

WHITE PAPER

Data Center Migrations: Advice from a Pro



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Introduction

Organizations choose a data center migration project for many different reasons. They reduce costs, improve standardization and control, and manage growth, to name just a few. A data center migration can solve a multitude of woes.

Before engaging in a data center migration project, it is important to understand there are risks as well as rewards. Both are an inherent part of a data center migration project.

While every migration is unique, there are guidelines that, when followed, help you reap the rewards and mitigate the risks. This white paper offers advice on how to accomplish both. We offer five guidelines for management and five for the team.

Advice from a Pro: Guidelines for the Migration Team

Here are five recommendations for the team:

1. Establish one authoritative data source.
2. Plan ahead, way ahead.
3. Keep the migration playbook in solid and adaptable order.
4. Respect your back-ups.
5. Avoid common 11th hour problems.

Establish one authoritative data source.

It is critical to establish and maintain one central location for discovery and analysis of data. It is often called the “single source of truth” for the life of the project. Whether in a database or a spreadsheet, the data fields must be pre-defined and filterable.

The fields identify what the team needs to discover, what is missing and when they are done. It is the authority for information and updates.

It enables individuals across the enterprise to access only the data needed. If a director asks exactly which of his servers are being virtualized into site “Omega” during the week of July 4th, the data can be sorted and filtered on the spot for the specifics. It must *always* be up to date, trusted, and accurate.

Plan ahead. Way ahead.

The value of deliberate planning and continuous improvement is fundamental to all migrations. But, how you plan is crucial, too.

Limiting choices and possibilities reduce both wasted time and effort. For example, what would the response be if the planning question posed is, “When can we move?” versus “Justify why we cannot move on this date?” The answers offer two different approaches. Struggling to meet an aggressive timeline is a better investment of time than exploring what dates might be ideal from the universe of possibilities.

By setting key targets early, the team is better able to plan resources, communicate earlier, and consider a narrower range of parameters. This approach intuitively lends itself to constructing the plan sooner and in greater detail. It can also more accurately determine the impact of risk and change.

But, always keep in mind that thorough planning occurs continuously throughout the life cycle of the project to uncover those details that could adversely affect the migration. We often say that the plans and documentation will be perfect once the project is finished.

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Keep the migration playbook in solid *and* adaptable order.

The migration playbook is a minute-by-minute plan for the actual move event and identifies exactly who is doing what and when. Someone must obviously monitor the plan during the move to track status and identify delays. However, the real value in a playbook is twofold:

- It exposes the small details that might otherwise be forgotten.
- It helps adjust the plan when factors go wrong.

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When creating the playbook with the subject matter experts, walk through the smallest details. Assume nothing. When planning to stand up server alpha, is it unpacked yet? Do you have the right outlet types and are they labeled? Do you notify the next person in the chain of events when you are finished? Simplify every detail into a checklist to ensure nothing is missed. And, always build extra time into the plan to recover from minor delays and include accommodations for contingencies.

Make certain the planned timeline is viewable from both a staff and server capacity, in case problems arise with either. It simplifies transitioning team members from one element of the plan to another, if needed. In the event of hardware failure, the plan quickly identifies its priority, dependencies, and who is affected.

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Respect your backups.

Lost data is lost. Disks fail more than anything else when in transport. Too often, backups are neglected or overlooked with grave consequences.

Data migration backups should consist of 3 plans: primary, secondary, and tertiary plans. Sensitive data needs to be treated as such. Know your class of data and be well versed in any regulatory requirements for its handling.

Full data backups on tape can suffice as a primary plan. However, tape is not one hundred percent reliable and should always be delivered in duplicate. Data shifts through the network can be performed as well as using encrypted external devices.

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Plan time for full backups, and practice the plans. It is often a long process. Verify your backups are good and restorable at either location. Have at least two sets of data. One set can get lost, damaged, or corrupted. This happens too often to risk a single copy.

Remember security requirements, too. Often, sensitive data requires encryption and/or bonded escort services and are not realized until the last minute when they impact schedule and resources. Lastly, do not forget to include verification of your servers’ new backup service at the new facility.

Avoid common 11th hour problems.

The devil is in the details with most migrations. A \$25 piece of fiber cable can upset your whole migration, if you need it at 1:00 AM on a holiday. Don’t fall victim to these mistakes:

- Network design mistakes/gaps (e.g., firewall rules, re-IP)
- Insufficient cabling (missing drops, short the necessary cables)
- Power (missing whips, improper plug types, proper redundant power)
- People (tired, unreachable)
- Server access (account privileges, server management, access behind firewalls)
- Latency “surprises” (slow applications, e.g., needing Citrix)
- Sudden critical processing windows (end of month/quarter/year processing, customer events, audits)
- Procurement delays

Advice from a Pro: Guidelines for Management

Here are a few recommendations that make a big difference for your team, your operational efficiency, and bottom line. They are:

1. Know your goals and priorities. Use them to make choices and set limits.
2. Provide strong, authoritative sponsorship.
3. Balance risk versus reward.
4. Do not get stuck in planning.
5. Spot trouble ahead of time.

