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EXECUTIVE SUMMARY

The labor movement's continuing decline in new members makes the wise use of membership dues all the more essential to the workings of our organization. One area that presents a strong possibility for cost-cutting is IT, specifically, the cost of conducting our office productivity business. We currently use Microsoft Office on-premise, but we could save expenses by migrating the creating, editing, and storage of our documents online, using the services of a "cloud computing" (or "Software as a Service") vendor who would handle the infrastructure, maintenance, and upgrading activities we currently perform for ourselves.

To find the best option, we performed an overview of cloud computing, examined the benefits and drawbacks of cloud computing, and compared the online office suites from the three leaders in the Software as a Service space: Microsoft (Web Apps), Google (Google Docs) and Zoho (Zoho Docs). Although there was no perfect solution, we found that **Google Docs** delivered the savings and features we were looking for; and, despite a widely-reported outage that left users of Google Apps without access for a few hours, we recommend a small-scale trial of Google Docs, with a view to migrating our non-sensitive documentation to the Google Docs platform.

INTRODUCTION

As a statewide labor organization, it's essential that we communicate quickly and effectively to a number of audiences: organizers in the field, media, elected officials, and existing members and potential new ones. As an organization made up of dues-paying members, we have a special obligation to explore ways of carrying out our mission in California in the most cost-effective way possible.

Over the years, we have seen a considerable drop in new memberships. As a consequence of this dwindling dues revenue, we must intensify our efforts to communicate our message persuasively while also reducing our expenses. One method is to use cloud computing for our office productivity work. Creating, editing, and updating documents using a cloud computing service makes sense economically and strategically. As we approach the end of our Microsoft Office license, we have an excellent opportunity to investigate the cloud computing alternative.

RESEARCH METHODS

To better understand the value of cloud computing to our organization, we investigated the costs of continuing our present approach, which include the following:

- Buy staff new computers every three to five years
- Purchase networking servers every three to five years
- Pay for third-party software licenses and upgrades
- Employ IT consultants to install new software and maintain our IT operations

Additionally, we investigated:

- Leading vendors to assess their services and their costs
- Data security measures and service records

RESULTS

Although Microsoft Office Web Apps, Zoho, and Google Docs all gave us the collaborative functionality and easy accessibility we wanted, we discovered that no option was perfect. Costs were prohibitively high with one; vendor reliability was a concern with another; and a system failure counted against another. Yet we found on balance that Google Docs was the best option of the three.

CLOUD COMPUTING OVERVIEW

This report looks at the feasibility of moving the creation, editing, sharing, and storage of documentation to a Web-based office productivity suite. The following section offers an instructive background on cloud computing.

What Is Cloud Computing?

Broadly defined, cloud computing is information processing that users carry out by way of Web-based tools and applications instead of on-site servers and locally installed software. While the name may seem new and mysterious, cloud computing is a term that covers services in common use such as Web-based email like Yahoo! Mail and Gmail and social networking services like Facebook and Twitter. Cloud computing solutions are available at no cost, pay-per-use, or by subscription or monthly fee to users, depending on the service.

Basic Categories of Cloud Computing

There are three basic categories of cloud computing.

- *Software as a Service (SaaS)*. SaaS vendors offer customers applications to use via their Web browsers.
- *Infrastructure as a Service (IaaS)*. IaaS vendors offer customers services like storage, backup, disaster recovery, databases, and security. This arrangement provides customers with a virtual server.
- *Platform as a Service (PaaS)*. Vendors offer a space where developers can build and deploy applications without purchasing new hardware.

Software as a Service: Instead of employing software installed on their individual computers and local servers, users access applications via their Web browsers and an Internet connection.

Additionally, a cloud can be public, private, or a public-private hybrid. A public cloud sells services to anyone on the Internet. (Currently, Amazon Web Services is the largest public cloud provider.) A private cloud is a proprietary network or a data center that supplies hosted services to a limited number of people. When a service provider uses public cloud resources to create their private cloud, the result is called a virtual private cloud. Private, public or a hybrid of the two, cloud computing affords quick and scalable access to computing resources and IT services through the use of remotely located, widely distributed data networks.

Major Cloud Computing Providers

Leading technology and telecommunication companies have already made enormous investments in developing and deploying cloud computing services in all categories.

