White Paper

Why Choose a Cloud ERP and Financial Solution?

A Cost Effective Way to Improve Your Business using Cloud-based Accounting and Business Management Software

Updated: 9 February 2010

Contents

Executive Summary

The advent of cloud and web technology has provided the ability to develop highly interactive web based applications. Popular applications such as Twitter, Facebook, Wordpress, and Wikipedia have led the way to massive collaboration and sharing among consumers. By applying similar technology, businesses can improve organizational efficiency while keeping costs low. This technology can be used in any sized business across any industry.

Adapting web technology for business involves several things such as improving the security model, providing customizations to match business processes, and delivering the solution in an environment controlled by businesses. The cloud allows deployment of web applications in a cost effective and scalable manner.

This paper will use the example of Acumatica to show how web technology can be applied to create a cloud accounting, ERP, and CRM system which improves the productivity of your organization while providing lower costs than vendor-SaaS or client-server based applications.

Top ways a cloud-based application will improve your business:

- **Integrate applications, documents, and people**. Web technology allows you to improve collaboration among your team using applications and documents. A business class wiki can provide powerful document sharing (like Wikipedia). Security roles and permissions allow individuals or teams to view, edit, approve, or delete shared information (like Wordpress or Facebook). Most importantly, all information can be located in a single place, under the watchful eye of a system administrator who can maintain strict information policies. more…
- **Involve everybody**. Web-based systems require no client-software, so they can easily be installed across a large group of users. Cloud technology allows you to rapidly scale your web application both up and down. When applications are delivered as SaaS, there are user-based license fees, but web-based software that can be installed on premise may be priced by server so everybody can use it. Expense reports and timesheets provide examples of business processes that can best be automated by a web-based solution which is priced by server. more…
- **Individually managed, centrally controlled**. Advances in web-based technology provide users with a desktop-like experience while using a browser. Web-based applications in the cloud can have the power, usability, and speed of client-server applications by transmitting only requested data, remembering screen preferences, saving filters, and allowing user-based screen customization. Centralized auditing, workflow, and administration of access rights are easily done by non-technical individuals. more…
- **Works the way you work**. Web-based applications work with any popular browser, so you can use Windows, Apple, or Linux computers as well as handheld devices to access critical business information. Applications written in common programming languages allow rapid customization of features and creation of new applications by third party software developers. more…

Top reasons that web-based applications are cost effective:

- **You control the software**. You can deploy web-based applications in your own datacenter or on a standard service plan offered by hosting and cloud computing providers. You are not locked-in as you are with pure-SaaS applications – as your needs change or as less expensive operational technologies are developed, you can change your deployment option. more…
- **No client software**. Rapidly deploy new users, including remote workers and home workers. Eliminate costs associated with upgrading and maintaining client software. Keep all your application settings when upgrading your computer. more…
- **Consolidate operations.** Web-based technology allows you to deploy a single system for use by your entire organization. This eliminates the cost of maintaining systems in multiple locations. more…
- **Designed for the future**. Web-based systems can take advantage of industry standard platforms and development tools like Microsoft .NET, SQL Server, and Visual Studio. This allows you to find expertise to customize your applications and run your application on standard platforms. more…

Web-Based Technology – The Platform

Unlike traditional client-server platforms, a web-based platform is designed to operate without installing any files or components on the client computer. Advanced web platforms are built to manage complexities such as slow and unreliable Internet connections while allowing high levels of performance and multi-tenant architectures. Security concerns can be addressed by implementing strong user authentication, auditing, encryption, and server-based validation logic.

