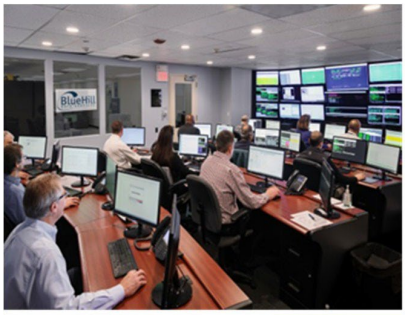
Mainframe Migration Best Practices



Mainframe hosting solutions have proliferated in number – and stabilized in price – in recent years. The result is that many who formerly thought mainframe hosting was beyond their grasp now are inquiring about the right solution to meet their needs. This is especially true for those organizations considering selective engagements. For those companies hoping to explore a mainframe hosting solution, selective sourcing engagements are solutions customized to meet very specific needs.
The result: Sourcing's reliability and effectiveness are maximized in a process thatcan be less intimidating and right sized for any size organization.

Success stems from selecting the right Service Provider. From hardware and software to services, data protection and ultimately migration and continued performance, an experienced Service Provider like Blue Hill can deliver the experience and flexibility in services and contracts to increase the likelihood of a successful sourcing engagement.

Every engagement is different. Most IT executives are looking to reduce costs while maintaining the appropriate Service Levels, and often it is difficult to maintain mainframe workloads while the staff supporting the mainframe is retiring. To engage a best-in-class provider, make sure your provider will not be extending cost savings that could affect service levels resulting in poor end user satisfaction.

You may also be running legacy applications on older hardware/software, and may not wish to undergo the additional costs associated with upgrading to the latest versions. Most importantly, you may not know the underlying risks associated with such an upgrade if you've been operating successfully on your current systems. Ask the Service Provider if upgrading is a requirement, and determine if it's important to work with a provider who is flexible enough to maintain your current operating environment.

The following addresses a typical mainframe hosting engagementthat can range from 50 MIPS to 5000 MIPS, or higher. Just remember that **All Engagements Are NOT the Same.**

Hardware
The primary components of hardware involved in a mainframe hosting engagement are the CPU, DASD and tape drives.

- Ensure that you are provided with dedicated logical partitions (LPARs) of an appropriate size (MIPS, MSUs) to what you currently are running on. For example, if your current CPU is 1000 MIPS, then you should be provided with a dedicated LPAR of 1000 MIPS at your provider's data center. Or, you may have 2 LPARs; production and test, totaling 500 MIPS. Note that one way to reduce your cost is to reduce your MIPS. So, if your current CPU is not 100% utilized at peak times you may be able to use an LPAR with fewer MIPS than you have now. Also, make sure the outsourcer is flexible: if you need to run your workload on a separate,

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standalone and dedicated machine and not on a separate LPAR, the provider should be able to comply with your workload on a separate machine.

- You currently store data on a storage device (DASD) that is attached to your mainframe. Make sure the Service Provider will provide any amount of DASD you need on one of their storage devices. You can always purchase additional DASD in small increments as your need for storage grows.

You may also have a tape library consisting of one or more tapes, and your current production work requires a maximum number of concurrent tape mounts to process effectively. Part of the solution could be to relocate your tape library to the Service Provider's data center and provide the tape drives necessary to read your tapes and mount them as needed. You may currently be using VTS/ATL technology; make sure the Service Provider will move your tapes into their VTS/ATL. If you don't currently use VTS/ ATL technology, you may look at improving performance by moving your tape into an automated tape system.

Software

Blue Hill licenses the same IBM software stack you have now. Most often it is recommended that you retain your third party software (ISV) licenses, since you already own the assets. By continuing contracts and maintenance you already have in place, you avoid any costs of reacquiring software. Blue Hill will sign a facilities management agreement with each ISV, giving Blue Hill permission to run your licensed software on our mainframe, as long as the size of your LPAR corresponds with your software license. This is standard practice in our industry.

