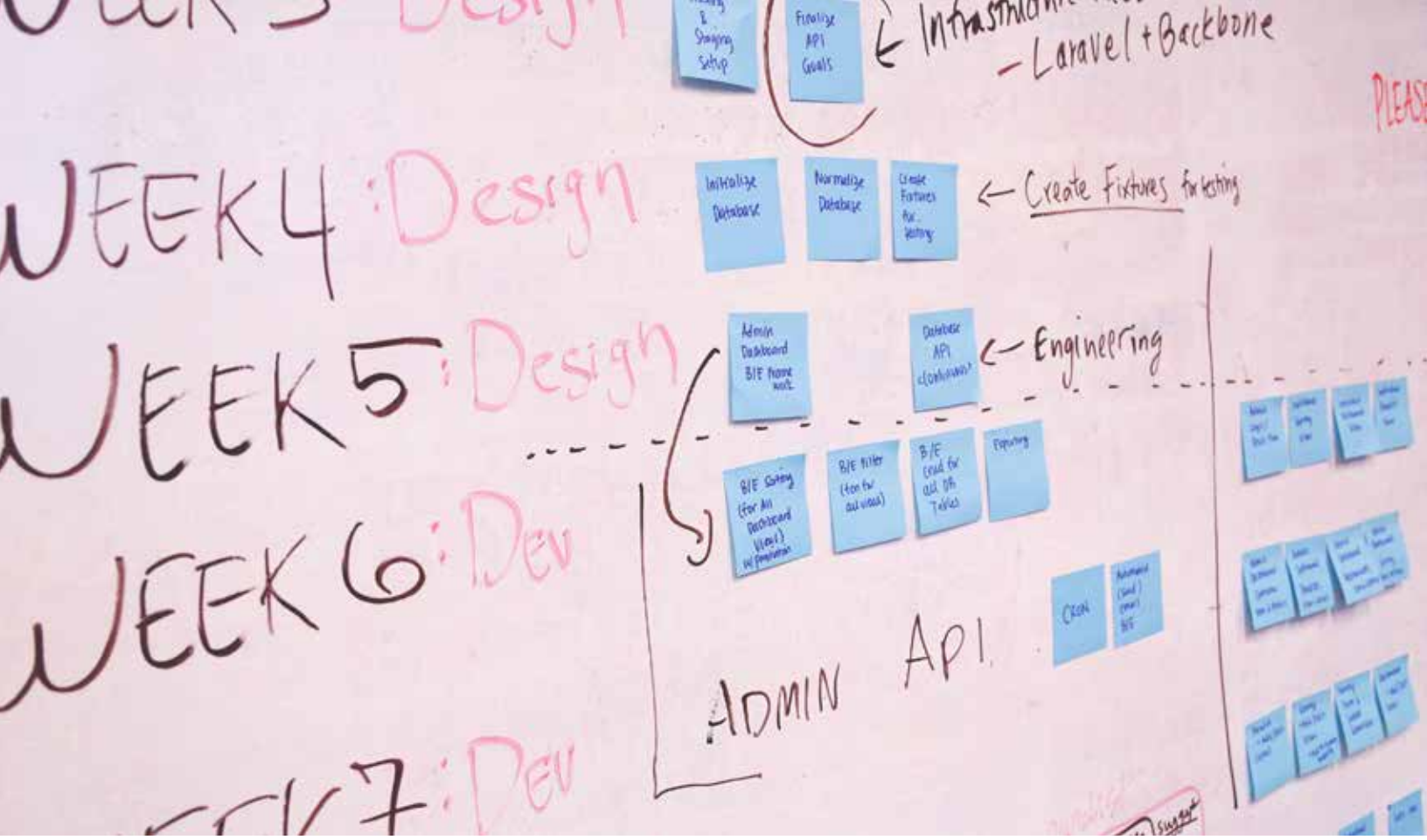
ENABLING THE HYBRID FUTURE:
STRATEGY, WORKLOAD PLACEMENT AND MANAGEMENT

GLOBAL TECHNOLOGY SOLUTIONS GROUP



FOR THE VAST MAJORITY OF ENTERPRISES, IT'S A HYBRID FUTURE.

"Developing a private/public/hybrid cloud strategy" remains the challenge most identified —by 32% of over 1,000 polled — at Gartner's Data Center Conference, December 2017.

The industry, including Gartner, accepts a hybrid IT future. It does not, however, assume that all legacy workload will soon move to the cloud. There are several reasons for this.

First, simple re-hosting **does not lead to cost savings**. Gartner believes that, over the next couple of years, 80% of organizations conducting a "lift-and-shift" migration of internal business applications from their own data centers to public cloud IaaS will not achieve meaningful cost savings.[1]

They have also forecast that 45% of organizations who perform lift-and-shift to cloud IaaS without optimization will be overprovisioned by as much 55% and **will overspend by 70%** during the first 18 months.[2]

Nonetheless, **for new development, cloud will be paramount**. By 2020, anything other than a cloud-only strategy for new IT initiatives will require justification at more than 30% of large-enterprise organizations.[3] And most organizations past a certain complexity will require more than one cloud provider— just as most utilize multiple platforms in their data centers today.

