DELL Blueprint

Solution Brief
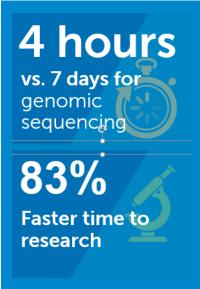
4 hours
vs. 7 days for genomic sequencing

83%
Faster time to research

A new way to solve more complex problems

"Our relationship with Dell and Intel is highly synergistic, which makes it easier to evolve our architectures, algorithms and approaches — and to realize outcomes that we would like to accomplish." — *Sethuraman Panchanathan, Senior Vice President of the Office of Knowledge Enterprise Development, Arizona State University*

Arizona State University updated its HPC cluster so that it could easily support structured and unstructured data, diverse biomedical neegenomics tools and platforms, as well as any kind of algorithm design (serial, parallel or in-memory).

Dell Solutions for High Performance Computing

Solve HPC challenges at any scale

Evolving research and technical computing workloads are now pushing the limits of many high performance (HPC) clusters. Highly complex algorithms and data-intense workloads can be overwhelming, creating severe computing bottlenecks and major performance issues.

From workstations to large clusters, Dell addresses all aspects of high performance computing, enabling you to choose with confidence when, where, and how to integrate new HPC capabilities to complement or replace existing capacity.

Move at the speed of discovery and innovation

HPC used to be the domain of specialists using expensive, proprietary systems. It has now become the backbone of science and product development, delivering the breakthrough computing power and strategic advantages needed by research organizations.

All over the world, IT departments are leveraging Dell's robust, collaborative engagement model and highly flexible framework of open standards-based technology, services and expertise to deliver cost-effective HPC solutions with the right fit and balance to solve customer-specific challenges at any scale.

The value of a comprehensive provider

Research organizations are looking for results — faster time to core discoveries and time to market. They must move faster, more seamlessly from raw data to analysis to actionable insights. IT resources are now key to transforming these vast amounts of data into insights faster with less risk.

However, IT administrators and researchers are challenged with the growing burden of managing and monitoring complex compute and storage systems that are time-consuming and costly to administer. Development and maintenance of the environment, while crucial to the research being performed, are tasks which take time and focus away from their research. Dell provides a comprehensive source of end-to-end solutions, professional services and support capabilities to help IT organizations maximize productivity and efficiency without compromising on performance.

Why choose Dell?

Dell helps solve HPC challenges at any scale with agility and efficiency. All aspects of HPC systems are interconnected and impact the overall success, performance and productivity of the system: high performance, high reliability, access protocols, scalability, ease of management, price, power, and so on. By looking at the whole system and these interconnections, our future-ready infrastructure of servers, storage, and networking solutions ensures that your HPC cluster is prepared for the applications and technologies that are coming.

Read the case study

Dell helps you choose the products and services that best fit your needs and deliver on speed-to-value:

- Integrate into existing environments without disruption
- Maximize choice and evolve at your own pace without lock-in or forklift upgrades
- Leverage plug and play building blocks to grow capacity, capability as needed

Simpler to deploy and manage

Your deployments and upgrades need to be well-planned and executed without impact to your end users. We help you concentrate resources on research results, not on complex infrastructure:

- Simplify complex HPC environments to help maximize productivity and efficiency without compromising on performance
- Eliminate deployment and production bottlenecks with a single source of support for consistent, predictable and reliable IT services
- Streamline end-to-end fulfillment and lifecycle support through Dell's domain-specific, architectural expertise and support services

Validated reference architectures from our engineering teams incorporate best practices to expedite design and deployment tasks while removing guesswork. Our engineers choose the best products for a given use-case scenario, and design, build and stress test the solution to demonstrate its capacity to meet production load demands.

We offer a comprehensive, platform- and data-agnostic, yet modular portfolio of HPC solutions that integrate big data into the HPC environment. Our hardware, combined with the right combination of big data platforms and software, reduces costs, improves performance, and makes it faster and easier to keep pace with data growth.

Accelerate discovery and innovation through collaboration

Dell collaborates with the global HPC research community and technology vendors to deliver market-ready solutions that help solve the real-world HPC challenges. You get faster time to profit or discovery with end-to-end services for maximizing your HPC investment, from financing to configuration, installation, cluster management, and recycling.

Services can be provided by Dell or by Dell partners who have expertise in high performance computing and industry verticals, and who can supplement their services with additional services and support from Dell.

1. 4 Hours vs. 7 Days for Genomic Sequencing - TGen accelerates the analytical processes from 7 days to 4 hours. The Dell Genomic Data Analysis Platform is a complete, optimized platform of modular building blocks that easily integrates with standard genomic sequencing systems, and is capable of processing up to 37 genomes per day using less than 7.5 kWh/genomes. http://www.dell.com/learn/us/en/555/hpcc/genomic-data-analysis?c=us&l=en&s=biz&cs=555

2. 83% Faster Time to Research - Arizona State University speeds up research on its HPC cluster, Stand up new R&D project environments in 30 minutes, compared to previous time of two to three hours. http://www.dell.com/learn/us/en/uscorp1/corporate~case-studies~en/documents~2015-asu-10021044-hpc-clusters-big-data-solutions.pdf

Get more value out of HPC with Dell

We help researchers and business program managers:

- Move at the speed of innovation, free from disruption or lock-in
- Transform data into insights faster with less risk
- Build competitive differentiation, retain advantages longer
- Uncover insights more effectively by integrating traditional HPC infrastructure with big data capabilities
- Faster time to profit or discovery with end-to-end services for maximizing your HPC investment, from financing to configuration, installation, cluster management, and recycling

We help IT managers:

- Create an optimized foundation for new IT initiatives
- Choose the products and services that best fit your needs and deliver on speed-to-value
- Integrate into existing environments without disruption
- Scale quickly to meet growing user and business demands
- Maximize choice and evolve at your own pace without lock-in or forklift upgrades
- Leverage plug and play building blocks to grow capacity, capability as needed

Contact your Dell representative or visit dell.com/hpc to discover how Dell can help you get more from your HPC solution.