

UNIT 4 CLOUD COMPUTING FOR EVERYONE

9 Hrs.

Cloud data centers - Energy efficiency in data centre - Mobile cloud computing service models - Collaboration with services and applications: CRM management - Project management - Email - on line database - calendar - schedules - Word Processing - Presentation - Spreadsheet - Databases - Desktop - Social Networks and Groupware.

CLOUD DATA CENTERS:

A data center (or datacenter) is a facility composed of networked computers and storage that businesses or other organizations use to organize, process, store and disseminate large amounts of data. A business typically relies heavily upon the applications, services and data contained within a data center, making it a focal point and critical asset for everyday operations.

Data centers are not a single thing, but rather, a conglomeration of elements. At a minimum, data centers serve as the principal repositories for all manner of IT equipment, including servers, storage subsystems, networking switches, routers and firewalls, as well as the cabling and physical racks used to organize and interconnect the IT equipment. A data center must also contain an adequate infrastructure, such as power distribution and supplemental power subsystems, including electrical switching; uninterruptable power supplies; backup generators and so on; ventilation and data center cooling systems, such as [computer room air conditioners](#); and adequate provisioning for network carrier (telco) connectivity. All of this demands a physical facility with physical security and sufficient physical space to house the entire collection of infrastructure and equipment.

Data center consolidation and colocation

There is no requirement for a single data center, and modern businesses may use two or more data center installations across multiple locations for greater [resilience](#) and better application performance, which lowers latency by locating workloads closer to users.

Conversely, a business with multiple data centers may opt to consolidate data centers, reducing the number of locations in order to minimize the costs of IT operations. Consolidation typically occurs during mergers and acquisitions when the majority business doesn't need the data centers owned by the subordinate business.

Alternatively, data center operators can pay a fee to rent server space and other hardware in a [colocation facility](#). Colocation is an appealing option for organizations that want to avoid the large capital expenditures associated with building and maintaining their own data centers. Today, colocation providers are expanding their offerings to include managed services, such as interconnectivity, allowing customers to connect to the public cloud.

Data center tiers

Data centers are not defined by their physical size or style. Small businesses may operate successfully with several servers and storage arrays networked within a convenient closet or small room, while major computing organizations, such as Facebook, Amazon or Google, may fill an enormous warehouse space with data center equipment and infrastructure. In other cases, data centers can be assembled in mobile installations, such as shipping containers, also known as [data centers in a box](#), which can be moved and deployed as required.

However, data centers can be defined by various levels of reliability or resilience, sometimes referred to as data center tiers. In 2005, the American National Standards Institute (ANSI) and the Telecommunications Industry Association (TIA) published standard ANSI/TIA-942, "Telecommunications Infrastructure Standard for Data Centers," which defined four tiers of data center design and implementation guidelines. Each subsequent tier is intended to provide more resilience, security and reliability than the previous tier. For example, a tier 1 data center is little more than a server room, while a tier 4 data center offers redundant subsystems and high security.

Data center architecture and design

Although almost any suitable space could conceivably serve as a "data center," the deliberate design and implementation of a data center requires careful consideration. Beyond the basic issues of cost and taxes, sites are selected based on a multitude of criteria, such as geographic location, seismic and meteorological stability, access to roads and airports, availability of energy and telecommunications and even the prevailing political environment.

Once a site is secured, the data center architecture can be designed with attention to the mechanical and electrical infrastructure, as well as the composition and layout of the IT equipment. All of these issues are guided by the availability and efficiency goals of the desired data center tier.

Energy consumption and efficiency

Data center designs also recognize the importance of energy efficiency. A simple data center may need only a few kilowatts of energy, but an enterprise-scale data center installation can demand tens of megawatts or more. Today, the [green data center](#), which is designed for minimum environmental impact through the use of low-emission building materials, catalytic converters and alternative energy technologies, is growing in popularity.

Organizations often measure data center energy efficiency through a metric called power usage effectiveness (PUE), which represents the ratio of total power entering the data center divided by the power used by IT equipment. However, the subsequent rise of [virtualization](#) has allowed for much more productive use of IT equipment, resulting in much higher efficiency, lower energy use and energy cost mitigation. Metrics such as PUE are no longer central to energy efficiency goals, but organizations may still gauge PUE and employ comprehensive power and cooling analyses to better understand and manage energy efficiency.

Data center security and safety

Data center designs must also implement sound safety and security practices. For example, safety is often reflected in the layout of doorways and access corridors, which must accommodate the movement of large, unwieldy IT equipment, as well as permit employees to access and repair the infrastructure. Fire suppression is another key safety area, and the extensive use of sensitive, high-energy electrical and electronic equipment precludes common sprinklers. Instead, data centers often use environmentally friendly chemical fire suppression systems, which effectively starve a fire of oxygen while mitigating collateral damage to the equipment. Since the data center is also a core business asset, comprehensive security measures, like badge access and video surveillance, help to detect and prevent malfeasance by employees, contractors and intruders.

Data center infrastructure management and monitoring

Modern data centers make extensive use of monitoring and management software. Software such as [data center infrastructure management](#) tools allow remote IT [administrators](#) to oversee the facility and equipment, measure performance, detect failures and implement a wide array of corrective actions, without ever physically entering the data center room.