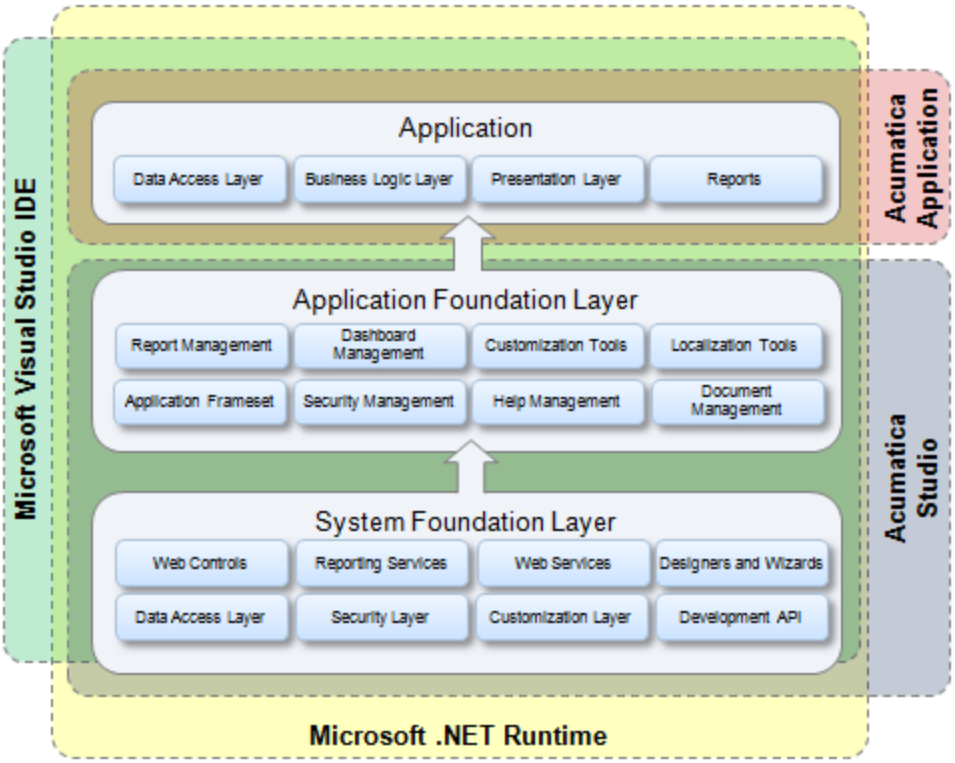


Figure 1 – Sample Web-Based Architecture

Figure 1 illustrates a web-based platform component structure. The System Foundation Layer isolates programmers from the complexities related to coding a web application. The Application Foundation Layer provides ready-to-use components that allow programmers to focus on business logic. The Application Layer separates data access, business logic, and presentation logic. Access to the business logic can be managed via the presentation logic or web services.

Web-Based Platform Benefits

Rapid customization. Web-based applications have an advantage over provider-based SaaS applications because they can be customized to any level. Some SaaS providers have developed proprietary technologies, however these technologies are limited by the number of available developers and they

are tied to a single, specific operating environment shared by many customers. Web-based applications have an advantage over client-server systems because all customizations can be made on the server.

Acumatica includes built in customization tools which allow you to change the appearance of screens, the business logic, and the database fields. Customizations are stored separately from the core application code so they can be easily exported. In addition, updates and upgrades to the core application should not impact any existing customizations.

Rapid development. Web-based applications can take advantage of standard development technologies to simplify development and reduce developer training costs. Many SaaS systems rely on proprietary technology which reduces the list of potential development firms and drives up the cost of custom development.

Acumatica provides a platform for developing web-based applications so you can create new modules without worrying about HTML, CSS, HTTP, and JavaScript. The core features that developers used to create the initial applications are available to value added resellers and ISVs so applications can be customized and improved as your needs change.

Integration with external systems. Web-based applications can be easier to integrate than client-server because all functionality is centralized. Integration is easier than systems run with SaaS models because the application can be customized and controlled in a unique operating environment.

All application logic available through Acumatica screens can also be accessed using a generic Web Services API (Application Programming Interface) based on SOAP and WSDL. The API invokes the same security mechanisms and access rights to allow data migration, extraction of information for reporting, and integration with external systems.

Security

Web applications require extensive security controls when deployed in a business environment. Access to information must be controlled both internally and externally.

Key security requirements and benefits for a web-based system:

Security Issue	Web Based Security	Benefits and Applications
Server Storage and Processing	Web-based applications and data can be hosted on-premise or at a secure datacenter depending upon requirements.	Pure-SaaS applications lock customers into a single datacenter and cannot be deployed on an intranet.
Server Processing	Web-based applications must perform all business logic processing on the server and validate all data received from browsers.	Client-server applications may distribute processing to client devices which increases the potential for inaccurate processing.
User	Web-based authentication can be limited by IP address, linked to One Time Password	Client-server systems require authentication to the user device as well as authentication

