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# The Road to Power Cloud



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## MID-RANGE

### The Business Impacts of Moving to the Cloud

Considerations & Practical  
Realities: Day-to-day monitoring  
and remediation.



*Is the machine  
healthy?*

*How do you confirm that  
it is doing everything that  
you need it to do?*

*Are you getting the  
required throughput from  
your B2B conductivity?*

*How do you  
manage it?*

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# CONTENTS

<b>The Road to Power Cloud: June 21st 1988 to now. The Journey Continues.</b>	<b>Page: 4</b>
1988: The Launch of the AS/400.....	4
The New Millennium: The Shift to Client-Server Computing.....	4
Designed to be an Integrated System.....	5
2003: Capacity Backup Unit.....	6
2011: Capacity On-Demand.....	6
2016: Mobile Capacity on Demand.....	7
Building Public Clouds.....	8
2019: Enterprise Pools 2.0.....	8
Overcoming Backup and Recovery Challenges.....	8
<b>Getting from Power On-Prem to Hybrid or Full Cloud: What it Actually Takes</b>	<b>Page: 11</b>
1. Ensure Compatibility with the Cloud Operating System.....	11
2. Re-Establish Essential Interfaces to Other Entities.....	11
3. Re-Examine Your Networking.....	11
4. Define Your Strategy.....	12
5. Verify the Licensing Requirements for Your Applications.....	12
6. Research Potential Additional Costs.....	13
7. Investigate Your Backup and Recovery Solution.....	14
8. Understand Partial Licensing.....	14
9. Verify Security Requirements.....	14
<b>IBM Power in the Cloud: Considerations and Practical Realities</b>	<b>Page: 15</b>
Business Drivers for Moving to the Cloud.....	15
The Business Impacts of Moving to the Cloud.....	15
<b>Evaluating the Risks</b>	<b>17</b>
Network Risk.....	17
Security Risk.....	18
Outage Risk.....	18
Financial Risk.....	18
<b>Considerations that May Affect Your Risk Evaluation</b>	<b>19</b>
Full Migrations Take Substantial Time.....	19
Private Versus Public Cloud.....	19
Your Ability to Outsource Decisions .....	20
<b>About the Authors</b>	<b>Page: 21</b>

# The Road to Power Cloud: June 21st 1988 to now. The Journey Continues.

*For over twenty years, IBM was “king,” dominating the large computer market. By the 1980s, the world had woken up to the fact that the IBM mainframe was expensive and difficult, taking a long time and a lot of work to get anything done. Eager for a new solution, tech professionals turned to the brave new concept of distributed systems for a more efficient alternative. On June 21st, 1988, IBM announced the launch of the AS/400, their answer to distributed computing.*

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## **1988: The Launch of the AS/400**

The AS/400, a small standalone system, was intended to be a mainframe for small businesses, and for distributed computing. Back then the new standard was interactive, where interactive meant green screens. IBM was right in there competing with Data General, DEC, Honeywell, and everybody else who was in the computing world. The AS/400 took off soon after its introduction and experienced incredible success until the world started to change as we entered the 21st century and PCs grew to be Intel-based servers. One of the keys to the growth of the system was the insulation the architecture provided to the applications. In 1995 the old CISC-based 48-bit processor was replaced with a 64-bit Power PC-based processor and as part of an upgrade, all applications were automatically re-translated to take full advantage of the new hardware.

## **The New Millennium: The Shift to Client-Server Computing**

At the start of the new millennium, there was a shift to client-server computing and the new distributed model with web, app, and database servers. The AS/400 became standardized with the rest of the IBM platform, moving on to standard IBM POWER chips with POWER5. With the launch of POWER6 came the introduction to standard virtualization technology, where you could take a server and create several completely virtual servers on it.

