

# Fiat chooses PHP & Zend to build & Web-enable their *Fiatlink* system



[www.fiat.com](http://www.fiat.com)

*“When we initially thought of open-source software, what came to mind immediately was the lower total cost of ownership. But this is not the only reason that open-source has been a good technology choice for us.”*

*“When we performed a detailed analysis and were able to outline it in detail, we saw how widespread & diverse our user network of dealers and technical/service support users were, and that we needed to constantly adapt to, change, and make progress on with new and added features and functionality.”*

*“That’s the primary reason why we chose a PHP-based technology stack; PHP is a well-known language for building web-delivered solutions with versatility and reliability and it allows us to scale and build-out new functionality in a fraction of the time it would take us with other solutions.”*

Nunzio Cali  
IT Director (CIO),  
Fiat Group Automobiles SpA

**Customer:** Fiat Group Automobiles SpA

**Geography:** Italy

**Industry:** Automobile

**Challenges:**

- Improve sales performance and customer relations by exploiting back-end and point-of-use technology in sales, service, & support processes
- Integrate 15 disparate applications into a single-sign-on (SSO) portal
- Implement a system which would rapidly deliver new enterprise level support across 17 countries in diverse languages & cultural locales

**Solution:** PHP, Zend Platform, Zend Studio, Zend Global Services and Training

**Fiat Group SpA** is a diversified global company in business for over a century and is one of the top fifteen automobile manufacturers in the world, even larger than Daimler AG.

Producing more than 85% of the automobiles that the Fiat Group manufactures and sells, the Fiat Group Automobiles SpA (FGA) subsidiary produces about 1.98 million automobiles per year. Over 42,000 Fiat users channel over \$30 Billion (USD) in revenue (24 billion euros) through their PHP-based *Fiatlink* system which is now the primary access point for all of FGA's dealers and service centers to enter car orders and access information across the Fiat Auto enterprise. This is business-critical PHP.

Improving sales performance and customer relations by exploiting back-end and point-of-use technology in the sales, service, and support processes they engage in was the goal for Fiat. *Fiatlink* addresses both sales and after sales that FGA processes, and currently handles 100% of the ordering and logistics and 65% (being rapidly built-out to 90%) of the vehicle customization & customer offers process, including essentially all CRM functions for Fiat, and will be completely rolled out to all of their markets in Europe in 2008.

Originally slated to address just car ordering processes (customization of cars, ordering parts, etc.), *Fiatlink* is now used to additionally handle all dealer and FGA related processes from logistics to sales leads management, offering an integrated platform for all sales and post-sales processes.

## The Challenge - Modernizing an aging IT solution

Fiat's sales & customer support systems were not as up-to-date as Fiat innovation policies mandated, were spread across several disparate solutions, and there was no **one** place that all Fiat dealers and service centers could go to manage all the daily activities that are necessary for communication between FGA's central headquarters and dealer services. Also, the previous system was built upon a traditional client-server model which meant long activation times, physical infrastructure maintenance problems, and very difficult to use user interfaces. This represented a significant drag on potential revenue opportunities for Fiat. They needed a way to rapidly develop and deliver new and enhanced functionality to their dealers. PHP was an ideal solution for this.

Starting in Spain over five years ago, Fiat began experimenting with the responsiveness, fast time-to-market, and rock-solid stability that PHP could give them. From PHP 3 in the early days to a modern, object-oriented, robust web application in PHP 5 today, they have organically grown their solution into a world-class end-to-end system from their factories to their dealers & service centers that addresses many of the issues they are facing in fragmented markets, with diverse languages, locales, and the need for rapid intra-day communication to and from their dealers.

## Business Case: Integrate 15 Disparate Applications in SSO Portal

Fiat has integrated more than 15 different applications using PHP as the 'glue' to provide a responsive and integrated single-sign-on (SSO) portal for their 42,000 users to access myriad systems (B2C) in the Fiat Group Automobiles SpA enterprise. These include: logistics/planning systems, business management, training, CSI, post-sales support, warranties, marketing programs, CRM, and financing systems, both directly and in an integrated process environment.

Because of the fast delivery that a PHP-based solution could provide to their *Fiatlink* users, *Fiatlink* is quickly becoming the primary way that all users interact with Fiat's applications, worldwide.

Fiat began with a LAMP-based prototype, but with the requirement that this needed to quickly be transformed into a production-ready business engineered solution. Porting to Oracle quickly after prototyping was another requirement. PHP fit their needs exactly. They now build all their code in web application "design pattern" standards like MVC.

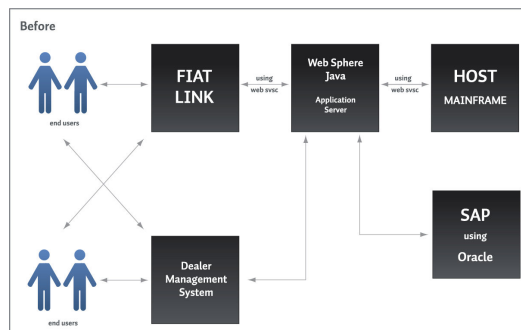
*"At the beginning we also considered Java as a development solution & language, but the main project goals were quick implementation and the PHP learning curve is much easier than with Java. In addition, Fiat Group's IT division has a solid open-source technologies background. That also helped drive the choice for PHP."*

Roberto Fileni,  
Technical Architect, *Fiatlink*

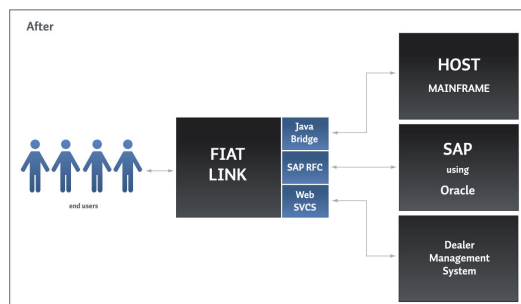
## Two person years saved

One of the key savings that Fiat Group Automobiles SpA made by using Zend's web application server was the ability to save two (2) person-years worth of tested and already running Java business logic. Rewriting that code, not to mention testing and deploying it into a running application was untenable.

