

Executive Summary

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Project Description

Don & Associates Regional Expansion with Cloud Services

Statement of Need

The company is planning to expand its services into nearby states within the Northeast region. As part of this decision, it is exploring cloud technologies to better understand how they might support this next step of growth. Expanding a business across state borders presents several challenges, particularly in managing the base technology infrastructure. Setting up new computer systems, performing maintenance, hiring additional staff if not more, and ensuring proper installation can be both costly and time-consuming. In some cases, companies may even need to rent physical space in colocation data centers facilities where businesses lease space to store and operate their IT equipment. These processes can take weeks before systems are fully operational. Because of this, cloud computing offers a more flexible and efficient alternative to traditional computing infrastructure management. Cloud technologies enable faster deployment, easier scalability, save physical space, less staff, fast set up, pay as you go, and lower upfront costs, making it an ideal solution to support Don & Associates expansion goals.

Cloud Service and Deployment Models

Cloud technologies offer more reliable and satisfying services that provide flexibility and enable smooth transitions, removing the need to worry about physical hardware. Cloud technologies consist of three services and three deployment models which will be listed below:

Cloud Service Models

- **IaaS (Infrastructure as a Service):** This cloud service model provides users with access to virtualized computing resources such as operating systems, middleware, runtime, software, settings, and database systems. Meanwhile, the physical hardware, storage, networking, virtualization, system maintenance, and upgrades are managed by the cloud service provider. In this area users are responsible for installing and configuring all necessary software components on a virtual machine, such as those provided by AWS EC2 or Azure Virtual Machines.
- **PaaS (Platform as a service):** This cloud service model provides users with app code, app settings, and data. The operating system is still part of the platform, but the cloud provider manages it for you. You don't see or use the operating system directly you just use the tools above it to build apps.
- **SaaS (Software as a service):** This cloud service model allows users to access and utilize apps through the internet through a web browser. Users just need to login to use the service provided without worrying about installation, maintenance, and configuration. All other components such as hardware, operating system, middleware, and application settings are fully operated by the cloud service provider. Such as Microsoft office 365.

Cloud Deployment Models

- **Public:** The public cloud is a cloud setup where services like storage, servers, and software are provided by outside companies like AWS, Microsoft Azure, or Google Cloud. These companies, also called third-party providers, own and run the systems, and they let many people or businesses use them publicly over the internet.
- **Private:** The private cloud is a type of cloud environment that is used by just one organization instead of being shared with others. The company

either builds and manages it themselves or hires someone to do it just for them. This setup gives them more control over security, data, and how everything runs. It's usually used by businesses that need strong privacy, like hospitals or banks, but it can be more expensive because everything is managed privately.

- **Colocation:** this is when a business rents space in a data center to store and run its own servers and hardware. Instead of keeping all their computer equipment in their own office building, they move it into a special facility that is built just for powering, cooling, and securing computers. The business still owns and manages the equipment, but the data center provides the space for IT equipment, cooling, and physical security.

Cloud Service Providers

The three top cloud service providers are Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP). These cloud service providers are the leading names in the industry. Each one offers its own strengths, weaknesses, and a unique set of services that make it suitable for different needs.

- **Amazon Web Service (AWS):** AWS offers a massive range of services, pretty much anything from virtual servers and databases to storage, AI, and even robotics tools. One thing that stands out is how globally spread out their data centers are, which makes it great for companies that have a global reach.

Advantages:

- There are tons of tools and services available for every kind of project.
- It has a massive network of data centers around the world.
- Since it's been around the longest, there's a big community and lots of resources for learning.

Disadvantages:

- The pricing is confusing. You really need to understand what you're paying for, or costs can get out of control.
 - For someone new, the platform can feel overwhelming.
 - Once you're deep into AWS, switching to a different provider might not be easy.
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- **Microsoft Azure:** Azure feels like the natural choice for businesses that already use Microsoft tools like Windows, Office, or Teams. It offers a full range of services like AWS, but it's also known for supporting hybrid cloud models (mixing on-premises with cloud).

Advantages:

- Works well with Microsoft products, which many companies already use.
- Security features are strong, and it meets a lot of legal compliance standards.
- Hybrid cloud support makes it easier for companies to slowly move to the cloud.

