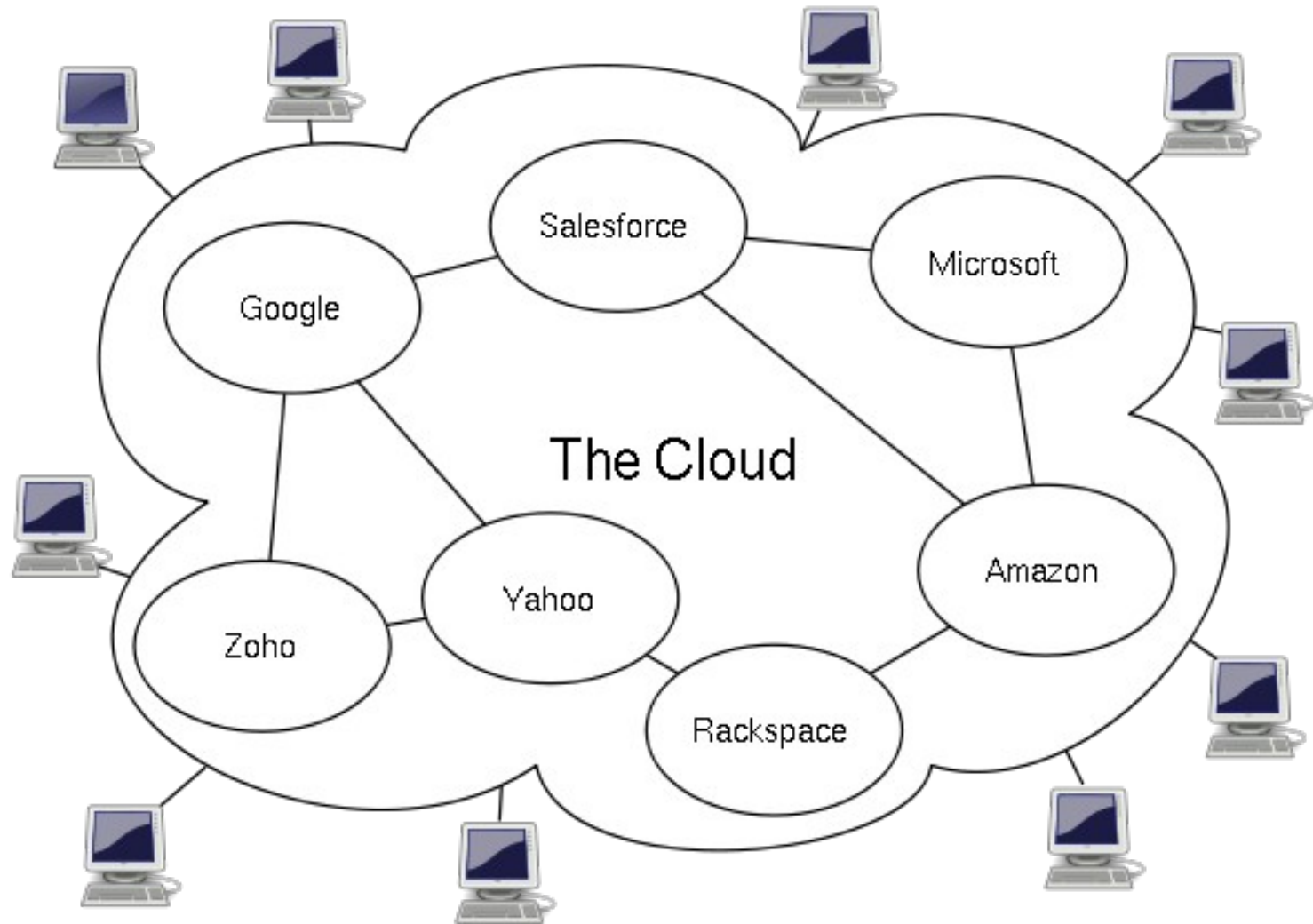


Cloud Symposium
Rotterdam 2009-10-22 - 23

Stratus, Cumulus or Nimbus: What Type of Cloud are You Building?

