

Hosting: Getting it Right

The Essential Questions You Need to Ask



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Introduction

Today the investment management industry has to manage greater complexities with less overall budget dedicated to technology and innovation. Not only has instrument coverage expanded, but the need for better client service and new regulations have also changed the game to further put your organization under pressure. To stay ahead of competition, you need to do more with less: less budget, less time, less resources. Hosting services can be a good approach to solve this equation and help you to focus your organization on its core business while letting the technology be managed by external experts.

Before beginning a search for a hosting solution for mission critical systems and applications, it is essential to understand what hosting is, and what it is not, and what to consider when choosing the best option for your requirements. If you haven't yet made the decision to move to a hosting solution, this guide will help you to ask yourself the right questions and understand the benefits that you can expect from a hosting solution.

The process of choosing a hosting provider can seem like a daunting task. If you are considering using hosted services for your technology solution, and you feel overwhelmed, you are in the right place. Choosing the right provider can seem like a huge endeavor. There are some decisions that need to be made to get started and this guide highlights some of the things you should consider when determining the best provider for your organization.

Let's begin with what hosting is and its evolution over time.

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Definition and History of Hosting

What is hosting?

Hosting is the business of housing, serving and maintaining some or all IT applications (software, hardware, network connectivity, disaster recovery etc.) on behalf of one or more companies so that they can concentrate on their core business activity. A hosted application typically offers a fully-outsourced solution for your hardware and software as well as operations and support. In terms of hosting, the offering can vary from one hosting provider to another; from the hosting of a single piece of your technology to coverage of entire business processes with dedicated and managed services.

There are three primary types of hosting providers. The first offer infrastructure only and provide hardware, colocation, disaster recovery and network access. Secondly, there are providers that offer individual servers whereby the providers will purchase the equivalent hardware that a client would need to purchase, but will run it in an external datacenter. Lastly, some providers offer infrastructure and application functionality; these providers set up the hardware, colocation, software upgrades etc., all in a scalable environment which the client logs in for access to use the various functionality offered.

As technology processes are complex and sophisticated for the investment management industry, **hosting services can be provided by technology partners combining product and software expertise with strong IT skills.** Providers that offer this combination of expertise and excellence, rather than relying on other outside parties to perform the processes, is your best long-term decision.

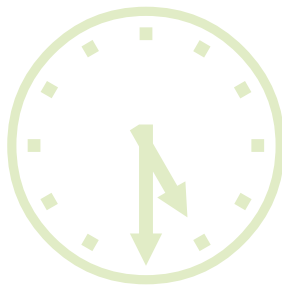


History of Hosting

The hosting trend is part of the much bigger outsourcing story. Since the 1990's, outsourcing has evolved as firms began to shift their focus to cost savings. Before Y2K, many financial services firms were already outsourcing business processes such as shareholder accounting, fund accounting etc. These functions were essential to run a company, but were often more effectively and more cheaply done by outsourced providers. They largely represented the extension of custodial services. Additionally, innovation in technology helped start to create new ways of delivering application functionality like "the service bureau model" or an ASP offering.

By the mid-2000's, hosting was becoming more popular as it helped businesses lower their cost of doing business. One of the most famous examples of a hosted application is the success of Salesforce.com within all types of organizations. Both small and large firms have started to use this tool to manage their sales and client relationships without the burden of maintaining such a tool in-house. Again, innovation in technology favored this trend as internet access was easier; the security processes were improved and reliable. This change in end user behavior has pushed decision makers to think about looking at their technology differently. What if I worked with an external partner to take care of my IT processes?

Thus, hosting services have become more and more part of daily life. **In general, more and more companies are looking at outsourcing not just as a tactical, reactive approach, but also as a strategic and proactive move.**



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Should I consider hosting for my business?

The benefits of hosting can be significant and can make an impact not just in reducing costs, but also adding new capabilities for your firm. Hosting can help control operational risk, freeing internal resources to focus on other business functions, improving business processes and workflow as well as providing access to the latest technology and system updates.

According to research by Gartner Inc., firms can expect to benefit from 5-8% cost reduction over time for outsourcing network services. Similarly the study shows that effective outsourcing can deliver potential savings of 17% over time. Making the decision to outsource should not focus solely on cutting costs, but rather on the needs of the business and its objectives.

When firms go through the process of evaluating hosting as an option they will often cite the following pros and a number of concerns and questions they have about losing complete control over their environments.

