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GROUP

Data Center Migrations and Consolidations: Someone Else's Problem?

Table of Contents

The Situation: Risk

IT's job is to Protect the Business. Every Move Bets *Someone's* Job.

A great deal has been negotiated; an airtight business case approved; a beautiful, state-of-the-art facility identified; a brilliant architecture designed. Now we just need to move in. That's the easy part, right? Not necessarily.

Executives determine a Data Center Strategy- the future end state of the configuration of facilities that will run the compute workload that support the business.

When executives do so, they assume that the migration will happen without incident. **Any incident at all is considered an IT failure.**

The facts are very different. Data Center migrations are in fact inherently risky. So for the leader or practitioner whose career depends on the success of this move, risk mitigation and risk avoidance is paramount.

Risk is in large part a result of the unknown. It's difficult to isolate the unknown when you haven't seen the pattern of events before. For many, a significant migration is *both* a once in a generation event, *and* an added burden on an already taxed staff, already challenged with their day jobs.

An Inherently Complex Data Center Move is Inherently Risky.

"For every complex problem there is an answer that is clear, simple, and wrong." - *H. L. Mencken*

Industry analyst firm Gartner tells us that the best-in-class Enterprise Defined Data Center is characterized by a focus on services- workload- rather than the physical data center. Infrastructure & Operations are to govern and provide, not necessarily produce.

First, data center moves have always been complex. Most operations have been neither architected with a move in mind nor documented to make it easy. Ask anyone who has ever tried to get to "the single source of trusted data" how much confidence they've got in their foundation. Application discovery, dependency and affinity analysis remains a vital yet all-too-imprecise science.

In addition, options today are far more abundant than even three years ago. In particular, ever-expanding cloud and co-location alternatives can provide a broad range of choice to Infrastructure & Operations. These alternatives also make business case calculations more complex and add variables to move planning.

- An individual firm may self-manage its core applications on-premise. It may run other applications in a co-location facility, perhaps driven by capacity concerns.
- It may have one or more development platforms in the cloud, with one or more providers, for new applications.
- It may choose to run its operations entirely in co-location facilities, wanting to rely on another's expertise in facilities management.
- There may have a second or even a third disaster recovery facility, which may also host, for example, development environments.

For the foreseeable future, most data center organizations will have workload in some mix of on-premise, co-located, and public cloud facilities.

The right mix of "what runs where" will constantly evolve based on a continually changing market, which makes more and more services available on a continuous basis. These changing dynamics will make workload shifts a more frequent fact of life for many organizations. They also make execution more complex than ever before. The days of a straightforward mainframe migration or of a simple lift and shift are largely behind us.

The Implications: "Unknown Unknowns" and Lessons Learned

Risk lives in the unknown, but it's "unknown unknowns" that can't be framed and therefore mitigated. We've learned where hidden costs live, and we've learned to look for them while we're planning rather than in execution.

Where Hidden Costs Live

Potential sources of hidden cost are many. Some of the more common- and lethal- include:

- **Unplanned downtime:** in some businesses, the cost is hundreds of thousands of dollars per hour.[i] The risk during a move is obviously much higher than in steady state. This is also the most damaging to IT- and to the business- and if there was ever any doubt who "owned" the move, it's removed here.
    - Infrastructure and Operations is expected to protect the business; unplanned downtime is NOT an option when moving workload. This single expectation- and the consequence of missing it- is the best reason to rely upon the codified accumulation of experience we call methodology.

- **Performance**: in many large enterprises, it is essential to have the business units bring their applications and data into a testing center for the new environment. Only when we've determined the performance and latency impact of the move can we fully understand its impact on the business.
    - An organization that does not test properly exposes itself to the paralysis of potentially groundless claims of degraded performance- or even worse- to truly degraded performance, which drives away customers.
- **Network costs:** if the move is improperly tested as described above, network costs to remediate performance may be significant.
- **Unexpected move costs:** moving unaccounted affinities in an emergency fashion after the fact will be a "budget killer" that destroys credibility.
- **Physical geography of the people:** what's it going to take to get the move executed? Who needs to be where, when, and what kind of cost does that require? Data centers *do not* get moved in long email threads, group chats or with key people on mute.
- **Overtime:** have you considered the costs of paying the teams for seventy-or-more hour weeks?
- Swing gear: tied closely to the selection of move method, and also related to licensing questions, have you properly estimated these?
- **Licensing:** this is particularly important when a change in platform is part of the move. Many software providers earn very well on compliance issues. Are your distributed application licenses tied to MAC addresses?
- **Failure to plan for outside help and expertise:** there is *nothing* "business as usual" about a data center move. Do you truly have the time to pull it off given the other day-to-day tasks for which your team is responsible?
    - One trap to avoid is burning out key people out at most critical time of the move. Some firms look to move in groups from "least to most risky." This is a good approach to gain experience, but toward the end, people are more and more exhausted from the nights and weekends. You can lose your best people at the most critical times.

Some of What We've Learned

To help us visualize some specific instances of what experience has taught us, here are some highlights from one of our "lessons learned" documents:

- **Inventory accuracy** (for server to application mapping, and move group development) **is far more elusive than many firms expect.** In many cases accuracy is hindered by poor data integrity among multiple data sources. In some environments, information is held by individuals, almost as a source of power.

  Teams are not always able to leverage existing CMDB or accounting information. And don't expect that tools will be able to update the repository automatically.

- **Don't use specialty tools** with which the team is **unfamiliar**.
- **Don't permit**
  - **Independent change processes,** or a process that too narrow in scope to capture all changes that may have an impact.
  - **System changes during peak periods.**
  - **Changes to configuration** to application or hardware **within** 2 week **pre-migration freeze**

  Availability of the production environment is paramount, and drives most decisions.