Sven-Håkan Olsson



Not all Clouds are equal... get the right type!

- Stratus Cloud:
 - Fog 😞
- Nimbus Cloud:
 - Bad weather 😞
- Cumulus Cloud:
 - Good weather 😊

From service bureau to the Cloud...

- 50-60:s
 - The few existing calculation computers that existed were shared between researchers, the military, weather forecasters. Splitting costs (or external financing)
- 70:s
 - Service bureaus became popular. Main frames with a very good ability to separate different customers in the same machine. Cost per CPU-second, memory, storage.
- 80:s, beginning
 - Pendulum swings back partly, the mini computer can easily be installed at the customer site with increased flexibility as a result.
- 80:s, end
 - Pendulum swings back more. Capacity on your desktop through the PC. At first stand-alone, later LAN-connected.
- 90:s, mid
 - Multi-tier client/server allows that WAN:s can be used to reach central servers – easier to outsource!
- 90:s, end
 - The web is the new hype. Web browsers can definitely reach servers via a huge network – even easier to outsource. ASP begins to get mentioned.
- 2000:s, mid
 - SOA gets known, helps us divide applications into natural domains and use services as "lego"
 - We start to understand usable business models for the Internet
- 2000:s, end
 - All the above experiences are put together into Cloud Computing!
(Well, some of the good things from earlier times were forgotten...)

New?

- The Cloud is thus not a major new BIG PRINCIPLE, it is still outsourcing. However, there are some details that differ from before, and these details get a BIG IMPACT:
 - Computer capacity access is dramatically more flexible now
 - Much more flexible pricing models (and lower price threshold, sometimes zero)
 - A trust that the Internet is ok for the communication between customer and outsourcing company. And that the Internet access is cheap!

Partial outsourcing (Cloud etc)

- Partial outsourcing (or multisourcing), like:
 - Cloud Computing, SaaS (Software as a Service), ASP (Applications Service Provider)
 - And different types of “older” outsourcing
- ...almost always requires integration with
 - Internal apps and databases
 - Other outsourced apps and databases
- So, it becomes necessary to understand what it is that you really put into the Cloud – quite difficult to grasp when reading web pages of the important service companies today

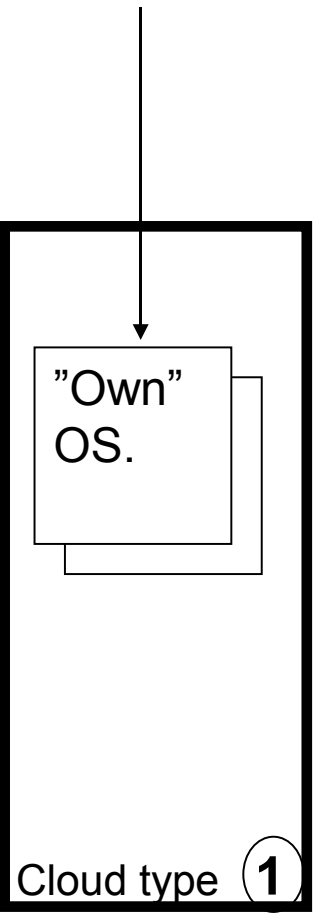
Different Cloud categories

- The "Cloud Confusion" in the IT magazines and on the Net is huge now
- Some categorizations have already been published. I suggest a slightly different one, based mainly on the customer's view:

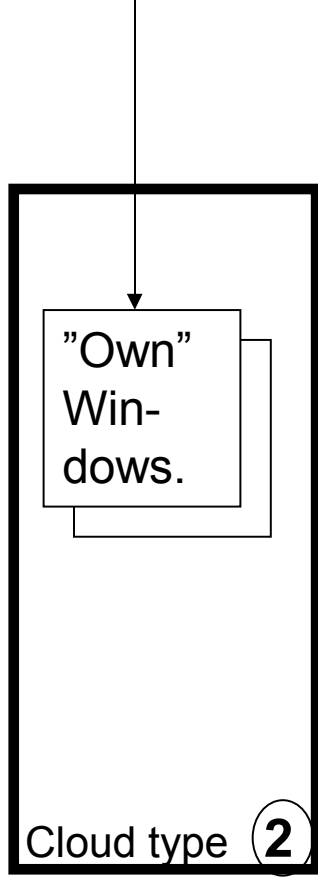
*What kind of **IT resource** or unit is it that you as a customer put into the Cloud?*

Thin GUI client

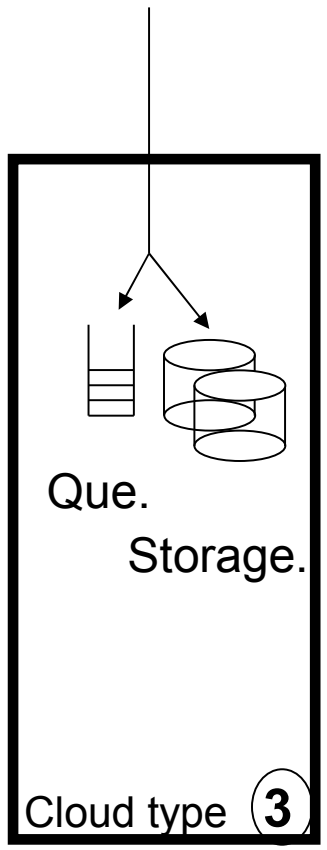
--- Internet ---



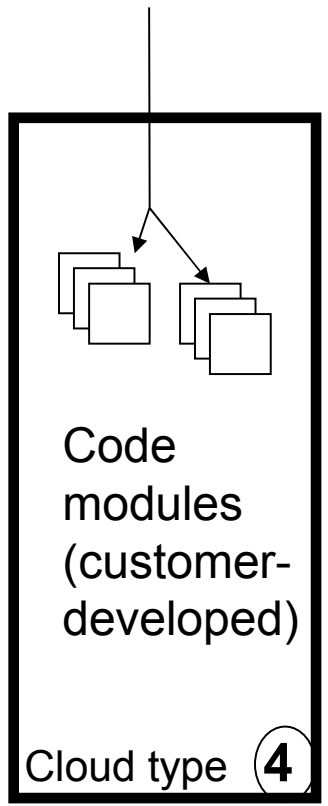
examples:
 Amazon EC2
 Xen
 VMware



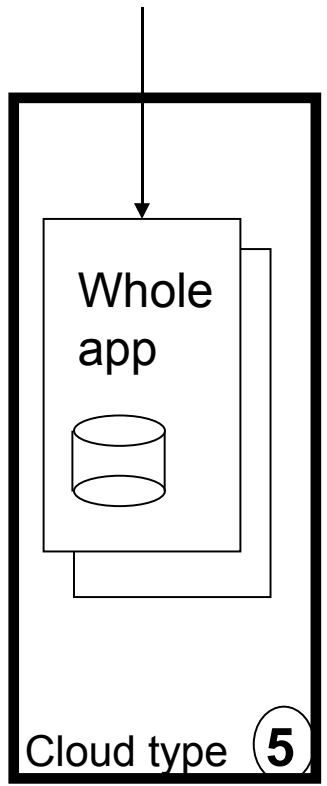
examples:
 Citrix
 VMware



examples:
 Amazon AWS
 (and partly from
 type 4)



examples:
 Google GAE
 MS Azure



examples:
 Salesforce
 Google Apps
 Exchange
 Sharepoint
 Office Live

examples:
Amazon EC2
Xen
VMware

What the customer puts into the Cloud? Type①

- A complete operating system (typically Linux)
- On that OS, the customer himself installs whatever he wants, for example his own app servers, database servers, ESB:s, application code etc
- Lock-in: Small problem.
- Sometimes called Infrastructure as a Service (IaaS)