Authentication	(OTP) systems, and centrally regulated.	to the server.
Data Storage	Web-based systems must store all data on the server. Data transferred to the browser must be erased as soon as it is used.	Client-server applications may distribute data to client devices which can be lost or hacked.
Encrypted Communications	Web-based systems must use strong encryption technology to protect data being transferred from server to browser.	Pure-SaaS systems send data across the Internet. Client-server and web-based systems can be installed on an intranet.
Database Encryption	Web-based systems should provide the option to encrypt sensitive data that is stored in the database.	Similar encryption requirements exist across all architectures and technologies.
Display Information	Web-based systems should send only data that users are authorized to see to the client browser.	Some SaaS and client-server solutions send all data to the client which then controls what to display.
Role Based Security	Web-based systems should provide roles to minimize administration of security rules and the potential for errors.	Similar role requirements exist across all architectures and technologies.
Re-validation of Client	Web-based systems should validate each transmission between the browser and the application server.	This requirement should be implemented across all architectures and technologies.

Web includes the potential to develop powerful security standards. In the example of Acumatica, each object, customer account, vendor account, and GL account can be assigned specific rights (revoked, read-only, edit, delete) for different roles. When a user is not authorized to see an object, it does not appear on any screen, dashboard, or report.

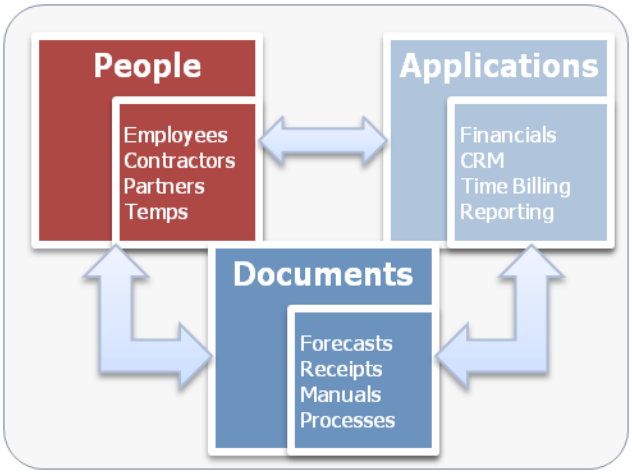
Improving Your Business

Web-based applications can be installed on-premise, hosted by a service provider, or installed on a cloud service. The software can be priced by server core so you can involve everybody in your organization – even if they only log in once a month to submit an expense report.

This architecture discussed in the preceding section provides several benefits over client-server and pure-SaaS models. These benefits are discussed in the following sections.

Integrated Applications, People, and Documents

Acumatica is an example of web-based software that includes integrated accounting applications, customer management applications, dashboards, and a web-based reporting engine. An integrated business wiki enables you to keep business plans, policies, forecasts, and procedures online and associate them with financial transactions to deliver a complete view of your business. Advanced access controls enable more people inside and outside your organization to use the system.



- *Simplified auditing* – documents, notes, receipts, and contracts are attached directly to business documents so auditors can obtain relevant content from a single location. Auditors can be granted temporary access to specific GL accounts, reports, documents, and screens.
- *Customer lifecycle management* – data and documents are linked to customers throughout their history. Leads can be acquired through a web form, assigned to salespeople, converted to customers, and managed according to company policies. During that period, marketing, sales, customer service, finance, and other departments all have access to consistent information.
- *Accurate forecasting and budgeting* – centralized storage provides up-to-date data to ensure accurate budgeting and planning. The ability to integrate different people (marketing, sales, finance), different applications (CRM, ERP), and different documents (sales forecasts, marketing plans, budgets, financial results) improves the forecasting process.
- *Better reporting* – integrated reporting tools provide on-demand reports. Reports can easily be created using either Acumatica web-based report writer or Acumatica's desktop visual reporting application. Once created, reports can be registered and made available to authorized users. Inquiry screens provide "drill down" capabilities so you can locate documentation related to the transaction.

Involve Everybody

The Internet has proven that the value of a system is proportional to the number of people who use it. Web-based applications can be accessed from anywhere by investors, business partners, remote employees, travelers, and others. Role based security lets you control which users have access to exactly what data. A user's access rights can be limited to specific documents, general ledger accounts, customers, vendors, and specific wiki articles.