For example, Amazon Web Services provides virtual servers with unique IP addresses and blocks of storage on demand. Google provides GoogleApps, which allows developers to create applications on the provider's platform over the Internet. Other familiar industry leaders in cloud computing are Salesforce and AT&T.

In the SaaS sphere, in 2011 Microsoft will be launching Microsoft 365, which combines the latest version of the Office Professional Plus desktop suite with its online office productivity (Web apps is already available as a subscription service). Google currently offers a popular online productivity suite, Google Docs, with word processing, spreadsheets, presentation software and more. Zoho, Startforce, Airset are several new companies that provide SaaS with a range of both familiar and new functionalities.

Growth of Cloud Computing and Software as a Service (SaaS)

According to Gartner, Inc., a leading information technology research and advisory company, worldwide cloud services revenue is forecast to reach \$68.3 billion in 2010, a 16.6 percent increase from 2009 revenue of \$58.6 billion. The company also predicts strong growth through 2014, when worldwide cloud services revenue is projected to reach \$148.8 billion.

Gartner also forecasts that worldwide SaaS revenue within the enterprise application software market will surpass \$8.5 billion in 2010, up 14.1 percent from 2009 revenue of \$7.5 billion. Companies such as IBM, Microsoft, and HP are investing billions into providing cloud computing services.

COSTS OF COMPUTING

With on-premise computing, there are many hidden costs, both lump sums and annuities. In addition to initial capital expenditures such as software licensing and hardware, there are the costs associated with maintaining the technical infrastructure, training users, and energy consumption. As technology changes, there are the periodic costs of replacing aging computers and servers with more powerful models. Finally, equipment failures can add unforeseen costs of repair and replacement.

Users of cloud computing don't incur these hidden costs directly as the vendor is responsible for the availability, functionality, integrity, operation, and maintenance of its service. As a result, the overall cost for adopting a cloud computing system is less than starting up an on-premise operation in many cases—this is particularly true for small and medium-sized organizations. However, recurring subscription costs could mean that over the long run, cloud computing could cost an organization more than an on-premise computer setup.

BENEFITS OF CLOUD COMPUTING

The principal benefits of cloud computing to organizations can be measured in two ways: 1) **economic benefits**, and 2) **enhanced productivity**.

Economic Benefits

- Organizations do not pay to install, configure, or manage networks, operating systems, or pay for on-site data storage.
- Organizations likely need fewer on-premise servers.
- Organizations need fewer IT staff because upgrades, debugging, and patch installation are performed by the vendors.
- Organizations do not pay additional software licensing fees to add users and do not pay for software upgrades.
- Organizations can continue to use older computers and older legacy software because processing is carried out at vendor data centers.
- Organizations can rely more on users working remotely, reducing office space costs.

Enhanced Productivity

More staff have access to more systems outside of the office. With office productivity in the cloud, this means that users working on documentation can:

- Access documentation from anyplace there is an Internet connection
- Collaborate in real-time from different locations
- Keep track of different versions of documentation without emailing documents back and forth
- Connect remotely rapidly without setting up virtual private networks (VPNs)
- Always use the latest available version of software
- Focus more on mission and program instead of IT concerns

DRAWBACKS OF CLOUD COMPUTING

Because data and files are stored off-site, there are a number of significant concerns related to cloud computing. Chief among them are:

- How secure is data in the cloud (i.e. who can look at or alter files)?
- How do service providers guard against data loss (either by system failure or security breaches)?
- How reliable is access to cloud computing services?

Data security is of particular importance to our organization. Owing to the political nature of our work, we must carefully assess our risk tolerance, evaluating how severe the outcomes would be if our assets were accessed without authorization or made public. Of course, being able to access our files dependably is also critical.

However, in the course of our evaluation we must look at the presumption of the security of on-premise computing. While there is a common perception that on-site servers are inherently more secure, it should be noted that cloud computing vendors have dedicated security resources that are vastly greater than those of individual organizations. It should also be noted that the physical means for sharing files—external drives, thumb drives—are by no means fail-safe, and can be lost or stolen.

The first practical step in mitigating potential data loss, security breaches and access risks is choosing cloud computing services from proven industry leaders. The following section looks at three leading providers of office productivity suites in the cloud, Microsoft, Google, and Zoho, comparing security features as well as ease of use, cost, and data backup.