Instead, by using Zend Platform, the Zend web application server, and the functionality it contains called Zend Java Bridge, Fiat was able to deploy their already tested and written Java business logic without needing to run an additional expensive WebSphere application server. This resulted in less moving parts to worry about, administrate, test, fix in production settings, and meant they also didn't need to rewrite already running, tested code. Two person-years of code, plus testing, deployment, and administrative overhead: Estimated savings: €300,000 (USD ~ \$450,000).



Fiat Group Automobiles has simplified their business; eliminating a Web Sphere Java application server, and delivering much faster time-to-market on many key business deliverables for Fiat.



The end-result is a single-sign-on one-stop portal for Fiat users. A PHP front-end and middleware solution using the Zend Platform application server, Zend Core for Oracle built with an SAP-RFC adaptor by the Zend Global Services team, and Fiat's internal development teams making extensive use of Zend Studio to build and manage deployment of their PHP solution.

*“Zend Core for Oracle is the PHP 5 managed, tested, and compiled version supported by Zend and it makes for much easier integration when we have the backing of an infrastructure provider like Zend.”*

Sergio Aghemo,  
FiatLink Project Leader

*“In the future we want improve our skills and make maximum use of Zend product features and functionality. We plan on evaluating and using Dynamic Content Caching and to move our database-backed session data storage to the RAM session clustering offered by Zend’s web application server, Zend Platform, in order to improve our performance.”*

Sergio Aghemo,  
FiatLink Project Leader

## The Technical Solution

PHP 5’s object-oriented features help Fiat to design a more secure industrial-strength architecture that can be easily and quickly updated as their business needs change. The *Fiatlink* team uses the following Zend products to build their solution:

- Zend Core for Oracle with an SAP-RFC compiled extension adapter
- Zend Platform with Java Bridge technology
- Zend Studio

The *Fiatlink* database server is based on Oracle and Zend Core for Oracle and is a web application solution that combines the fully supported and managed PHP product, Zend Core, which comes with native integration for their Oracle database and PHP support for the Oracle web server.

“Zend Core for Oracle is the PHP 5 managed, tested, and compiled version supported by Zend and it makes for much easier integration when we have the backing of an infrastructure provider like Zend,” says Sergio Aghemo, *FiatLink* Project leader.

In fact, using Zend’s Global Services organization resources, Fiat has a custom-built Zend Core for Oracle that addresses their specific needs, including the SAP-RFC adapter built into their managed PHP stack. Zend Platform is the PHP application server for Fiat and supports the performance, management, integration and enterprise scalability requirements needed for their deployments.

There are many other features that Fiat Group’s IT managers consider valuable:

- advanced debugging (in addition to Zend Core) is extremely important, in particular in application critical sections, mainly external application integration points;
- critical application profiling to reduce or remove bottlenecks they discover;
- event triggers on data access methods allow them to identify inefficient queries;
- Overall, event monitoring allows the team to find hidden problems in less time

“In the future we want improve our skills and make maximum use of Zend product features and functionality. We plan on evaluating and using Dynamic Content Caching and to move our database-backed session data storage to the RAM session clustering offered by the Zend web application server, Zend Platform, in order to improve our performance” says Sergio Aghemo.

## Conclusion: PHP ready for business-critical solutions

Fiat sets a good example by leveraging PHP’s strengths as an ideal solution for large enterprises looking to rapidly deploy new and added functionality for their users. An open-source solution like PHP can be adopted strategically knowing that in addition to the vibrant open-source community, a vendor like Zend Technologies is standing behind the platform. Supporting tools like Zend Studio for Eclipse, the Zend web application server, and more, plus professional services from experts at Zend’s global services team all add up to make PHP more than ready for enterprise solutions.

### Valuable features for Fiat

- Advanced debugging provides Fiat Group with a powerful tool to manage bugs and other problems that may occur in the integration points between *FiatLink* and other company systems that are critical to its operation. With Remote Advanced Debugging the exchanged data can be inspected to understand problems that before could only be tracked with “coded tracings” or sniffing packet exchanges. This may seem like straightforward feature, but in a complex context like the one that *FiatLink* has to manage, the Zend web application server environment’s advanced debugging has been a powerful tool that they use to manage *FiatLink*’s “every day” problems.
- Profiling the page lets the Fiat teams discover that some custom functions with normally good performance (10ms) become not so great when nested in a loop of 10,000 iterations (sounds obvious but determining where the loops occur is not). In these situations a small gain of 5ms avoids a less than useful “growth of process” time for their application.
- In the *FiatLink* architecture their databases are called with a custom DB wrapper class (query logic is located in Oracle PLSQL packages functions). Setting up Zend Platform to monitor these customized statements of their methods allowed them to track the exact call with the parameters used to invoke it. That is the information they need to give to their database administrators to work on optimization of queries. The Zend Platform web app server automatically emails these notifications to their sys admins, so they can begin work on these queries immediately.



The PHP Company

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