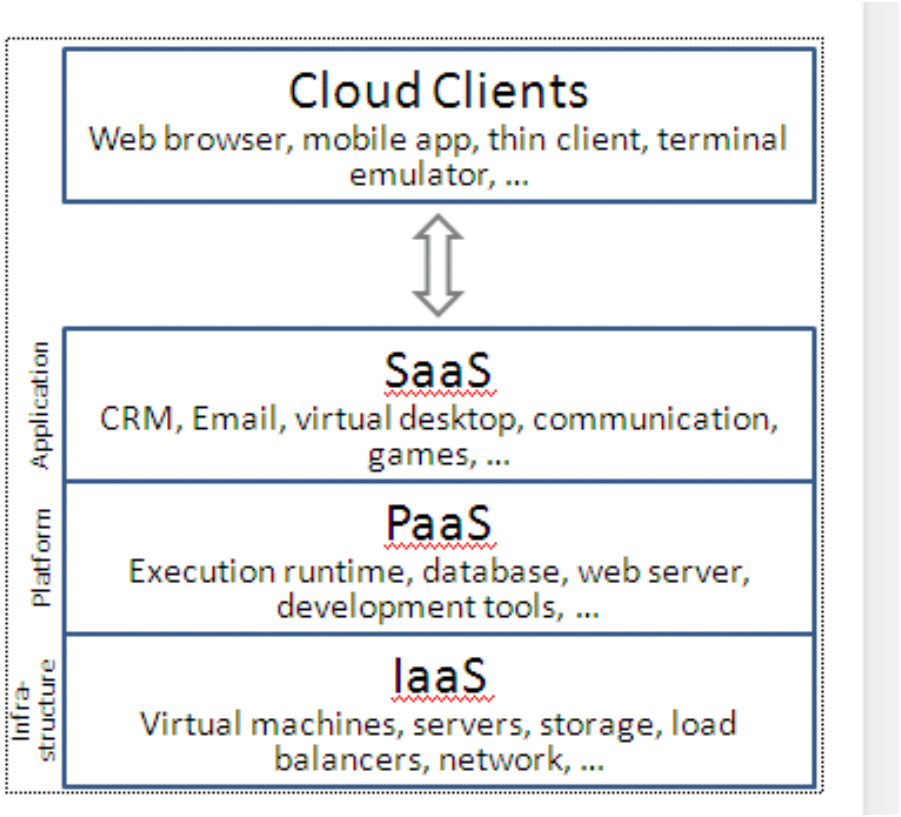
I actually prefer to think of it more like watching television. All you need is a television set (client) and you can choose what channel to watch (service). Some channels are free, some you have to pay for e.g. per month, per movie, per channel, etc. i.e. You do not need your own television centre, cable/satellite, camera men, actors, etc (IT Department, Servers, Network, IT staff, etc).

The Three Main Cloud Services

To make it simple, think of a basic SAP system:

- **Hardware & Network:** A server with storage. A network to connect user PC's with the hardware
- **Database & Operating System**: To store applications, documents and data. An operating system to run applications using the hardware.
- **Applications:** FI/CO, HR, CRM, etc.

Each one of these services can be outsourced, or , as people say, put into the 'Cloud'.



Infrastructure as a Service (IaaS)

In this most basic cloud service model, cloud providers offer computers , storage and networks.

Platform as a Service (PaaS)

In the PaaS model, cloud providers deliver a computing platform and/or solution stack typically including operating system, programming language execution environment, database, and web server..

Software as a Service (SaaS)

In this model, cloud providers install and operate application software in the cloud and cloud users access the software from cloud clients. The cloud users do not manage the cloud infrastructure and platform on which the application is running. This eliminates the need to install and run the application on the cloud user's own computers simplifying maintenance and support. What makes a cloud application different from other applications is its elasticity. This can be achieved by cloning tasks onto multiple virtual machines at run-time to meet the changing work demand. Load balancers distribute the work over the set of virtual machines. This process is transparent to the cloud user who sees only a single access point.

The pricing model for SaaS applications is typically a monthly or yearly flat fee per user.

Cloud versus Outsourcing

I do not agree with some of the grades and comments but it serves as a decent overview. I imagine organisations such as ADP would have a different view on this.

