



On-demand high performance computing when you need it, as you need it.

High Performance Computing (HPC) Cloud with R Systems



Leverage HPC to successfully realize the benefits of private and public cloud services.

Managing research computing resources

The explosion of data coming from multiple next-generation research platforms and the computational challenge of complex modeling and simulation studies is creating a strain on IT resources. Many organizations are looking to cloud computing to supplement their computing resources without additional capital investments.

The cloud provides an opportunity for these organizations to lease immense high-performance computing capabilities. By tapping on-demand cloud resources as needed, they can avoid building and maintaining their own HPC cluster.

Driving HPC efficiency – cloud bursting

We provide technical expertise and optimized cloud computing resources to the commercial and academic research communities. The flexible service offerings and simplified business model provide the power of world-class computing to minimize time, maximize effectiveness and add value to your HPC results.

Fast: rapid implementation without barriers to entry

- Dedicated, multiple configurations to fit your requirements
- Quick and easy access to high-end computing resources without multi-year affiliation fees
- Leading edge hardware/software when appropriate

Flexibility & freedom: hardware, OS, application agnostic, life-cycle management

- A custom solution to match your usage requirements and expectations
- Allows custom OS deployments, avoiding potential compromised performance of many "one-size-fits-all" shared clusters
- Assistance with licensing and setup of the application using our hardware
- Benefit from the scale and rapid transition of bleeding edge systems to second/third generation resources while reducing overall costs and avoiding tedious systems management

Realizing the benefits

Quickly realize the benefits of a well designed cloud services strategy to drive innovative research programs and free your IT resources.

- Choose from multiple hardware configurations
- Experience superior user support
- Enable easy migration with a standards-based architecture

Intelligent solutions for enabling discovery research

The benefits.

- Lower technical barrier to HPC via burst models
- Empower researchers and increase collaboration
- Increase institutional utilization of cloud resources
- Pay only for the resources you use through on-demand cloud computing
- Reduce capital outlay and TCO
- Leverage the agility and efficiencies of cloud

The services.

Build a private cloud from existing individual clusters for customers who want to:

- Pool resources
- Share unused cycles on separate clusters
- Have a single interface to multiple clusters

The bursting ability.

Public cloud resources for customers who need to:

- Service intermittent processing spikes that surpass local capacity
- Use multiple operating systems and applications

The hosting and management.

Domain specific (e.g. Genomics cloud) for researchers who:

- Want their data, their collaborators' data, and reference data in one location for processing
- Want access to high performance networks and file systems

For more information about any of our service offerings, please contact your Dell representative or visit dell.com/services.

Issues	Perception	HPC with R Systems
Seasonal business overtaxes compute resources	<ul style="list-style-type: none"> • Poor customer experience due to slow website response times • Loss of business to competitors • System downtime stresses IT personnel due to overburdened server workloads 	<ul style="list-style-type: none"> • Rapidly scale-up or down capacity • Cut application related operational costs • Provide "bursting" to an alternate data center for additional capacity, when needed
Lengthy time to provision IT resources	<ul style="list-style-type: none"> • Slow time to market for applications reduces competitive advantage • Perceived inefficiencies of IT personnel by the business • High infrastructure costs charged back to the business or directly impacting CIO budget 	<ul style="list-style-type: none"> • Automate key deployment tasks • Enable self-service deployment of servers by the business end-users • Cut application provisioning times • Shift cost/benefit decisions to the business
Poor utilization of virtualized servers	<ul style="list-style-type: none"> • Sub-optimal price / performance of compute resources • Inflexible infrastructure architecture required over-provisioning • Feature limitations prohibit dynamic reallocation 	<ul style="list-style-type: none"> • Minimize upfront investment requirements and risk • Provide management and monitoring tools which automatically reassign server images to maintain consistent performance and utilization
IT CAPEX budget reductions or freezes	<ul style="list-style-type: none"> • Inability to procure new servers and storage to meet growing computing demand • Lack of funds to investigate emerging technologies which could lend a competitive advantage 	<ul style="list-style-type: none"> • Help transition your IT costs from CAPEX to an OPEX model • Help you leverage public cloud scale to release data center capacity and/or facilitate disaster recovery • Enable a shift of resources from lights-on to strategic • Drive your green agenda for energy efficiency in the DC
Intense Compute Resources	<ul style="list-style-type: none"> • Powerful compute resources are expensive, require large capital expenses and require high maintenance 	<ul style="list-style-type: none"> • Enjoy the benefits for powerful fast computing with no upfront capital • Focus on running your business, not maintaining hardware



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