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Cloud Computing for Nonprofits
A Guide

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Supporting Nonprofit Staff
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Last year, Microsoft and NTEN published the first State of Nonprofit Cybersecurity report and found that 59% of nonprofit respondents did not do any cybersecurity training for their staff. None at all. In the 2018 State of Nonprofit Cloud report, also from Microsoft and NTEN, 56% of nonprofit respondents noted that their organization had decided to implement a new cloud service in just the last year.

As a nonprofit, NTEN understands firsthand the opportunities and challenges that come with engaging in a digital world. With organizations making decisions about technologies at the same time that staff training is lagging, the vulnerability of data, service delivery, and effectiveness is increasing.

We know that the research is only part of the need. It helps benchmark where the sector may be and direct us in providing support where most appropriate. Microsoft has invested in NTEN this year to provide resources about the cloud, cybersecurity, and artificial intelligence to increase the capacity of all nonprofits to understand these topics, make plans, and train staff.

Please share these resources with everyone on your team, use the checklists and guides in meetings and to support planning, and let us know how we can help you further.

Amy & Jane

Amy Sample Ward
CEO, NTEN

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What is Cloud Computing?

"Why aren't we on the cloud?"

"If we put everything in the cloud, it will be easier, right?"

"The cloud isn't secure, is it?"

Versions of these questions are frequently asked during conversations about technology at nonprofits. They stem from a misunderstanding of what cloud computing is, and challenges unique to the nonprofit sector. Cloud computing can be defined as the rental of someone else's computer resources to provide services — applications, infrastructure, security, software, and storage.

There are three main categories of cloud computing: infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS). In implementations of IaaS, your organization essentially only rents the server hardware and a small amount of software to host applications. PaaS providers, by contrast, maintain system software as well, meaning upgrades and patches are the responsibility of the PaaS provider, not your organization. SaaS is the most general category of cloud computing. Techtarget.com describes SaaS this way: "In the software on-demand SaaS model, the provider gives customers network-based access to a single copy of an application that the provider created specifically for SaaS distribution. The application's source code is the same for all customers, and when new features or functionalities are rolled out, they are rolled out to all customers." Examples of SaaS include Salesforce, Google Apps like Gmail or Google Docs, Microsoft 365, Asana, Slack, Calendly, Hootsuite, and many, many more.

For this paper, we will be referring to the SaaS category of cloud computing.

Why Is It So Popular With Nonprofits?

The flexibility of cloud computing makes it attractive to nonprofits. As organizations grow or their needs change, rather than continually purchasing new storage capacity to support applications, by leveraging cloud computing, nonprofits can simply request additional space based on current needs and usage.

With specific software applications, for example, organizations can adjust the number of user accounts as needed. With traditional computing structures, an initial purchase of 100 licenses would lock an organization into that number for an extended time. Additionally, many applications designed for SaaS allow organizations to select and only pay for functionality they need instead of purchasing a product too expansive for their needs.

Reduced upfront costs and maintenance further strengthen the case for nonprofits to adopt cloud computing. Without the need to purchase a large number of licenses or storage space for anticipated growth, the cost barrier to adopting new software is considerably lower. Software upgrades are the responsibility of the provider, thus freeing up some of the time demands on an organization's IT staff — or IT individual. System backups are also often done by the SaaS provider, instead of by the nonprofit organization. And of course, without the need to purchase physical servers and hardware, organizations save on space expenses as well.

Together, flexibility, cost, and maintenance support can allow nonprofit organizations access to the latest software as they focus on executing their missions.

Quick Benefits and Detriments

On top of the previously described reasons that make cloud computing a popular option for nonprofit organizations, there are a host of other benefits. To access the infrastructure, software, and storage, cloud computing only requires a strong internet connection. This not only simplifies the effort to maintain availability for an organization but also means that the software is available from multiple locations and across multiple devices. With most of the setup facilitated by an internet connection and the provider, the software is usable within a relatively short timeframe. This accessibility gives employees another layer of freedom when performing necessary functions.

The ease of signing up for and canceling cloud computing services means that nonprofits can virtually test out some services, and use other services for limited amounts of time. If, after a couple of months, an organization concludes the service is no longer useful, it is often a simple process to stop payment and cancel the subscription.

As with all technology, however, cloud computing also has its detriments. The same flexibility that makes cloud computing attractive to nonprofits also creates risk.