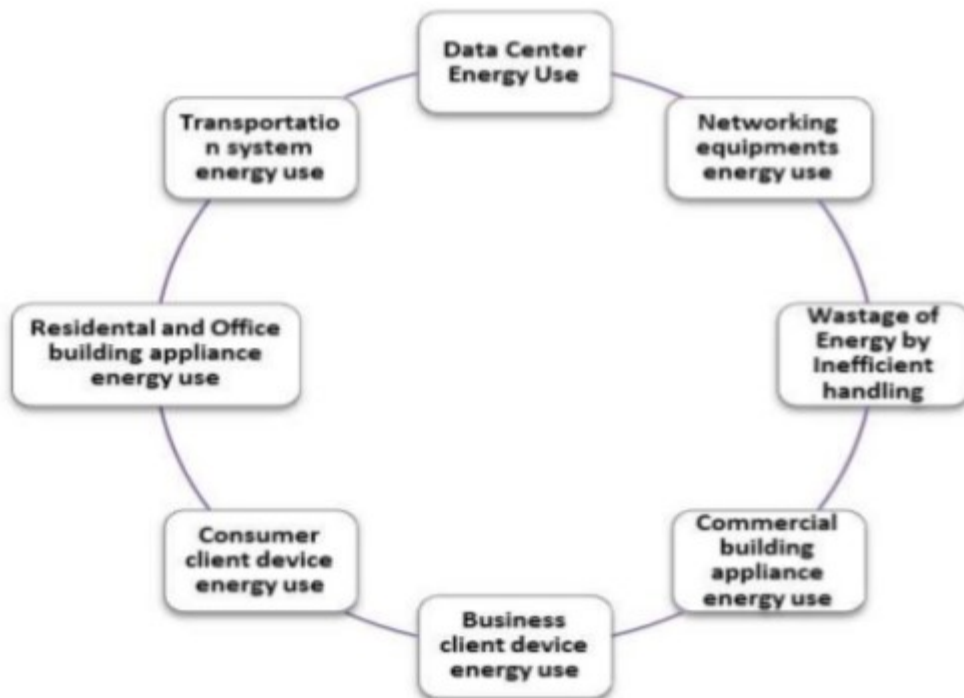
The growth of virtualization has added another important dimension to data center infrastructure management. Virtualization now supports the abstraction of servers, networks and storage, allowing every computing resource to be organized into pools without regard to their physical location. Administrators can then provision workloads, storage instances and even network configuration from those common resource pools. When administrators no longer need those resources, they can return them to the pool for reuse. All of these actions can be implemented through software, giving traction to the term [software-defined data center](#).

Data center vs. cloud

Data centers are increasingly implementing private cloud software, which builds on virtualization to add a level of automation, user self-service and billing/chargeback to data center administration. The goal is to allow individual users to provision workloads and other computing resources on-demand, without IT administrative intervention.

It is also increasingly possible for data centers to interface with public cloud providers. Platforms such as [Microsoft Azure](#) emphasize the hybrid use of local data centers with Azure or other public cloud resources. The result is not an elimination of data centers, but rather, the creation of a dynamic environment that allows organizations to run workloads locally or in the cloud or to move those instances to or from the cloud as desired.

Efficiency Model



Data Center Energy Use

When companies use their dedicated data centers they need to have a lot of resources which primarily involves

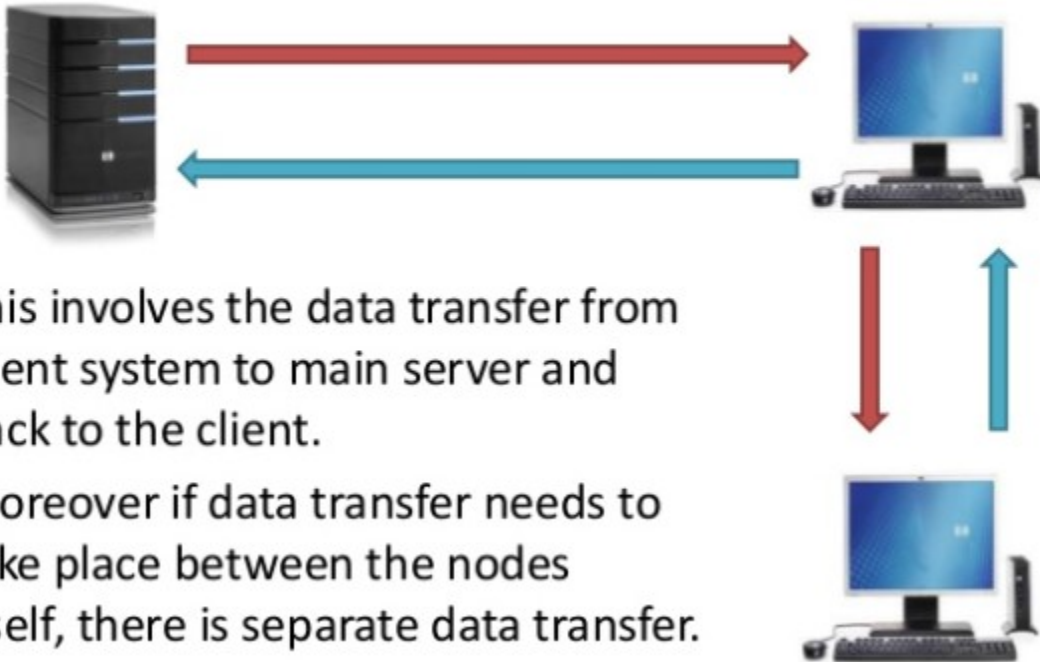
- Air Conditioning unit.
- Dedicated Hardware.
- Resource Person
- Power Backup
- Security

Switching to the cloud would mean...



When the cloud is implemented there is only one server at one data center which is maintained by the datacenter and this server is used by many corporations.

Transportation System Energy Use



- This involves the data transfer from client system to main server and back to the client.
- Moreover if data transfer needs to take place between the nodes itself, there is separate data transfer.

Switching to the cloud would mean...



There is direct transfer from client to server thus saving energy that was wasted in transport.

Residential and Office Building appliance energy use

- The individual electrical appliances further used leads to wastage.

