optimizing capacity to meet business and IT demands
Escalating competitive pressures, tight budgets and scarce capital resources are working in concert to intensify the importance of true alignment between IT and the organization it supports. But many of today’s enterprises are noticing a decided gap between what the business demands of IT and the realities of what IT can deliver.

Much of this disconnect can be attributed to the fact that many IT departments struggle to understand how capacity is allocated and consumed throughout the data center. This lack of visibility breeds considerable challenges, such as:

- High capital expenses due to underutilized resources
- Inaccurate, manually-centric, labor-intensive capacity forecasts and planning cycles
- Difficulty predicting future capacity needs, which jeopardizes SLA alignment and leads to uncoordinated purchasing and increased risks
- Slow responses to changing demand
- Trouble migrating workloads, which results in over-purchasing to ensure SLA adherence
- Limited understanding of the business, technical and financial requirements associated with moving applications to the cloud
understanding capacity is the key to data center optimization

Only by understanding the current state of capacity utilization across all areas of the data center can IT optimize resources, decrease costs and drive profitability.

To this end, organizations need robust capacity management capabilities that allow them to visualize changes to the infrastructure — and, perhaps more importantly, offer prescriptive insight into what’s needed to maximize the performance and cost efficiencies of IT.
what do organizations need to effectively manage capacity?

When it comes to gaining the appropriate level of insight into current capacity consumption — and the ability to predict future requirements — organizations need the following capabilities:

An enterprise-class, centralized repository that collects and normalizes performance data from multiple sources — including the systems and platforms found in the largest, most complex data centers — so IT has a clear picture of capacity consumption and utilization across all assets.

A comprehensive library of IT components that compares and evaluates alternative platforms — with granularity down to the CPU, memory and speed levels — so IT can determine how an application will perform on new hardware.

A robust normalization methodology that can aggregate performance data and show IT the relative power of new hardware, helping them understand utilization rates, capacity consumption and available headroom.

An interactive, real-time ROI tool that allows organizations to dynamically and visually highlight the potential savings delivered by rightsizing capacity.

A comprehensive predictive function that helps IT see how the changes it makes today will impact future initiatives, such as a move to the cloud.

An advanced modeling function that can perform the non-linear growth calculations IT needs to understand the effect new demands will have on available capacity.

A response-time calculator that helps IT visualize how applications will respond within a specific model.

An agentless design that enables IT to understand, predict and manage capacity without taking on additional administrative burden.

And perhaps most importantly, these features should integrate with existing monitoring solutions, so IT can realize greater value from the investments it already has in place.
A set of comprehensive capacity management capabilities supports IT’s ability to analyze every area of the data center and make well-informed decisions that reduce costs and forge a deeper understanding of — and alignment with — business needs.

To that end, capacity management solutions play an integral role in many of the critical activities and initiatives that drive data center optimization:

**Cross-platform reporting**

**Capacity allocation and utilization**

**Server consolidation efforts**

**Infrastructure and server migrations**

**Virtualization**

**Software development lifecycle support**

**Service capacity management**

**Business growth and acquisitions planning**

**Managing seasonal peaks and cloud adoption**
cross-platform reporting

Attaining true visibility into consumption and utilization rates requires IT to adopt a common approach to capacity reporting across the data center.

Capacity management solutions help to provide this visibility by:
- Integrating data feeds from multiple platforms
- Showing how capacity is consumed based on such criteria as geography, platform or service
- Flagging current threshold breaches and helping IT predict future events

Cross-platform reporting provides a holistic view of capacity consumption rates — including areas where current usage may surpass available resources — across the data center.
capacity allocation and utilization

Ensuring available resources are allocated in the best possible way requires IT to be able to see exactly how existing capacity is utilized across physical, virtual and cloud environments.

A consolidated snapshot of capacity consumption across the data center, showing underutilized resources in blue and over-utilized resources in red, helps IT make adjustments that optimize performance and hardware usage.

Capacity management solutions help IT build this critical understanding by:

- Illustrating the distribution of available capacity across all IT resources
- Quantifying the difference between available and consumed capacity on specific platforms
- Identifying underutilized resources
server consolidation efforts

Identifying the best candidates for a server consolidation initiative will provide IT with an actionable roadmap for minimizing the amount of hardware to manage — and, by extension, reducing the costs of power and cooling, licenses, maintenance and support.

Capacity management solutions help to kickstart consolidation projects by:

- Gathering performance data to provide an accurate picture of physical and virtual resource utilization
- Identifying the most- and least-utilized hosts and VMs
- Providing concrete evidence to show business leaders the value of server consolidation

Gaining clear visibility into utilization across every server in the data center arms IT with the insights needed to recognize underutilized assets and build consolidation plans.
infrastructure and server migrations

Ensuring an infrastructure or server migration delivers the expected results requires careful planning on the part of numerous IT leaders and their teams.

“What if” scenarios help IT plan the best migration strategies by illustrating how capacity consumption will change when workloads are moved to new hardware.