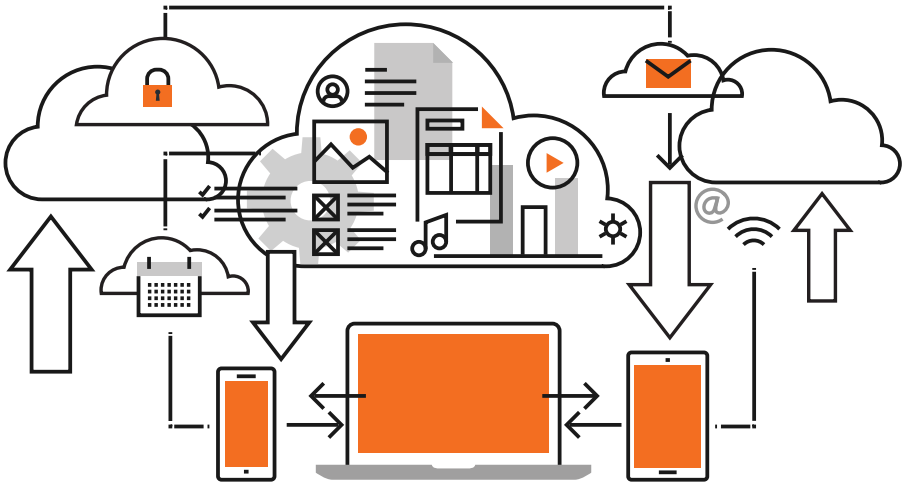
To start, the reliance on an internet connection can be difficult for some nonprofit organizations. If the internet connection is disrupted or lacks the bandwidth to enable all SaaS subscribed to, an organization will lose access to its data and its ability to do work. Similarly, unavailability of data centers and application downtime are both outside of the control of the nonprofit and will prevent the nonprofit from accomplishing its mission.

The ease of purchase of SaaS can translate to anyone in the organization subscribing to any of the myriad existing software. The "pay for what you use" model, while good for keeping startup costs low, may make it difficult to budget long-term for software expenses. As organizations' usage changes or providers' payment plans change, the costs for the organization change as well. Some organizations do not realize that a move to the cloud means that access to your infrastructure is contingent on your ability to pay and the cloud provider's generosity.

Perhaps the biggest downside of cloud computing is that organizations do not own the applications or the data stored within them. If a provider decides to discontinue a product, an organization will be forced to migrate to another solution. In traditional service computing structures, organizations would have the option of continuing to use a non-supported product. Even if a product continues to exist, changes to the terms of service may make the software unpalatable to an organization. This will also force a migration since there is no option to operate under the outdated terms.

Nonprofits often collect, store, and analyze data on vulnerable populations. When this data is stored within a third-party SaaS, the nonprofit has minimal, if any, control on how the data is kept and shared. Organizations themselves are vulnerable to the security and policies of the SaaS provider: a provider could be the victim of a data breach, or a provider could respond to requests of information from government agencies, for example, in a different manner than the nonprofit would.

Cloud Computing for Nonprofits



There are a few sensitivities about cloud services unique to the nonprofit community. The first is the nebulous area of control around the surrendering of data at the behest of a government entity. Each cloud provider will address these issues by various means, including their terms of service and sometimes, specific notices.

Another concern is that cloud services have a tendency to be highly transactional with no customization or refinements to support the work that mission-driven organizations engage in. In the future, it is foreseeable that movement driven organizations will not own the technology that critical to advance their mission.

Although many cloud service provides have donation programs or provide other mechanisms for nonprofits to afford cloud-based services, nonprofits must develop contingency plans for what they would do in the event that the donation program or programs went away. If these programs were to end, then nonprofits would have to pay a charge for service they have become accustomed to for free or spend additional resources to move to a different service provider.

Implications of Moving to the Cloud

Although signing up for cloud services can be a fairly simple process, transitioning an organization's operations to the cloud is rarely straightforward. Just as choosing traditional software and services requires a deliberative process, moving to the cloud and expanding the use of SaaS also requires a tech strategy and plan.

It can be tempting for organizations to learn of one service, be quickly convinced of its utility by one or two employees, and want to try out the service. However, organizations should fight against the urge to shortcut the vetting process and instead evaluate new services based on business needs. Moreover, nonprofits must ensure new services have a proven operational record, a viable business model, and meet security standards. (For reference, ISO 27001, SOC 2, and CSA STAR are some standards/certifications to look out for.)

When employees make technology choices without consulting anyone, it creates a situation that many people refer to as "shadow IT." Shadow IT is what happens when staff do not feel comfortable or supported by technology decision-makers in their organization. It is often staff who have a curiosity and a functional requirement who select the cloud tool or technology.

The nonprofit sector would look different if we were able to leverage this curiosity and initiative into our technology decision-making process. If we are not able to do that, then our technology resources can sometimes be unwisely spent trying to access, recover, or delete data that has left organizational dominion and control because staff used shadow IT. Shadow IT is a concern in any environment, but especially in a cloud computing environment where Shadow IT can quickly grow in size and scope.