Example: Time Reporting and Expense Claims

Problem: Frequently companies hire a person to enter timesheets or expense reports into their ERP system to avoid purchasing extra software licenses and installing software on every employee's computer. Unfortunately, this creates extra work because data has to be entered twice (once on the employee's computer and once more in the accounting system) and additional confusion because people have to email documents to the order entry person and verify that claims have been processed.

Solution: Web-based software solves both problems by eliminating user-based licensing and providing a system that can be accessed using any popular web-browser. Employees from around the world can enter expense claims and timesheets which can be coded and approved without re-keying or email. Employees can check the status of their claims online.

The table below summarizes some of the types of users that will benefit.

User Type	Why Web-Based?	Benefits and Applications
Remote and Mobile Workers	No client software or VPN required. Web-based applications do not store data on the local computer, so IT maintenance and security concerns are minimized.	Workers can access key financial and customer management applications from a home office, a remote office, while traveling, or during inclement weather.
Infrequent Users	Server-based pricing and zero desktop overhead allow you to license people who use a system once or twice a month.	Submit expense reports, approve documents, approve budgets, and view reports that would not otherwise be available.
Investors, Advisors	Document-level access controls and audit trails enable you to provide access to specific data, dashboards, reports, and documents in read-only mode.	Investors and advisors can stay informed and up-to-date regarding financial results and business plans. Non-public documents can be shared with specific individuals.
Temporary Workers	External bookkeepers, auditors, accountants, customer service personnel, seasonal workers, tax preparers, and others can be granted access for limited periods of time.	Temporary workers are more productive because they can get the information that they need without installing software or driving to a central location.

As more and more users join the system, opportunities for collaboration and efficient information sharing increase. The amount of data circulated over email will decrease and customers will always have access to the latest documents.

Individually Managed, Centrally Controlled, Real-Time

Advanced web technology allows individual users to customize their dashboards to get the information they need quickly in graphical, chart, or document format. Web technology provides real-time access to data using minimal network resources. For example:

- ***Salespeople*** may elect to include tasks, opportunities, leads, business accounts in their dashboard along with graphs that show how they are performing against their quota.
- ***Marketing*** may include lead statistics, campaigns, conversion rate reports, and personal tasks in their dashboard.
- ***Finance*** may elect to build a dashboard with revenues, expenses, overdue invoices, and accounts referred to collections.

Each user can use the web-based interface to quickly build a customized dashboard without technical assistance by pointing and clicking in their browser. Tasks, leads, and opportunities are automatically customized to present individuals with the accounts and jobs that are relevant for them as shown in Figure 2.

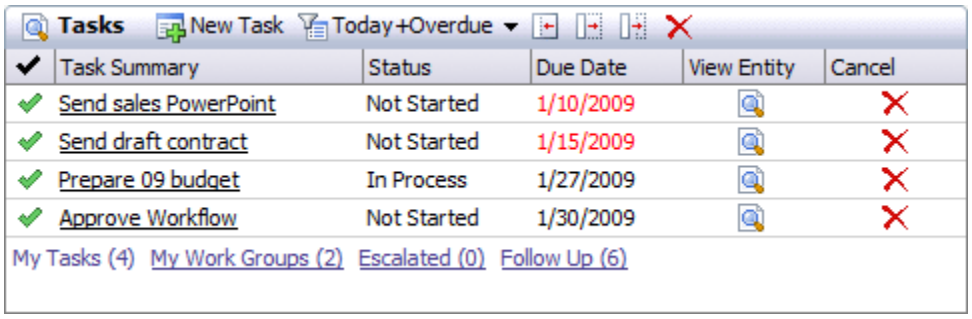


Figure 2 Sample Task List in dashboard

Acumatica allows managers to establish teams and approval routes for managing work. Each approval route can generate and assign tasks and monitor wait times to ensure that processes are being completed on schedule. Managers can assign tasks to others and receive follow up reminders.

Centralized control of information is critical for a web-based system. Administrators should be able to set restrictions by object, role, or group. Once restrictions are set, they must apply to screens, reports, and anywhere else the object may be requested.

Some of these same capabilities exist on client-server, but they are much more difficult to setup and maintain. Imagine that a person has established dashboards on their local PC. What happens when the person upgrades their computer or does not carry their computer with them?

Web-based architectures provide a unique combination of security and availability to provide access to information while at the same time controlling it.