Blue Hill does not require you to run any specific IBM or ISV software; you continue to run as you are now. This also ensures a smoother transition. Blue Hill will assess your software list to determine if there are different software products (IBM or ISV) that can help you attain better functionality at a lower cost, especially with replacement situations; but you decide if you would like to implement any of those options.

Once you are on a hosted mainframe, you can still go to new releases of software asyou require. This work can be completed by either Blue Hill or by client staff, depending on who is responsible for systems programming under the hosting agreement.

Services

It is of utmost importance to develop a Roles and Responsibilities matrix to ensure that from the outset of the engagement, both the client and the Service Provider areaware of who has primary responsibility for each of the functions that are critical to the client's workload.

A listing of managed hosting services are below; it is up to the client to decide what portions of these services will continue to be provided in house, and which services will be provided by the Service Provider. Clients can consider "selective" sourcing engagements, where a portion of functions are retained in-house and only certain functions are handled by the Service Provider. Flexibility on the provider's part will ensure a smooth working relationship that meets the particular needs of the client.

- Console Monitoring and Computer Operations – 24/365 On-Shore management and staffing of the data center in support of the clients' workload, including but not limited to monitoring production processing and responding to errors, monitoring of operating system consoles, jobs, and critical applications systems for ABENDS, ensuring jobs that transmit reports execute properly, recovering failed jobs as they

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documentation of cause and nature of both scheduled and unscheduled outages.

- Production Control and Job Scheduling – 24/365 On-Shore support team who are responsible for the logic behind the schedule, and to assist Operations with scheduling/changes to ensure jobs start as planned and run correctly in a timely manner, to become familiar with your applications and business as it relates to batch processing requirements and timeframes, adopt appropriate change control processes, resolve production problems, and make recommendations throughout the process.

- Technical Services – 24/365 On-Shore responsibility for system software, offering support for applications processing, with the Systems Programming team becoming knowledgeable in all aspects of the Operating System software and ISV/3rd party software maintenance, as well as performance tuning and resource allocation.

- Security – The protection of company and client data and confidential information is vital to the interests and success of your organization. This group protects the integrity of critical information to meet and maintain compliance with regulatory and/or industry security standards.

Network

More often clients are choosing to utilize Virtual Private Networks (VPNs) to connect to the provider's data center. However dedicated circuits are also a consideration based on service level requirements. Another option is for the Service Provider to become asegment of your MPLS network. Make sure the appropriate testing is completed prior to ordering of circuits and determining the sizes required. Whatever the ultimate solution, the goal is to create a secure connection between the mainframeand your internal network. Also, choose who you want to manage the network – either you or the provider, but not both.

Disaster Recovery

Determine whether you require Disaster Recovery from your Service Provider, or from a 3rd party, and if it should be on a subscription basis or a dedicated basis. A subscription plan means that you are subscribing to a service that others are also subscribing to, and are not guaranteed support in that particular data center if a regional disaster occurs (think 9/11, when clients who had DR subscription service agreements were being told to go to an alternate data center that required an airplane to get to, yet planes were grounded…) A dedicated disaster recovery solution ensures that you are given dedicated mainframe resources at the site for recovery. In addition to traditional tape backup and restore, another consideration is replication options. Recovery Points Objectives (RPO) and Recovery Time Objectives (RTO) are agreed to as part of the engagement.

Service Levels

Service Level Agreements (SLAs) provide assurance to the client that the service levels required and agreed to are being measured, monitored, and delivered at an acceptable level. Typical mainframe service levels include System availability, CICS and TSO response times, batch window completions, etc. This is the client's assurance that the Service Provider is living up to their end of the bargain. Clients have service levels that are important to them based on their business, and a customized set of service levels must be defined and implemented with your Service Provider. Often automated tools are used to help identify and monitor critical processes occurring in your processing environment. This automated monitoring allows your Service Provider to detect early-on if there are any issues with your processing and allows for automated responses and notifications. It is also important to make sure there is adequate redundancy so there are no single points of failure.

