Hybrid-cloud technology in Feed formulation software systems

Feed formulas management and optimization is a challenge facing many feed production companies as customer number and requirements increase, as variability and availability of ingredients reaches highest level and as competitive market pushes profit driven operations to the pedestal. Details in the formula, number of formulas, number of ingredients, variable ingredient prices, variability and availability of ingredients, complex constraints, decision making buy/not buy, production plans etc. all of those are services which must be provided by modern Feed formulation system.

Cloud computing comes into focus in recent years as it brings a new way of software systems organization, deployment and support. Basically, cloud based software gives the opportunity for the company to outsource software and hardware that will allow maintenance efforts to decrease and focus on core production. No software, no hardware – no worries, is the motto of new age cloud based software. This is why it is usually provided as software-as-a-service, with monthly or yearly support. In the nutshell, the software provider is responsible for hardware and software maintenance because the software is actually run and the data is actually stored in the software provider's datacenter. User only has client software (thin client or shell client), which is installed to access data and run calculations. Main benefits of cloud computing are:

- Increase volume output or productivity with fewer people – there is no maintenance of software or hardware
- Reduce spending on technology infrastructure – it is a responsibility of software provider
- Globalization – data can be access from anywhere with Internet access
- Speed up business – there is no need for manual data sharing or slow communication – there is one datacenter which is used by all personnel
- Reduce capital cost – no need for expensive hardware or software licensing. Pay-as-you-go.
- Less training needed – train only for core software purpose
- Improve flexibility
- Improve fault tolerance – there is no possibility of hardware failure which can stop production
- Improve scalability – add more licenses or service as you go

There are some cases when traditional systems are better. Cloud based systems are dependent on Internet connection, so for rural areas and for areas with unreliable Internet connection traditional systems where software is installed on single computer (or computers) are more suitable.

Although cloud based systems are very safe and that any data sensitivity can be arranged with confidentiality agreement, there are companies that find their data extremely confidential or have own datacenters so they want to have whole system on their premise.

To create one solution to suit all needs and allow companies to experience systems which will best suit their business process AFOS has created hybrid-cloud technology for feed formulation software systems.

Hybrid – cloud technology

Hybrid-cloud technology is AFOS software implementation of traditional and cloud software architecture in one suite. This technology allows AFOS to be run in the cloud, in the company datacenter and on single workstation in the same time or completely separately. This technology covers three main scenarios of modern software usage:

1. Single, standalone software – both software and database are installed on single workstation. Software is not dependent on communication infrastructure and data is only stored in local...
database. Data can be exchanged with other users manually. Individuals and rural users mostly use this.

2. Cloud software – calculation service and database are installed on cloud infrastructure while thin client for accessing system is installed on client workstations. Software is dependent on an Internet communication infrastructure and data is stored in cloud database. This type of software is aimed for large and geographically diverse companies where multiple users are working on same database in the same time.

3. Private Datacenter software - calculation service and database are installed on company datacenter and client for accessing system is installed on all client workstations. Software is dependent on company communication infrastructure and data is stored in company datacenter database. This type of software is aimed for companies who have strong IT/OT infrastructure and department and want to take control of system hardware, software and maintenance.

Additionally, AFOS hybrid technology allows combination of proposed scenarios. For example, single user might be part of cloud software team but also, in the same time, can have local database. This is very suitable for traveling consultants who are part of bigger teams because they can work in the cloud, while connected to the Internet, and when Internet connection is not available, they can use local database that can be synchronized with cloud later.

Schematically, system architecture is showed on next figure.
CDAL can define comprehensive set of rules inside organization. Rules can be organized in geographical and/or technological sense and can be grouped in so called Areas of responsibility. For example rules can be “User A can use tablet in order to only see in read only mode poultry formulas in North America based plants” or “User B will use PC to manage ruminant formulas and ingredients in Europe based plants”.

Hybrid cloud is bringing scalability to the whole new level. Without any investment in hardware, any system downtime and without any data loss user can grow from single, standalone user to multinational user group disperse over the globe.

AFOS is next generation feed formulation system developed on new age cloud infrastructure using latest software technologies and database. This creates unique user-friendly environment, reliable and fast calculation engine and scalability that can be easily adapted to specific customer business process.

More information:
www.animalfeedsoftware.com or afos@animalfeedsoftware.com