This was a slightly different approach from the rest of the world. IBM went with the idea that you would have a platform, put a couple of Virtual I/O (VIO) servers on it, and then you could create multiple VMs, and they would be connected to both VIO servers. As a result, you had a very redundant environment where you could take a VIO server down and everything would continue to run. Through the other VIO server, you could do your maintenance, make your changes, and bring it back up. It would reconnect to the second VIO server again and have full redundancy. Then you could take the other one down and do your maintenance.

In comparison, VMware's approach was to take over the whole machine and just run virtual machines on top. If there was a physical problem, or the machine needed maintenance, the only thing you could do was to migrate those to another system. They got very good at that. However, if the system crashed, you were restarting everything on another virtual machine.

With the introduction to standard virtualization technology came the concept that if you had a VM, you should be able to migrate it to another physical server. In the IBM world, that became LPAR mobility. The AS/400 had been based on dedicated internal storage, and it was given full SAN support as the final modification. From a hardware point of view by the 2010 timeframe, the AS/400 was a modern system with IBM POWER chips, SAN storage, and virtualization in place.

### Designed to be an Integrated System

In parallel to all of the hardware changes to the AS/400 was IBM's continued focus to enhance the AS/400 as an integrated system, which was totally different from most of the rest of the world. When you bought the operating system, it came with an integrated database, integrated security, job scheduling, and job management capabilities. It was designed like a mainframe, where you could run multiple workloads on it. IBM's competitors were concerned that trying to run everything on just one server wouldn't work and instead, built their systems with multiple servers — web servers, app servers, and database servers.



With the IBM i, everything had been included. Early on, IBM believed the best of breed web server was Apache, therefore there was a version of Apache that was all packaged up to be the IBM web server. Then IBM built their own application server, the WebSphere Application Server. Customers who bought an AS/400 had the right to have WAS – Express, and a web server on it so that they could move into the new web world. However, very few AS/400 customers did that.

The biggest reason that the AS/400 was successful from an application development point of view, was because everything was integrated. You could go in as an application developer and design your green screen, design your database, and then write a program that pulled that information all together. Without having to do anything, the program knew what the database looked like, what the screen looked like, and now, all the programmers had to do was look after the logic of making the data flow.

It was a very productive application environment and IBM customers were all locked and loaded with green screens on everybody's desk. When green screens went away, that turned into PCs with client access, which provided a green screen emulator. However, everything that you needed for web development and web services, and all of the new opensource programming, such as Python, and Perl was there. Whether people used it or not, was a totally different challenge, but IBM provided it and brought it all into place.

### **2003: Capacity Backup Unit**

IBM now had a virtualized environment in place, with all of the standard web enablement and web services. The third piece of becoming cloud-enabled was to go through another transformation. The first step came in early 2000 when IBM realized that customers were now in an environment where they needed a higher level of availability. In addition to the production system, customers wanted a backup system. It didn't make sense to have full software licensing on your backup system.

IBM started with the totally intuitive title of a "Capacity Backup Unit", or CBU. It had a licensing model, which meant that you had a production box that was fully licensed, up and running. You could bring another box in and put minimum licensing on it, so that it could be up and operational and then you could use some sort of software. IBM liked an offer called PowerHA, but there was also a number of companies that offered logical replication, so that system could be a hot, or at least, a warm standby. In the case of a failure, you were able to logically transfer all of your software licensing to that backup system and run and be in compliance, as far as IBM was concerned, from a licensing perspective.

### **2011: Capacity On-Demand**

The next step involved addressing the needs of IBM's high-end enterprise systems. IBM has two classes of systems: high-end enterprise systems and smaller systems, which they currently call, "Scale Out." The enterprise systems are designed to be very robust, and from



a scale-up perspective, very powerful. IBM started with those large, scale-up systems, and introduced what they called, “Capacity on Demand.” With Capacity on Demand, you could buy a system that had 16 processors, and a terabyte of memory on it, but you could license it to have eight processors, and 512 Gig of memory active. If you needed more than that, then you could get a hardware activation code that would turn another core, and another 16 Gig of memory on, or whatever it is that you wanted.