Disadvantages:

- The interface isn't the easiest to get used to unless you've already worked with Microsoft systems.
 - Fewer data centers than AWS.
 - Like AWS, it can get expensive if you're not watching your usage.
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- **Google Cloud Platform (GCP):** GCP is a bit newer than the other two but has made a name for itself in data analytics and AI. It's got services like

virtual machines, cloud storage, machine learning tools, and it's also behind Kubernetes, which is a big deal in container technology.

Advantages:

- It shines in machine learning and data related services.
- The platform is easier to navigate and feels more user-friendly.
- Pricing is generally more affordable and predictable.

Disadvantages:

- Not as many companies use GCP, so it has a smaller community.
- The number of services isn't as wide as AWS or Azure.
- It has fewer data centers around the world.

Recommended Plan

Amazon Web Services (AWS)

After evaluating the needs of Don & Associates and considering the company's potential expansion into multiple states, I believe that Amazon Web Services (AWS) is the best choice for our cloud solution. AWS is a trusted and widely used platform that offers powerful tools, strong security, and unmatched flexibility for growing businesses, especially those in finance. While it's likely that Don & Associates currently uses Microsoft-based tools, AWS remains a great fit. It is fully compatible with Microsoft technologies like Windows Server, SQL Server, and Office applications, which makes the transition smooth without requiring a complete system setup.

Traditionally, setting up new IT infrastructure can be expensive and time consuming. For example:

Without Cloud	With Cloud
Buying physical servers	No physical servers needed (cloud hosts everything)
Waiting weeks to configure and install systems	Systems up and running in minutes or hours

Hiring more IT staff for maintenance	Less staff needed, cloud handles updates, backups
Running out of office space for servers	No extra space required
Paying large upfront costs for hardware	Pay as you go or pay based on budget
Hard to scale quickly	Easily scalable add resources as the company grows

Why AWS Specifically?

1. **Pay-As-You-Go or Reserved Pricing:** AWS allows us to choose between paying only for what we use or reserving resources in advance for a lower cost. This helps manage the budget better depending on what the company can afford at the time.
2. **Fast Deployment & Global Reach:** New systems can be deployed in minutes instead of weeks. AWS has data centers all over the world, making it easy to serve clients across state lines quickly.
3. **Powerful Services and Scalability:** Whether we need virtual servers, databases, secure storage, or even advanced tools like machine learning, AWS has everything in one place and can scale as we grow.
4. **Financial Data Protection:** AWS is compliant with security standards like PCI DSS, SOC, and ISO, ensuring Don & Associates can keep client financial data secure and trustworthy.
5. **Supports Microsoft Tools:** Even though AWS is a separate provider from Microsoft, it supports tools like Office 365, Active Directory, and Windows servers. This allows the company to keep its familiar tools while upgrading the back-end infrastructure.

Impact of Recommended Plan

Stakeholder Benefits

Business Executives

- Gain the ability to scale fast without spending weeks setting up new locations.

- Stay financially flexible with AWS's pay-as-you-go and reserved options.
- Avoid massive capital spending on hardware and instead pay only for what's needed.

IT & Support Teams

- Experience less stress and less latency, AWS takes care of backups, patching, and monitoring.
- Manage access and roles easily thanks to integration with Microsoft Active Directory.
- Reduce the need for new staff just to manage more infrastructure.

Clients and Partners

- Benefit from secure, compliant systems that handle sensitive financial data responsibly.
- Trust in uptime and performance, even as client demand increases across multiple regions.

Migration/Potential Drawbacks for the Company

No transition comes without some challenges. Even though moving to the cloud has clear advantages, it's important to be aware of the potential challenges.

The Learning phase

- Team members may need time to adjust to AWS dashboards and services.
- Solution: Use AWS's free learning resources and hands-on sessions to make the transition easier

Temporary Turbulence During Migration

- Shifting systems can sometimes cause brief service interruptions.
- Solution: Schedule migrations during low-traffic hours and use backup systems to avoid data loss.

Budgeting Blind Spots

- If usage isn't monitored, pay-as-you-go could lead to unexpected costs.

- Solution: Use AWS Budgets and Cost Explorer to track and control spending from the start.

References

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