One way to minimize this risk is by having someone who is responsible for cataloging data services or cloud services used by your organization. It's substantially more helpful for staff to volunteer what services exist and are being used or not, by creating a culture where there is no fear or shame when individuals make suboptimal decisions with how they care for data. What's important is to catch those instances and remediate them, for both services and data. With increased access to services, employees may upload sensitive organizational data without notifying the organization. Sharing certain data subject to regulations can put the organization at risk.

Changes to business processes and ease of use must be considered as organizations use more and more services on the cloud. For example, as additional services come online, will employees be required to generate multiple logins, or is implementing single sign-on an option? Do individual services take advantage of multi-factor authentication?

It Doesn't Have to Be Either Or

While there are compelling reasons to move to the cloud, many organizations decide to use a hybrid approach. The hybrid approach often looks like your email and collaborative tools in the cloud, while sensitive files and databases live on hardware physically in the organization's office. (Note that the terms "on-premises" or "on-prem" are often used to describe hosting software, data, and applications on hardware owned by and physically controlled by the organization itself, as opposed to in the cloud.) It is important to note that while hybrid solutions do allow organizations to maintain sole control and responsibility for some of their data and software, the coordination costs often make the hybrid implementation more expensive than the cloud computing-only solution.

Who Makes The Decision?

After understanding what cloud computing is and understanding the advantages and disadvantages of cloud computing, an organization must make the decision of whether or not to move to the cloud. To guide the decision-making process, the IT leader should begin by providing the organization's senior leadership a high-level education on cloud computing. IT leaders should clearly align an organization's needs with cloud computing's benefits and identify ways an organization can mitigate cloud computing's risks. Because cloud computing impacts how employees will engage with systems needed to accomplish the organization's mission, and because cloud computing also affects costs, the IT leader should ensure senior program leadership and an organization's finance team understand the implications. Ultimately, the decision to move to the cloud should be approved by the organization's senior leadership, including representatives of operations, programs, and finance. Once the decision has been made, an immediate next step is to identify a project lead, a timeframe to begin the transition, and a process to approve specific cloud services — specifying if each service must be approved by leadership, or if this decision authority is delegated to the IT leader.

Doing the Work to Move

As with any IT transformation project, moving to the cloud requires a significant amount of planning and consideration. Regardless of whether moving existing data and applications to the cloud or deploying new data and applications to the cloud, an organization must begin by assessing its current infrastructure and needs, selecting the cloud option(s), and structuring the organization's data.

It is important to note there are no shared standards specific to the nonprofit industry. Nonprofits who vet the services must dedicate time to learn what standards govern hosted data and how those standards fit their specific needs.

In assessing its current infrastructure and needs, an organization should consider several factors. What enterprise-wide functions are needed? Examples here include email services, customer relationship management (CRM) tools, case management tools, communication services, and project management tools, to start. What functions could benefit from being expanded or contracted as demand within the organization changes? For example, if the organization expects to grow over the next couple of years, are there functions that will require a great deal more or less support? What functions are necessary, but from an IT perspective, would be more efficiently managed by a third-party, freeing up organizational IT to focus on other issues? If an organization currently has all of the IT functions it needs, the assessment questions should focus on what isn't working well and what overloads the internal IT systems. For example, if a particular existing product requires continuous updates that consume a great deal of time and effort, the IT lead may consider that product for moving to the cloud. If another product requires significant storage space that drives a need for continually procuring new hardware or risk slowing operations, this product should also be considered for migration. At the conclusion of the assessment phase, the IT lead will need to create a list of functions and services to be provided on the cloud.

Once the needs have been identified, the next steps are to select specific products and services and to prepare for the migration. With all of the cloud services available, making the right choice for the organization can be a daunting task. There are a number of guides available to help nonprofit organizations decide between products, and sales teams at individual companies will gladly provide the benefits of specific products. During the selection process, organizations should first focus their search based on the categories of functions needed, and then evaluate each service against their documented needs (from the assessment phase). Additionally, in some cases, two products will provide nearly identical capabilities, and in these instances, the decision becomes more about the IT department's preferences and which product is most compatible with

Doing the Work to Move

(cont'd.)

the organization's operating environment. If time and budget allow, organizations should consider sending an IT employee to a nonprofit tech conference or group where cloud software is presented and discussed; speaking with other nonprofits of similar size about the utility of products is one of the best ways to validate information online or in sales materials. Once the cloud service providers have been selected, the nontrivial task of cleaning and structuring data, defining user groups and permissions, setting use policies, and deploying and testing services starts.

At this point, the IT lead must select the appropriate service level for each cloud service. Once that is complete, the migration process mimics the process of adopting and rolling out traditional services and products. Organizations should take care to clean up any data and processes that will be moved to the cloud. Although cloud services can simplify upgrades, increase accessibility, and provide additional functionality, they cannot improve business processes or compensate for inaccurate or missing data. Additionally, if an organization does not thoughtfully restrict update access to data serviced in the cloud, increased accessibility could translate to data manipulation or the accidental deletion or mismatch of data. When all information and processes have moved to the cloud, IT should test for basic functionality, but also engage other employees to perform testing to ensure the new service meets the organization's needs.