Capacity management solutions support infrastructure and server migration strategies by:

✓ Enabling IT to compare hardware, hypervisor and configuration options and determine the most effective upgrade path
✓ Showing how workload response times will change on each new resource being considered
✓ Offering “what if” scenarios that enhance decision making for hardware upgrades, consolidation projects or cloud initiatives
virtualization

Optimizing a growing virtual infrastructure emphasizes the importance of virtualizing the right applications and balancing workloads across the environment.

Capacity management solutions help IT rightszie their virtual infrastructures by:

- Enabling the sizing and planning of virtualization projects, platform upgrades and cloud migrations
- Comparing performance and utilization metrics across several virtual infrastructure platforms
- Guiding sizing, placement, density and VM balancing activities

A visual representation of consumption on a potential new host platform helps IT determine the best placement for a specific group of VMs.
software development lifecycle support

Testing the performance of a new application during development helps to minimize the possibilities of degradations during production.

Advanced predictive analysis helps IT determine how much the environment will have to scale in order to ensure optimal performance when an application is moved from development into production.

Capacity management solutions help IT to ensure business-critical applications perform as expected by:

- Tracking capacity needs and utilization rates during the requirements, testing and design phases
- Delivering the visibility necessary to forecast the application’s infrastructure requirements and its impact on production systems
- Offering physical and virtual hosting options for new applications
Identifying availability and capacity risks is critical to ensuring that key services continue to function as planned.

Capacity management solutions give IT the insight required to understand how resource allocations affect service delivery by:

- Grouping capacity reporting by service definition
- Identifying any over- and underutilized capacity associated with each service
- Ensuring capacity is properly allocated to all business services

Consumption reports help IT see how much headroom is available to a particular service — and identify resources with dangerously high utilization rates — enabling the appropriate corrective actions to be made before SLAs are missed.
business growth and acquisitions planning

Supporting business growth and significant changes to the corporate structure requires IT to understand the effect new demands will have on response times and service availability.

Capacity management solutions provide the predictive insight IT requires by:

- Identifying how the infrastructure should scale to support anticipated growth
- Helping the business determine capacity needs following a merger or acquisition
- Performing “what if” scenarios that illustrate how the changing size of the business will affect capacity allocation and utilization

Analyzing the effect of both organic business growth and mergers and acquisitions gives IT an idea of how capacity will have to scale to support new demands.
managing seasonal peaks and cloud adoption

Holding enough capacity in reserve enables IT to seamlessly address the enormous demands brought upon by annual peaks — such as the increase in online shopping during the holiday season — or when workloads burst to a public cloud provider.

Capacity management solutions help IT plan for spikes in demand — as well as an eventual move to the cloud — by:

- Illustrating the effects seasonal peaks have on utilization rates
- Showing how demand will change as workloads are moved to the cloud
- Providing a roadmap for full-scale cloud adoption

Predictive analysis helps IT determine where to place workloads to accommodate seasonal peaks in demand and a move to the public cloud.
the benefits of effective capacity management

With a stronger handle on its current capacity requirements and utilization rates, IT will find itself armed to make effective decisions that drive true data center optimization. In turn, these decisions help IT to:

Reduce costs and self-fund strategic projects
Identifying consolidation targets and minimizing the number of servers in the data center cuts the expenses associated with maintenance, support, licenses, power and procurement, helping IT maximize available budgets and reallocate resources to support initiatives that would not otherwise receive funding.

Accelerate the adoption of cloud initiatives
Understanding capacity needs as they relate to the cloud will help IT develop sustainable strategies that deliver predictable risk, cost, performance and return — while ensuring that SLAs are not jeopardized by the change in environments.

Align operations with business needs
Gaining a clear picture of how capacity is allocated and consumed enables IT to show the business how it is supporting key services, illustrate what dollars are enabling what priorities and discuss ways to avoid unnecessary costs.
about the solutions from CA Technologies

CA Capacity Management delivers the insight and analytics that help organizations address current and future performance needs, optimize new workloads and support physical and virtual environments in the face of constant change.

The solution includes the following components:

CA Data Manager
Provides a centralized repository of system performance and capacity data.

CA Capacity Command Center
Delivers a normalized measure of capacity and consumption, as well as an objective measure of efficiency across multiple platforms and domains.

CA Current Capacity Reporter
Enables users to view capacity information in their preferred format via a web-based reporting portal.

CA Capacity Manager
Allows IT to enhance decision support by performing "what if" scenarios that simulate infrastructure changes.

CA Virtual Placement Manager
Simulates the effects of large-scale placement and optimization activities.

CA Performance Optimizer
Leverages the data generated by monitoring or load-testing solutions to create models that accurately portray how an application will behave once changes are applied.

For additional details and resources, please visit ca.com/capacity-management.

CA Technologies (NASDAQ: CA) is an IT management software and solutions company with expertise across all IT environments — from mainframe and distributed, to virtual and cloud. CA Technologies manages and secures IT environments and enables customers to deliver more flexible IT services. CA Technologies' innovative products and services provide the insight and control essential for IT organizations to power business agility. The majority of the Global Fortune 500 relies on CA Technologies to manage evolving IT ecosystems.