WHEN A CLIENT ASKS US ABOUT STRATEGY, WE START WITH "WHY."

YOUR ANSWER MAY BE FOUND IN CLOUD INITIATIVES ALREADY UNDERWAY IN THE ORGANIZATION.

Virtually every enterprise has developers working in a cloud environment, whether under the enterprise banner or as an individual initiative.

"Changing the tires while the car is going 60mph?"

It's essential to have a clear understanding of what the enterprise is trying to accomplish…because it's IT's job to protect the business, even while enabling the business for its digital future.

In the past, data center strategy was driven by cost, resilience and business enablement.

While cloud represents a new and compelling solution, don't stray from a disciplined approach to strategy formulation for service delivery. Consider: What's driving change in your enterprise?

Do you have developers already in the cloud, and pressure to deploy and scale operations there? For new development, the cloud is going to become the essential tool for many, if not most. The largest cloud providers introduce new services at a dizzying pace which only the largest of hyperscale providers can hope to match. Unless you are one of these providers- you're going to need a relationship with at least one of the "Big Three" cloud providers, and perhaps with one or more of the niche providers.

Are you managing one or more of your own facilities with one or more colo sites? Do you need to upgrade a facility and your CFO is asking why your firm is spending CapEx when the cloud is available?

Does your management team expect decreased expenses as a result of cloud? Many firms have an expectation of cost savings; fewer actually realize these savings. At a recent conference, 90% of respondents to a poll believed that the cloud was saving their firm money. However, of these same respondents, only 39% could state whether the savings were CapEx or Opex.[4]

You may find yourself committed to the cloud because it provides a development and execution platform essential to the competitive agility of your firm. In that case, the execution venue for future workloads may be settled, leaving you to look at **today's workloads** to determine the mix of on-premises, colocated and cloud that will comprise your Hybrid IT environment.

As you consider cloud provider relationships, it is essential that development and I&O be interlocked. IaaS and PaaS are converging. What is important is leveraging the best of provider capabilities to enable and accelerate the value new development can create.

DETAILED DISCOVERY PRECEDES WORKLOAD PLACEMENT.

Why is data collection so vital?

Gartner recommends engaging data center migration experts in preparing cloud strategy. Such firms can do the analysis required to construct **least-risk move groups** — i.e., prevent you from "breaking" performance when you move.

Data collection needs to include both infrastructure and application discovery. The efforts are closely related but often involve different methods.

Infrastructure discovery is facilitated by customized templates, workshops that include the technical support teams, CMDB analysis (if available) and validation, data collection tools available in the environment or most often, a combination of the above. We compile a complete list of technology assets – servers, network devices, storage, internal/external connections, etc. We assess for accuracy and remediate as necessary; document network topology and capacity; map Operating System and system software installed; document high-level application portfolio; identify monitoring tools, and infrastructure shared service mapping (what service runs on what servers).

Augmenting this asset-based discovery is additional documentation including: Disaster Recovery capabilities and plans, technology refresh processes, cycles, and trends, Reference Architecture or other description of hardware and software standards that must be adhered to, AND help desk and command center capacity and operational procedures. Data discovery results are compiled in a Data Collection Summary Deliverable.

Application Portfolio Data Collection

To migrate a workload from one data center to another, including to cloud environments, without disruption to the normal outage schedule, requires meticulous planning. Supporting this planning is an intimate knowledge of how a single application is related to (1) other applications in the environment, (2) IT infrastructure in the environment and (3) other "shared service" components in the environment.

We call these relationships "application affinities", also known as "dependencies." Our assessment includes an inventory of known applications, application residency data (where does it run; where is data stored) and business function.

We gather data and insight utilizing structured workshops, interviews, data extracted from the CMDB, and data already collected to identify logical and physical dependencies with other applications and infrastructure components. This includes: logical affinities and relationships (i.e., application to database), physical affinities, dependencies and relationships (i.e. application to infrastructure), database instance usage — which application use which database instance, IP dependencies, security requirements, and external partners that access applications via public and private networks.

Depending on whether the application is home-grown, commercial off-the-shelf, developed by a third-party, we ask about: the level of customization that has been applied and dependency of the customization on specific infrastructure components. We identify application access method(s) (intranet, internet, extranet, batch); we assess impact of latency for loosely-connected workloads that might be separated; we assess impact to disaster recovery capability based upon potential workload relocation.

Leveraging any available Business Impact Analysis, we identify application criticality based on Application Service Level Agreements, Availability requirements, Application outage windows and tolerance of outage risk, and testing population (i.e., who can test: IT or business unit). We identify any existing application concerns (performance issues, SLA achievement). We identify application testing requirements and application testing assets (scripts, regression testing, etc.) and finally, document results in a Data Collection Summary Deliverable.

