

Platform™



The Platform Computing & Calypso Risk Analysis Solution

Raising the Bar in Financial Modeling and Risk Management

Computing financial solutions so fast, it's just not fair!

Overview of Solution

Platform Computing provides a supported integration with Calypso's leading suite of financial services solutions. A simple interface to Calypso's modular architecture allows the power of a Platform Symphony grid to be tapped in a way that is transparent to the Calypso user. Using Calypso with Platform Symphony allows large numbers of traders to dramatically accelerated compute intensive applications such as risk analysis thereby decrease run-times and increasing mode fidelity

Who Needs this Solution

Platform Symphony combined with Calypso's Risk Analysis components is an ideal solution for financial services firms wishing to maximize the value of Calypso by running more concurrent scenarios, more users and larger problem sets more quickly on a shared grid infrastructure. Combining Calypso with the power of grid is ideal fit in demanding application areas such as risk analysis of equity and credit derivatives

Benefits

- Increased performance of risk analysis and other compute intensive computations
- The Platform Symphony Integration is transparent existing Calypso code
- Allocation and startup of Calypso Calculation services is dynamic, automatic and highly scalable
- Allocation of computing resources to various computing functions is dynamic and driven by policies reflecting business priorities.

Today's financial services firms are under increasing pressure to grow revenue and market share amidst intense competition, increased regulation, and a growing need for enterprise risk management. As if this were not enough of a challenge, firms are also struggling to lower the total cost of ownership of resources and increase operating efficiencies to be faster, more agile and more adaptive to changing business needs.

As volumes in derivatives trading grow and the products in global capital markets become ever more complex, the demands placed on an institution's risk management process and infrastructure increase steadily. Regulatory requirements and greater transparency demanded by investors only add to this considerable pressure on risk management infrastructure.

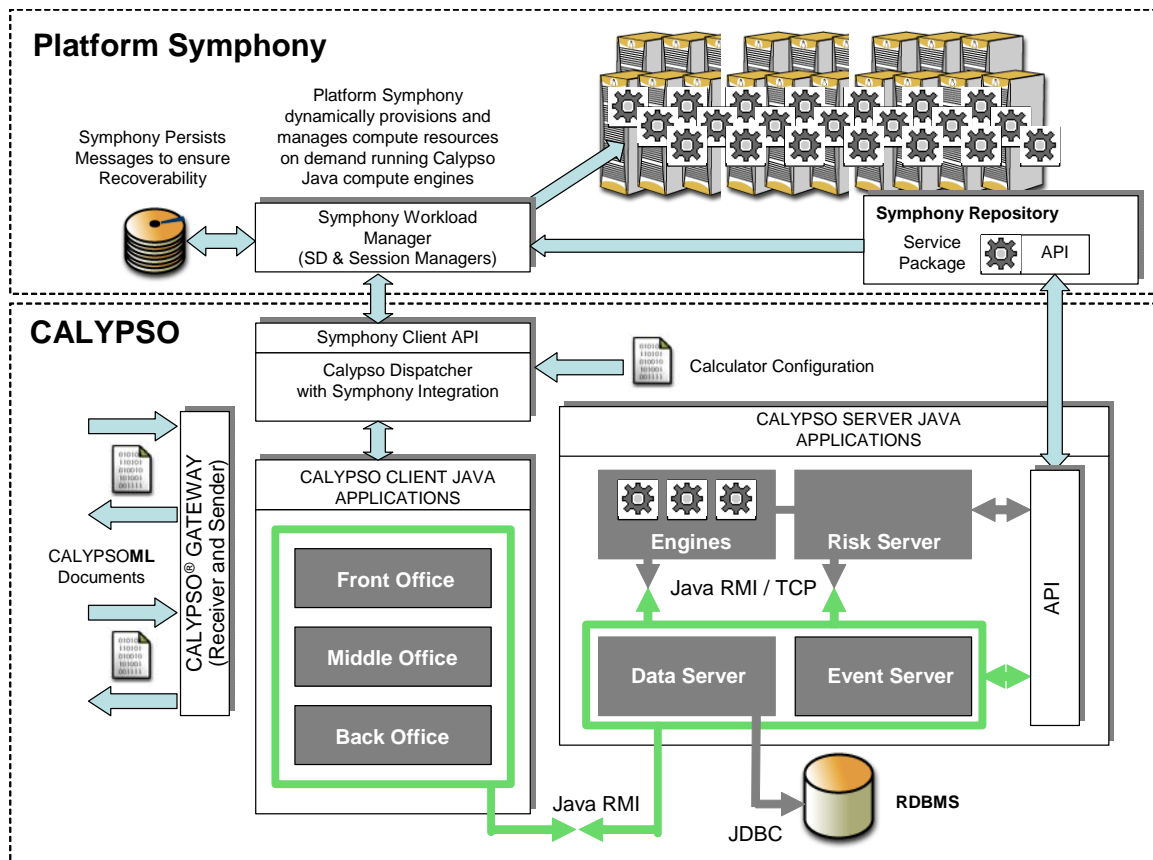
In complex application areas such as Credit, FX and equities derivatives, financial services firms need to be able to model scenarios and analyze portfolios in near real-time. By combining Calypso's leading integrated end-to-end trading and analysis solutions, with Symphony's unparalleled scalability and infrastructure management capabilities, Calypso users can achieve that "unfair market advantage" ensuring a much needed competitive edge.