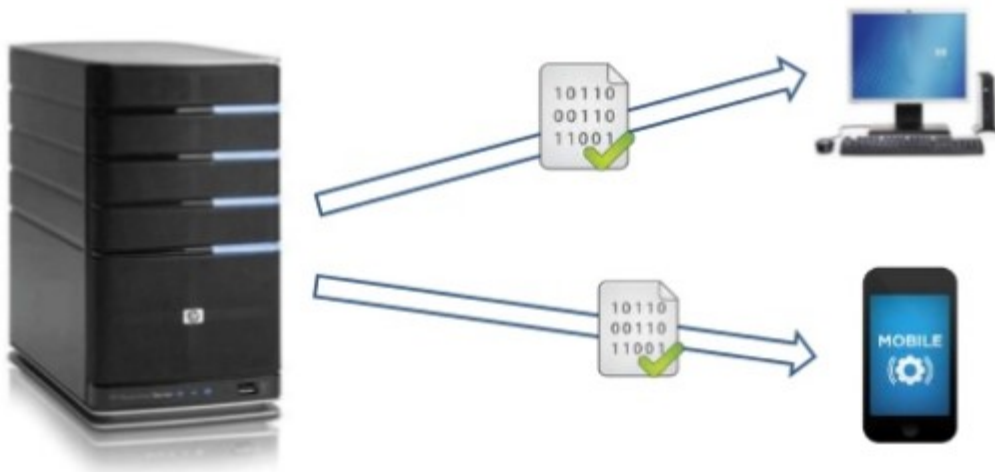


No use of any extra appliances on the client side.

Business and Consumer Client device

Energy Use

- This is related to the fact that if data transfer needs to be done from client to any other device the entire data is transferred.



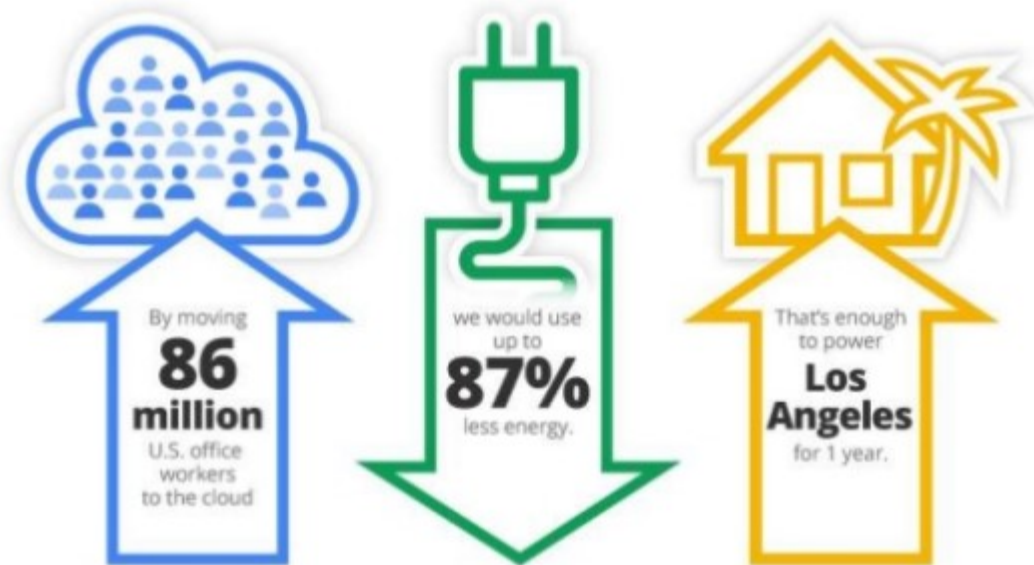


Whereas in cloud the data can be easily accessed thorough any device.

Network Equipment Energy Use

- There is a lot of networking components involved when there is a network of computers in a building.
- Instead if we go for internet connection and cloud architecture the energy can be saved.

Moving to the cloud can save
up to 87% of IT energy



- Power consumption is decreased in cloud computing.
- Private and public cloud storage services are more energy efficient than storage on local hard disk drives when files are only occasionally accessed.
- There is an overall decrease in costs involved in computing equipment for an organization.

Mobile Cloud application:

Mobile Cloud Computing, or **MCC**, merges the fast-growing **Cloud Computing Applications** market with the ubiquitous smartphone. One of the most ground-breaking blends of modern-day technologies, MCC has proved itself to be highly beneficial to all the mobile users and cloud-based service-providers as well.

In this technique, user-friendly mobile applications are developed, which are powered by and hosted using the cloud computing technology. The ‘*mobile cloud*’ approach enables the apps developers to build applications designed especially for mobile-users, which can be used without being bound to the operating system of the device or its capacity to store data. Here, the tasks of data-processing and data storage are performed outside the mobile devices.



The ability of MCC to allow the device to run cloud-based web-applications unlike other native apps differentiates it from the concept of ‘Mobile Computing’. Here the users can remotely access the store applications and their associated data anytime on the Internet by subscribing to the cloud services. Although most devices already run a mix of web-based and native apps, the

trend these days seems to be shifting more toward the services and convenience that are offered by a mobile cloud.

Researchers are putting in serious efforts in forming a strong and symbiotic platform, coined the '*Third Platform*,' that would bring together the mobile and the cloud. Experts predict this platform to revolutionize further the uprising of MCC which has enabled its users a better means to access and store their data along with latest data synchronization techniques, improved reliability and better performance. All these beneficial aspects have inspired a lot of people to consider MCC for their smart-phones.

Mobile Cloud Computing confirms the impact of certain trends and factors. Here are the factors that have had an astounding impact as far as MCC is concerned.

- **Enhanced broadband coverage:** Better connectivity is being rendered to our mobile devices via 4G, WiFi, femto-cells, fixed wireless etc.
- **Abundant Storage:** Cloud-based mobile apps have proved themselves to be more capable than any smart-phone, especially in terms of the storage space that is offered. Cloud apps' server-based computing infrastructure that is accessible through mobile interface of an app, is quite a contrast to the limited data-storage space and processing power in a mobile device.
- **Budding Technologies:** Advanced technologies like HTML5, CSS3, Hyper-Visor virtual machines for smart-phones, cloudlets and Web 4.0 etc are contributing a lot toward MCC's rising popularity.
- **Latest Trends:** Smart-phones have enabled us with 24/7 access to business applications and other collaborative services has upped the scope to increase the productivity from anywhere, at any given time.