For example, salespersons can be limited to viewing and reporting on data for their customers while a finance manager at a regional office may be limited to viewing the General Ledger sub-accounts for his region. Dashboards, menus and data entry forms automatically adjust to show only authorized functions and fields.

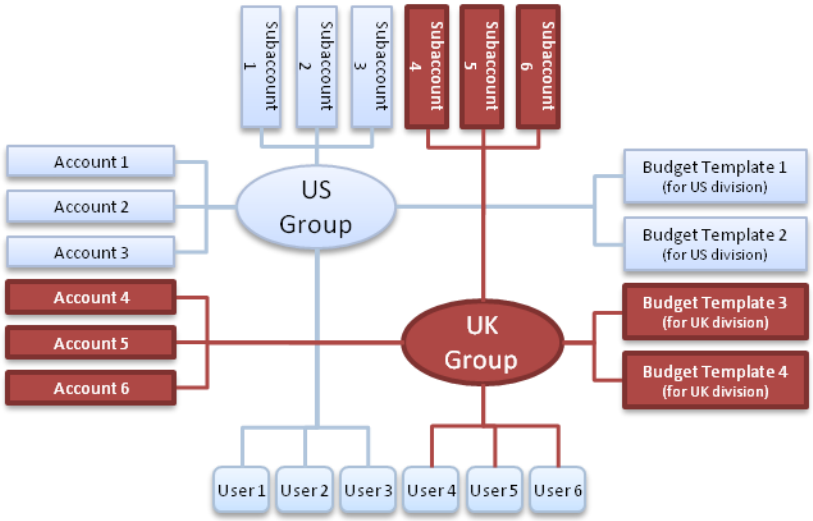


Figure 3 Restriction Groups provide centralized control

Budgeting also becomes easier as people who are responsible for specific budgets have access to them, while budgets of other organizations and business units are kept confidential.

Example: Budgeting

Problem: The budgeting process often involves managers sending sub-ordinates a spreadsheet or report from a client-server system with a high level budget and asking them to fill in the details. After a high-level budget meeting, the spreadsheet is returned with budget cuts and increased quotas. Unfortunately, this begins a lengthy, iterative process which takes place over email and involves cutting and pasting figures from reports that each individual is authorized to see. Often there are multiple budgets (conservative, expected, stretch) which cannot be easily compared.

Solution: Web-based software dramatically improves the efficiency of this process by centralizing all data to eliminate cutting, pasting, and emailing. Strict user access controls allows users to see and change only approved areas of the budget. Email alerts and real-time availability of data dramatically reduce the time it takes to complete the budgeting process. Attached documents and notes make it easier to collaborate and provide backup/justification of controversial items.

The table to the right shows how different types of transactions can be shared among different "roles" in the system.

All roles and permissions can be centrally managed by a non-technical user.

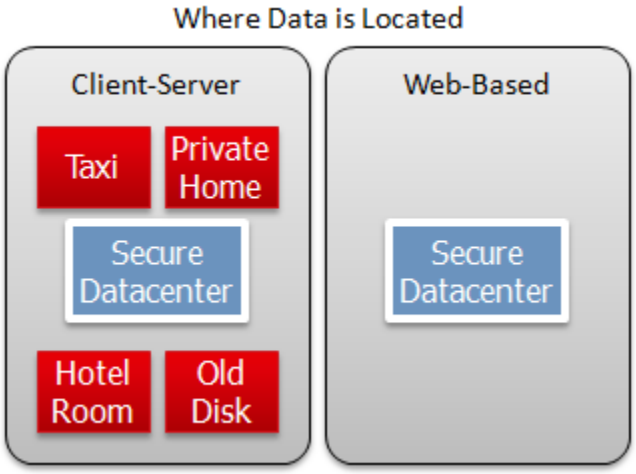
Although several of these features are also available in client-server systems, the cost of maintaining users can be much higher.

Document	CEO, CFO	UK Finance	USA Purchasing	Salesperson
UK Customer #123 Invoice	✓	✓		
US Purchase Order #123	✓		✓	
US Customer #987 Invoice	✓			✓
Global "stretch" budget	✓	✓		✓
Company policy document	✓	✓	✓	✓

Centralized Security

Web-based applications must be suspicious of all data coming from the web browser. In the case of Acumatica, all verification and validation steps are performed at the server. Data is encrypted during transmission using techniques employed by modern banking and healthcare systems.