Category	Second Generation Out Sourcing	Cloud Sourcing	Comments
Upgrades , Patches and maintenance of existing software stack	**POOR**	**GOOD**	In traditional out sourcing, data centres exist inside premise and take significant time in upgrading larger work like database upgrades or operating system upgrades. These even disrupt the business capability needs
Quick Procurement of Services	**FAIR**	**GOOD**	The multi vendor model of the second generation out sourcing also brought in challenges for consistent discovery, request and provisioning of services, however the basic Cloud tenant enables a catalogue of services.
Retention of Key Subject Matter Expertise	**FAIR**	**GOOD**	Most out sourcing models retain the key IT staff with the Subject Matter expertise, however as the work is shifted to the vendor data centres this retention of key employees has been affected, Cloud sourcing ensures that the key staff is available for the interface with cloud provider.
Vendor Lock In Avoidance	**FAIR**	**GOOD**	Most of the projects are built using the Vendor proprietary features and hence the out sourcing model had to continue with vendor lock in, SaaS cloud sourcing makes the vendor product mapping irrelevant and gives flexibility to the enterprise
Legal and Data Proximity Compliance	**GOOD**	**POOR**	In out sourcing model the organization has complete control of data and cloud sourcing at this time is dependent on cloud provider's data centres.
Legacy Modernization, Consolidation of Redundant applications	**POOR**	**FAIR**	In the out sourcing model, merging existing systems or de-commission redundant systems is possible but it is mostly a manual and time consuming process, resulting in them getting postponed many a times. However Cloud Sourcing makes the physical blue print of the application transparent and hence redundant applications automatically cost less to the organization as their usage is likely to be less

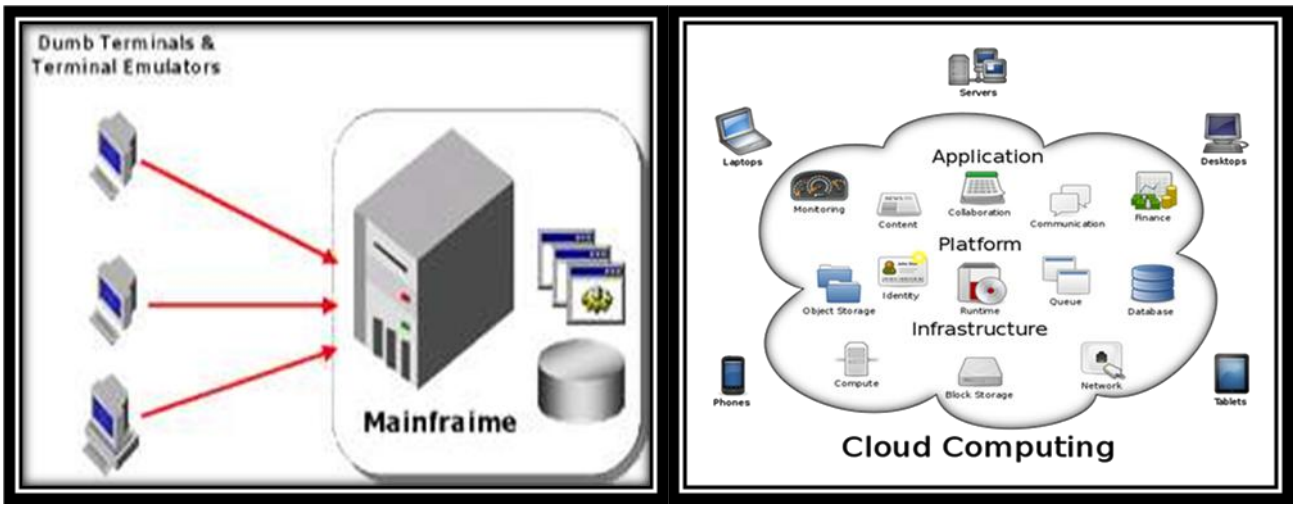
Category	Second Generation Out Sourcing	Cloud Sourcing	Comments
Federal, state and international legal compliance	**FAIR**	**GOOD**	In the out sourcing model, compliance projects are generally a urgent patch work to get it done before the dead line expires, In the SaaS model the product Vendors ensures compliance.
Thought Leadership in the Domain	**FAIR**	**GOOD**	Out sourcing model while supports the thought leadership from the Supplier, but it is limited to current business process flow of the out sourcing enterprise. However in Cloud Sourcing the multi tenant design ensures that best of thought leadership from various players in the particular domain is provided through a SaaS platform.
Minor Enhancements, ability to do quick fixes of the applications	**GOOD**	**POOR**	In the out sourcing model the contracts can be done in such a way to do a fixed capacity of work for minor enhancements, SaaS software is generally static over a period of time and depends on upgrades from the cloud provider

Evolution or Revolution

The Cloud - Similarities with Mainframe Computing & Timeshare?

In my opinion there are many similarities with the original concept of mainframe/timeshare computing from the 1960's and 1970's:

- Central pieces of hardware (mainframes) -> this is now IaaS + PaaS + SaaS = the Cloud
- A host of 'dumb' terminals' -> these are now laptops, PC's, Ipads, etc
- Connected to the mainframe via a network -> this is the internet
- Timeshare -> this Software, Platform, Infrastructure as a service.



The cloud appears to be the logical conclusion of IT outsourcing. We have gone from having IT Departments, Hardware and Applications located on-site to potentially outsourcing the lot. Effectively, the traditional IT Department is now working for a number of other organisations but doing the same stuff (but hopefully cheaper). Furthermore, there is a separate IT Department for each Cloud service provider e.g. Workday + SuccessFactors + SalesForce.com = 3 Cloud Organisations = 3 different contacts = little software integration. I assume SAP would like to become the one stop shop in the cloud as it has become on-site.....?