The IT lead should ensure that after switching production to the cloud, that clear use and refresh policies are in place. The flexibility that comes with being able to increase and decrease accounts and storage based on usage is only applicable if IT employees regularly review usage and update agreements with cloud service providers. IT must also adhere to a regular schedule of installing updates and patches to web browsers and operating systems. The ability of users to do their job depends on their ability to safely and reliably access the internet; moreover, cloud-based services could become targets for individuals seeking to exploit existing vulnerabilities.

Organizations should be prepared for the time investment that successfully moving to the cloud requires. Communication with the organization throughout the process is important to manage expectations. Many organizations choose to task a current employee to lead the migration; however, depending on budget and skillset, organizations could instead hire an IT consultant to manage this process. If external expertise is brought on-board, organizations should clearly define, from the start, when and how the transition away from the IT consultant will be handled.

Conclusion

Cloud computing presents an opportunity to reduce the administrative burden on an organization's IT department, increase the accessibility of services and functionality to employees, and take advantage of flexible pricing that reflects current usage. With an appropriate understanding of the advantages and disadvantages of cloud computing, nonprofits can determine under what circumstances, if any at all, it makes sense to adopt cloud services. The uncertainty around how data may be shared with third-parties and long-term pricing impacts present special concerns for nonprofit organizations. Once the decision to move to cloud-based services has been made with detailed assessments and careful planning, organizations can smoothly transition to the cloud and enjoy its many benefits.

Resources: Research, E-Books, Articles, Blog Posts, and Books

RESEARCH

Fundraising

Machine Made Goods: Artificial Intelligence in Giving & Philanthropy by Charity Aid Foundation
https://www.cafonline.org/about-us/caf-campaigns/campaigning-for-a-giving-world/future-good/machine-made-goods-charities-philanthropy-artificial-intelligence/machine-made-goods-impact-on-organisations-funding
Overview of the current use of AI and the potential in the charity sector from Charity Aid Foundation in the UK.

Venture into the Future of Giving by the Economist
https://drive.google.com/file/d/1tHbUWjYs9i3ZSqFiKKgWHzfQS_ZcLTOc/view
Paper commissioned by the Gates Foundation that looks at a wide range of emerging technology, including Artificial Intelligence, and the potential impact on philanthropy

State of Artificial Intelligence in Advancement/Major Donors
https://gravyty.s3.amazonaws.com/2019aaacstateofaiinadvancement.pdf
Survey of adoption for major gift officers from Gravyty

AIForGood

Applying Artificial Intelligence for Social Good
https://www.mckinsey.com/featured-insights/artificial-intelligence/applying-artificial-intelligence-for-social-good
Landscape analysis of AI4Good by McKinsey

Accelerating Social Good with Artificial Intelligence: Insights from Google Impact Challenge
https://services.google.com/fh/files/misc/accelerating_social_good_with_artificial_intelligence_google_ai_impact_challenge.pdf
An analysis of the over 2600 applications received from the Google Impact Challenge on the benefits, challenges, and opportunities. It also includes a useful taxonomy of project design, the specific type of AI used, and data sets.

AI4Good Summit
https://aiforgood.itu.int/
Annual conference that showcases research and prototypes in the AI4good field.

X-Prize AI Impact Maps
https://impactmaps.xprize.org/
Maps the current projects, opportunities, and challenges in specific problem areas.

ARTICLES & BLOG POSTS

Chatbots

Leveraging the Power of Bots for Civil Society: SSIR by Beth Kanter and Allison Fine
https://ssir.org/articles/entry/leveraging_the_power_of_bots_for_civil_society
Provides an overview of the opportunity & challenges of chatbots for civil society and a variety of use cases.

AI for Fundraising Today: Chatbots and Voice-Activated Fundraising by Beth Kanter
http://www.bethkanter.org/ai-link-roundup/
Overview of chatbots and voice-activated technologies for fundraising campaigns.

NTEN envisions a just and engaged world where all nonprofits use technology skillfully and confidently to meet community needs and fulfill their missions. We support organizations by convening the nonprofit community, offering professional credentials and training, and facilitating community skill and resource sharing.

NTEN reports support the growth and development of the sector through benchmarking the technology goals and challenges of nonprofits, and identifying areas of need. For more, visit **nten.org/reports**.

Microsoft's Tech for Social Impact program empowers nonprofits and humanitarian organizations around the world with technology to advance their missions.

With recognition that many nonprofits have limited IT staff, the program provides solutions and resources that help nonprofits innovate new ways to tackle global issues. For more, visit **microsoft.com/nonprofits.**