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BT Frontline Grid: Bio-Cluster Grid Solution

A cluster Grid with portal for biologists

Business Challenges

Computational Biology (CB) represents the marriage of Information Technology (IT) and biology, and spans many disciplines, such as bioinformatics, molecular modelling, bio-simulation, clinical informatics, medical imaging and many others. CB finds application in many areas of the life sciences, such as the development of human therapeutics (therapies), diagnostics (tests for the presence of particular diseases), prognostics (tests for the tendency toward or susceptibility to future diseases), and even forensics (identification of individuals). In order to address the shortfall in the number of new chemical entities that are being patented within the drug discovery pipeline, the pharmaceutical and biotechnology industries need to increase the speed and efficiency with which new drugs are discovered and developed.

Much of the data needed to develop new chemical entities already exist within pharmaceutical companies. However, the traditional processes used to synthesize and test these data are extremely time-consuming and resource-intensive. And the ever-increasing number of putative therapeutic targets coming out of genomic and proteomic research is exacerbating this problem.

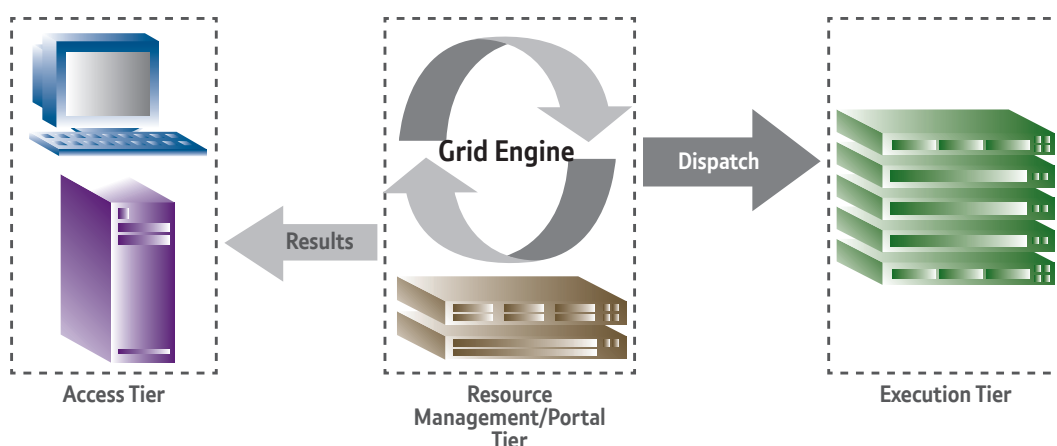
In addressing these needs, the use of computers to carry out innovative chemical design approaches is becoming increasingly important, particularly in chemoinformatics or the chemical space where the generation of new structures on the computer in-silico allows greater chemical diversity to be explored.

Modern life sciences outpace Moore's Law. The data that is generated through experiments is growing in a much faster rate (it doubles every 6 months) than CPU power (which doubles every 18 months). The only data-processing infrastructure that keeps pace with the data growth is the capacity of networked systems — the Grid.

BT Frontline's Grid solutions enable organisations to build an infrastructure that:

- Helps to increase the speed and efficiency in the data processing
- Allows them to constantly update the database
- Makes the most efficient use of resources.

Deployment Architecture of the Bio-Cluster Grid



Our Solution Offerings

At the heart of Grid Computing is a computing infrastructure that provides dependable and inexpensive access to computational capabilities. By pooling federated assets into a virtual system, a Grid provides a single point of access to powerful distributed resources.

- The hardware products that underpin BT Frontline Grid solutions are:
 - A computing farm
 - Specific architecture for different customers
 - Density of computing power
 - Managed huge databases typically running on big SMP servers
 - Thin clients for desktops.
- The software products that underpin BT Frontline Grid solutions are:
 - Grid Portal
 - Grid Engine as the enabling technology for a cluster.

The Grid Portal provides a Web-based front-end to the Grid Engine.

The Grid Engine is the enabling technology for an Enterprise Grid, which is typically a larger set or groups of computing resources shared by multiple groups. This allows efficient allocation of resources to multiple groups according to the policies set by the management.

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Key Highlights

- Tap into the computing power of a cluster, load balancing capabilities of the Grid Engine and diversity of open-source bioinformatics applications
- Users save time by focusing on using the applications, not on installing them
- Enjoy automatic load sharing by Grid Engine
- Access a secure portal anytime, anywhere
- Realise greater return on IT infrastructure investment.

Key Features

- Easy, convenient and speedy installation
- 20+ ready-to-run bioinformatics applications
- Scripts for integration with the Grid Engine
- Integration with the Grid Engine Portal
- Email notification for long jobs.

Activities and deliverables

- **Feasibility study and assessment services**
 - Review your computing environment, focusing on the issues facing the industry and the specified computing environment.
 - Provide a summary of these issues, solution options and recommendations.
- **Architecture design services**
 - Generate a computing architecture that is tuned to meet your company's objectives.
 - Examine the technology stack from data centre to applications and detail the best architecture to meet these goals and operate against a desired set of service-level agreements.
- **Implementation services**
 - Implement a highly available and application-ready platform that is aligned to your business needs and built to meet your availability objectives.
 - Implement a system architecture that is ready to accept applications.

For more information, please contact our sales hotline at (65) 6490 4884 or email, sales.frontline@bt.com.