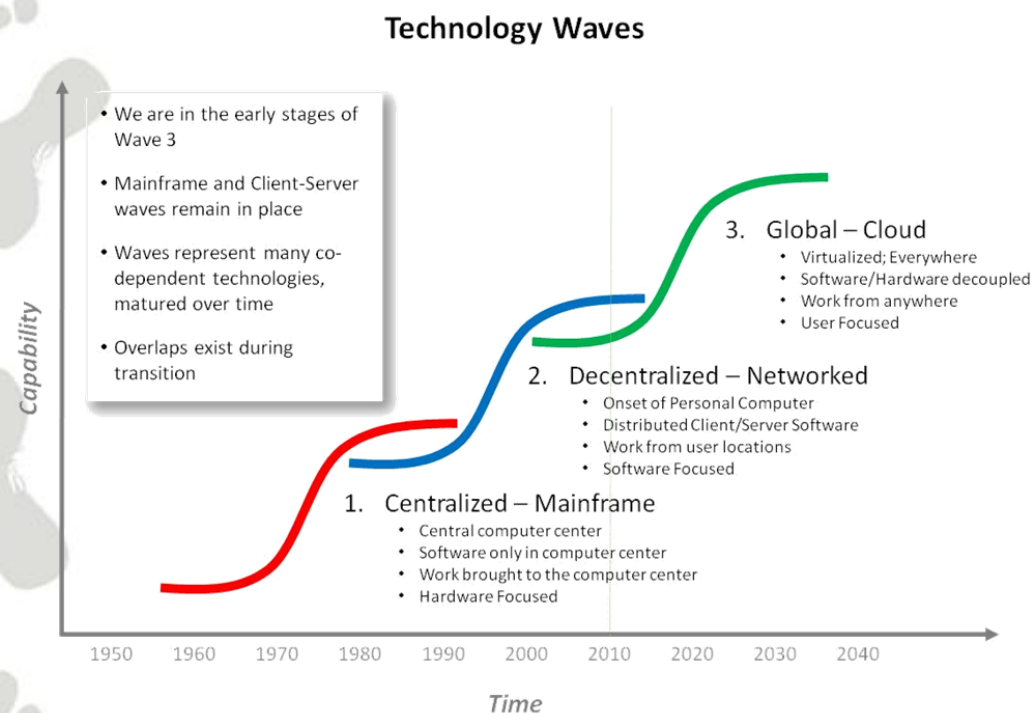


## Cloud Computing for Beginners (Part 2)

### – Waves to the Cloud –

### From Mainframe to Cloud a 30+ Year Journey

So where did the cloud come from? For some it just appeared like real clouds that often simply materialize on the horizon. However, for those who are part of, or familiar with, the software/technology industry, they often view cloud as the pendulum swinging back to a previous era, an era where all computing power was centralized. No, cloud is not a regression in technology, but it does have some striking similarities conceptually to mainframe computing and what is often referred to as the Centralized Era.



In order to better understand cloud and where cloud computing is likely to take us, let's spend a few minutes reviewing the major technology waves that have brought us to where we are today.

## The Centralized Era

### Mainframes

Computing got its start with the first commercial computers being very large (think city block) centralized host machines with green/black dumb terminals connected via special cables. All the computing power was centralized within these large host machines, which were known as 'mainframes'. As you can imagine, machines this size had some very special needs. They needed special power connections, special air conditioning/cooling, special people and special double layered floors in order for workers to maintain these massive machines. In this era, all software was in the computer center, work was brought to the computer center, and the focus was completely on the hardware.

This is in contrast to the batch processing or time-sharing models which allowed large expensive mainframe systems to be used by many people, usually at the same time, or large data processing systems which required a full-time staff to operate efficiently.

## The Decentralized Era

### Personal Computers

It did not take long for people to tire of having to bring all their work to the computer center. They wanted to be able to work from their desks! As such, the personal computer was born. A personal computer (PC) is any general-purpose computer whose size, capabilities, and original sales price make it useful for individuals, and which is intended to be operated directly by an end user, with no intervening computer operator.

There was a down side to the PC. Most PCs had more computing power than the end user could take advantage of or another way to say is that most PCs were significantly underutilized! However, it did not take clever software providers long to realize the potential of this “unused” power at the user’s desk nor did it take them long to realize that the PC provided a rich platform for creating applications in colors other than green! So they split the computing power between the central computers and the PC and the Client/Server was born. Client/Server begins the Decentralized Era where PCs perform some of the work that the mainframes did previously and also help to make the programs more comfortable and easy to use by the users.

### Internet

Overlapping the birth of the Client/Server was a project that the US Department of Defense started all the way back in the late 1950s. Back then the project was known as ARPANET, a computer network being created by the Advanced Research Projects Agency. By the time this project became commercialized in the mid 1990s, it had become known as the Internet (that’s right, the same Internet created by Al Gore) and helped expand the notion of distributed computing embodied in Client/Server to new heights. The focus had shifted from the computer center and hardware to the user and software.

Between 2000 and 2004 the Internet not only got easier to access, it got a whole lot faster! People often refer to this expansion of the Internet as Broadband.

### Service Models

With the rise of Broadband, two important changes happened to Client/Server. First, the client and server no longer had to reside in the same building, or at least in close proximity to one and another. Second, it became possible for ownership of the client and server to be by two different organizations. This latter change resulted in a number of new service models where software providers centralized the server function and sold access to the server via remote clients owned by one or more organizations.

## The Global Era

### Virtualization

Although the service models quickly gained traction, they have only seen varying degrees of success. This is believed to be due in large part to the fact that the service models focus on

the software, and the administration of the software, rather than focusing on the requirements of the organization and the needs of the user.

However, with advent of virtualization, and virtualization technologies, this is changing. With virtualization, applications and used infrastructure are independent allowing servers to be easily shared by many applications and applications to run virtual anywhere. Virtualization allows the software to once again be focused on requirements of the organization and needs of the user.

## Cloud

With virtualization it is now possible to package the application with everything it needs to run, including databases, middleware and operating system into what is known as a virtual appliance. This self-contained unit can pretty much run anywhere. If the virtual appliance can run anywhere that means it is now possible to combine the powerful computing infrastructure of the Centralized Era with the richness of the Decentralized Era! The new era is the Global Era and where the virtual appliance runs is the cloud.

## Choice

The Global Era is characterized by virtualization and the cloud. It is about the decoupling of hardware and software and ubiquitous access. Where you are matters not, but what you need is the only thing that matters. The Global Era is user focused and it is all about choice!

## Summary

So by now you see that the cloud did not just appear and this is certainly much more than just a passing fad. It is at present the cumulative result of all our past computing experience and very likely to evolve and mature in the future.

Watch out for part 3 of “Cloud Computing for Beginners” to learn who Cloud and it's evolution helped Lawson to build and offer Lawson Cloud Services.