Cloud Computing & The Future Scope of Android



Today, the popularity of this Linux-based operating system is quite apparent after looking at the massive chunk of smart-phone users relying on Android. It has a large community of developers on its platform that develop applications to increase the devices' functionality for their users.

Introduction of cloud-computing on this platform has taken the user experience of Android applications to another level altogether. In fact, both, the Android app-developers and smart-phone users are benefiting from the power of cloud computing.

Various layers of Android programming model have smoothly accommodated the scope of creating secure applications that are specially developed for the cloud environment. Also, its open-source policy allows the complex cloud-computing applications to be run by the users anywhere.

For Android app-developers, it's quite different for them to develop applications in the traditional environment and in the cloud computing environment. In the traditional environment, the need to maintain complete infrastructure at the back-end shifts the focus on maintaining the environment instead of making innovative applications. Whereas, in case of apps for the cloud environment, it's the cloud-service providers who manage the infrastructure, software stack and hardware maintenance. This allows developers to write **mobile cloud applications** that profit from cloud computing and can deliver cost-benefits and other such advantages to the users.

Most of us just consider games and other daily-life simplifying apps as the only inspiration for the developers to create Android applications, but a quick reality-check on the app-market reveals that enterprise apps are catching and reaching a market share that attracts significant interest. In fact, research analysts have found mobile-centric applications and interfaces to be among the top 10 technological trends in 2018 and 2019.

Here are two well-known **examples of cloud-based Android applications**:

- **Dropbox:** Operated by Dropbox Inc., this application is a file-hosting service which offers cloud storage. It lets the users access their files in the 'Dropbox' from their Android devices, which can be synced to other computers or mobile devices.
- **Amazon Cloud Player:** One of the most popular applications on Android platform, Amazon Cloud Player is used to store and play MP3 files. Here the 'Cloud Drive' acts as a hard drive set in the cloud. Users can play their MP3 files via the web or they can conveniently stream them on their Android devices using Amazon 'Cloud' MP3 application.

Android -Mobile Cloud Computing-Robotics – A surreal combination

Organizations and companies have changed their approach towards designing and conceptualizing new products after including cloud-computing in their calculations. Users and developers' newly-earned ability to access the immensely flexible and cost-effective power of cloud computing has helped develop services that must have seemed simply infeasible just a few years back. A perfect example of this is *Voice Search* by Google for mobile devices. 'Voice Search' has enabled users to convey a voice query and have it transcribed accurately on their devices in real time. The credit for this goes to Google's ability to use the vast amount of search data to refine and define such voice queries with cloud infrastructure. Ever since its introduction, smart voice search services have. Today, almost 25% of queries on Android devices are using it. Robotics and cloud computing can be a great combination which shall add more capabilities and may also help in saving the battery life of the device. And by adding mobile connectivity to this gives robotics new capabilities while using lesser battery power and memory.

Reasons why cloud computing is the future of mobile devices



The interface of MCC has undeniably enabled us to accommodate videos, music files, digital images and more, right into our petite smart-phones. Here are a few reasons that explain why MCC is considered to be the future for mobile devices:

1. **Extended Battery Life:** As the major role of processing is handled by the cloud, mobile devices' battery usage is reduced automatically.
2. **Abundant Storage Space:** Enormous storage capacity that a mobile user can access happens to be the most highlighted USP of the cloud service. Mobile users shall no longer need to worry about their devices' limited storage capacity and spend money on memory cards.
3. **Improved data-synching techniques:** Cloud storage enables the user to store and manage their data by speedy data synchronization between the device and any other desktop or device chosen by the user. This instantly benefits the users by eliminating their problems of storing all their data files and maintaining a back-up.
4. **Enhanced processing facilities:** The processor of any mobile device determines its speed and performance. However, in the case of mobile cloud computing, most of the processing is performed at the cloud level. This takes the load off the device and thereby enhances its overall performance.
5. **Superior user-experience:** In case of MCC it is always the user who benefits the most by using this platform. The wide range of benefits offered by this platform makes for an optimum productivity and an enhanced user experience.

Scope to embrace new technologies: MCC can easily adjust to the ever-evolving nature of technologies. It is capable enough to perform efficiently with all the upgrades in cloud computing methods and changes in the smart-phones' designs and features.

CRM MANAGEMENT:

Customer relationship management (CRM) describes all aspects of sales, marketing and service-related interactions that a company has with its customers or potential customers. Both business-

to-consumer (B2C) and business-to-business (B2B) companies often use CRM systems to track and manage communications through the Web, email telephone, mobile apps, chat, social media and marketing materials.

CRM Information, Tracking and Analytics

Information tracked in a CRM system might include contacts, sales leads, clients, demographic or firmographic data, sales history, technical support and service requests, and more. CRM systems can also automate many marketing, sales and support processes, helping companies provide a consistent experience to customers and prospects, while also lowering their costs.

Some CRM solutions also offer advanced analytics that offer suggested next steps for staff when dealing with a particular customer or contact. Business leaders can also use these analytics to measure the effectiveness of their current marketing, sales and support efforts and to optimize their various business processes.

The Customer Relationship Management Strategy

Customer relationship management is a business strategy that enables companies to improve in the following areas:

Understanding existing customers' needs

Obtaining a 360-degree view of customers and prospects

Retaining customers through better customer experience and loyalty programs

Attracting new customers

Winning new clients and contracts

Increasing profitably

Decreasing customer management costs

Today's CRM Solutions

Many of today's most popular CRM solutions are delivered as cloud-based solutions. Because they have Web-based interfaces, these tools allow sales teams to access customer and lead information from any device in any location at any time of day. These software as a service

(SaaS) solutions tend to be more user-friendly than older CRM applications, and some include artificial intelligence or machine learning features that can help organizations make better business decisions and provide enhanced support and service to their customers.