Know your goals and priorities. Use them to make choices and set limits.

My first meeting with a client always starts with “why.” Understanding the primary problem or opportunity is the only way to know if you are pursuing the right path, let alone how you measure success.

Are you moving to: save money, relocate headquarters, gain capacity, replace an obsolete environment, or all four? What is most important? All too often the initial response is a laundry list of conflicting items. Is there a better way to achieve your goals without moving? A good migration firm should first ask these assessment questions in order to recommend the best approach. Their recommendation might redirect your approach entirely. Lease renegotiation, WAN optimization, and server virtualization enable a broad palette of options before ever leaving your existing facility.

Once in the middle of a migration, your commitment to the original goals and priorities will be tested. Quick decisions are demanded on six figure equipment purchases. Departments are forced to choose between downtime and migration costs. Services

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are forced to retire, as they do not fit the new architecture. And, endless other difficult compromises are required. This compressed effort stresses even the most flexible workforce, and especially so if also tasked with business as usual efforts. As feelings are hurt and longstanding customs are challenged, you must keep your eye on the ball.

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Provide strong authoritative sponsorship.

People do not want to move — and reasonably so. It is a lot of work. The system could go down, and jobs could be eliminated. A long list of reasons, excuses, and motivations run counter to migrations. This is especially true in organizations with heavy matrices. Make certain there is a person in a position of authority who can serve as the ultimate decision maker at the point of crisis to de-escalate tensions and quickly adjudicate concerns.

Balance risk versus reward.

If you want to migrate hundreds of servers with zero downtime, it will be expensive and require a broad array of veteran staff. Allowing a few hours of downtime per system can take a digit off the price tag and greatly reduce the effort required. A few days of downtime during a holiday weekend might permit the reuse of existing hardware via a forklift instead of buying all new hardware.

Do not, however, gravitate to the other extreme end of the scale, asking employees to move full racks of servers to save a few bucks. One damaged rack, and you are 6 figures in the red. One employee buried under 1,500 pounds of overturned servers, and you are sued out of existence. Disks damaged from 600 miles of vibration in the back of a rental van, easily justifies the cost of professional transport.

“Do not be afraid to accept reasonable risks or allow greater downtime when faced with numbers that cannot otherwise be justified.”

It is a dirty little secret: corners can and do get cut to meet schedule requirements and fit budget constraints. Do not be afraid to accept reasonable risks or allow greater downtime when faced with numbers that cannot otherwise be justified. There are always one or two critical services that must be afforded every measure of caution, but a prudent manager looks carefully at each system and tailors an approach to meet circumstances.

Do not get stuck in planning.

It is common for larger organizations to get stuck in an infinite planning loop. There is always more that can be documented, analyzed, and tested. People are afraid to start putting systems in motion. At some point, you have to execute. The challenge is to identify what is likely needed and have the capacity to troubleshoot in case surprises occur.

You could waste months gathering information you may never need. A proven methodology and experience pay for themselves in the discovery phase of a migration. An experienced firm can help you quickly understand what information you need to gather in discovery for what kinds of scenarios. Their experience equips them to deal with exceptions that arise and enables you to move faster.

Spot trouble ahead of time.

There are three key indicators that a migration project is in trouble. If you're on the hook for its success, beware when

- plan details are misunderstood by team members,
- plan details are glossed over, or
- inadequate information is offered when questioned.

No migration goes exactly according to plan. But, regardless of the complication(s) that *will* occur, with the proper focus, attention to detail, and know-how, you will reap the benefits and skip the risk.

About the Author

Nick Wiggs has managed datacenter migration projects for Fortune 10, 50, and 500 companies in the federal and private sectors in the healthcare, education and defense industries. His hands-on experience is unparalleled in the market today. Mr. Wiggs is responsible for all services provided by David-Kenneth Group. His many years of turnaround experience offer a rare skill set that emphasizes simplicity, adaptability, and effectiveness.

He is a Texas A&M graduate with a degree in computer science and a double minor in mathematics with an MBA from the University of Texas.

Migration Resources

For access to David-Kenneth Group's data center migration tools and resources, visit our web site at www.DavidKennethGroup.com.