GRID COMPUTING.

The basics

Grid computing is a form of distributed computing that involves coordinating and sharing computing, application, data, storage, or network resources across dynamic and geographically dispersed organizations. Grid technologies promise to change the way organizations tackle complex computational problems. However, the vision of large scale resource sharing is not yet a reality in many areas — Grid computing is an evolving area of computing, where standards and technology are still being developed to enable this new paradigm.

Why is it important?

Time and Money. Organizations that depend on access to computational power to advance their business objectives often sacrifice or scale back new projects, design ideas, or innovations due to sheer lack of computational bandwidth. Project demands simply outstrip computational power, even if an organization has significant investments in dedicated computing resources.

Even given the potential financial rewards from additional computational access, many enterprises struggle to balance the need for additional computing resources with the need to control costs. Upgrading and purchasing new hardware is a costly proposition, and with the rate of technology obsolescence, it is eventually a losing one. By better utilizing and distributing existing compute resources, Grid computing will help alleviate this problem.

Delivering grid benefits today

Many companies want to take advantage of the cost and efficiency benefits that come from a grid infrastructure today, without being locked in to a system that will not grow with their needs.

To provide customers the solution they need, United Devices tackled the complex security, scalability and unobtrusiveness issues required for a superior enterprise grid, while building towards the open standards of the GGF. By embracing these standards, United Devices lets our customers move toward compatibility with future grid technologies and adopt upcoming technologies as they are developed while delivering the promises and benefits of the grid today.

The Grid MP platform by United Devices works by amalgamating the underutilized IT resources on a corporate network into a powerful enterprise grid that can be shared by groups across the organization — even geographically disparate groups. The most common corporate technology asset, desktop PCs, are also the most underutilized, often only using 10% of their total compute power even when actively engaged in their primary business functions. By harnessing these plentiful underused computing assets and leveraging them for revenue-driving projects, the Grid MP platform provides immediate value for companies who want to move forward with their grid strategies without limiting any future grid developments.

The benefits of building an enterprise grid with Grid MP platform include:

Lower Computing Costs
On a price-to-performance basis, the Grid MP platform gets more work done with less administration and budget than dedicated hardware solutions. Depending on the size of your network, the price-for-performance ratio for computing power can literally improve by an order of magnitude.

Faster Project Results
The extra power generated by the Grid MP platform can directly impact an organization's ability to win in the marketplace by shortening product development cycles and accelerating research and development processes.

Better Product Results
Increased, affordable computing power means not having to ignore promising avenues or solutions because of a limited budget or schedule. The power created by the Grid MP platform can help to ensure a higher quality product by allowing higher-resolution testing and results, and can permit an organization to test more extensively prior to product release.

Why United Devices?
Focused and Proven Technology. There may be other companies that offer PC or enterprise grid computing, but none that can boast the full range of technical expertise in this revolutionary field. United Devices stands apart for several reasons:

Focused Technology
The Grid MP platform is a comprehensive architecture that was built from the ground up to tackle the unique challenges of security, scalability, and manageability in distributed computing. Development was focused on creating more productive and efficient use of computing resources an enterprise environment today while maintaining interoperability with future grid technologies.

Unparalleled Experience
United Devices' technology was built with the knowledge and experience of industry pioneers. Only the UD team can boast direct responsibility for the creation and success of the largest and most successful distributed computing projects in history. Our development team includes the director of the renowned SETI@home project, and the core development group of distributed.net.

Proven Security, Scalability, and Success
To prove the security, scalability, and manageability of our technology, United Devices hosted virtual screening for cancer research on the Grid MP platform-which evolved into the largest computational chemistry project in history. United Devices has harnessed the power of over 2,000,000 PCs around the world with our software, generating over 100 teraflops of power and delivering results for groundbreaking research in record times. Only the Grid MP platform has been proven to yield results on this sort of scale.

The birth of distributed computing
In the early 1970s when computers were first linked by networks, the idea of harnessing unused CPU cycles was born. A few early experiments with distributed computing-including a pair of programs called Creeper and Reaper-ran on the Internet's predecessor, the ARPAnet.

In 1973, the Xerox Palo Alto Research Center (PARC) installed the first Ethernet network and the first full-fledged distributed computing effort was underway. Scientists John F. Shoch and Jon A. Hupp created a worm, as they called it, and envisioned it moving from machine to machine using idle resources for beneficial purposes.

In another effort, Richard Crandall, now a distinguished scientist at Apple, started putting idle, networked NeXT™ computers to work. Crandall installed software that allowed the machines, when not in use, to perform computations and to combine efforts with other machines on the network. In 1991, Zilla won the Computerworld Smithsonian award for science.

The Internet brings new scale
Distributed computing scaled to a global level with the maturation of the Internet in the 1990s. Two projects in particular have proven that the concept works extremely well — even better than many experts had anticipated.

The first of these revolutionary projects used thousands of independently owned computers across the Internet to crack encryption codes. This project, the first of its kind, was called distributed.net — affectionately known as "dnet".

The second, and the most successful and popular of distributed computing projects in history, is the SETI@home project. Over two million people — the largest number of volunteers for any Internet distributed computing project to date — have installed the SETI@home software agent since the project started in May 1999. This project conclusively proved that distributed computing could accelerate computing project results while managing project costs.

United Devices harnessed the talent from both projects to build our enterprise grid offerings from the ground up, putting to use all the knowledge gleaned from these groundbreaking projects. To prove the scalability, security and manageability of the resulting technology, the Grid MP platform, United Devices launched the United Devices-Intel Cancer Research Project with Oxford University. This would become the largest computational chemistry effort in the world. But the ultimate goal was to enable this tremendous source of computing power to customers in their own facilities.

The big picture — the grid.

The term "grid computing" suggests a computing paradigm similar to an electric power grid-a variety of resources contribute power into a shared "pool" for many consumers to access on an as-needed basis. This ideal is still a few years off. However, there are key efforts underway to define standards that would allow the easy pooling and sharing of all computing resources, including cycles, storage, and data in a way that can promote mass adoption of grid computing. United Devices is involved in these efforts-for example, United Devices is a contributor and a Silver Sponsor of the Global Grid Forum (GGF).