The data captured by CRM solutions helps companies target the right prospects with the right products, offer better customer service, cross-sell and up-sell more effectively, close deals, retain current customers and better understand exactly who their customers are.

The Business Benefits of CRM Systems:

The biggest benefit most businesses realize when moving to a CRM system comes directly from having all their business data stored and accessed from a single location. Before CRM systems became commonplace in the 1990s and 2000s, customer data was spread out over office productivity suite documents, email systems, mobile phone data and even paper note cards and Rolodex entries.

Storing all the data from all departments (e.g., sales, marketing, customer service and HR) in a central location gives management and employees immediate access to the most recent data when they need it. Departments can collaborate with ease, and CRM systems help organization to develop efficient automated processes to improve business processes.

Other benefits include a 360-degree view of all customer information, knowledge of what customers and the general market want, and integration with your existing applications to consolidate all business information.

PROJECT MANAGEMENT:

The truly portable office is not only possible, but is quickly becoming the norm for many businesses. Handheld devices were a big step toward the reality of working anywhere, and now cloud computing has removed the final barrier. With project management software hosted in the cloud, you can have everything you need at your fingertips, anywhere you happen to be.

Of course, every technology has its advantages and drawbacks. In this article, we'll take a look at how companies can move their project management into the cloud, who can benefit, and what

pitfalls still remain for this lofty software solution. (For some background reading, check out Project Management 101.)

Project Management Software, Meet the Cloud

Project management software coordinates and automates many of the more tedious functions of managing projects. Most of these software programs include graphs and Gantt chart generation, task assignment, time sheets and milestones. More advanced versions can also regulate resources, monitor budgets, track expenses and calculate costs.

This method of working involves using programs and storing data through an internet connection. Cloud software is hosted by the provider on remote servers, rather than being physically installed on a company's machines. Microsoft OneDrive, Dropbox and your Amazon Kindle digital library are examples of cloud storage. (To learn more about the overall benefits of cloud computing, read [A Beginner's Guide to the Cloud: What It Means for Small Business](#).)

The Benefits of Cloud Software

Cloud software comes with plenty of advantages. One of the primary benefits for project management is super-easy sharing. Because the software is hosted in the cloud, an entire business team can access the most recent tasks, schedules and progress updates anytime, which makes cloud software ideal for travel and real-time collaboration.

Speaking of access, another great advantage to cloud software is portability. An internet connection is all it takes to access the program anytime, anywhere, from any device, including a desktop computer, laptop, smartphone or tablet.

There's also cost and time to consider. Traditional installed PM software can cost thousands, and may require hardware upgrades. Installation and upgrades are not only expensive, they also slow deployment. Cloud software, on the other hand, doesn't require installation, just a login and password to access the latest version of the software. The pricing structure is also much easier on a company's budget, as most cloud project management software is sold as subscription-based software as a service (SaaS). This means low monthly payments instead of hundreds or thousands upfront. In addition, most project management software doesn't require a long-term commitment.

In a nutshell, using the cloud deals with the following challenges, which all kinds of companies face, whether they work in architecture, construction or telecommunications:

Distribution delays, time-zone problems

With cloud service, everyone can gain access to company data from a laptop, PC, smartphone or tablet from anywhere there's a reliable internet connection.

Project collaboration

Forget cumbersome emails, employees can work on a project over the cloud and submit changes that will be available to the rest of the group in minutes. This allows disparate employees to work in near real time, just as if they were in the same room.

Backup

By having documents in the cloud, companies are protected against hardware and software failure.

Unlimited storage space

The cloud never runs out of space and is accessible from almost anywhere. This allows companies to archive files, allowing team members to continue to access them in the future, even remotely.

What's the Risk?

There's always a catch, right? Despite its strengths, cloud project management software does have a few disadvantages. Chief among them is security, which is an inherent risk for any online transaction. (Read more about security risks in [The Dark Side of the Cloud](#).)

Ever since cloud software began to grow in popularity, companies have cited security as a primary concern. After all, using the cloud means storing all of a company's data – which may include trade secrets, sensitive customer data, and company information – on someone else's servers. Those servers could be vulnerable to hackers, viruses, or even natural disasters or physical theft.

Fortunately, cloud software vendors are aware of these risks, and most use the best available security to protect their servers and their customers' data. After all, without satisfied customers, cloud providers wouldn't be in business. In addition, cloud security has improved over time, and is likely to continue to do so as cloud providers come up with new solutions to protect their

clients' data. Even so, companies should find out what security procedures and protocols are in place before subscribing to any cloud software service.

Downtime is another potential problem. If the cloud provider runs into technical problems, its clients will not be able to access their data. According to the International Working Group on Cloud Computing Resiliency, the uptime of cloud providers ranged between 99.6 percent and 99.9 percent, for an average of 7.5 hours of unavailable time per year. This sounds pretty good, but IWGCR states that it's a long way from the 99.99 percent reliability that's required of a mission-critical system. Many large cloud software vendors – and even some smaller ones – have uptime guarantees, so companies should look for one that carries the least risk. And of course, the most crucial data should also be backed up in-house.

Where Cloud PM Software Works

While large corporations tend to stick to the more traditional installed PM software, cloud versions are being embraced by companies that lack million-dollar IT budgets. The low initial costs, minimal or non-existent IT infrastructure investment, pay-as-you-go rates and anywhere access of cloud software is ideal for:

EMAIL: Email



Email

A robust and easy-to-use webmail for **teams of all sizes**.