In a web-based system, all application data is centrally stored and encrypted, providing a secure environment for confidential and sensitive data.



Client-server systems and PC-based systems often rely on device security. Unfortunately, devices often travel with the user into unsecure environments and can be lost, stolen, or recycled without erasing the hard drive.

SaaS-based systems provide the same centralized storage advantages of web-based; however, they require businesses to store their data in a facility designated by the software vendor. Web-based systems offer businesses an option of where they store and backup their data. Confidential data can be stored on premise or at any hosting provider. This choice allows you to select the level of security that you require.

Works the Way You Work

Web-based systems work with any popular browser, so you can use Windows, Apple, or Linux computers as well as handheld devices to access critical business information. Acumatica works with Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, and Apple Safari.

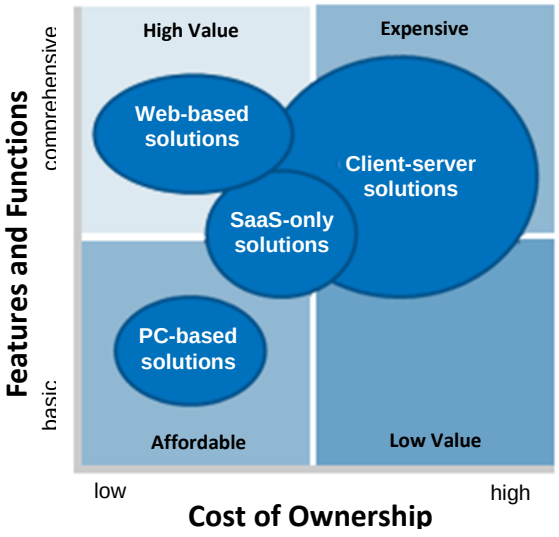
Client-server systems require businesses to standardize on a single desktop operating system and therefore reduce the overall flexibility of your organization.

Figure 4 Acumatica works with all popular browsers

Cost Effective

Web-based applications are cost effective because they are easy to install, easy to customize, easy to integrate, less expensive to maintain, and provide flexible deployment options.

Traditionally, software buyers had to choose between inexpensive PC-based solutions which offered little functionality and client-server applications which offered additional features but were expensive to implement and maintain. The advent of SaaS provided solutions which had more features than PC-based products and are easier to implement than client-server. But, SaaS solutions can be expensive in the long term because you are locked into a single datacenter with recurring payments. In almost all cases, web-based solutions cost much less than a SaaS solution over a 5 year period.



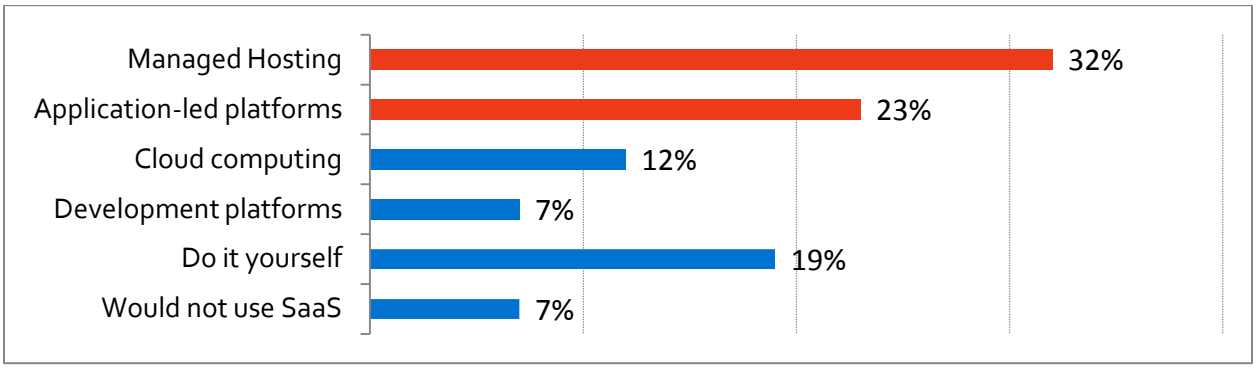
Several client-server applications have been adapted for the web. Applications which have been **adapted for the web** are not as cost effective as those which are **designed for the web**. The chart below summarizes several differences.