"In the fast moving world of finance, our cross-asset trading and processing software needs to keep pace with a state of the art feature set, but also with the ever changing IT environment. This made it clear to us that integrating with Symphony would provide critical value to our customers by extending Calypso across a distributed, virtualized IT infrastructure. *Working together, Calypso and Symphony are ready to scale with our clients needs.*"

Gerard Rafie, VP of Marketing, Calypso

"Nobody understands that time is money quite like the Financial Services industry, where complex decisions and risk evaluations need to be made at a fast pace to retain an advantage in an increasingly competitive and regulated industry. The modern, modular architecture of Calypso's leading end-to-end trading system makes it ideally suited for deployment on enterprise grid environments. *We are delighted to be playing a key role in helping Calypso customers enjoy an unprecedented ability make business decisions in real time while maximizing available IT resources and improving their bottom line.*"

Songnian Zhou, CEO of Platform Computing



Why an Integrated Solution Makes Sense

By integrating Platform Symphony with Calypso, customers can literally have the “best of both worlds”. Now an industry leading financial application can be easily *grid-enabled* to meet investment bankers growing need for ever more computing power without incurring the significant cost, risk, time and effort involved in re-engineering trading systems to take advantage of grid computing. Complex risk models able to take advantage of Calypso’s Distributed Analysis facility which can segment problems sets for processing in parallel, will simply run faster due to Symphony’s ability to dynamically provision and manage Calypso’s Java based calculators to large numbers of compute nodes. Furthermore, by harnessing Symphony’s massive scalability, customers can realize the cost-efficiencies and performance advantages of commodity computing platforms with unsurpassed levels of reliability. Distributing Calypso workloads, along with of other types of commercial and in-house developed solutions, allows financial banking firms to achieve higher levels of sustained infrastructure utilization. This increase in overall system utilization results in even more costs savings in infrastructure technologies where hardware, facilities and support costs can be significant. The businesses advantages of combining the power of Calypso with the power of enterprise grid-computing are compelling.

- Faster Results & Competitive Advantage** - With Symphony-enabled Calypso, hundreds of traders and analysts are able to work concurrently maximizing a shared asset pool to get significantly faster business results. **Applications grid-enabled with Platform Symphony typically see a reduction in job run-times of approximately 80%. With Platform Symphony, customers can scale to in excess of 20,000 CPUs, increase server and cluster utilization to up to 97%, and have a highly reliable infrastructure.** Symphony’s industry leading scalability and performance ensure that a customer’s I.T. environment will not constrain the growth of their business.
- Scalable, Reliable Infrastructure** - When customers grid-enable Calypso with Platform Symphony, they also build a highly scalable and reliable grid infrastructure in the process that can easily be extended to include other application classes as well. **With the underlying Symphony grid infrastructure already in place, customers can then extend the**

same grid to support other pricing and risk applications to realize the benefits of grid-enabling other critical applications as well. The grid can then act as a virtualized compute environment able to reduce the costs of I.T. for not only grid-aware applications, but for other application types as well.

- **Policy Based Resource Allocation** - Underpinning Platform Symphony is the scalable Platform Enterprise Grid Orchestrator™ (EGO) software layer. Platform EGO provides a virtualized pool of computing resources, serving multiple applications or user groups and orchestrates on-demand and policy based resource allocation to applications. With the Power of EGO, **your shared compute infrastructure can run other application types as well further improving economies of scale irrespective of whether applications were designed to be grid-aware.**

The Platform / Calypso Solution

Calypso gives you freedom from the limitations of your existing systems. Calypso's multi-tier 100% Java-based platform is designed to provide you with the necessary technology and architecture to meet all of your system needs. The architecture based on Java classes and RMI can easily be extended. In the Calypso-Symphony integration, Calypso's internal workload distribution component (DistAnalysis) has been extended by Platform (SymphonyDistAnalysis) to send task parameters directly to Symphony via Symphony's client API rather than to a statically configured pool of compute nodes. All of this is done in a way that is transparent to the Calypso user and does not affect native Calypso code. The Calypso Administrator can use the Calypso GUI to select Platform Symphony as their grid computing environment. Once the Calypso service is enabled with Symphony, the allocation of compute nodes is automatic and dynamic, and is done with an awareness of the relative business priority and the nature of other work happening on the shared grid. This means the very high priority work can pre-empt other workloads ensuring that critical simulations are run in the shortest possible time. The Calypso calculation service is "wrapped" by Symphony so that the Calypso calculator can run unmodified on a Symphony managed grid. These wrapped Calypso classes are encapsulated as services packages that are stored in Symphony's Repository Service. From the repository service, these services can be dynamically provisioned to service instance managers running on compute nodes on the cluster that are responsible for making sure that the service runs and is resilient to failure. Though it's proven ability to orchestrate service oriented workloads to massive single application environments as large as 5,000 CPUs per application instance with greater than 95% scaling efficiency, Symphony can provide a Calypso user with unparalleled scalability and performance. This results in faster, higher fidelity risk analysis computations, simpler administration of the underlying distributed computing mechanism and increased cluster scalability and manageability.