A focus on **productivity** allows you to set up your inbox and filing system to best support how you work, along with **intuitive functionality** like drag and drop and auto saving.

You can access your emails anywhere, anytime, and on any device with **IMAP sync** across all major mobile and desktop clients.



Calendar

A calendar that gives you complete flexibility to **create, manage and share** individual, group and resource schedules.

Configure events how you want them with options for **privacy settings, reminders, recurrences, and attachments**.

Always know where you need to be by syncing your calendar across major mobile devices and desktop clients. Easily share and receive events with **ICS files and iCal support**.



Contact

A contact system allows you to **create and access multiple address books** for yourself, your colleagues, and your organization overall.

You can configure what information is collected for a contact to best fit your needs, as well as setting up advanced features such as **auto contact creation** when receiving emails from new contacts.

Also, **easily import** contacts or whole address books, including from your organization's directory.



FileShare

A completely secure filesharing system to support everything from casual sharing to providing the **confidentiality and traceability** for teams and organizations that demand it.

Take advantage of sharing features such as password protection, temporary accounts, expiring links, and maintain a **detailed log of who has downloaded and modified your files**.

Additional security features include **digital signatures, file encryption and built-in antivirus** support to protect yourself and your organization.

WORD PROCESSING:

Just about everyone who uses a computer uses a word processing program. You use your word processor—most likely some version of Microsoft Word—to write memos, letters, thank you notes, fax coversheets, reports, newsletters, you name it. The word processor is an essential part of our computing lives.

The solution, believe it or not, lies in the clouds—in the form of a web-based word processor. That's right, there are a number of web-based replacements for Microsoft's venerable Word program. All of these programs let you write your letters and memos and reports from any computer, no installed

software necessary, as long as that computer has a connection to the Internet. And every document you create is housed on the web, so you don't have to worry about taking your work with you. It's cloud computing at its most useful, and it's here today

1. How Web-Based Word Processing Works

Microsoft Word is a software program that is installed on your computer's hard disk. Web-based word processors, in contrast, are hosted in the cloud, not on your hard drive—as are the documents you create with these applications.

a) Benefits of Web-Based Word Processors

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- ☐ the most obvious benefit of using a cloud service is that your documents can be accessed wherever you are, from any PC.
 - ☐ being web based, you can easily share your documents with others.
 - ☐ being web based is that you can't lose your work
 - ☐ After you've named the document you're working on, the webbased word processor saves your file on its cloud of servers. From that point on, every change you make to the document gets saved to the cloud servers automatically. Nothing gets lost if you close your web browser, navigate to another website, or even turn off your computer. Everything you do is saved
 - ☐ on the web.
 - ☐ web-based applications are free.
 - ☐ Being free makes it easy to take for a test drive, and even easier to add to your bag of applications.

2. Exploring Web-Based Word Processors

There are a half-dozen or so really good web-based word processing applications, led by the ever-popular Google Docs.

Google Docs

- ❑ Google Docs (docs.google.com) is the most
- ❑ popular web-based word processor available today.

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- ❑ Docs is actually a suite of applications that also includes Google Spreadsheets and Google Presentations; the Docs part of the Docs suite is the actual word processing application.
 - ❑ Like all things Google, the Google Docs interface is clean and, most important, it works well without imposing a steep learning curve.
 - ❑ Basic formatting is easy enough to do, storage space for your documents is generous, and sharing/collaboration version control is a snap to do.

- o This is the home page for all the Docs applications (word processing, spreadsheets, and presentations); all your previously created documents are listed on this page.

PRESENTATIONS:

Preparing Presentations Online

Working with an online presentation application is no different from working with any other web-based application. Users from multiple locations can access the presentation directly from any Internet-connected computer, making it easy to assemble a presentation via group collaboration.

BrinkPad (www.brinkpad.com) is a Java applet that works inside any web browser. It lets you create, save, and publish your presentations and slide shows on the web.

Empressr

Empressr (www.empressr.com) offers more functionality than BrinkPad and similar applications, via an interface that should be somewhat familiar to PowerPoint users. You can insert text, shapes, tables, or charts onto any slide. You can even create custom slide backgrounds.

Google Presentations

Users can create new presentations and open existing ones from the main Google Docs page (docs.google.com). Open a presentation by clicking its title or icon. Create a new presentation by selecting New, then Presentation. Your presentation now opens in a new window on your desktop.

Preezo

Preezo even looks a lot like Google Presentations. You get the obligatory slide sorter in the leftmost pane, the current slide in the main window, and all available editing and formatting options in a toolbar and series of pull-down menus. Slide transition effects include wipes, fades, splits, and pushes.

Presentation Engine

Presentation Engine (www.presentationengine.com) is an advanced presentation program with an eye toward snazzy graphics and transition effects. It offers a level of graphics sophistication not found in competing online applications.

PreZentit

PreZentit (www.prezentit.com) is a slick-looking application that offers features not found with competing programs.

SlideRocket (www.sliderocket.com) is one of the newest web-based presentation applications.

ThinkFree Show

ThinkFree Show (www.thinkfree.com) is the presentation component of ThinkFree's suite of office applications.

Thumbstacks

Thumbstacks (www.thumbstacks.com) is a bare-bones online presentation program.

Zoho Show

Like Google Presentations, Zoho Show lets you create good-looking text-based slides, but that's about all.

SPREADSHEETS:

Several web-based spreadsheet applications are worthy competitors to Microsoft Excel. Chief among these is Google Spreadsheets, which we'll discuss first, but there are many other apps that also warrant your attention. If you're at all interested in moving your number crunching and financial analysis into the cloud, these web based applications are worth checking out.

Google Spreadsheets

Google Spreadsheets was Google's first application in the cloud office suite first known as Google Docs & Spreadsheets and now just known as Google Docs. (It's also the only app in the suite that Google developed in-house.) As befits its longevity, Google Spreadsheets is Google's most sophisticated web-based application. You access your existing and create new spreadsheets from the main Google Docs page (docs.google.com). To create a new spreadsheet, click the New button and select Spreadsheet; the new spreadsheet opens in a new window.