This was followed by “Trial Capacity on Demand,” where you could just turn everything on for a period of 30 days.

IBM realized that some of their high-end enterprise customers only needed Capacity on Demand for a short period of time. For example, a customer might have RS PCs, and in an RS PC they needed three extra cores but only for a certain number of months. As a result, IBM started coming out with “Temporary Capacity on Demand”, which meant that you could turn cores on, and IBM would monitor your system, and on a quarterly basis bill you for what you actually used. IBM also launched “Utility Capacity on Demand,” where you could pre-buy minutes of CPU and when you used it up you could buy more.

### **2016: Mobile Capacity on Demand**

Customers who had multiple systems but had Temporary Capacity on Demand on only one of them soon asked for the ability to put Temporary Capacity on whichever system needed it. IBM then created “Mobile Capacity on Demand” for these large systems managed with a hardware management console. If you had two or three systems that are in a pool and hardware management, you could have a mobile activation and put that on whichever system you needed to use. It would be a temporary activation.

## Building Public Clouds

Customers started to have a lot more flexibility and in fact, at that level, were starting to build their own private cloud. Based on that kind of capability, IBM started to look at building public clouds, where you could have a workload in your cloud and build a workload in somebody else's cloud. IBM had already reached the point where they had LPAR mobility, which is the ability to do a live movement of a running, virtual machine from one physical server to another physical server. In this private cloud environment, you have the ability to move things around. You don't have the ability to move a workload while it's running from a private cloud to a public cloud because you just don't have the connection since a lot of it is based on shared storage. But you started to be able to build a private cloud, a public cloud, and then, use all the web services, and everything else, that most people hadn't started to use to tie things together and make them work together.

### 2019: Enterprise Pools 2.0

The last step that IBM took was to launch Enterprise Pools 2.0, which they expanded to the whole product line. Whereas before, the Capacity on Demand and Mobile Capacity on Demand was for the Enterprise systems. The Enterprise Pools 2.0 provided the ability to license the smaller systems differently. In an Enterprise Pool, you're able to share all of your software licenses dynamically; you're now managing with HMC, you connect your HMC to a cloud monitor from IBM. If for example, on your three systems, you have 10 licenses, then as long as your total utilization is less than 10 licenses, it works. If you are using more than 10, then on a minute basis, IBM will keep track of it. IBM would use the Utility Capacity on Demand, where you pre-buy a whole bunch of processor minutes, and if you were over what you're entitled to, then you would draw on that. When it gets down to zero, you get to buy more.

Now you have the ability to build a very effective private cloud with multiple servers, the ability to move workloads around, the ability to share your licenses, and the ability to connect up into a number of instances in the public cloud. IBM has built this technology and now has a virtual power cloud offering that they are rolling out.

### Overcoming Backup and Recovery Challenges

Although not currently available, IBM's intention is that the utility minutes that you buy could be used on whichever system needed it, including the ones in the public cloud. Instead of having to pay six different bills, as a business person, you would like to be able to put all of your budgeted money in a pool and have it be used best wherever it's needed. Although that would be the ideal situation, there are some challenges when you get into this kind of environment, particularly with public clouds. One is backup and recovery, which can be difficult in a virtual world.



For example, if you're in a web server, and it's 25 Gig, and the answer is, "If it dies, start another one," it's not a big deal. When all of a sudden, you're talking about a 20TB database, and it dies, "Just start another one" doesn't work very well. Backup also becomes more complicated in larger systems. For example, if you're backing up a web server, you could back that up very nicely in a virtual environment over the network. As you start to get into very large file servers, and very large data servers, that breaks down. You really need a VTL with a high-capacity connection, that you can back up at gigabyte speeds to get a backup done in a timely manner. More importantly, the days where systems just totally blew up don't really happen very often.

