

“What If?” Is A Pretty Lame Question When You Could Be Asking “What’s Best?”

Get More Out of Your Model or Simulation by Running It Across Frontier

You've done the hard part. You have a model or simulator that captures the essential behavior of a complex system, process, engagement or phenomenon.

Don't just use it to answer simple questions one scenario at a time. With Frontier, you can **run thousands or millions of scenarios**, allowing you to:

- Optimize simulation variables to determine **what's best**
- Conduct parameter studies to see **what's possible**
- Apply resampling (bootstrap) methods to assess **validity**
- Perform perturbation analysis to understand **stability**
- Compute trajectories to spot **trends** and **critical points**

Origin™ Makes Using Genetic Algorithms Easy

Developed for NASA, Parabon's **Origin Evolutionary SDK** is a framework of evolutionary computation algorithms designed to run on Frontier. Origin's evolutionary algorithms are great for performing optimization with existing models or simulations. Simply snap in your simulation, add a fitness function and breeding strategy, and begin performing optimizations atop your simulation that you never thought possible. Origin was used to develop **Watchman™** (see other side).

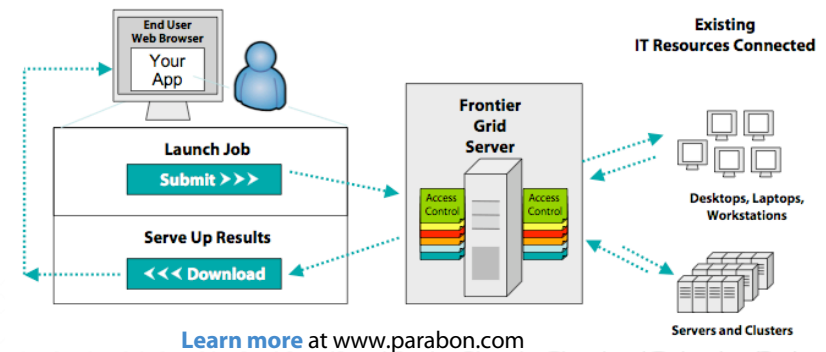
The **evolvable hardware** app – originally built to run on NASA's Columbia cluster – that designed this satellite antenna has been Origin and Frontier-enabled. [Learn more](http://parabon.com/dev-center/) about Parabon's dev tools at <http://parabon.com/dev-center/>.



Antenna image courtesy of Jason Lohn, Derek Linden, and Greg Hornby.

Schematic of Frontier Grid Services

- Step 1. Open Web Browser
- Step 2. Login to Your Account
- Step 3. Select Application from the Dashboard
- Step 4. Customize Parameters
- Step 5. Launch Jobs Across Frontier
- Step 6. Retrieve Results



Frontier Can Help You Answer “What’s Best” in These Domains & Research Areas :

- Battlespace planning
- Decision support
- Targeting analysis
- Predictive analysis
- Geospatial fusion
- Photorealistic rendering
- Network security analysis
- Video mining
- Sensor placement analysis
- Logistics optimization
- Line-of-sight analysis
- Physics & materials research
- SOA load & performance testing
- Weapons mission planning
- Infrastructure vulnerability assessment
- **And many more**



Computing Outside the Box®