



**Business  
Automation  
Specialists**  
of Minnesota, Inc.



Cloud Computing

# Is Your Head in the Cloud?

The “buzz” around Cloud computing has created a great deal of both interest and confusion. Cloud computing is a method of deploying application software over the Internet. While the name is new, the concept has been around a long time. In the 1970s and 80s we had time-share computing systems. You rented time on a provider’s computer and got the use of their software for your application. Cloud computing has expanded that model to provide greater flexibility and functionality. Your Gmail, Hotmail or Facebook account is an example of a Cloud application.

There are three primary methods of deploying software applications today: On-Premises, Hosted or SaaS, (Software as a Service). This brief paper will outline some of the differences in these three deployment methods, including benefits and risks associated with each method.

## Definitions

**On-Premise:** This is the traditional software delivery method used since the introduction of the PC. The customer owns the software, network operating system and server(s) on which the software is installed. The server resides at the customer’s location. Internet access is not necessarily required for running the application. The customer is responsible for all maintenance, upgrades, installation and implementation, although, many times this work is contracted to other firms.

**Hosted:** The customer owns the software. The software is installed on a remote server residing at an outside provider’s location. Typically, the customer rents space on a server at the Host. Alternatively, the customer may purchase the server(s) and pay the Host to keep and maintain it at the Host’s location. The Host provides IT services (network support, data backup, power backup, operating system upgrades and so forth) as a part of the monthly fee. Service Level Agreements may be provided (a Service Level Agreement or SLA, outlines the provider’s guarantee of service availability, for instance, 99% uptime).

**Software as a Service (SaaS):** The customer does not own the software or the server(s) on which it resides. You use software installed at the SaaS provider’s location. The customer pays a rental fee for software and server(s) usage. The SaaS provider performs IT services (network support, data backup, power backup, operating system upgrades, and so forth) as a part of the monthly fee. Depending on the agreement, the customer may or may not own rights of retention for their data. Service Level

Agreements may be provided (a Service Level Agreement or SLA, outlines the provider’s guarantee of service availability, for instance, 99% uptime). NOTE: Some companies use the term Hosted for an SaaS application.

## Types of SaaS Computing:

- **Public** cloud computing – your company uses an outside company’s *cloud* infrastructure with computing resources shared by other subscribed members from the public. This may include virtual servers on shared servers.
- **Private** cloud computing – your company uses cloud infrastructure (for example, servers – whether on-premises or off-premises) *dedicated* to your company. You control the server resources. You may employ virtualization but the virtualized servers are for your company only.
- **Hybrid** cloud computing – your company uses a combination of Public *and* Private Cloud infrastructure.

## Greatest Advantages

**On-Premise:** You own the software and infrastructure. Your access to the software is not contingent on outside vendor’s financial or technical abilities to continue operating their business. You control access to your software. You have more control of everything.

**Hosted:** You own the software. Your access to the software is not contingent on an outside vendor’s ability to pay a software vendor. You pay a fixed monthly fee for IT services related to your servers and operating systems located at the Host site application, regardless of technical problems with the servers and operating systems. The Host is responsible for the backup. On-going operating expenses may be lower than On-Premise. Hosted applications reduce internal hardware and support requirements. The Hosting provider has multi-company experience with supporting virtualized hardware/operating system environment.

**Software as a Service (SaaS):** Initial startup costs are the lowest of the three methods. You pay a fixed monthly fee for access to your application regardless of technical problems with the servers and operating systems. The SaaS provider is responsible for backup. On-going expenses may be lower than Hosted or On-Premise. SaaS may provide the highest security of the three. Check with the provider for independent security audits, like SAS70 Type II Audit (support SOX compliance). Technical expertise of the provider may be

the highest if the SaaS provider specializes in your application. SaaS applications reduce internal hardware and support requirements. The SaaS provider has multi-company experience with supporting virtualized hardware/operating system environment.

### **Greatest Disadvantages**

**On-Premise:** You have responsibility for every aspect of your systems maintenance, planning, updating, backup and service. You will either hire your own staff or contract with an outside firm. Your budget is subject to significant over-runs in the event of systems issues. You are solely responsible for understanding your system requirements and proper sizing of your system. You cannot react quickly to a sudden spike in demand by adding new equipment. If your demand decreases, there is no corresponding decrease in your software license or hardware cost. You pay all the costs of your staffing, hardware, operating systems, productivity, ERP and CRM software and maintenance costs. Your capital expense is much higher, as all items are purchased. Your fixed operating expenses may be much higher (depending on whether you staff your system with permanent or contract staff or out-source to a vendor.) If your system is down, you will be unable to run your business critical applications.

**Hosted:** You have an on-going monthly expense for your network infrastructure. You have a lower capital expense as you do not purchase hardware and operating systems, but you still have the capital expense for your software and the implementation. You don't have physical control of the equipment or facilities, so security is out of your domain. Your hosting vendor may not have specific experience with your enterprise software (ERP or CRM) and so may not provide the best support or configuration for the applications. If your Internet or private connection to the host is lost, you will be unable to run your business critical applications.