Item	Designed for the Web	Adapted for the Web
Functionality	100% of the features are ***available from anywhere*** using a browser.	The web interface may only include a subset of features.
Security	Client is not trusted – all validation is done at the server all data is secured on the server.	Client may store and manipulate some data or perform user authentication and validation.
Usability	Interface can be desktop-like in appearance and performance through use of Flash or JavaScript.	Interfaces for the client and the web are often different resulting in different user experiences and training requirements.
Performance	Optimized to reduce network traffic and rapidly respond to server requests.	Web interface may utilize a conversion process or use proprietary protocols which increase network traffic and limit the ability to scale.

You Control the Software

As shown in the study results below, different companies prefer to deploy software in different ways.

Figure 5 Companies Prefer Different Deployment Models



Source: Enterprise Software Customer Survey 2008, McKinsey & Company and Sandhill Group

Web applications allow you to control where you deploy your software so you can deploy it cost effectively. Most importantly, you can change your deployment model as your needs change.

Ray Wang and other analysts say the decision to purchase an application as a service (SaaS), or to run it on your own servers, or at a hosting or cloud services company, depends on a variety of economic and other factors including the number of locations, the number of users, bandwidth availability, security requirements, cultural factors, and corporate and government regulations. For most organizations these factors also vary over time, so what works for today may not be right for tomorrow. Web applications allow you to start with one deployment model and then switch to another as your needs change.

On premise deployment: if you have a large, under-utilized datacenter, you may benefit by deploying the application on spare hardware in your own datacenter. For example, if you have virtualized several servers recently and have spare hardware – an on-premise deployment may be cost effective.

Hosted deployment: if you have short term capital constraints or do not want to invest in IT personnel to maintain and backup your financial solution, you may benefit by hosting the solution in a full-service datacenter.

Cloud services deployment: if your use of the application will be light during the initial implementation, you may benefit by deploying your web applications on a Cloud hosting service such as those offered by GoGrid, Amazon EC2, and Microsoft Azure. These platforms allow you to pay for only the resources that you use to keep costs low as you are growing.

No Client Software

Web based applications can be accessed from anywhere without installing client software or VPN software. You can access 100% of your application functionality, including customizations, using any popular browser.

This saves your company money on software installation and PC maintenance - there is no additional cost to install, maintain, and repair client software. The web browser that you use to access web-based applications is already installed and paid for.

- Average cost of installing an application: $50 / client
- Average cost of maintaining an application: $100 / client / year

When individuals upgrade to a new computer, all individual dashboards, favorites, filters, and reports are automatically transferred because these settings are stored on the server. This eliminates costs associated with migrating data and re-configuring user preferences.

Cost savings can be even higher for individuals in remote offices who do not have access to an IT person.

Figure 6 shows the total cost of ownership over five years when using web-based versus pay-by-user and client-server solutions.

Key assumptions include the cost of hardware ($25,000), support for client server (1 IT person per 100 users), web-based hosting cost ($3,600 per year plus an additional amount per user), monthly SaaS cost ($100 per user), and software licensing costs.

Web-based solutions provide several cost benefits because there is no client software to maintain and it is easy to maintain on standard hosting plans.