- **Be sure that** "end of life" and outdated **applications and infrastructure are upgraded prior to the migration**, to eliminate lengthy troubleshooting and backouts. **Don't ask** applications teams to identify issues without the assistance of a "factory" approach: these teams are focused on driving business.
- To ensure consistency, **institute a Migration Control function** that controls all aspects of preparing for the migration events.
  - Strict adherence to the Migration Control Sequence (MCS) through a gated review process reduced errors, timeline slippages and controlled costs
  - Lay out a detailed timeline for migration events, along with the MCS and a work breakdown structure that allows for **predictive staffing**
  - **Don't permit vendors** to establish their own rooms to migrate applications.

- **Use a Testing Center of Excellence** to measure and mitigate the effects of latency wherever possible. Require sign-off from the application team on what will be tested prior to the migration, and don't allow "independent" testing team strategies

- **Don't rely on lower cost, less experienced resources.** Significant rework is the result, which translates to lost time and credibility with business
- **"It's both:" Internal and external resources** each have critical roles to play. We've found it to be imperative to have leadership from the client to drive decisions from the top down. At the same time, a strong PMO and System Integrator that leverages tools and metrics are keys to successfully managing a dynamic multi-vendor environment.

In sum, **don't expect**

- "Client only" resources to manage milestones and deliverables they have had little experience with or prior knowledge of
- Outside resources to "hit the ground running" without a client- assigned resource to help them. It just takes too much time to understand the environment
- An outside firm to fully lead the overall effort.

The Solution: Applied Experience and Disciplined, Trained Experts

- It starts with the right questions
- The value of structured, experience-based methodology
- The value of a specialist who has done this many times before for a once-in-a-generation event

The Right Questions

The experienced migration specialist will ask:

1. **What are the objectives** of the consolidation or migration? Is it the result of a merger or acquisition? Is it cost driven? Is it driven by regulatory concerns, e.g., a need for improved resiliency? Is it a need to update an aging facility? Is a lease expiring? Is it pressure to "move to the cloud"?
2. **What level of engagement** do you have with your line-of-business clients? Is the business driving the move? What are the seasons of the year where change is not permitted or which are critical for revenue and particularly unforgiving for unplanned outage? What level of support do you have and what is the support for an adequate outage window?
3. **What "move method"** does your business case dictate? Will you lift and shift? Migrate a virtualized environment over an extended period of time? Build out a test and disaster recovery facility first? Technology refresh on the fly? Does it tie to a refresh cycle (if you have such a defined cycle)? Have you a need for bubble gear?

4. **What confidence do you have in the data you've based your business case upon?** Do you have a single trusted source of data, understand application dependencies, and understand performance and latency considerations? Do you fully understand your software licenses and service provider costs and the contracts that govern them?
5. **Is now the time or do you have cleanup to do first?** Can you move what you have safely, or do you have remediation to do in order to enable it in the new environment? Do you have a reference architecture and if so, where does it apply? Better a difficult conversation now than a tragedy on move night.
6. **What's your tolerance for risk?** What are your plans in the event of a disaster during the move? Are they "conceptual" or concretely documented? What if that disaster only impacts a single or sub-set of applications but doesn't warrant a DR event?
7. **Are you attempting to combine the move with additional projects or upgrades?** Experience "shouts" this is a bad idea. Data Center moves are complex enough.
8. **Have you considered decommissioning?** This is a complex process with environmental, security, asset management and other concerns.

"Bad news early is good news."

Continuous communications are vital. The experience which now lives in our DNA drives urgency in the moment: issues need to be addressed and fixed on the spot rather than delayed.

Commitment: The Right People

GTSG has both the structure and the people, and can hit the ground running: if you tell us where you are today, we know what needs to happen tomorrow.

We are frequently asked to remediate a troubled migration. Many of those projects became troubled because the client believed they understood their environment, had things under control. After all, they knew the "first 85% of our stuff very well."

What sets GTSG apart- and what even our assets can't bring- is the experience to ferret out the other 15%: the unknown, undocumented items that don't show up until move day.

Organizational issues are frequently the largest to overcome

One of the key things we do is to determine how each customer's environment is unique- and apply that understanding to the teambuilding required to successfully migrate a data center. The broader team, including vendors, must be included in the softer "change management" process to assure selfless focus on the end goal. Indeed, many vendors already in-house will present that they can move the DC, yet they are as entrenched in "business as usual" as the employees.

Silo mentality, ownership and investment issues, open vs. protective communication, efforts to take advantage of, or force, changes... we see these things at the largest and smallest of clients.

GTSG are data center migration specialists. Part of what makes us specialists is our commitment to the end goal of the business. We bring a "fiduciary" approach to the project: the responsibility to act on behalf of the client. As professionals in dealing with organizational change, we recognize that this means we must understand both stated and unwritten goals, risks, and constraints from the perspective of ALL the stakeholders, not just the IT infrastructure team.

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In the end, it IS your project; the planning, the approval, the governance and the execution. For a once-in-a-generation event, you want a specialist. And you want a specialist who'll be with you from, through planning, design, execution and through support if you need it.

When it goes right, you'll get the same high praise we got after a major cross country move: "Thanks for telling us you moved- no one noticed."

Due diligence, ownership, doggedness, open communication, accountability, the ability to focus both management and resources to the critical tasks. We can help. You can reach us at 877.467.9885.

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[i] See http://searchdatacenter.techtarget.com/news/4500272147/Minute-by-minute-data-center-outage-costs-stack-up?utm_campaign=sdc_dcv3&utm_medium=social&utm_source=twitter&utm_content=1454089873, downloaded 02.01.16.