If you do have a disaster, and you're doing recovery over a network, it can take you a very long time. And most customers in this kind of environment aren't prepared to do that. You need high-speed capacity and high-speed backup and recovery because these days, 90% of the time, the recovery is an application problem. Someone did something they shouldn't do, and you have to reset the database so you can do it right.

Backup these days is normally used for an applicational recovery, as opposed to system crashes and rebuilds. At the same time when you go to a world-class data center, which is what most people are looking at, a type four data center that has redundant power, and redundant cooling, and redundant everything —there's still a non-zero chance that a system's going to roll over and die. In those kinds of environments, most cloud providers will simply just restart it. Your recovery time will probably be a few hours and some customers would accept that. Some wouldn't. As a result, you now have to start to have some kind of a high availability strategy that's replicating the database to another server, ideally in another data center. This will significantly reduce the recovery time, because now you have a hot system running somewhere else.



The fact that you're in a public cloud doesn't guarantee you're never going to crash. And if it's restarting a web server on another system, in those environments if a server dies, and you lose a couple, it automatically starts more on another server. Even though it's a different environment, the AS/400 became the IBM eServer iSeries, became an IBM Power System, running IBM i — it's still fundamentally a monolithic architecture, where you have the ability to run your database, your application server, and if you want, your web servers all in one platform.

Quite often, people will move the web servers out because they get a little more redundancy, and the ability to scale up and down much more easily. However, there are some real advantages to having the application server running with the database, simply because you get rid of the communication overhead. If you're filling out an inquiry screen that's going to take 100 I/O, that's not a big deal. If you're running a big batch process that's going to do a million I/O, the multiplier says it would run way faster locally, than it would over a communication link.

When you can run locally and on the same server as the database, you get much better performance.

### **A Long Journey and the Road Ahead**

It's been a long journey, from the AS/400, which was a green screen, stand-alone, internal disk, distributed system built for the '90s, to an IBM system running Power i, with the ability to build a private cloud and move workloads around. IBM continues to build on top of that. The IBM software stack, which started out growing with PowerVM and provided the basic virtualization to take a system and cut it up. Followed by the VIO server that let us virtualize the I/O, and create virtual machines and move them from system to system. Through to the PowerSC that let you try and manage the security, more in an AIX Linux world than an IBM i world since IBM i has a very strong built-in security. And lastly, to power PowerVC or Power Virtual Control, which provides you with a front-end to automate the creation of virtual machines and the management of them.

Many IBM Power on-premise customers make the move to the cloud for the opportunity to worry less about their hardware components and related infrastructure and focus more on their business capabilities. Working with a cloud partner with the necessary platform and infrastructure skills, can not only relieve Power customers of some complex technical responsibilities but can also enable them to re-allocate staff to other important activities that drive business value. ■

**by Dale Perkins**

# Getting from Power On-Prem to Hybrid or Full Cloud: What it Actually Takes

*Many IBM Power on-premise customers make the move to the cloud for the opportunity to worry less about their hardware components and related infrastructure and focus more on their business capabilities. Working with a cloud partner with the necessary platform and infrastructure skills, can not only relieve Power customers of some complex technical responsibilities but can also enable them to re-allocate staff to other important activities that drive business value.*

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Although many customers are motivated to explore the cloud, ensuring a successful migration can involve many considerations:

## 1. Ensure Compatibility with the Cloud Operating System

Compatibility may not be an issue if you're coming from an IBM Power platform already, because you're staying on the same technology. However, not all clouds operate all supported releases of the operating system (OS). Generally, when you move to the cloud especially on IBM Power, the cloud provider in most cases is providing the OS, not just the application. Your application has to be compatible with the cloud OS (meaning the version and release level). As a result, it may force you to perform an upgrade to update your code before you migrate, or it may not, depending on your version and release level. A well-planned-out migration project is typically required. It can be a big undertaking for those who haven't kept up to date, requiring a lot of time and money to modernize.