- *My own example:* In a project our demo server is installed in the Cloud. Convenient and cheap, easy to reach. (On the other hand, the production server is installed at the customer's own site.)

examples:
Citrix
VMware

What the customer puts into the Cloud? Type②

- A whole windows app is placed in the Cloud servers
- This includes fat clients that also executes inside the Cloud
- Only the GUI data is sent over the Internet to a local PC or thin client.
- Other OS:s than Windows are of course possible, but so far Windows is predominant.
- Lock-in: Small problem (if you have already chosen Win...).
- *My own example:* Have just finished an outsourcing-deal for an insurance company where one of the bidders was 100% based upon this principle.

examples:
Amazon AWS
(and partly
from type 4)

What the customer puts into the Cloud? Type③

- Being able to store data in the Cloud. The provider guarantees backup, uptime etc. Also data-in-passing, from/to a Cloud.
- App code that is run somewhere, remotely writes/updates to the storage.
- Since “hard coupling” is not good for remote-SOA (also refer to my session at 15:30 this afternoon about latency), asynchronous comm is often needed. This usually requires a queue solution that is included in many Clouds.
- Lock-in: Relatively problematic
- Sometimes called (to a part) Platform as a service (PaaS)

- *My own example* : Working with sourcing of an HRM solution, where output to data warehouse goes via que.

examples:
Google GAE
MS Azure

What the customer puts into the Cloud? Type④

- The customer's homemade app code is deployed in an app server included in the Cloud offer
- In theory, everything from a single class to a complete app can be deployed in the Cloud
- Lock-in: Often problematic
- Sometimes called (to a part) Platform as a service (PaaS)
- *Example* : Almost every Azure demo you see shows this and Google (GAE) has been running this type of Cloud for a long time.

examples:

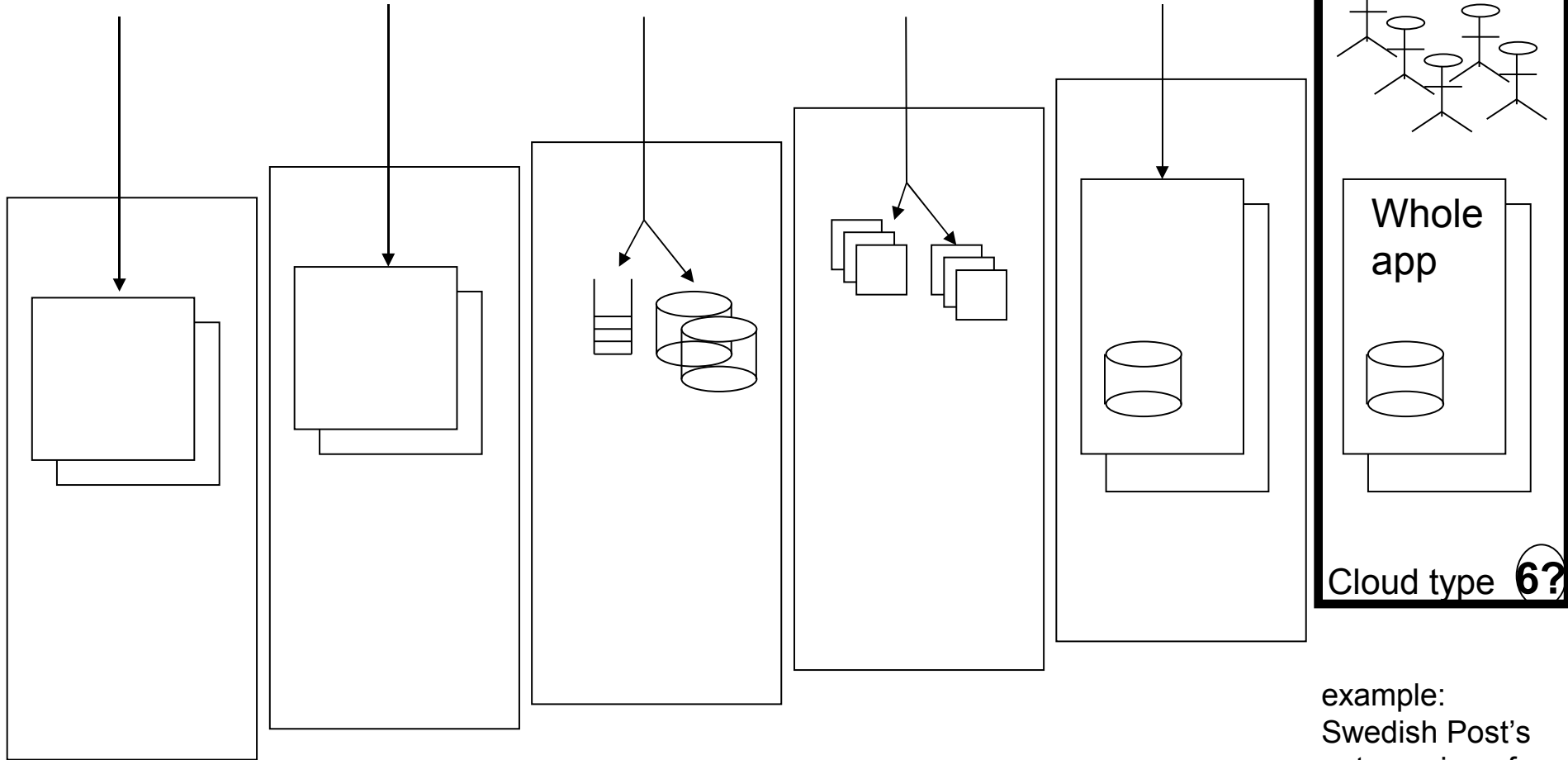
Salesforce
Google Apps
Exchange
Sharepoint
Office Live

