

# Cloud database management system



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The company tries to turn round this bad trend and poses two solutions: one is to update the present DB'S including hardware, software and human resource; the other one is to make use of SQL Azure from Microsoft to set up cloud environment and transfer the DB'S there. After cost analysis, we find that to reach the same efficiency standard, the cost of first solution is 9 times of the second solution, and the second solution has merits such as capability, flexibility and elasticity. So we suggest implementing the second solution: Cloud DB'S, SQL Azure.

**Introduction and problems** We are an express company in North America. We transport the parcels for customers. We have good performance and with the booming online shopping, our business expands very fast. Recently, a large online retailer just outsourced its express service to us. Our daily express order increases by 2 times more than before. Our IT department, where there are three employees. They are in charge of maintaining the database management system (DB'S) and the website providing order receipt and parcel tracing service.

Because of the expansion of business and the outsourcing contract, the requests for placing orders and tracing parcels on the website soar 4 times than before. The present web server cannot support such and the business terribly. In front of these greatly increased clients, parcels and tracking information needs, our present database management system is not responsive and powerful enough to meet the searching, ordering, processing and indexing requirement. Now there are two solutions to these problems.

One solution is to buy software, update the hardware and recruit more employees to strengthen the present DB'S; however, this is another problem brought by this solution. The online shopping is seasonal fluctuating, which means that in official holidays, such as the national day, Thanksgiving day, Christmas day, New Year day and so on, the online shopping activities are much more intensive than usual. Correspondingly, the express orders and requests for parcel tracing also rise greatly. Here is the problem, how should we equip the present database management system, to meet the peak amount of requests or to meet the usual amount of requests.

If we choose to meet the peak amount of requests, the investment will surely be much bigger than that of meeting the normal amount of requests, and when the holiday passes, the capacity of system will be left unused, this is a waste of resources and investment; if we choose to meet the usual amount of requests, the limited capacity of system during the holidays will cause bad customer experience, which will bring the loss of orders and clients, moreover, the profit of the orders in holidays takes big proportion of the annual profit, and this makes the result worse.

The other solution is to make use of the cloud computing technology, which means to set up DB'S on the cloud computing platform, and move all the present data to cloud DB'S. The cloud DB'S service is scalable and flexible, it can adjust the ability according to our needs, and then we do not have to face the dilemma system configuration problems. After talking with the responsible of IT department, we make a consensus that the cloud DB'S is a better choice than the in-house DB'S.

Not only the cloud DB'S will give more powerful performance, it requires less labor support and it simplifies the future investment and improvement process for the DB'S. Then we will present the cloud DB'S technology and make a comparison between cloud DB'S and in-house DB'S. We will also show the advantage and disadvantage of cloud DB'S, the cost ND time to implement. An analysis of the cloud service market will report for the sake of choosing a proper cloud service supplier.

The challenges in the implementation will not be neglected. The existing technology DB'S A DB'S is the software that is installed on a physical server and stores and manages databases. It can run databases from multiple software. For example, it could manage the databases for the accounting system, the CRM and the ERP. Each system would then be on a separate database in the DB'S. The main objective of a DB'S is to provide error-free data and to keep a good level of performance.

Since databases need live information, the modern DB'S are very powerful in managing a lot of users Cloud DB'S Cloud database management system (SCADS) is a distributed database that provides computing as a service rather than a product. It is the distribution of resources, software, and information between multiple devices through a network which is commonly the internet. It is expected that this number will grow significantly in the future. 2 Benefits of cloud database over traditional database Lower upfront costs Cloud computing significantly reduces capital expenditure of a company to deploy

DB'S application. The part of the upfront costs reduced mainly includes expenses for hardware, user licenses, and implementation, excluding user training and customization. Lower operating costs Cloud-based DB'S reduces operating costs for energy, maintenance, configuring, upgrades, and other IT staff costs and efforts. This benefit is generally considered as a growing significance for Seems using traditional DB'S. Rapid implementation Rapid implementation is generally agreed to be among the best advantages of cloud- based DB'S.

It could also help to facilitate cloud services providers in reducing the time to deliver new products in certain types of businesses. Scalability Resource pooling and rapid resource elasticity of cloud-based DB'S make the infrastructure capacity highly elastic. That in turn enables faster time to market, high level of strategic flexibility and improved competitiveness. This feature is reported as a possible advantage that is particularly relevant for Seems in competing with large rivals.

Focus on core competencies DB'S cloud and other business applications allow focusing resources that would be used to maintain an IT department in other key areas of the business. Thus it reduces pressure of internal IT department which enables it to focus on servicing core competencies. Access to advanced technology Cloud-based applications often enable access to specialized technology and advanced computing resources that otherwise would not have been accessible to SEEMS.