## 2. Re-Establish Essential Interfaces to Other Entities

IBM Power tends to have interfaces with a lot of other entities. It can have interfaces to other infrastructures or other applications either on-premise or in other clouds. Those relationships still need to be re-established in the cloud because they are still essential for your business. Moving everything from on-premise to the cloud is an involved project, and customers often don't think about these other entities until the last minute.

## 3. Re-Examine Your Networking

When you move to the cloud, you need to re-examine your networking, since everything still needs to be able to see everything else. With many cloud providers, you need to adapt to their networking schema to some degree. You may have to either migrate through there or adhere to their characteristics, so it can become a big chunk of the migration project. For



other cloud providers that are internet-enabled, it's simple — you just need a connection and away you go. Sometimes customers want the ability to control their network right to the cloud.

At Mid-Range, we tend not to get involved in the networking. We leave that to the customer to own, as it may be just a drop off of their network versus having to go through a major network redesign. We have a phrase that we use often, “No matter what you do, it's all about the network.” The more complicated the cloud providers' network interfaces are (and that will vary by provider), the riskier the migration could be. The network should be at the top of your agenda. Do your network due diligence. Don't underestimate it.

#### **4. Define Your Strategy**

In any migration from one site to another, you need to consider your strategy. What is your business outage window? Some customers can take the whole weekend to migrate. In that amount of time, you can take their whole environment, restore it, rebuild it, and test it. Other customers are 7/24, 365, and wonder how they'll ever be able to manage a migration. The bigger the window you have to perform the migration, the less expensive it probably is. The shorter the window you have, the more expensive the process. You need to find the strategy that best fits your business.

#### **5. Verify the Licensing Requirements for Your Applications**

Applications that run on these Power platforms are likely licensed to that machine and may have specific licensing requirements. In this situation, when customers then move to a cloud offering, there could be implications in terms of fees for the ability to run it on different hardware. These licensing fees would be ongoing, on an annual basis. You should verify that all of the vendors' products that you run on the cloud will be supported and also find out if there are any fees applied to moving.

## 6. Research Potential Additional Costs

Our experience is that the cloud is not necessarily less expensive. There are several factors that can come into play besides your initial infrastructure costs. Consumption-based pricing is a common cloud pricing methodology, and you may end up paying for things that you never considered in your budget such as data going into the cloud or extracting data out. With month-to-month or on-demand consumption, you will pay more, but you can reach more economical models if you are prepared to make a fixed-term commitment.

When you're evaluating a potential move from on-premise to the cloud, it's important to include your future cost savings (i.e. technical staff that can be re-allocated) in addition to the direct cost of the solution. Also, consider your company size. Small and medium-sized customers may get more benefits from working with a cloud provider because they can't get to the necessary economies of scale on their own.

There may also be some hidden costs. Don't underestimate the lift to get there. It can go beyond the monthly commitment and can sometimes depend on the environment. If you're fairly current and you have a moderately big window, everything may align and the lift to actually get there can be relatively painless. In some cases, the lift can be fairly big; it can be tight and take a lot of resources and multiple integrations. Make sure you've done your research.

At Mid-Range, we become the consultant and we ask customers those questions. Sometimes it makes them uncomfortable because they don't know the answer, but not knowing doesn't make it go away. If no one's asking you those questions, then it's not due diligence.



## 7. Investigate Your Backup and Recovery Solution

Another important point, especially in the IBM Power platform because it's unique, is to confirm your backup and recovery solution. How easy is the restoration process? Are there a few options available? As a normal business function, a vendor's recovery solution can be a differentiator in some cases. Although there could be some similarities in the process, the technologies deployed on-premise vs. the cloud will be different.