ONLINE OFFICE PRODUCTIVITY SUITES COMPARED

The following table compares features and advantages of the leading online office productivity suites, Microsoft Web Apps, Google Docs, and Zoho.

	Google Docs	Microsoft Office Web Apps	Zoho
Cost for businesses to use	Free	Free with Office 2010 desktop software licenses or available in monthly subscription of Office 365* (~\$10 per month per user)	Approximately \$2 per month per user
Availability	Now	Now**	Now
Web browser supported	Internet Explorer 6+, Mozilla Firefox 2+, Google Chrome 5, Safari 4+	Internet Explorer 7 or later, Mozilla Firefox 3.x, or Apple Safari 3.x.	Any
User interface	Spare and easy to use	Very familiar	Unfamiliar
Users can collaborate on documents	Yes	Yes	Yes
Track versions	Yes	Yes	Yes
Range of functionality	Less robust than Office Professional Plus	Less robust than the desktop version, which it's intended to supplement rather than replace	Less robust than Office Professional Plus
Word doc compatibility	Yes	Yes	Yes
Ease of migrating Word and editing Word-created documents	Upload Word docs, convert to Google Docs to edit, download in Word. Also, Google's Cloud Connect for Microsoft Office, a free add-on that syncs desktop-created Office with Google Docs and allows simultaneous group editing of the documents	Fully integrated Plus, Web Apps can sync on-premise and cloud-stored files automatically.	Zoho plug-in allows document creating, editing, and saving in Microsoft Office offline with uploading to Zoho's word processing and presentation applications
Files and data ownership	Account creator	Account creator	Account creator
Security and Data Recovery	Continuous offsite mirroring, disk data storage, redundant backup services, 128-bit SSL/TSL encryption	Geo-redundancy, disaster recovery, and robust security and privacy controls and standards; 128-bit SSL/TSL encryption	Customer data is mirrored in a separate geographic location for Disaster Recovery and Business Continuity purposes; 128-bit SSL/TSL encryption
Storage	1GB	Configurable	15GB
Service level agreement	Guaranteed 99.9% service uptime	Financially-backed 99.9% uptime	Zoho asserts that it will use "all reasonable commercial efforts to ensure that the Zoho Service is operating and available 99.9%"
On mobile devices?	Yes	Yes	Yes

*Office 365, available in mid 2011, is Microsoft's cloud communication and collaboration product bundle for businesses with the latest version of Office Professional Plus

**Available as:

- Web Apps alone by subscription
- Part of Office 2010 (as Web Apps)
- Part of Office 365 in mid-2011 (Microsoft's online collaboration and communication suite for businesses)

CONCLUSION

Cloud computing is not a perfect option as there are significant security, reliability, and service issues. But judging by the investments made by leading companies such as Google and Microsoft and the competing products they are releasing, cloud computing is here to stay. Additionally, the increasing cost and complexity of maintaining IT services virtually guarantees the use of cloud computing will continue to grow.

As we look at the upcoming expiration of our Office software license, adopting cloud computing for our office productivity needs makes economic sense. While Microsoft's offering is feature-rich with familiar user interfaces, it doesn't cut our costs to the degree we feel possible in terms of equipment and contractual IT staff—a significant objective.

Zoho's product delivers in terms of functionality and possibly in terms of price, but we aren't sure that Zoho will exist in the long run or, given the condition of its help pages, would be particularly easy to adopt. For these reasons, we feel that **Google Docs** is our best choice. We do not see this move as one of switching an IT solution for the sake of doing so. Rather, we see this is the first step in integrating cloud computing in our overall IT strategy while also enjoying an important cost savings at a time when economizing is called for.

At this stage in cloud computing's maturity, the services are well-suited for small to midsize companies like ours. It's advised that organizations transitioning to the cloud begin with office productivity. We agree, and Google Docs is our recommendation. Despite a widely reported outage in 2009 that left users without access to Google Apps, we are confident in the company's ability to continue innovating in cloud computing. The City of Los Angeles's recent move to Gmail for its 30,000 city employees, to significant cost savings, supports our view.

RECOMMENDATION

We believe that it's feasible to use hosted software prudently and with acceptable risks. With the upcoming expiration of our Microsoft Office 2007 license, we recommend a measured, small-scale trial of Google Docs with a view to migrating our non-sensitive to cloud computing.

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