

Need help creating a cloud computing capacity planning worksheet?

The ROI of transformation

Companies are consistently being challenged today to reduce their overall spend on technology. Cloud computing is one of the key methods of transformation organizations are using to accomplish this goal.

The cloud enables companies to function on an operating expense (opex) budget rather than a capital expense (capex) budget. Cloud computing provides faster time to market, chargeback ability, and the capability to spin up and spin down virtual machines (VMs) to meet fluctuating requirements. The cloud is an infinitely-scalable environment, bursting with potential.

However, speed, scalability, and virtualization do not — in and of themselves — guarantee a return on investment (ROI). All the benefits of the cloud remain potential instead of actual if the cloud is not managed for maximum efficiency and cost-effectiveness. That brings companies who are in the cloud or who are considering a move to the cloud to a very important point:

You can't manage what you can't measure.

To achieve a solid ROI on a cloud transformation, companies must engage in structured and strategic cloud computing capacity planning. Eight key measurable factors should be taken into consideration to generate a comprehensive cloud computing capacity planning worksheet.



1

Service level agreements

Service level agreements, or SLAs, are a good place to begin analysis since they are — by their nature — quantifiable. Companies should establish SLAs for such areas as availability, storage, backup, and recovery. All applications should be reviewed, and appropriate parameters set down.

The challenge when analyzing SLAs is that application owners, business functions, and IT may have very different expectations based upon considerations such as perceived criticality, complexity, and cost. Working independently from one another, these various areas could assume contradictory SLAs or prioritization levels for the same item, resulting in misunderstanding, conflict, and potentially increased business risk. It is imperative for all stakeholders to achieve consensus for each SLA that is assigned, based upon a thorough review of the needs and factors involved.

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Planning considerations

What are the SLAs for:

- Availability?
- Storage?
- Backup?
- Recovery?



2

Utilization patterns

The goal of virtualization and the cloud is to build an infrastructure that maximizes utilization and capacity. A study of application utilization patterns is therefore of primary importance.

For example, in the financial world, certain applications will be running at full capacity during the market's hours of operation. But the moment the market closes, the utilization for those applications plummets. IT should therefore seek to use the same infrastructure to run nightly applications, perhaps batch jobs or fixed income applications. Doubling up in this strategic fashion removes the waste (and cost) of two systems sitting idle 50% of the time by allowing one system to function at optimum capacity 100% of the time.

Taking another potential situation, IT may determine that certain servers or VMs are consistently running at just 30% of capacity. With 70% of the environment sitting idle on a regular basis, there is considerable opportunity for restructuring and transformation.

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Planning considerations

- What is the utilization pattern per application?
- Where is there unused capacity?
- What applications can be combined on a virtual machine for optimal utilization?



3

Workload analytics

Whereas utilization patterns reflect the current state of affairs, workload analytics explore the potential impact of an action on the existing environment — before that action has taken place.

For instance, businesses might create workload scenarios to identify the ramifications of bringing on a new product, service, or technology. They might forecast the effects of penetrating a new market. A company that is highly seasonal could estimate the difference between utilization in slow months vs. heavy volume months. These scenarios help determine trending and define the additional capacity that will be required to handle increased workloads.

Because of their close interaction, utilization patterns and workload analytics should be examined in tandem with one another.

Planning considerations

How might workload scenarios change due to:

- New products or services being offered?
- New technologies being leveraged?
- New market penetration?
- Seasonal fluctuations?



4

Exceptions process

Not everything can or should be moved to the cloud. Companies should therefore establish a well-defined exceptions process. An exceptions process would ask questions such as:

- Is this software supported on a virtualized platform?
- Is the necessary agility and scalability assured in the proposed cloud environment, or are there potential limitations that could affect the performance of a given application?
- Is there a memory footprint that this application supports that cannot be handled in a cloud computing environment?
- Will security, compliance, and regulatory requirements be satisfied if this application and its associated data are moved to the cloud?
- Is the application integrated with other applications, and if so, will the cloud support such integration?
- What availability is required for this application, and will the cloud support the necessary SLAs?
- If a company is outsourcing to the cloud, are there any concerns with creating an external dependency for a certain application?

The organization should then have procedures in place for handling these exceptions in order to support and maintain a solid overall ROI.

Planning considerations

Examine each application in light of the following to determine eligibility for migration to the cloud:

- Software support
- Availability
- Agility
- Scalability
- Integration with other systems
- Security, compliance, and regulatory requirements
- External dependencies



5

Data management

Before data is moved to the cloud, policies addressing the creation, access, retention, archiving, and deletion of the data should be set in place to establish and maintain an optimized environment. Data may need to be re-tiered, moved to low-cost storage, or deleted entirely from the system on a regular basis. Without data management policies, it is easy to end up with multiple files containing the same data, and to keep all data forever. This “packrat” mentality consumes more and more server space over time, adding ever-greater costs to a company’s expenses.