Pros – Overall better Cost of Ownership	Cons – Need to rely on a 3 rd party
Latest software always available	Non-response of external provider
Data center redundancy	Loss of control and impact on my business
Dedicated team of experts	Risk of exposure of confidential data
Tested DR plans	Performance issues
Staff running upgrades	
Scalability and flexibility	
Focus on core activities	
Cost and efficiency savings	



A The Pros

There are many advantages to hosting if you find the right partner. Not only do you avoid managing the installation and upgrade of software, but you will also benefit from the latest technology and software innovation. The hosted solution allows you to grow without the worries of added bandwidth or the size of the databases; and you can be confident when you meet your investors as you have a real disaster recovery plan in place. A key advantage hosting offers a firm is its flexibility and predictable cost structure.

B The Cons

Some disadvantages may be seen in this approach, but most are perceptions that remain from the early days of the service bureau model. Experienced and professional providers are now able to provide you with high levels of security and can prevent any attack on your data. In addition to the set-up of strong service level agreements, your hosting partner can help you to formalize the process between you and them to ensure the reactivity and the controls you require.

C Some initial questions to ask yourself before you move to a hosting environment

IT operations

- Does our company have the necessary hardware and software?
- How many technical resources currently support our applications?
- How many resources (IT) currently support our hardware?
- How many resources currently provide application support?
- What hours of operation does our organization support?
- Is our organization global?
- Does our organization currently maintain business continuity plans (BCP)?
- What are the training programs in place to train our staff?
- Has our organization experienced any significant downtime?
- Are our end users satisfied with our IT platform? Is it decreasing or increasing? Why?
- What is the current turnaround time for IT projects? From request to deployment.

Costs

- How much capital and operational expenditures does our organization currently incur on procuring and managing (installation, upgrade and support) our IT infrastructure? Are these costs sustainable over time?
- How much does the provider charge for space, power and bandwidth?
- Do we have to reduce our IT budget and do more with less?

Business Challenges

- What challenges are preventing us from focusing on our core business?
- What challenges are faced by our firm?
- Do we plan to launch a new product/activity/ service in the coming months?
- When does it make sense to use hosting services?
- What impact does regulation have on our business?

If you have answered these questions and feel that increasing IT costs might prevent you from investing in your core business, you should consider hosting as a strategic move for your organization.

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Cost Analysis of Hosting

There are many things to consider when looking at the cost of hosting. What is important to know is that there are operational and infrastructure costs involved. One of the first questions to ask is “what is our cost of using our current technology?”

The Real Cost of Hosting

Hidden costs of technology can be substantial and often are difficult to measure. The following list of costs will help explore items to think about when looking at the real cost of hosting and defining your own total cost of ownership.

Cost of Technology

Computer hardware and programs

- Network hardware and software
- Server hardware and software
- Workstation hardware and software
- Installation and integration of hardware and software
- Interface development, monitoring and support
- Purchasing research
- Warranties and licenses
- License tracking - compliance
- Migration expenses
- On-going daily support of hardware and software
- Database support and maintenance
- Risks: susceptibility to vulnerabilities, availability of upgrades, patches and future licensing policies, etc.



Operational expenses

- Infrastructure (floor space)
- Electricity (for related equipment, cooling, backup power)
- Telecommunications
- Testing costs (creation and maintenance of separate environment)
- Downtime, outage and failure expenses
- Diminished performance (i.e. users having to wait, diminished money-making ability)
- Security (including breaches, loss of reputation, recovery and prevention)
- Cost of high availability and disaster recovery
- Technology and industry training
- Audit (internal and external)
- Insurance
- Information technology personnel
- Corporate management time
- Disaster recovery planning and testing
- Regulation and compliance
- Data loads and maintenance between internal systems and external providers

Long term expenses

- Hardware updates/upgrades
- Sustainable and scalable growth

When you invest in a hosting environment, you are paying for a fully secure infrastructure where the investments have often been made in the infrastructure to build in the highest levels of security, redundancy, scalability and flexibility. Your technology costs must not only cover your business today, but also your business in one, three and five years or longer. Choosing a scalable, hosted platform that will grow with your business results in you not having to pay for features you aren't using right away, but will be valuable for your business as you grow.

Cost of people

Having an efficient technology platform means putting in place and maintaining a strong IT organization with skilled people with various



backgrounds as the needs are differing. At times, you will need business and IT analysts, telecom experts, database administrators, operations and developers. In addition to hiring and building the team you will have to train all of them so that they keep up to date and implement the latest innovations coming from your software providers. Support can also be a challenge at times as some trading and portfolio processes need to be run on a 24 hour basis worldwide.

Moving to hosting will reduce the level of IT expertise you need internally and you will be able to scale what you require. In a hosting environment provided by your software partner, a major advantage is access to the expertise of the staff that develops and uses the technology.

Having a sustainable and strong working relationship, proof of live implementations, longevity in the industry and the services that are provided by a firm that develops the technology ensures that your technology is receiving the technical and time-sensitive attention it requires.