EditGrid

EditGrid interface is a near-replica of pre-2007 Excel, down to the tabbed sheets, pull-down menus, and toolbars. You even get 50+ keyboard shortcuts, identical to those in Excel.

eXpresso

The spreadsheet itself isn't much to write home about; there are no functions, charts, or advanced formatting options. The collaboration features, however, include notes, email communication, online chat, and sophisticated sharing capabilities. This application is perhaps

best used to first import existing Excel spreadsheets and then share them using eXpresso's collaboration tools.

Num Sum

the program includes no built-in functions and only three rudimentary chart types (line, bar, area), which makes it less than ideal for advanced spreadsheet users.

PeepelWebSheet

WebSheet offers a nice selection of functions and formatting options, it doesn't have a chart feature, so you can't display your data visually.

Sheetster

Sheetster (www.sheetster.com) is a web-based spreadsheet written in JavaScript.

ThinkFreeCalc

ThinkFreeCalc (www.thinkfree.com), like its ThinkFree Write sibling, is a Javabased online application.

Zoho Sheet

Zoho Sheet (sheet.zoho.com) is Zoho's web-based spreadsheet application. Like all Zoho apps, this one is full featured with great sharing and collaboration features.

Preparing Presentations Online

Working with an online presentation application is no different from working with any other web-based application. Users from multiple locations can access the presentation directly from any Internet-connected computer, making it easy to assemble a presentation via group collaboration.

COLLABORATING ON DATABASES

- It used to be that the big three office applications were word processing, spreadsheets, and databases.
- It's possible that databases have fallen from the top three replaced either by email or presentation applications, depending on how you look at things), but large businesses especially still have plenty of need for database management applications.
AC
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- Today, thanks to cloud computing technology, the underlying data of a database can be stored in the cloud—on collections of web servers—instead of housed in a single physical location.
- This enables users both inside and outside the company to access the same data, day or night, which increases the usefulness of that data.
- It's a way to make data universal.

1. Understanding Database Management

Before we start looking at web-based database management applications, it helps to know a little about how databases themselves work. Although it's convenient to think of a database as simply a collection of data, there's more to it than just that.

a) How Databases Work

- ❑ A database does many of the same things that a spreadsheet does, but in a different and often more efficient manner. In fact, many small businesses use spreadsheets for database-like functions.
- ❑ Think of it this way. If a spreadsheet is a giant list, a database is a giant filing cabinet. Each —filing cabinet is actually a separate database file, and contains individual index cards (called *records*) filled with specific information (arranged in *fields*).
- ❑ You can use a database application to create and store anything that includes a large amount of data. For example, you can create a database that contains all your favorite recipes or the contents of your CD or video collection.
- ❑ For businesses, databases tend to house large amounts of granular data—information about customers, employees, and sales. A database management program not only stores this data but also automates data entry, retrieval, and analysis. Many businesses build custom applications around their databases, so that the database itself becomes somewhat transparent. Users see only the front end that pulls information from the database.

b) How Online Databases Work

- ❑ A local database is one in which all the data is stored on an individual computer.
- ❑ A networked database is one in which the data is stored on a computer or server connected to a network, and accessible by all computers connected to that network. Finally, an online or web-based database stores data on a cloud of servers somewhere on the Internet, which is accessible by any authorized user with an Internet connection.

- The primary advantage of a web-based database is that data can easily be shared with a large number of other users, no matter where they may be located. When your employee database is in the cloud, for example, the human resources department in your Alaska branch can access employee information as easily as can the HR staff in Chicago—as can HR managers traveling across the country to various college job fairs.
- And, because the data itself is stored in the cloud, when someone at one location updates a record, everyone accessing the database sees the new data. Synchronization is not an issue.
- With these advantages in mind, most online databases are oriented toward quick information sharing among members of workgroups who've assembled to attack a project for a month or two. When accessing data in this manner, ease of use is paramount, which most of these cloud applications address with simple and intuitive interfaces.

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SOCIAL NETWORKS

There are three main categories: web email services, instant messaging services, and web conferencing tools. Groups located anywhere in the world can use these tools to communicate with other group members—and further their collaboration on group projects.

2. Evaluating Web Mail Services -Traditional email is anything but cloud based. The type of email program you probably have installed on your PC uses a protocol called the Post Office Protocol (POP). POP email requires the use of a dedicated email client program, such as microsoft Outlook or Outlook Express, and—at the ISP level—email servers to send and receive messages. The problem with traditional POP email is that you're tied to the client program installed on your PC. The messages you receive are stored on that PC, and you usually can't access them when you're traveling or away from that PC. There are none of the —anytime, anywhere advantages you're used to with cloud-based services. Fortunately, there is a better way to manage your email—in the form of webbased email services, also known as web mail or HTTP email. Unlike traditional POP email, web mail can be accessed from any PC using any web browser, and all your messages are stored on the web, not locally. It's just

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like a cloud service; no special software required. This lets you retrieve and manage your email when you're out of the office or on the road. Not only is web mail more versatile than traditional POP email, it's also easier to set up. All you need to know is your user ID and password, and then you access a page that lets you view the contents of your inbox, read and reply to messages, create new messages, and (in many cases) store messages in folders. You can even, on some services, use your web mail account to access your ISP's POP email. The three largest web mail services today are hosted by Google, Microsoft, and Yahoo!

Gmail

Google's web mail service is called Gmail (mail.google.com), and at first blush it looks a lot like the other services we discuss in this chapter. Gmail is free, it lets you send and receive email from any web browser, and the interface even looks similar to its competitors. But Gmail offers a few unique features that set it apart from the web-based email crowd. First, Gmail doesn't use folders. That's right, with Gmail you can't organize your mail into folders, as you can with the other services. Instead, Gmail pushes the search paradigm as the way to find the messages you want—not a surprise, given Google's search-centric business model.

