Case Study

Investment Advisor Gains Trading Advantage with the Digipede Network

High-Performance Financial Analytics Grid Helps Manage Billions Better

The Company

A large investment advisor managing direct investments, "The Manager," provides outstanding returns to its clients using a unique set of valuation models and trading strategies. Managing billions of dollars in assets, The Manager has consistently outperformed category averages for the past decade.

The Manager's developers have built an impressive array of financial engineering applications to drive trading strategies and manage risk. Many of these tools require considerable computing power, so The Manager's staff has developed some in-house tools for distributing calculations across a network of 20 servers.

"Allowing our applications to tap into a reliable pool of computing power is critical," said the Lead Solutions Architect at The Manager. "Our trading strategies require us to minimize correlated value-at-risk, while satisfying our investors' portfolio constraints. And with billions of dollars under management, we might want to do trades that could impose high transaction costs—so we filter all of our trades, doing cost-benefit analysis that takes those transaction costs into account. All these steps are compute- and transaction-intensive processes, and must be done within tight time constraints."

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> *—Lead Solutions Architect at The Manager*

The Challenge

The Manager soon discovered, however, that its internal tools required an increasing amount of developer and IT staff time to operate and maintain. Adapting new applications to these distributed tools was a laborious process. Test results were uneven, and applications were difficult to monitor. While the technical staff recognized that many of its algorithms could be parallelized, only about 20% had been adapted to run on a distributed network. The system to integrate these applications and manage them as a single workflow to drive trading strategies had to be more robust, easier to expand, and less costly to maintain.

The Solution

The Manager turned to Digipede for a better solution, starting with a proof-of-concept study with a single application on a network of ten machines. "I budgeted a month for this analysis, and was done in less than a week," said the Architect. "Installation was straightforward, and the Digipede Framework SDK made grid-enabling our applications far simpler than we'd anticipated. We demonstrated near-linear scalability on a critical application with just a few lines of code, and we got far better management, monitoring, and flexibility than our own tools offered. We were ready for the next step."

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Installation, configuration, evaluation, application integration, testing, and production deployment of the Digipede Network Professional Edition took less than three weeks, and required no onsite work by consultants or Digipede staff. The system passed all scalability and robustness tests, with only telephone and email support by the Digipede team. The failover capabilities provided by the Digipede Server, along with the recovery capabilities of the Digipede Agents, delivered significant improvements in fault tolerance and overall system reliability over the previous in-house solution.

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"Digipede greatly simplifies our up-front design work and takes care of all the distributed computing plumbing, so our team can focus on analytics that benefit our clients. We now have a menu of clear development models that match many of our applications," said the Architect. "Development efforts that would have taken months of custom parallelization schemes can be reduced to days or hours. Our developers can continue to work in the familiar Visual Studio environment, without changing the programming paradigms they already know. We've used the Digipede Framework SDK to grid-enabled both .NET and COM applications, including applications written in C++, C#, and Visual Basic."

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The Manager runs the Digipede Network and its trading analytics platform in production on a high-performance network with more than 40 processors, running Microsoft Windows Server 2003 and Microsoft SQL Server. The company also maintains a large testing, development, and staging environment, in which it's adapting other, new applications for deployment on the Digipede Network. The Architect commented, "Our rapid success with this project—and especially the short learning curve for our developers—has led other departments to investigate how they can take advantage of the Digipede Network."