The End User Access to SAP

The end user does not really mind how applications and data are delivered but more about ease of access, user-friendliness and accurate data (provided at a reasonable cost) . So, whether it is the SaaS, outsourced or on-site...they will not care as long as it meets their requirements and is easy to use.

Choice of User Hardware

Smartphone or Tablet or Laptop or Desktop?

Will the future purely be about Mobile devices, apps and touch screens? Even Microsoft seem to be think so...Windows 8

Choice of User Interface to SAP

Obviously, this will depends on the device being used.....

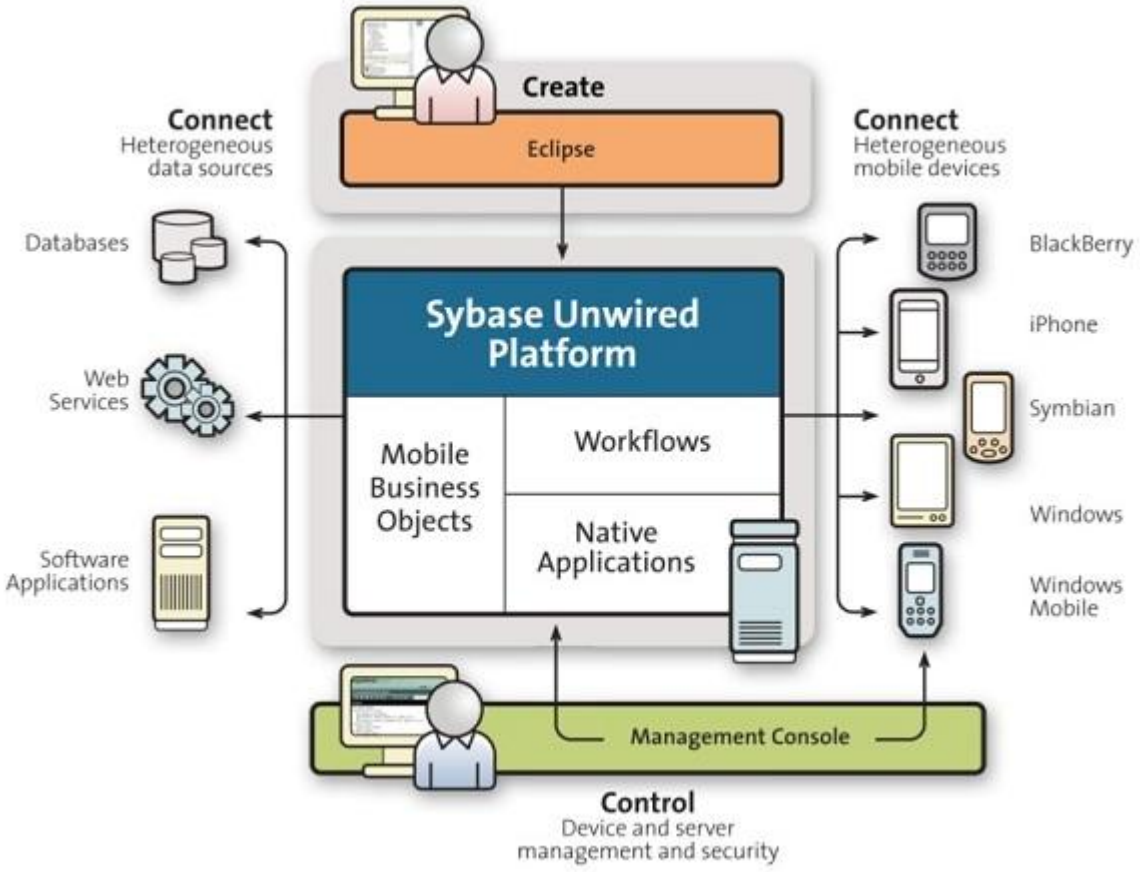
- **Smartphone**: Good at small, simple tasks provided by apps from an App Store
- **Tablet:** Same as the phone but more detailed reporting and apps
- **Laptop:** NWBC or access via a SAP Portal / MS SharePoint

My view is that the mobile device is the 'portal' of the future. The hardware (phone/tablet) will become the portal by providing collections of apps. The traditional 'portal', (SAP Portals, SharePoint) containing groups of links will become less popular.

In Summary: What will the future look like?

The million dollar question. I imagine the answer will be a bit of everything.

- Will mobile devices replace PC's?
- Will mobile devices replace Portals?
- Are we heading to a 'purist' view of package software (one size fits all) with minimal configuration? Apps and SaaS appear to have little scope for customisation...
- Is integration less important than best of breed? I have not yet seen an App or SaaS that uses intricate integration with other HR or non-HR modules/applications.
- What is the role of SaaS, Sybase & HANA? What is the future of SAP ERP?



- Data security / service disruption - will the Cloud be the target of cyber/terrorist attacks? e.g. Sony
- Etc....

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