Rapid updates & upgrades Cloud-based DB'S usually get faster updates and new functionality than traditional DB'S Improved accessibility,

mobility, and usability Unlike Traditional Database system, Cloud based database applications could be easily accessed through any internet connected device, therefore it is accessible Improved system availability and disaster recovery In many cases AAAS providers ensure measures such as backup routines, fallback and recovery procedures, conditioned power etc. F higher quality than most Seems do in-house. Disadvantages (shortcomings) of traditional database system High cost Installing new database system may require investment in hardware and software. The DB'S requires more main memory and disk storage. Moreover, DB'S is quite expensive. Therefore, a company needs to consider the overhead cost of implementing a new database system. Training new personnel

When an organization plans to adopt a database system, it may need to recruit or hire a specialized data administration group, which can coordinate with different user groups for designing views, establishing recovery procedures, fine tuning data structures to meet the organization requirements. Hiring such professionals is expensive. Explicit backup and recovery A shared corporate database must be accurate and available at all times. Therefore, a system using online updating requires explicit backup and recovery procedures.

System failure When a computer system containing the database fails, all users have to wait until he system is functional again. Moreover, if DB'S or application program fails a permanent damage may occur to the database. Cost, time, feasibility estimates and Justification of investment This part will present the cost, time and feasibility of in-house DB'S and cloud DB'S, and compare them to make the Justification of the final choice, cloud DB'S. In <https://assignbuster.com/cloud-database-management-system/>

order to decide the cost of strengthening the in-house database management system (in-house DB'S), there are several elements need to be concerned. 1. The infrastructure cost.

For the servers, we will choose 2 HP pronoun BLOCK Get-18 E-2640v2 2. GOGH 8-core UP BIBB- R Puppy/512 FCC servers to avoid system breaking down, each one cost 4314\$, so the total cost is 8628\$; For the hard drive, we choose Seagate expansion TPTB, 3 pieces, 1 54\$ for each, so the total cost is 462\$; For the new recruited 3 IT employees, we will prepare new 4 desk top computers for each one; We choose DELL Optimize 3020, each costs 519\$, the total cost is 1557\$. The infrastructure cost for DB'S is 10647\$. When we have these hardware, they will cost 20% of the initial price as the maintenance fee, which 2129. \$/year. 2. The cost of new database management system (DB'S). There are several mainstream DB'S on the market, Vim's DUB, Microsoft's SQL Server and Oracle's DB'S, because all these main engines have been around for many years and have undergone constant development. If any of these were truly incompetent in normal usage, it would long ago have been weeded out. That's another way of saying that all of these engines are highly competent; more than capable of running 90 to 95% of the database applications that we are likely to throw at them.

So, we will assume to choose Microsoft's SQL Server, because its relatively lower price and it's more compatible with our present operating system, Windows. We take SQL Server 2012 standard edition. There are two licensing models, per processor licensing and server/ CAL licensing. As our IT department is small and they are the only persons in the company who need <https://assignbuster.com/cloud-database-management-system/>

access to manipulate the DB'S, and including the new recruited 3 employees, there are 6 employees in IT department, so we choose server/CAL model.

What's more, each server running SQL Server requires a license, so 8 Licenses are needed, each license cost 898\$, the total cost is 7184\$. The license need to be renewed each year to get the new features, the renewal fee is 25% of the license price, so each year we have to pay 1796\$ to renew the license annually. 3. Human resource cost. As it is referred above, the present three employees are not capable of maintaining the DB'S, not even saying after the new equipment arrives.

More IT employees are needed to strengthen the efficiency of the department. Three more software development engineers are planned to be recruited; the national average salary of this post is 63000\$ per year, and we take this average figure, the human resource cost will be 189000\$ per year.

4. Time consumed of implementation and integration of new software, new hardware and new staff. The lead time of footwear and hardware can be 1 week, and to install, adjust and test them may take 3 weeks, the recruitment process can last for 1 month.

Time also needed for the new employees to get familiar with the whole information system of the company, it will take 3-4 weeks in an urgent situation. If we begin the preparation activities, such as ordering software, hardware and recruiting IT engineers, at the same time, the whole process will take 2 months. Here is a summary of in-house DB'S solution:

	Hardware	software	Human	Time	cost	resource	cost
In-house	10647\$	7184\$	189000\$	2 months	2129.	\$/year	1796\$/year
first buy,							
first time,							
after after							



For the cloud database management systems management (cloud DB'S), we will 1 .

Hardware cost. Because we choose cloud DB'S service, which means to choose a cloud service provider, we would occur a monthly payment; we would not need to purchase the hardware itself nor would we need to purchase the windows servers operating system. And we would also avoid the extra 20% maintenance fee of hardware and software discussed previously, because all the activities related to this item are performed by the cloud service provider.