## 8. Understand Partial Licensing

One difference that is specific to the IBM Power platform in on-premise versus in a cloud, is the necessity of having to license by a full processor. When you migrate to a cloud, however, you can potentially take advantage of partial licensing because the cloud vendor may only charge you a portion. With on-premise, you can't buy a part of a license. A cloud provider can give you a portion of a unit and that might be all you need. As a result, you have a little more granularity than you would have in an on-premise deployment. Sometimes that has an impact. Granularity of the sizing is one of the benefits of the cloud; the ability to take you up incrementally instead of only via big steps.

## 9. Verify Security Requirements

Generally, when you migrate to the IBM Power environment, your application security and all those things migrate with your environment. Whatever security you have within the system tends to stay with you when you restore the environment. However, it's your external security, the next level outside the network security, that may need to be addressed because there could be cost implications. Your cloud provider may tell you that you need particular firewalls, which they will provide, and this is what it costs; you have no options. Other cloud providers may have more flexibility, where you can drop in your own firewall, which is probably what you're used to doing and you can bring those rules with you.

The majority of the big cloud providers have a virtual software firewall. Mid-Range is a bit different. Because of our size, we have the flexibility to allow customers to take the same model and drop it in our data center if they're used to using firewalls. It would look the same as they have always configured, whatever the hardware rules. We try to take the complexity out of that. We don't force you to fit into our network model. Larger cloud providers tend not to offer that flexibility because they don't want anybody else's equipment in their data center.

While there are many benefits to migrating to the cloud, it pays to do your research and to prepare a well-thought-out plan. Interested in learning more? Visit our IT Services page to find the resources to help you with your next IT project. ■

by Jeff Willar

# IBM Power in the Cloud: Considerations and Practical Realities

*When evaluating the move from on-premise to the cloud, IBM Power customers across various industries typically ask the same two questions. What stays the same? And, what do I have to give up? It is important for organizations to take the time to complete a careful evaluation to determine their particular business reasons for making the move to the cloud, as well as evaluate the business risks.*

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## Business Drivers for Moving to the Cloud

There are several reasons why organizations are looking to take their IBM Power infrastructure and move it into the cloud:

- It is becoming too complicated to manage and they do not want to be in their own data center.
- The technology doesn't match their other technology; "It's a black box, an orphan."
- It is difficult to find staff that can understand and manage the technology. In addition, it isn't clear what types of skills are required in order to maintain it.

Organizations are looking at how they can divest from these problems but keep the solution in the technology, as it is the core of their business. They want to be able to keep the best parts of it but remove it as a distraction.

## The Business Impacts of Moving to the Cloud

As organizations move core applications, such as an ERP system, insurance system, or freight management system into either a private cloud or a public cloud scenario, they are divesting a critical application into the cloud, moving it one step away from the organization. The IBM i and Power technology is extremely powerful and stable. When you move to the cloud environment, the expectation is that it is going to be as stable, as robust, and as powerful as it is on your own premises.

To clearly evaluate your decision to move from on-premise to the cloud, you need to consider the business impacts. How do you manage it? How do you confirm that it is doing everything that you need it to do? Many organizations forget that when they move to the cloud, it is 100% network bound. Everything about it is now constrained by its network. All



the interfaces that you have between other applications, the interface points between your users in the application, your internal applications to internal applications, and your external B2B (business to business) are all going to be impacted. That is a business risk that you are offsetting against the divestiture of having your solution on-premise.

All too often, organizations are not looking at the potential business impacts when they make these changes. They understand that they can move their application into the cloud and that the Power platform can run extremely well inside the cloud; however, they haven't accounted for the impacts of the fact that it is now a step removed from them. For a lot of organizations, that box has been running stable for decades. As a result, they are dealing with tribal knowledge that has long left the organization. There needs to be a very pragmatic approach when making the decision to move your core into the cloud, including proper testing plans.

From a management perspective, you then need to ensure that it is running as effectively and efficiently as possible. Is the machine healthy? And most importantly, are you getting the required throughput from your B2B conductivity? Complete a solid assessment of your environment today to take a closer look at how the platform is being utilized from a conductivity, user experience, and data flow perspective.