How the Integration Works

- The Calypso Administrator, through the graphical user interface provided by Calypso, will select Symphony as their preferred "Dispatcher". They will also specify a number of parameters needed to connect to the Symphony managed grid include the path to the *ego.conf* file as well as login credentials and information such as TCP/IP port numbers. When this is done, the Platform supplied "SymphonyDistAnalysis" Java class will be used rather than the native "DistAnalysis" class in Calypso making the integration transparent to the Calypso user.
- Calypso has the ability to segment an analysis request on it's own into smaller requests through it's grid interface allowing the granularity of task segmentation to be adjusted by the Calypso user. The Calypso application will send the task definition to the Symphony Dispatcher behind the scenes which will in turn use the Symphony API to establish a connection to the Symphony management node.
- The Symphony Management node will dispatch compute tasks and ensure that the Calypso calculator, wrapped as a Symphony service is running on each compute node managed by Symphony. The Calypso calculators will run on the compute nodes managed by Symphony directly interacting with the Calypso data server.
- The Symphony session manager will collect the computation results from the various Symphony calculators, returning the results to the calling application in a way that is transparent to the Calypso user. Using this scalable approach to managing compute engines, complex Calypso computations can be completed in a fraction of the time that would otherwise be required.

The Power of Calypso Integrated with Grid Virtualization from Platform

Platform and Calypso combined provide a leading-edge financial modeling solution running in a highly fault-tolerant and business responsive computing environment. The Platform Symphony and Calypso integrated solution augments the value realized from each individual product, allowing you to extend the Calypso application across a distributed, virtualized IT environment, fully utilizing all IT resources.

	Calypso with native DistAnalysis Component	Calypso with Platform Symphony Integration
Allocation of Compute Nodes	With the native distribution facility in Calypso, administrators must pre-select hosts and configure Calypso Calculator host IP addresses and port numbers	With Symphony, the allocation of compute host is automatic and Calypso calculators are automatically started and managed in response to client requests.
Startup & Deployment	Calypso Calculator processes must be started manually in the native distribution mechanism providing practical limitations to scalability	With Platform Symphony, the calculation service is started up automatically. Running 1,000 instances of the calculation service is no more complicated than running 10 instances with the Symphony architecture.
Resilience	The native Calypso dispatcher provides no automatic recovery in the event of a software or underlying host computer failure	The Symphony workload manager provides multiple levels of redundancy. If the software or a host should fail for any reason, the service director (itself configured redundantly) will automatically restart the Session Manager on another eligible host allowing it to recover state. The Session manager will transparently handle the failure of one or more compute nodes running the calculator service as well.
Administration	Administrators must allocate and install compute servers specifically to run Calypso calculation services	With Symphony, Calypso administrators need not worry about manually allocating or managing compute nodes as this is done dynamically by Symphony

Platform Support

Platform offers an array of support, professional services and consulting services aimed at helping you get the most out our Symphony investment and be up and running with Calypso as quickly as possible.

FEATURES	BENEFITS
24x7 Hotline Support	<ul style="list-style-type: none"> Provides access to continuous support for production critical issues with a response time of less than one hour for severity 1 & 2 issues. Minimizes downtime, saving time and money Ensures maximum performance and availability of your Platform Symphony software and grid computing investment
eSupport	<ul style="list-style-type: none"> Allows you to submit, monitor and update support tickets on-line Offers flexibility and gives you more control of the issue resolution process Coming soon: On-line access to our extensive knowledge base, FAQs and Technical Notes
Support Mailing List Subscription	<ul style="list-style-type: none"> Patch and Product updates e-mailed to you on a monthly basis Security Alerts sent as security issues arise Notification of major issues of concern to our customers
Software Upgrades	<ul style="list-style-type: none"> With new features and functions, you will always have access to cutting-edge technologies and industry leading-functionality Access to performance and reliability enhancements ensures that your investment in Platform products will be maintained

About Calypso

Calypso Technology, Inc., is a leading provider of capital markets trading solutions for global financial institutions. Calypso's clients include Citigroup, Bear Stearns, HSBC, ING, Wachovia, Wells Fargo, SunTrust, BNP Paribas, Société Générale, Calyon, Rabobank, ING, HVB Group, Dresdner Bank and the Royal Bank of Scotland.

About Platform Computing

Platform Computing is the global leader for grid computing solutions and a technology pioneer of the supercomputing world. The company's solutions for enterprise and high performance computing helps the world's largest organizations integrate and accelerate business processes, to increase competitive advantage and enjoy a higher return on investment from IT. With over 2000 customers, the company has achieved a clear leadership position in the market through a focus on technology innovation and execution. Founded in 1992, Platform Computing has strategic relationships with Dell, HP, IBM, Intel, Microsoft, Novell and Red Hat, along with the industry's broadest support for third-party applications. For more information please visit www.platform.com