SETTING STRATEGY AND MANAGEMENT CONSIDERATIONS.

In setting cloud strategy, there is frequently discussion about which applications would not immediately be good candidates for the cloud, and specifically Infrastructure as a Service.

Some factors which influence the priority a client might assign to transitioning an existing workload include:

- Business: the workload and supporting applications are stable; there is little development activity. An application may be a good fit for a SaaS or cloud-native solution, but SaaS may not make sense for other reasons including higher priorities and budget requirements.
- Technology: applications are hosted on non- x86 based servers; x86 based applications that don't virtualize well or applications are not currently hosted on Linux or Microsoft. Financial factors include: the hosting hardware is fully depreciated or a hardware refresh has been recently completed and there is no funding for additional platform spend until the end of the cycle. As with the business, there may be other priorities and budget requirements.

It's worth emphasizing that a workload placement strategy is based on analysis at a point in time. In any organization, there is limited resource and funding for change. This means that priorities need to be set, and the factors in (a) and (b) may reduce the urgency to move a workload from its current execution venue-again, at that given point in time.

Many firms leverage their Enterprise Architecture (EA) team to own Cloud Strategy. Gartner sees the EA team as being in a prime position to lead and coordinate the effort to develop an overarching cloud strategy for the enterprise. They see that EA is well-positioned to bring others into the process who have the mandate and authority to plan details in specific areas, including technology implementation, sourcing, application portfolio management, finance and legal.[5]

We agree with Gartner and add that the EA team's success will depend on a solid foundation of comprehensive and up to date current state information for both infrastructure and applications. This is imperative if this team is charged with a strategy for existing **and** new applications.

Your partner strategy is essential to determining how you will proceed. While analysis can determine the "best execution venue" for an individual workload, you'll need to consider management, integration and other concerns as you go forward.

You'll need to consider:

- service catalog and portal,
- automation of provisioning and deprovisioning,
- access policies and enforcement,
- configuration management,
- shopping and brokering,
- migration among platforms, and critically,
- event management and root cause analysis across the likely complex configuration of on-prem, colocation and multiple cloud platforms that your Hybrid IT environment will eventually include.

Security is a distinct and vital workstream that is essential to enabling your workloads.

Finally, wherever you land, it's going to change. Apple and Dropbox have been well publicized examples of insourcing workload from the cloud, as an example, but this practice is not limited to hyperscale providers.[5]

ESTABLISH A VISION. BUILD THE ROADMAP.

"...The cloud has drastically changed the conversation. Organizations can't just move everything all at once ... they are trying to build a strategy for both legacy services [and] future ones, while making the business happy ... it can be hard to find a starting point."
— DAVE CAPPUCCIO

ESTABLISH THE VISION

Leveraging guiding principles, future state aspirations and other directional input from our clients, we:

- develop future state operating model alternatives and account for required changes in people, process, and technology,
- shortlist those that are tightly aligned with guiding principles which have been subject to peer review, and
- incorporate quantifiable key performance metrics to align with critical success factors.
- The product of this work is a Future State document deliverable.

Most clients don't have financial or human resources to bring all of its vision to fruition immediately. What the future state document does is to place in context the workload hosting, management systems, and organizational requirements for the new and more complex world, so that you can begin to make change as necessity dictates (e.g., a major investment required in a physical data center) or as resources become available.

DEVELOP THE ROADMAP

Once the vision is established, we develop a high-level roadmap of program objectives and projects that are required to achieve the future state vision. In this roadmap, we

- Incorporate known critical dates
- Incorporate known infrastructure or application portfolio changes that must occur
- Identify transient risk states, noting the specific risk(s), duration of risk exposure, and known mitigation strategies if any exist
- Specify the programs and projects required to achieve future state vision: include financial estimates, sequencing, dependencies, personnel requirements, technology requirements, and inhibitors

THE GTSG DIFFERENCE: EXPERIENCE CRAFTED INTO A REPEATABLE METHODOLOGY

GTSG does NOT hire "trainees" to work data center strategy (or anything else). We bring experienced professionals. There will be no fees for "on the job training" from us.

GTSG has the skill most lacking in today's marketplace: the ability not only to do an assessment (most people can determine where workload should run in a perfect world), but the ability to foresee the "cascade effects" or downstream impacts. That ability only comes from experience.

What you need are people who can assess the business and resilience impacts of a move- whether to the cloud, to co-lo, consolidation to a single on- premise facility, or any of the permutations your firm may decide upon.

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With us, you get:

- the experience you need to anticipate the downstream consequences of a decision, codified into proven methodology
- independence- we will not earn one dollar of commissions for "recommending" someone else's product or service to you
- an exceptionally reasonable cost structure based on the seniority of our team and leanness of our organization
- commitment and day-to-day engagement from the leadership of an organization fully devoted to the data center.

REFERENCES

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