## Evaluating the Risks

Making the move to the cloud is a large business investment — not just in dollars, but also in mindshare and user experience. If you're going to make those investments, then it's necessary to do the work upfront to understand your risks as well as your cost differentials.

### Network Risk

The customer's tribal knowledge can be key to determining the associated business impacts and level of risk. When customers move to the cloud, where it's a move of a data center from data center A to data center B, they often don't realize that the distance and bandwidth between those two points can become a critical factor. The first step in evaluating the risk is to assess how your network is being used and what network design makes the best sense.

From a B2B perspective, you need to determine if you are managing everything through a central corporate gateway or if you are recommending that each individual player has their



own gateway. With the second option, you will be able to use gateways and firewalls within the cloud provider's realm to handle that for you. However, if your organization is too large, you will need to have a central ingress and egress. If that stays on your corporate side of the walls, then you will need to do a LAN extension or a site-to-site between you and the cloud. Many customers overlook the fact that you have to pay for all of their egress.

Having unnecessary egress going on in your environment can be very costly. If you are going to implement a backup strategy, then you're encouraged to back up inside the cloud, as you don't get charged for that ingress and egress. If you are going to back up to a central repository because you have other infrastructure that you need to support, then you need to factor in those costs. Those costs occur whether you pay through credits or whether you pay through a monthly subscription — and they are long-term.

### **Security Risk**

When moving to the cloud, it is vital to assess your security profile and determine your security stance. How will you control ingress and egress and how will you control ingress and egress for your B2B applications? This includes your business-to-business data, internal data, and your public facing data. You need to vet how you will position that cloud and how traffic will flow in and out of it. Many customers ignore this issue to their own peril. They begin the process and are quickly too far down the path before they realize that they have not laid it out properly. Even though Mid-Range is not in the network business, we spend a lot of time working with customers on their networks because it is essential. It is the bottom of the IT stack; everything rides on the network. If you haven't thought that through, it will impact your business performance and your security posture.

### **Outage Risk**

Without a backup strategy plan, you could end up with an unexpected outage that can be extremely difficult for you to take control of when you need to restore and recover. The fact that it's in the cloud is problematic because you don't have the unlimited controls to do your recoveries. You are beholden to a platform owner that allows you only certain interfaces to look at it. Your speed of recovery is now impacted; your speed to act and react is now hampered. Customers that would be greatly affected by this type of situation should possibly consider a private cloud.

### **Financial Risk**

As a CIO, you would also consider the risk versus cost profile. By moving to the cloud, you may gain an OpEx (operating expenditure) advantage, however, it could change your risk profile. Or your risk profile could be acceptable, but it could impact your cost profile. For example, if you are pushing out a significant amount of data, your cost profile is going to change dramatically. Take the time to examine the potential costs over time and look at the whole picture.

# Considerations that May Affect Your Risk Evaluation

There are also some key considerations that may affect your risk evaluation:

## Full Migrations Take Substantial Time

Many organizations forget that moving to the cloud is a full migration exercise. This is typically not a process that can be completed over one weekend. You have to go through all of the migration protocols and processes that confirm everything has been brought over and that all of your interfaces are working. You have to do a lot of testing. It can be a strain on the organization. It is a difficult process and can take several months from the time you make the decision and choose your cloud provider.

## Private Versus Public Cloud

Organizations that choose the private cloud route are far nimbler than if they were to go to the public cloud where they would have to fit “in the box.” If your organization doesn’t fit in the box, then you must find a way to navigate around those constraints. You need to determine the business reasons for choosing either option, in order to find the best solution for your organization. If you just want it outside of your walls, then you have two solid options in front of you.



