

Frontier[®] Virtualized Grid Platform

A High-Performance *Computation on Demand*[®] Service
Using Your Existing VMware[®] Infrastructure

What Is Frontier?

- The Frontier Grid Platform, a proven enterprise software solution in its 10th year, harnesses the idle capacity of existing IT resources and delivers it as an easy-to-use supercomputer.
- Highly secure and unobtrusive, Frontier is used to manage grids ranging from small lab deployments to **large enterprise grids** comprised of 10,000+ computers, from laptops to mainframes, without affecting normal enterprise operations.
- A commercial-grade **turnkey grid solution**, Frontier can be fully **deployed in under an hour** and comes with everything required to run grid-powered applications immediately.
- Frontier dramatically reduces the time required to run existing **data-heavy** and **compute-intensive** workloads, and enables users to solve problems previously thought to be intractable – **all while avoiding costly hardware expenditures**.

Why Frontier on VMware?

- **Powerful.** Built for extreme scalability, Frontier employs massive parallelism to create a virtual supercomputer – for a fraction of the cost of purchasing comparably equipped dedicated hardware.
- **Easy.** Frontier ships as a Virtual Appliance, making it trivial to deploy across your existing **VMware Infrastructure 3 network**.
- **Unobtrusive.** The Compute Engine runs at low priority, harnessing unused capacity to provide an *orthogonal* HPC service.
- **Secure.** Most secure grid computing platform on the market. Developed entirely in the United States by US Citizens.
- **Proven.** Launched in 2000, Frontier was the first grid computing solution to be offered in the marketplace and has been used in a wide array of domains and industries.

Rapid Deployment Across VMware Infrastructure



- Frontier Grid Server ships as a VMware compatible Virtual Appliance which can be easily imported into any VMware ESX hypervisor.
- Frontier Compute Engine, which can be installed natively throughout the enterprise, can also be deployed as a Virtual Appliance alongside other guest operating systems.
- A commercial-grade turnkey solution, Frontier can be deployed across the virtualized data center **in less than an hour!**

Frontier's Value Propositions

- Creates a robust, extreme-scale utility computing service at <5% the cost of HPC hardware.
- Reduces current processing times by 1,000x or more.
- Maximally utilizes your existing IT infrastructure.
- Reduces the burden and costs of power/space/cooling associated with the purchase of new hardware.
- Provides interoperable grid services:
 - Facilitates service oriented (SOA) "mash-ups"
 - Supports reuse of legacy applications
- Throughput accelerates as infrastructure is regularly upgraded through normal "tech refresh" cycles.



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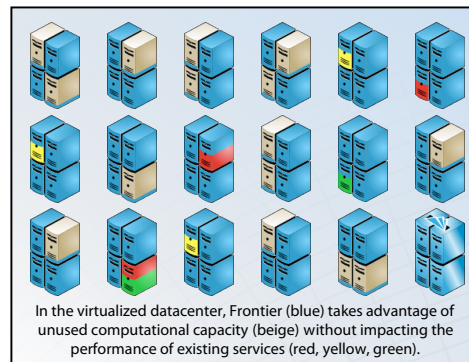
Frontier's Key Features

Parabon's **Frontier® Grid Platform** provides *High Performance Computation on Demand* across the enterprise, in the datacenter, and as an online utility service – the Parabon Computation Grid. The key features of Frontier are listed below.

- **Highly Secure**
- Platform Agnostic
- Unobtrusive
- Developer Friendly
- Rapid Deployment
- **Easy to Use**
- Fault Tolerant
- Massively Scalable
- Richly Configurable
- Web Services Framework
- Supports **data-heavy** and **compute-intensive** problems

Frontier Deployment

Deploy Frontier on existing virtualized IT assets in your organization to instantly create a supercomputing service that runs without affecting normal IT operations.



Runs on...

- Desktop PCs
- Workstations
- Servers
- Clusters
- Windows, Linux, and Mac OS X
- VMware ESX Hypervisor

Government Users of Frontier



Evolutionary Computation (EC): Created many Frontier-powered EC applications including ones for decision support, network vulnerability detection and satellite antenna design.



Decryption: Frontier-enabled decryption service powered by thousands of computers is available to law enforcement personnel throughout the country. (Partner: AccessData®)



Communications Simulation: Creating Frontier-powered cellular, satellite, and wireless broadband system simulation service for the telecommunications industry. (Partner: WVU)



Enterprise Deployment: Currently deploying Frontier across 10,000 nodes within the Department of Defense, and using them to perform predictive modeling.

Domains Well-Suited for Frontier

Frontier enables fast and affordable solutions for a myriad of high-performance computing (HPC) problems such as:

- Optimization
- Modeling & simulation
- Data mining & correlation
- Predictive analysis
- Nanotechnology design
- SOA load testing
- Sensor placement analysis
- Logistics planning
- Cryptography
- Robotic motion planning
- Parameter studies
- Cyber security

▪ And many more...



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