**Software as a Service (SaaS):** You have an on-going larger monthly expense for the bulk of your network infrastructure, productivity, ERP and CRM software. You still have the capital expense for purchasing implementation services. You do not have physical control of the equipment or facilities, so security is out of your domain. Your SaaS vendor may not have specific experience with your enterprise software (ERP or CRM) and so may not provide the best support or configuration

for the applications. If your Internet or private connection to the host is lost, you will be unable to run your business critical applications.

### **Conclusion**

A deployment method is only a delivery method of a software application. If the application delivered does not solve your problem, the delivery method is immaterial. Your VAR (Value Added Reseller), the company who implements and supports your software plays a vital role in your projects success. Please contact us for help in assessing which methodology will work best for you. No matter how you access your application, the application must help you solve your business problem or capitalize on your business opportunity. So, pick your VAR, settle on the application and then pick the delivery method.

No matter which delivery method you choose, you will need servers, network cabling, backup, uninterruptible power supplies, switches, firewalls and so forth at your company location. Hosted or SaaS solutions permit you to make a smaller investment in technology at your office. This reduces your capital cost and your system maintenance costs. These capital and IT support savings can be in the tens of thousands of dollars annually.

If you would like to get more information about On-Premise, Hosted or SaaS applications please contact us. Perhaps you would like discuss the specifics of your implementation, please feel free to call 763-571-8580, toll-free at 877-571-8580 or email [RyanK@bautomation.com](mailto:RyanK@bautomation.com).

We have been helping manufacturers, distributors and other companies solve real business problems and capitalize on business opportunities for 25 years. Let us help you get better, faster, stronger with Realistic Solutions. Business Automation Specialists of MN, Inc. is a full-service software solution provider helping businesses leverage technology for growth and improved profitability. We focus on business objectives and challenges. We help our clients streamline the processes required to fulfill the business objectives through increased effectiveness and efficiency.

Our software products include Microsoft Dynamics NAV (formerly Navision), Sage Pro ERP, Sage CRM, Sage Accpac and other applications.

## Comparison Chart

A chart, available for download, outlines a number of differentiating factors between the three deployment methods. It focuses on a general comparison of ERP and CRM applications. Other applications (Exchange, Office, Outlook, etc.) can be added to your Hosted or SaaS solution. In this paper, the word "Company" refers to you. We are not considering custom developed application using SaaS solutions such as Azure in this comparison, although many of the factors still apply.

| Attribute                      | On-Premises                         | Hosted                       | Software as a Service (SaaS) |
|--------------------------------|-------------------------------------|------------------------------|------------------------------|
| Application Software           | Upfront Capital Expense             | Upfront Capital Expense      | Fixed Monthly Operating      |
| Application Software           | Fixed Annual fee, may be            | Fixed Annual fee, may be     | Included in Fixed Month-     |
| Sales Taxable*                 | Software & Maintenance              | Software & Maintenance       | No Sales Tax                 |
| Application Implemen-          | Upfront Cost                        | Upfront Cost                 | Upfront Cost                 |
| Application Training           | Upfront Cost                        | Upfront Cost                 | Upfront Cost                 |
| Financing of Application       | Availability based on               | Availability based on        | Based on credit of Com-      |
| Servers, operating sys-        | Upfront Capital Expense             | Fixed Monthly Operating      | Included in Fixed Month-     |
| Operating System Maintenance** | Annual Expense, may be discontinued | Included in Monthly Fee      | Included in Monthly Fee      |
| Network Infrastructure         | Required                            | Required for access to       | Required for access to       |
| Storage                        | Upfront Capital Expense             | Fixed monthly operating      | Fixed monthly operating      |
| Attribute                      | On-Premises                         | Hosted                       | Software as a Service (SaaS) |
| Security – consider            | Total control, if not con-          | Internet, Virtual Private    | Internet, Virtual Private    |
| Setup and Installation         | Upfront Cost                        | Upfront Cost                 | Upfront Cost                 |
| Individual User PCs            | Purchase and support cost           | Purchase and support cost    | Purchase and support cost    |
| Productivity Tools             | Purchase, on-going                  | On-Premises purchase and     | On-Premises purchase and     |
| On-going Server Sup-           | Support contract or Time            | Included in Fixed Monthly    | Included in Fixed Month-     |
| Data /System Backup            | Company is responsible              | Hosting vendor is respon-    | Cloud vendor is responsi-    |
| Increase number of Us-         | Purchase a PC, purchase             | Add user to the hosting      | Add another user to the      |
| Decrease number of us-         | No change                           | Decrease user count host-    | Decrease user count, low-    |
| Anytime/Anywhere Ac-           | Yes, with proper equip-             | Yes                          | Yes                          |
| Implementation time            | Perhaps slightly longer if          | Slightly shorter since serv- | Slightly shorter since       |

\* Per Minnesota Sales Tax regulations, if not domiciled in Minnesota see sales tax regulations for your own state or country.