Improved service levels are an advantage as hosting providers offer physical and technical infrastructure which should be supported by state-of-the-art power sources, environmental controls, security devices and high-bandwidth networks. It could be prohibitively expensive for a firm to replicate that type of facility on its own premises.



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Things to consider when choosing a potential hosting provider

You have now decided to move to hosting and you are clear with what you want to outsource. Now let us help you look for the right hosting provider!

A Technology is all about humans!

Hosting it is not just technology, but service as well. When using a hosting solution for robust, complex and mission critical systems, it is essential to find the right partner and establish strong working relationships between you and the team responsible for operating and maintaining the hosting environment. As a hosting provider, the operations and IT teams serve as an extension of a client's internal IT and application support groups and you and your team must be comfortable with them. Make sure they listen to and understand your needs.



B Type of services you should expect

The types of services that the hosting team provides can be generally classified and prioritized as doing everything it takes to ensure that systems are functional on a daily basis in a production environment. The following will outline the main functions and considerations for the services that a hosting operations team provides.

New client implementation within the hosting environment requires a strong project-oriented mindset with both the client and the hosting operations teams. Some of the main areas of service that the hosting operations team performs in order to fully implement any new client to the environment includes:

- Connectivity testing and verification
- Environment setup/configuration
- Software installation
- Data loads interface development
- Data loads analysis/configuration/automation
- Operations support through all project phases

Support for existing clients is generally classified as providing the day-to-day operations of products in a production environment that is readily available. Some of the main functions that are required to ensure the systems are operational include, but are not limited to, the following:

- Daily automated systems/load monitoring
- Systems/loads troubleshooting
- Technical application assistance
- Product version upgrades
- Client workflow testing
- Quarterly disaster recovery testing
- Client project analysis and implementation



C Software Management

It is wrong to think that all software can be used under a hosted platform without any issue. To ensure the success of your hosting project, you must get the confirmation that not only the hardware, but also the software you are going to use, has been developed to perform perfectly in a hosted

environment to ensure security and also low latency performance. Taking a hosted environment provided by your software partner is a good approach as you have access to the expertise of the staff that develops the technology and use the technology. Having this direct line to people who built the system increases the overall flexibility and usage of the system and ensures your own success.

D Ask for proof and live implementations

If you have decided to outsource any of your technology activities, you should ask for material credentials from your potential hosting providers. When did they start? How many software upgrades have they run since the launch of their service? How many live implementations do they have and where? Do they manage the operations themselves or do they rely on an external third party to perform the actual function?

As each organization is different, the more hosting clients a provider has, the better it is for you. This will help ensure that they will have enough experience to respect your specific needs and maintain your competitive edge.

Being global is challenging and you need a partner that is able to manage your growth everywhere. Ensure that the provider's infrastructure is global and scalable to provide you with the assistance and support necessary whatever your project.

The robustness and complexity of applications generally dictates the degree of dedicated operational support to ensure the system functions on a day to day basis. The specific functions performed by a hosting operations team can vary depending on a client's use of the system and progression through the life-cycle of being incorporated into the hosting environment. New implementations will require a much higher level of operational project management, interface development, data validation, testing, deployment support, etc. There is a much higher need for hands-on operational support as clients become comfortable with using of the system and the role each team play to support the system. **During your selection process, be certain you meet the team that your potential hosting provider will assign to your firm. You want to ensure that the team in place is the right team and understands your needs.**



E Check the IT Administration

Solid IT administration policies and procedures are essential to ensuring the most secure and highly available systems. The hosting provider should take full responsibility for all infrastructure and network access within a secure datacenter facility. The provider should cover the following IT administrative functions as part of providing a hosted solution:

- Windows Domain User Administration
- Server Software Updates
- Server Hardware Monitoring/Updates
- Backup
- Networking

F No need to worry about hardware and connectivity anymore

Within a hosting environment, the provider takes full responsibility for all hardware and software required to support the application server and database server layers. They should employ specific measures to ensure the most highly available system in the event of any major or minor outage, often necessitating additional hardware and/or software solutions not otherwise needed to run the core system. The hosting provider should take full responsibility for ensuring it has the appropriate hardware and software to meet their own requirements for high availability, disaster recovery and multiple environment availability.

A hosting provider should offer or partner with a third party to offer secure networking and data center facilities. The actual data center facilities are key to the success of a hosting environment. The firm that you choose for hosting should provide secure GLOBAL networking and data center facilities with strong and well know references. Some certifications are good indicators like a SSAE16 Level II / ISAE 4302 certified data center services provider, who will support your environment as well as secure

access to the environment by isolating it to their private network. With this type of facility, access is limited to those with direct leased line connections into the private network or through a vendor-supplied hardware VPN tunneling device.