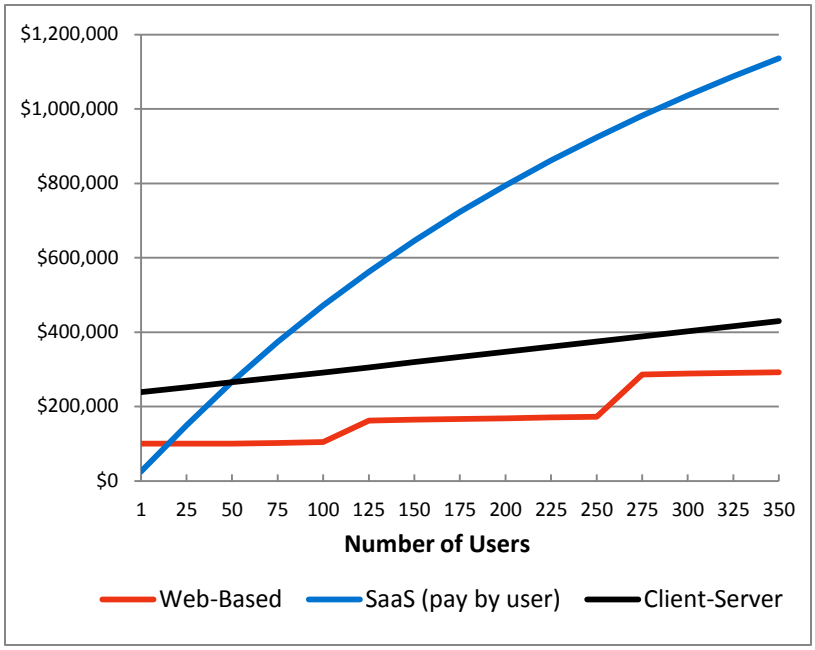


Figure 6 Total Cost of Ownership (5 Years) for ERP Systems

Consolidate Operations

A single instance of a web-based application can scale to support an organization with multiple offices in multiple countries. This allows you to manage all of your IT operations from a single location or datacenter so you can save money on operational expenses.

For a company with 5 different locations, these operational savings can be over $100,000 if you include hardware, software, and IT expenses. This doesn't include the time that is saved from people not being able to work during PC updates.

Web technology provides unique advantages for companies who want to consolidate operations across multiple offices or subsidiaries.

- Works over unreliable network connections – remote users receive nearly the same experience as users who are co-located with the Acumatica server. This allows you to deploy only one system instead of multiple servers in multiple locations.
- No client software required – for solutions which work with any common browser and do not require a VPN, there is no need to deploy application or system experts in remote offices.
- Scalable – you can easily add application servers to an existing deployment to handle increased workloads.
- Robust access controls – role based security allows you to control the information that can be accessed from different locations.
- Advanced financial features – a single system can manage different currencies, languages, tax logic, reporting requirements, and more so the consolidation does not impact local business requirements.
- Customized reporting – flexible account and subaccount codes allow users to get information that they need that is customized for their particular location.

Conclusion

Web-based software implemented on a cloud platform provides several advantages over client-server and pure-SaaS for delivering integrated accounting, ERP, and CRM applications. These advantages include increased accessibility, lower costs, better customization, and better control of the software.

Compared to client-server solutions, web-based solutions are less expensive to install and maintain, yet provides similar features and benefits. Customization and development is easier because all business logic and reporting is done on the server. Upgrades are easier to manage because the software only needs to be updated on the server. Performance is comparable to client-server solutions because cloud technologies are designed to minimize network traffic and work over slow Internet connections.

Compared to pure-SaaS solutions, web-based solutions are less expensive to maintain, easier to customize, and provide better auditing and controls. SaaS solutions lock customers into recurring fees while web-based solutions give clients the option of purchasing a software license so they can continue using the software even if they stop paying maintenance. Customization and development can be much more robust and extensive because customizations can be deployed for specific clients outside the SaaS provider's datacenter. Most SaaS platforms are built using proprietary technologies which are supported by fewer vendors than web-based systems. Web-based solutions provide better auditing capabilities because the system and database can be controlled by the customer. Customized audit controls can be built and accessed directly by the customer.

Web-based platform technology allows you to run your business better at an affordable price. The ability to involve your entire organization delivers an environment that is well suited for collaboration and business process improvement. As more people use the system to submit timesheets and expense reports, companies will save money, reduce busywork, and improve data accuracy. With more employees online, budgeting and planning will become more efficient. Sales leads, prospects, and results will be available in real-time. Inventory can be produced managed more efficiently, and profitability will grow. The key to this success is a system which can be accessed from anywhere by an entire organization, its suppliers, and its partners. That system should be web-based.

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About Acumatica

Acumatica develops cloud based ERP software that can be deployed on premise, hosted at a datacenter, or run on a cloud computing platform. Using Acumatica, mid-sized businesses can access their applications and documents from anywhere using any popular web-browser. Acumatica streamlines business tasks such as accounting, financial reporting, customer management, customer invoicing, vendor payments, expense reporting, inventory management, and much more. Acumatica includes a complete set of business applications with customer relationship management (CRM), reporting tools, and customization tools. Acumatica is distributed through a world-wide network of partners. Visit Acumatica's website (www.acumatica.com) to learn more about its web-based accounting, ERP, and CRM software.