If you go to a public cloud, it's almost as if you receive a checkmark that recognizes that you are now in Azure, AWS, or the IBM i Cloud. That checkmark may be important for your auditors or investors and could therefore represent a critical business reason for choosing to go to a public cloud. However, if you just need to divest and get help with the day-to-day care and management, then the private cloud offerings may be a better fit. The key is to address the business reasons for making your decision.

Keep in mind that moving to the cloud does not necessarily remove your operational constraints. What it will do is just move your hardware into the cloud. You have just the same number of concerns as you had before, they're just in a different place. You will still need somebody to manage the day-to-day care. Managed services should also be a consideration as it can solve that problem exactly the same way, whether it's on-premise, private cloud, or public cloud.

### Your Ability to Outsource Decisions

All systems have some decisions that require human judgment or tribal knowledge to complete. Those types of decisions are the ones you need to control and keep in-house. Those require business skills. There are people in your organization that understand your business, for example, what your month-end looks like, or a typical day of processing.

On the other hand, there are decisions that can be made based solely on technical skills. If a technical skill is required to answer a question, then those processes can be automated and outsourced because your organization has little value to add. This can include your operating system, patches, backup schedules, the care and feeding of the machine, and the environment. Best practices decisions can be made without needing to know anything about the customer. That's the piece you want to outsource, the piece that's distracting you. Those technical tasks need to be completed by qualified employees who are difficult to find and hire.

Understanding the business reasons for moving to the cloud, as well as evaluating the associated risks, will help you make the most informed choice for your organization. ■

by **Tim Lalonde**

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*There's never been a better time to discuss your options for your journey to the cloud. We have been supporting companies with all of their IT needs since 1988, so we've seen it all. You can count on Mid-Range to provide you with custom solutions to meet your specific requirements. Contact us to discuss your Cloud IT needs with a professional. Let's talk.*

# About the Authors

## Dale Perkins

Dale Perkins is a Senior Solutions Architect with Mid-Range. Dale has been involved with Technical Sales Support for the IBM System/38, AS/400, iSeries, i5, and Power Systems since 1979. Dale is a server consolidation specialist who has extensive knowledge of both the IBM software and hardware architecture. Dale works directly with customers assisting them in building robust and flexible infrastructures.



He is an IBM Power Systems Specialist in Technical Solutions Design and was also one of the first IBM Systems Architects. In this role, he was responsible for designing solutions for customers using the complete IBM product line. He has been a key player in numerous server consolidation projects and is an expert in LPAR design and virtualization technologies.

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## Jeff Willar

Jeff is currently Vice President and General Manager, Mid-Range Computer Group Inc. Jeff has been working in the IT industry and related field for over 30 years. His role at Mid-Range oversees the development, sales, and operations of all the offerings and Service delivery within Mid-Range's breadth of Services offerings including Datacenter, Hosting, Cloud, Managed Services, Professional Services, and Product sales.



Prior to this role, Jeff was a Senior Solutions Architect for Mid-Range for a 6 year period, preceded by a business development/recruitment role with an international IT distributor, and 10 years as a Solutions Architect and Team Lead at IBM.

Jeff holds the degrees of Bachelor of Engineering, and a Masters of Business Administration (MBA).

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## Tim Lalonde

Tim Lalonde is the VP of Technical Operations at Mid-Range. He works with leading-edge companies to be more competitive and effective in their industries. He specializes in developing business roadmaps leveraging technology that create and support change from within — with a focus on business process re-engineering, architecture and design, business case development and problem-solving.



With over 30 years of experience in IT, Tim's guiding principle remains simple: See a problem, fix a problem.

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## About Mid-Range

*Leading organizations don't come to Mid-Range because they want more IT, they come because they want more from their IT. At Mid-Range, we use our expertise to assess your unique needs, in order to proactively develop the most effective IT solution for your requirements.*

*Our full-service approach to technology and our diverse and in-depth industry expertise keep our clients coming back year after year. We've been serving clients in a variety of industries since 1988, so we've seen it all. **Let's talk.***

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