Transition and Migration

It is essential to ensure that there is minimal risk associated with moving your IT requirements to the Service Provider. Ask for a preliminary migration plan as part of your diligence, to validate the Service Provider has the appropriate experience and a clearly defined methodology for running the project successfully. It is important that the project plan consist of the necessary details to ensure a smooth transition, including milestones and a communication plan so timely updates occur.

One of the most critical success factors during the migration process has proven to be to communicate consistently and often. Confirm there is a communication plan that actively updates the client on a regular basis. Online tools help keep the client up to date in terms of planning, tracking, and updating the entire transition process as stages are completed. The project plan should also detail the roles and responsibilities of you and your provider through each phase of the transition.

In terms of migration methodology, for clients who are using tape, one migration approach is to do full volume tape backup and restores. The tapes are sent to the provider's data center, loaded into a pre-built Logical Partition (LPAR) built for your particular workload(s), and brought up for your use. This method is just like executing a disaster recovery plan. Prior to the migration cutover (which typically occurs over a weekend), the Service Provider should restore your system several times, and each time the client would fully test the system until the desired results are achieved. Typical down-time for the migration turnover is 24 hours; however, each client is different and alternate strategies can be utilized if the available migration window is smaller.

Additional migration methods can be utilized, depending on what technology the client is using for storage. What is most important is utilizing the method with the least amount of risk; typically for legacy environments the backup and restore method described above is sometimes called "lift and drop" or "lift and place", and it is the smoothest and provides for the least risk. This is because various types of testing will occur multiple times prior to the actual migration, allowing for issues to be worked out prior to the final migration. Planning contingencies will help keep the plan's timing on track.

Overall Project Timeframe

You will be delivered an initial budgetary proposal within 7-10 days once the initial data gathering has occurred along with an in-depth review by our technical experts. We have found that the most successful engagements, from initial contact to and including contract negotiations and signatures, can be completed in as little as 60 days or as long as required to meet the particular migration windows the client expects.

Gathering the Right Data for a Proposal

The Service Provider should have a proven methodology to gather and understand the clients' particular profile. The basic information may include the examination of your overall IT budget to compare your current operating and capital expenditures to what the provider(s) will recommend, to make sure it's an apples-to-apples comparison. Additional consideration is needed for the reasons why it is important to explore moving your Mainframe workloads to a Service Provider, other than cost, assuming the same service levels will be met; i.e., losing key staff, having your sensitive data in a more secure environment, or moving to a new location and wanting to move the mainframe environment to a secure and experienced Service Provider. Generally requested information may include:

- Current processor model; # MIPS/MSU's required; # LPARs; DASD required (GB or TB)
- Storage Media/Tape cartridges used; tape drives needed
- Functions to be retained by the client and functions you would like the Service Provider to assume
- IBM operating system software
- ISV (third party) software
- Service Level requirements for supporting the end user community

Seeking a Best-In-Class Service Provider

With the proliferation of mainframe hosting solutions, prospective service buyers in the marketplace understandably are puzzled by how IT offerings match their specific needs. Selection and engagement is not unlike most other service acquisition processes. Seek out a Service Provider who has a similar culture as yours, one who is well-skilled in your market size, versed in your company's specific needs, ready with recommendations, and prepared to provide a no-obligation review of and proposal unique to your situation. Then, perform your own due diligence on the Service Provider, including speaking to the Service Provider's clients. Most importantly, make sure there is an open line of communication throughout the process, and that the Service Provider will go above and beyond if the situation arises. Developing this understanding will increase your comfort and ensure you find a best-in-class service provider.

How to Begin

Due diligence should be your first step. Blue Hill Data Services will review your current requirements and utilize our technical expertise and experience to make recommendations ideally suited to meet your individual needs.

For a **No-Cost Business Value Assessment** please contact us at 845.620.0400 or by email at Info@BlueHillData.com.