What the customer puts into the Cloud? Type⑤

- A complete application is offered by the Cloud service, used by many customers in parallel
- Nothing regarding core functionality should have to be deployed by the customer into the Cloud (but configuration parameters, integration code, customization code, macros etc must often be supplied by the customer).
- Lock-in: Often problematic
- Sometimes called Software as a Service (SaaS) or Application Server Provider (ASP)
- *My own example* : HRM solution being sourced. Employee recruiting via the web. To apply to schools in several municipalities in Sweden (run at a service provider in Norway).

Compare w BPO – Business Process Outsourcing

Even more complete, includes personnel etc



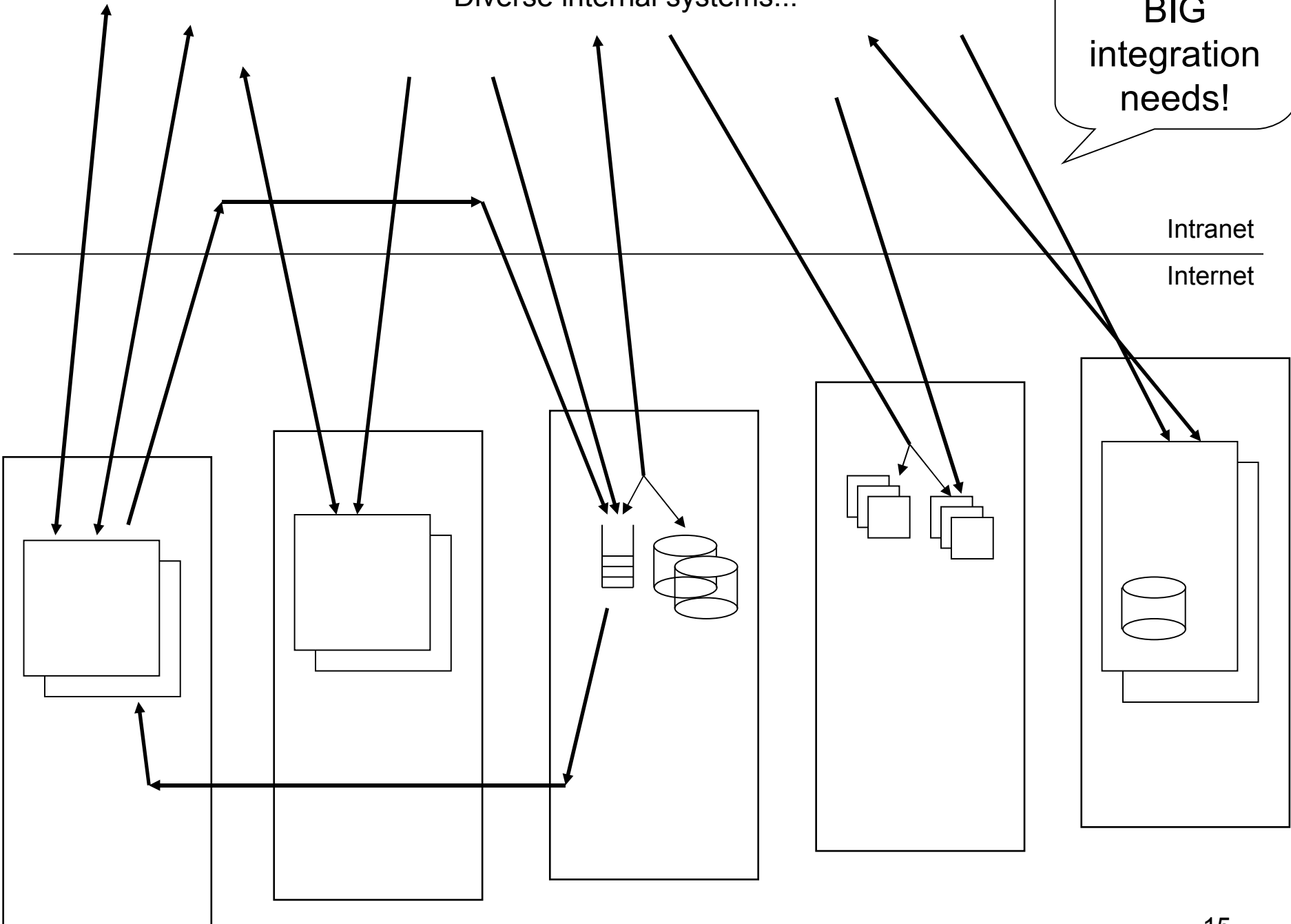
example:
Swedish Post's
outsourcing of
HRM, including
personnel etc

Diverse internal systems...

BIG
integration
needs!

Intranet

Internet



A couple of things to consider

- Many Cloud offerings of type 5, "whole app", has got its own customer database. You probably already have several yourself. Is this manageable? Can you integrate? Use a Master Data Management scheme? Compatible field semantics (customer=customer?)?
- Almost all Cloud offerings has got its own user database. Is that ok? Are you using a meta catalog scheme? Need single signon (SSO)? Integration via SAML2, Radius, logon-products...?

Conclusion

- The Cloud is a fantastic opportunity
- However, some drawbacks to consider, for example:
 - Difficult to understand the very different types of Cloud so that you can choose the right one
 - Integration cost and complexity
 - Lock-in
 - Plus things outside of this session's scope (trust, legal matters, disaster planning, requirement for server to be in a specific country, EU, USA, etc)
- Choose the type of solution that gives good-weather cumulus clouds for you!

Sven-Håkan Olsson is an independent consultant, course leader and speaker who focuses on application architecture and SOA. Since 1977 he has worked in a large number of IT development projects, ranging from embedded microcontrollers to main-frames. He has carried out modeling, architecture design and programming in diverse business areas. He has also specialized in reviews of problem projects.

Sven-Håkan Olsson holds an MScEE from the Royal Institute of Technology in Stockholm. In May 2008, he was appointed one of the 'top developers in Sweden' by the magazine IDG Computer Sweden. He is also a co-founder of the consultancy company Know IT.

Please feel free to contact
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or suggestions!

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