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Planning considerations

Establish policies addressing:

- Data creation
- Data access
- Data retention
- Data archiving
- Data deletion



6

Configuration

The cloud, like almost anything else, can be customized. But customization always costs. Before considering customization, businesses should examine the standard configurations available with their intended cloud environment and determine whether these pre-defined configurations will be appropriate for the applications and data being migrated to the cloud. If they are, that will save time, effort, complexity, and expense in both cloud migration and cloud maintenance.

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But customization always costs.

Planning considerations

Are pre-defined, standard configurations available?

Are such configurations appropriate to the applications and data being migrated to the cloud?

If not, why not?



7

Disaster recovery

The cloud provides the potential for reducing both recovery time objectives (RTOs) and recovery point objectives (RPOs). When planning a move to the cloud, the RTOs and RPOs should be firmly established and analyzed in relation to the applications and data being migrated to ensure cost and business continuity optimization.

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Planning considerations

For each application, what is the optimal:

- RTO?
 - RPO?
-



8

Business requirements

One factor runs through all the points previously covered: namely, IT always has the responsibility to convert business requirements into technology solutions. For example, the sales department may indicate that they need to process 30 transactions per minute. IT must take that business requirement and break down the impact on the compute cycle, the memory footprint, the input/output (IO), the drives, etc. Based upon that detailed information, a technology solution can be designed and implemented.

To engage in effective cloud computing capacity planning, IT needs to sit at the table with the rest of the business, hear their needs in their language, translate those needs into IT terminology, and deliver for the business. IT also needs to reverse that communication process many times; for example, they may need to explain a technology-oriented disaster recovery policy to the rest of the business in terms the recipients can understand and value. Only when the business is working together as a unified whole can the cloud environment be truly optimized.

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Planning considerations

Have all business partners reached both understanding and agreement on the questions of what, where, when, why, and how to leverage the cloud to meet their business requirements?



3 strategic results of cloud computing capacity planning

Comprehensive cloud computing capacity planning brings an organization immediate value, ongoing ROI, and the opportunity for continuous improvement.

1

Prioritization

In the short term, cloud computing capacity planning enables strategic prioritization.

Businesses can assess the true ROI of:

- Eliminating hardware that is end-of-life
- Replacing software that is no longer being supported by the vendor
- Combining applications in a shared environment
- Retiring applications that are obsolete
- Refreshing technology on an opex basis
- Leveraging new technology, software, or applications

Especially in cases where businesses want to migrate to the cloud using a phased approach rather than all at once, prioritization allows them to “cherry-pick” what to move at what time in order to maximize their IT budget and minimize their overall bottom line.



2

Right-sizing

Despite the fact that the essence of the cloud is doing more with less, companies can fall into the trap of assuming that they need the same capacity in the cloud as they do in a traditional data center to run their operations. Cloud computing capacity planning removes the potential for this error and empowers a company to right-size its IT environment by setting down in quantifiable form exactly what is needed in the cloud based upon the company's unique requirements.

For example, suppose a department currently runs an application on a standard physical server with four core CPUs and 2 GB of memory. Cloud computing capacity planning might show that the application is only using 10% of this environment. Therefore, in the new cloud environment, one virtual core CPU with 500 MB of memory might be sufficient for the few times the application actually runs.

Another example would be a company who engages in test-driven development (test dev). Cloud computing capacity planning may show that the test dev environment does not need to be treated as tier one, with the rigorous backup and disaster recovery parameters that a tier one application requires. A tier two or even tier three environment might be adequate for test dev work.

Both of the above examples demonstrate that right-sizing enables businesses to avoid wasting resources when they move to the cloud, and instead gain an appreciable ROI.



3

Virtualization 2.0

One of the biggest issues encountered when companies move to the cloud is this: they create an infrastructure optimization plan to reduce cost, migrate to the cloud, achieve some level of virtualization — and then stop. Migration is a project: it is done, checked off, and that is the end of it.

But if a company continues to leverage cloud computing capacity planning on a go-forward basis, the regular analysis will identify additional opportunities for cost savings, efficiencies, productivity, and agility as they open up. Businesses can move toward Virtualization 2.0.

In essence, Virtualization 2.0 is a culture of continuous improvement. After all, utilization patterns change. SLAs may be modified. Workloads shift. Disaster recovery requirements are updated. If a company isn't paying attention to these and other trends through ongoing cloud computing capacity planning, they will fail to right-size accordingly — with all the associated costs, risks, and inefficiencies.

Comprehensive cloud computing capacity planning at the outset of a cloud migration provides a benchmark and methodology for future technology transformation.



Measuring and managing ROI

In business, you can't manage what you can't measure. Cloud computing capacity planning allows organizations to do both by delineating a framework for gathering and analyzing key data. It enables decision-makers to answer the questions of what, where, when, why, and how to leverage the cloud to meet their business requirements. ROI is then a matter of acting on that data — both in the initial migration and on a consistent basis going forward.

About the author

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Additional reading



[4 Cloud Computing Examples in Business Today](#)



[Cloud: Build vs. Buy — 4 Key Considerations](#)

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Sungard Availability Services provides managed IT services, information availability consulting services, business continuity management software, and disaster recovery services.

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