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Gmail does, however, let you —tag each message with one or more labels. This has the effect of creating virtual folders, as you can search and sort your messages by any of their labels. In addition, Gmail groups together related email messages in what Google calls conversations. A conversation might be an initial message and all the replies (and replies to replies) to that message; a conversation might also be all the daily emails from a single source that have a common subject, such as messages from subscribed-to mailing lists. Like most of the other services we discuss here, Gmail is a free service; all you have to do is sign up for an account. Of course, if you already have an account for any other Google service, that account can serve as your Gmail account. When you sign up for your Gmail account, you get assigned your email address (in the form of `name@gmail.com`) and you get access to the Gmail inbox page. As of June 2008, Gmail offered 6GB of storage for users.

any web browser. Yahoo! also offers a paid service called Yahoo! Mail Plus that lets you send larger messages and offers offline access to your messages via POP email clients. Whether you use the free or the paid version, Yahoo! Mail gives you unlimited storage—which means you can effectively use Yahoo! Mail as an online backup or file-storage system. All you have to do is email yourself those files you want to store, and then place those messages (with attachments) in your designated storage folder.

Windows Live Hotmail

Hotmail was one of the first web-based email services, and it's still one of the largest. But it's not called —Hotmaill anymore; Microsoft has moved it into its Windows Live suite of online services and now calls it Windows Live Hotmail. Like most web mail services, Hotmail (we're going to call it by its old, shorter name) can be accessed from any web browser on any PC anywhere in the world, for free. Microsoft gives you 5GB of storage, not quite as much as you get with Gmail (6GB) or Yahoo! Mail (unlimited).

Apple MobileMe Mail

As part of its MobileMe suite of applications, Apple offers MobileMe Mail (www.me.com). What makes MobileMe Mail unique is that it's not limited to just computer users; you can also send and receive emails from your Apple iPhone or iPod touch, via Wi-Fi Internet or cellular network. Other Web Mail Services Gmail, Yahoo! Mail, and Windows Live Hotmail are the three largest web mail services (and MobileMe Mail promises to be a competitor), but there are literally hundreds more. Besides these big providers, there are dozens of independent web mail services, plus a plethora of topic-specific websites that offer (among other content and services) their own branded HTTP email. In addition, just about every cloud service provider, such as Zoho, offers web mail as part of its suite; web mail is also part of most web-based desktops.

So if you're looking for a web mail service and don't want to go with one of the big three, here's a short list of some of the other major providers to check out: _ AOL Mail (mail.aol.com) _ BigString (www.bigstring.com) _ Excite Mail (mail.excite.com) _ FlashMail (www.flashmail.com)

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Go to Settings

GMX Mail (www.gmx.com) _ Inbox.com (www.inbox.com) _ Lycos Mail (mail.lycos.com) _ Mail.com (www.mail.com) _ Zoho Mail (zoho.mail.com)

Evaluating Instant Messaging Services

Email is just one way to communicate online. For many users, instant messaging is a better way to talk; it's more immediate, because you can send text messages in real time to your friends and coworkers. No more waiting for people to respond to your emails—when both parties are online at the same time, it's just like having a one-on-one conversation! Technology-wise, email works a little differently from most Internet applications— and quite different from the cloud services we've been discussing throughout this book. Email (both web based and POP), Usenet, and the World Wide Web operate via a traditional client/server model, with most of the heavy lifting done via a network of dedicated servers. For example, your POP email is stored on and managed by an email server, while all the pages on the web are hosted on millions of individual web servers. Instant messaging, however, doesn't use servers at all. When you send an instant message to another user, that message goes directly to that user's PC; it's not filtered by or stored on any servers. The technical name for this type of connection is peer-to-peer (P2P), because the two computers involved are peers to each other. All instant messaging needs to work is a piece of client software (one for each computer involved, of course) and the IP addresses of each computer. The messages go directly from one IP address to another, with no servers in the middle to slow things down. (Naturally, the data must still make its way through numerous routers to get to the other PC, but that's part and parcel of any Internet-based application.)

There are several big players in the instant messaging market today, including America Online (with both AOL Instant Messenger and ICQ), Google (Google Talk), Microsoft (Windows Live Messenger), and Yahoo! (Yahoo! Messenger). Unfortunately, most of these products don't work well (or at all) with each other. If you're using Yahoo! Messenger, for example, you can't communicate with someone running AOL Instant Messenger. That means you'll want to use the IM program that all your friends and coworkers are using—so find that out before you download any software. AOL Instant Messenger The most-used instant messaging program is AOL Instant Messenger (www.aim.com), also known as AIM. AOL claims more than 60 million users, which makes it the number-two IM service today, second only to Yahoo! Messenger. For whatever reason,

AIM is especially popular among the teen and preteen crowd, although people of all ages can and do use it.

Google Talk

Google Talk is the name of both Google's instant messaging network and its IM client. You can download the Google Talk client and learn more about the Google Talk network at talk.google.com. You can access Google Talk from a web-based Google Talk gadget, a standalone Google Talk client program (similar to what's offered by both AIM and Yahoo! Messenger), or from your Gmail and iGoogle web pages. As with competing IM systems, Google Talk lets you send and receive both text-based instant messages and Voice over IP (VoIP) Internet phone calls.

ICQ

The granddaddy of all instant messaging programs is ICQ (www.icq.com). ICQ was birthed by a company named Mirabilis back in 1996, but was acquired by America Online in 1998. Today, AOL maintains ICQ and AIM as separate programs—so separate that ICQ users can't talk to AIM users, or vice versa. Like most other IM programs, ICQ is totally free. You also get grouped conversations, voice messaging, photo viewing, and other state-of-the-art features.

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