G You deserve high availability

System uptime is critical with any application. Loss of system availability for even a mere five minutes could represent opportunity costs or even real loss for some. Providing a highly available system, including incorporating a more stringent standard of hardware and software infrastructure is necessary to supporting the most highly available solution.

H Act Globally

Confirm that your provider offers global support centers and that each rolls to the next in a follow-the-sun support model. A global approach with regional expertise will help support your business and growth and turn your challenges into opportunities.

I Disaster Recovery

One compelling piece of a hosting solution is the maintenance of a separate disaster recovery facility to ensure the availability of the applications in the event of a major, catastrophic failure of the primary datacenter facility. In the event of a real fail-over event, the appropriate agreements should be in place to quickly bring the high availability requirements on-line. Firms should have measures in place to ensure that the system is available in the disaster recovered environments based on contractual obligations and what is most appropriate for specific areas of the system.

At a minimum, disaster recovery testing should be performed on a quarterly basis and should occur during the weekly maintenance period. The primary purpose of this testing is to ensure availability for users to log into the environment and use the core system. Additional testing requirements can be incorporated, as well as client participation, provided there is appropriate coordination and scope defined prior to the testing event.



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Hosting Check Lists

As you can see, hosting services can help you do a lot more - with less! To help you with the decision to whether to move to hosting, we have built a dedicated check list to help you avoid forgetting anything!

How do I determine if hosting is right for me?

- Define what you want to outsource and the benefits you expect.
- Calculate the total cost of ownership of your current platform.
- Identify the software costs to run applications.
- Evaluate your data center costs (rack space, availability etc.).
- Analyze the cost of running your own machines and upgrades.
- Estimate the cost to build a disaster recovery plan.
- Understand your current redundancy and back-up processes.
- Outline your current business continuity plan.
- Summarize the cost for performing system upgrades.
- Review what IT staffing and support costs include.
- Determine the criteria to benchmark the hosting providers.

What should I ask a hosting provider?

- How often do you run DR tests and can we see the results?
- How many clients use your service in production?
- Who has access to our data?
- Is all hardware fully redundant?
- Is our data shared?
- What certifications do your datacenters hold?
- What is your global datacenter footprint?
- How many years of experience does your firm have in hosting?
- Have you had any major outages?
- How were those outages managed?



7

Conclusion

There is no simple formula or criteria to be reviewed when deciding on outsourcing technology versus deploying in-house. There are benefits associated with hosting and firms should consider their individual needs and projects when making the decision. At the highest level, hosting will allow firms to be more efficient and effective, while often reducing costs.

Firms that choose hosting services will find that they not only alleviate their administrative burden, but they will have many positive outcomes including doing more with less and managing greater complexities in a predictable and scalable framework. With increased focus on core capabilities in an increasingly competitive market, having a trusted hosting partner with whom to build a strong relationship is important to continued success.



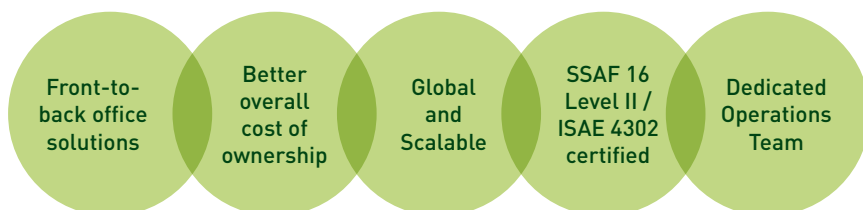
About Linedata Hosting

Linedata Hosting provides hosted delivery of Linedata's entire front- to back-office solutions, with **no compromise** in functionality, service or support. Offering improved efficiencies, reduced operational risk and overhead for the buy-side industry, **Linedata Hosting enhances firms' return-on-investment** with systems that are kept up to date, available and managed by Linedata's industry experts.

Linedata Hosting offers multiple levels of access, from the basic application service provider (ASP) delivery model, where clients access the system via a web-based deployment from a service provider's facility, up to a fully hosted solution with dedicated servers and service personnel for maintenance, updates and customization.

Linedata continues to be positioned for excellence as the leader in delivering hosted services and solutions to the buy side industry. Offering highly scalable solutions, the 110+ clients that trust Linedata Hosting span the globe and benefit from data centers in the US, Asia, UK and continental Europe. Our extensive client base includes financial institutions, hedge funds, mutual funds, third party administrators, pension funds, custodians and insurers. Linedata Hosting is suitable for major financial institutions and small start-up firms alike, and uniquely, **Linedata can deliver its entire front-to-back office solution as an integrated, hosted offering.**

Linedata supports these applications globally with our follow-the-sun service support approach. Linedata is committed to delivering services and solutions to help clients turn challenges into opportunities that support their growth, and make their long-term vision a reality.



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