\*\* Your PC operating systems is not included in this comparison.

| Attribute                                                                                 | On-Premises                                                                                                             | Hosted                                                                                                                                                          | Software as a Service (SaaS)                                                                                                                               |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application Product updates</b>                                                        | Software updates are included in Software Maintenance, installation is generally separate                               | Software updates are included in Software Maintenance, installation is generally separate                                                                       | Software updates are included in Software Maintenance, installation is generally separate                                                                  |
| <b>Service Level Agreements (SLA)</b>                                                     | Company is responsible – agreement with IT support company for SLA; communication medium not required                   | Hosting vendor is responsible for Host access (not including communication medium) – agreement will define SLA; Company is responsible for equipment On-Premise | Cloud vendor is responsible Cloud access (not including communication medium) – agreement will define SLA; Company is responsible for equipment On-Premise |
| <b>Power Backup</b>                                                                       | Company is responsible                                                                                                  | Provided by Hosting vendor for Host servers; Company is responsible for equipment On-Premise                                                                    | Provided by Cloud vendor for Cloud servers; Company is responsible for equipment On-Premise                                                                |
| <b>Local Internet Failure</b>                                                             | Not applicable, doesn't interrupt access to software                                                                    | No access to software                                                                                                                                           | No access to software                                                                                                                                      |
| <b>Remote Internet failure</b>                                                            | Not applicable, doesn't interrupt access to software                                                                    | No access to software, Host should have redundant Internet providers                                                                                            | No access to software, Cloud vendor should have redundant Internet providers                                                                               |
| <b>Slow Internet Connection</b>                                                           | No effect on software access                                                                                            | Slow access to software                                                                                                                                         | Slow access to software                                                                                                                                    |
| <b>Latency</b>                                                                            | Not significant                                                                                                         | Potentially significant slowdown                                                                                                                                | Potentially significant slowdown                                                                                                                           |
| <b>Portability</b>                                                                        | Can be moved to new servers more easily                                                                                 | Can be moved to new hosting company with some difficulty                                                                                                        | Can be moved to other Cloud company – transfer may be more difficult                                                                                       |
| <b>Data Ownership</b>                                                                     | Company Owned                                                                                                           | Company Owned                                                                                                                                                   | Contract determines data ownership                                                                                                                         |
| <b>Environment</b>                                                                        | <b>Virtual or Physical servers</b>                                                                                      | <b>Virtual or Physical servers</b>                                                                                                                              | <b>Virtual or Physical servers</b>                                                                                                                         |
| <b>Disaster Recovery, hardware failure</b>                                                | Relatively easy if using Virtual servers with backup equipment, longer because no spare servers, may be quite difficult | Unless you own the servers, virtual environment, easier for disaster recovery, other servers available; redirect to co-location                                 | Virtual environment, easier for disaster recovery, other servers available; redirect to co-location                                                        |
| <b>Disaster Recovery – local storm, fire, epidemic, earthquake damage</b>                 | System must be moved or replaced                                                                                        | Can be accessed from anywhere                                                                                                                                   | Can be accessed from anywhere                                                                                                                              |
| <b>Disaster Recovery – storm, fire, epidemic, earthquake damage at Host or Cloud site</b> | Not applicable                                                                                                          | No access to software unless Host has co-located facility (greater Hosting cost)                                                                                | No access to software unless cloud provider has co-located facility that you have added to your agreement (greater cost)                                   |

| Attribute                                | On-Premises                                                                                                                                                                                            | Hosted                                                                                                                                                                                                 | Software as a Service (SaaS)                                                                                                                                                 |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reliability</b>                       | As reliable as you are willing to pay for redundant hardware, virtualization, backup and response time from your network support vendor. Co-location is not generally present in on-premise solutions. | Generally more detailed Disaster Recovery Plan than an on-premise solution. Co-location may be available for an extra charge. May have 24x7 support available and spare hardware for fastest recovery. | Should provide documented Disaster Recovery Plan. Co-location may be available for an extra charge. May have 24x7 support available and spare hardware for fastest recovery. |
| <b>Integration to local applications</b> | Based on capability software                                                                                                                                                                           | More difficult & based on capability of software                                                                                                                                                       | More difficult & based on capability of software*                                                                                                                            |

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\*Many software developers, such as Microsoft Dynamics, are providing better capability in this area to facilitate integration with local ERP or CRM.

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## **About Business Automation Specialists of Minnesota, Inc.**

Business Automation Specialists leverages 25 years of practical business experience with software technology to help mid-sized manufacturers and distributors capitalize on their unique business strengths. We've built our business by helping clients build theirs; enabling them to become better, faster and stronger through improved management controls, cash flow and profitability.



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<sup>1</sup> Paul M. Swamidass PhD, “Bar Code Users and Their Performance,” *Unova* (Auburn University, July 1998) 5. [http://www.idii.com/wp/intermec\\_bc\\_rpt.pdf](http://www.idii.com/wp/intermec_bc_rpt.pdf)

<sup>2</sup> “7001 RF Terminals,” *Worth Data Hardware*. <http://www.barcodehq.com/7001rfterminals.html>

<sup>3</sup> “FAQ”, *RFID Journal*. <http://www.rfidjournal.com/faq/20/85>

