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## Reasons to run your HPC applications in the cloud.

High Performance Computing (HPC) has always been about solving the world's most complex problems. For too long, however, HPC applications and workloads have been constrained by limited on-premises infrastructure capacity, high capital expenditures, and the constant need for technology refreshes.

Not anymore. Run your HPC workloads in the cloud, Unleash innovation with virtually unlimited HPC infrastructure and instant access to the latest technologies.



Here are five good reasons why Netweb may be right for you.

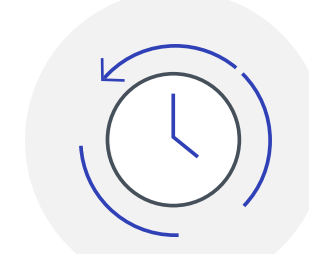
### 1 Drive Innovation with Flexible Architectures

- Let your research dictate the architecture, not the other way around
- Access virtually unlimited cloud resources, available with the latest Intel® technologies, without the overhead of procuring, deploying, and managing infrastructure
- Unlock research teams to freely imagine and innovate

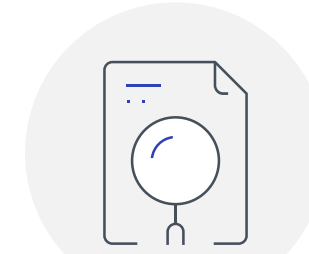
**Challenge:**  
Encourage and facilitate experimentation and innovation

**Solution:**  
Enable researchers and scientists to access capacity when they need it by moving to AWS

#### Results:



**Reduce time**  
to run informatics jobs to less than one day from weeks or months



**Empower researchers**  
to try out fringe use cases with trivial investments



**Eliminate bottlenecks**  
that prevent running jobs in parallel

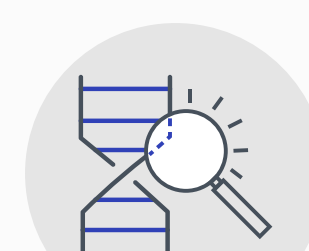
### 2 Accelerate Time to Results

- Create, operate, and tear down secure, well-optimized HPC Clusters in minutes
- Develop HPC apps faster, and scale capacity quickly to avoid performance degradation caused by resource limitations
- Gain faster, more insightful results using analytics

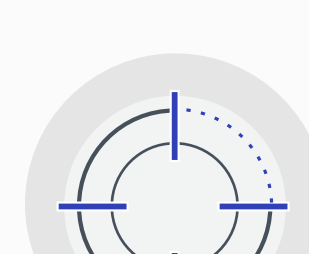
**Challenge:**  
Rapidly pinpoint the genetic causes of diseases in very ill children

**Solution:**  
Run computational workloads in parallel using up to 200 gigabytes of RAM

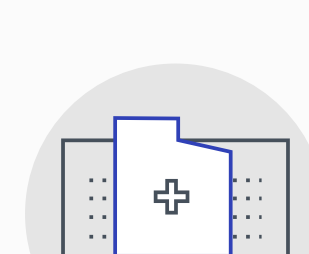
#### Results:



**Reduce time**  
to interpret a genome from 12 weeks to 2 hours



Facilitate **more accurate** and **timely diagnoses**



**Comply with strict patient health information (PHI)** data-protection requirements

### 3 Collaborate Securely Around the World

- Share massive data volumes securely with teams of Scientists and researchers anywhere
- Comply fully with HIPAA, FISMA, GDPR, FedRAMP, PCI, and other regulations
- Protect sensitive intellectual property with encryption and granular permissions

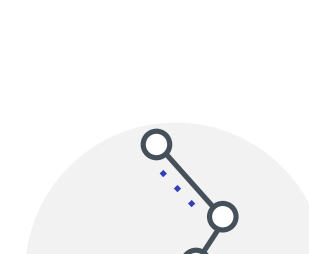
**Challenge:**  
Allow global researcher to access biotech research tools

**Solution:**  
Upload biophysical models and design methods to the cloud

#### Results:



Allow **6,000** researchers worldwide to access Penn State biotech research tools



Facilitate design of more than **50,000** synthetic DNA sequences

### 4 Accelerate Creativity and Productivity

- Start resource-intensive jobs as soon as they are ready, avoiding the queue
- Spin up new configurations to match the specific requirements of each job
- Gain immediate access to the latest Intel technology upgrades without stalling research

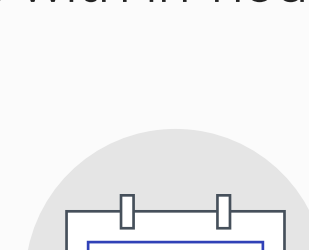
**Challenge:**  
Free artists to create stunning visual effects without worrying about rendering time

**Solution:**  
Burst rendering applications to the cloud to circumvent internal capacity constraints

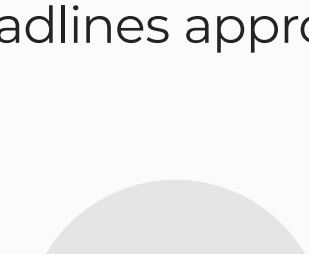
#### Results:



Process **20,000** rendering jobs a month during busy periods-impossible to manage with in-house resources



**Avoid schedule overruns** by adding capacity as deadlines approach



**Take on new business** with confidence in the ability to deliver

### 5 Minimize Spending without compromising Research

- Choose from a range of AWS services and Intel powered Amazon EC2 instances and pay only for what you use
- Take advantage of spot pricing to further reduce cost for time-flexible workloads
- Avoid the capacity limitations of many other cloud providers

**Challenge:**  
Cut simulation costs and accept projects that exceed on-premise capacity

**Solution:**  
Migrate computational fluid dynamics (CFD) simulations application from existing provider to AWP

#### Results:



Reduce cost per simulation by **75% on average**

**Check job status from anywhere** to catch problems early and reduce costly rework



Remove **1,000-node limit** imposed by previous service provider

## Unchain your research with HPC on Netweb Web Services

There are significant advantages to running your HPC applications in the cloud-but which cloud?

Netweb Web Service provides secure, resizable capacity in the cloud and offers a wide range of Intel® Xeon® technology-powered instance types, so you can easily and quickly spin up a configuration that fits your workload. By migrating some or all of your research applications to NWS, you can increase the speed of research, and reduce time to results.

NWS' large partner network provides professional services and software solutions to enhance HPC workloads running on NWS. The NWS cloud is compliant with the latest revisions of GDPR, HIPAA, FISMA, FedRAMP, PCI, and other regulations.

Choose the right cloud provider for HPC goes beyond feeds and speeds; it's also a business decision with significant consequences for your organization. NWS offer you advantages that other simply can't match.

Know more at [www.netwebcsp.com](http://www.netwebcsp.com)