ILOG Newsletter, Winter 2001, No.14

ILOG CONNECTION

EDITORIAL

By Pierre Haren, ILOG CEO

Supply-chain management (SCM) is a key market for ILOG. It is also a key element in the IT strategy of many industrial companies, which recognize that tremendous improvements can be made to the performance, efficiency and flexibility of their manufacturing and distribution capabilities worldwide.

However, a supply chain, as with any chain, is only as strong as its weakest link. Moreover, the operations of many industrial companies present some specific needs that are not covered by standard prebuilt supply-chain modules. That is why ILOG has introduced ILOG CDE, a methodology and a set of tools for quickly building dedicated modules that complement the standard offerings in SCM.

With ILOG ODF, an extension built with ILOG CDE, SAP customers are now able to strengthen their weakest supply-chain links, and therefore, their entire supply chain. SAP's smaller partners are also able to create "ODF cartridges," certified plug-n-play mySAP extensions, which can be reused worldwide by companies in need of these cartridges. ILOG ODF has enabled ILOG and SAP to bridge the gap between standard SCM solutions built with mySAP SCM and custom-built ones for dedicated solutions.

Another great reason to speed up the implementation of your global SCM system!

ILOG Greatly Simplifies Creation of Customized Supply-Chain Modules

FOCUS

New ILOG technology extends top SAP product

With ILOG ODF, ILOG has introduced a new product for customizing supply-chain management (SCM) solutions. ILOG ODF provides a fast and easy way to generate add-on software extensions, called *"cartridges,"* on top of SAP's flagship product, mySAP SCM, to address specific market, industry and customer requirements.

"Manufacturers choosing APS (advanced planning and scheduling) vendors that use industry-specific, precustomized product strategies can achieve more benefits, such as more responsive production plans and better use of resources, in less time," says Robert Ferrari, senior analyst for supply-chain planning at AMR Research. *"Despite this evidence, an increasing number of APS vendors use preconfigured approaches to address unique industry needs. The solution from ILOG for mySAP SCM will address this gap in the marketplace."*

ILOG ODF is a development framework that combines optimization software engines, an internal data model and a methodology, a predefined approach to structuring the different elements of the cartridge. With the automatic code generation tools and connectors of the SAP Optimization Extension Workbench (APX), SAP customers will gain a competitive advantage by extending mySAP SCM with ILOG ODF to meet unique deployment requirements.

SCM integrators such as Arconis and Bristlecone are already using ILOG ODF to build custom cartridges to extend mySAP SCM.

Cartridge Concept for Reusability

ILOG ODF industry- and solution-specific extensions for mySAP SCM are reusable. ILOG ODF is based on the ILOG Cartridge Development

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Investor Joins ILOG Board

ILOG recently welcomed Marie-Claude Bernal, a former partner of the Wellington Management Company, to its board of directors.

Ms. Bernal has 28 years of experience in international investment. She spent five years with Banque de Neuflize in Paris, managing international mutual funds, and two years at Mercantile Safe Deposit and Trust in the United States, overseeing global and fixed income portfolios. In 1979, she began a 21-year stint on the newly formed international investment team at Wellington. She soon became an associate at the company, and was made a full partner in 1994.

ILOG Japan Gets New President

Shigezaku Isozaki has joined ILOG Japan as its new president. Mr. Isozaki comes to ILOG with more than 20 years of experience in software engineering, sales and marketing.

Mr. Isozaki spent a total of about 11 years with Foxboro Japan, a Invensys company, first in sales and sales management from 1980-87 and then as director of business systems from 1996. Mr. Isozaki has also worked for DEC, from 1987-96, where he worked in marketing and channel management. Previous to working for Foxboro the first time, he was a software and process engineer.

Success Marks ILOG Users Meeting

Developers from around the world gather at two-day conference

More than 200 technical users of ILOG products gathered with ILOG personnel in the heart of Paris in October to share their accomplishments and learn more about the products at ILOG International Users Meeting 2000.

Meeting at the Grand Hotel Inter-Continental, the attendees from around the world spent Oct. 23-24 sharing insights and experience, and discussing the latest approaches to application development.

The conference began with a speech given by ILOG CEO Pierre Haren, in which he welcomed the attendees and introduced the company's vice presidents. His speech led to the first session, which covered ILOG in e-business. Presentations by BEA, Forrester Research and the World Wide Web Consortium were given on trends in the Internet market, and explained ILOG's growing prominence in supplying software components to the industry.

Covering different industries

Other industries – communications, manufacturing, transportation, finance and banking, and defense and aerospace – were covered in following sessions. The conference also introduced the latest visualization and optimization products, and gave attendees an opportunity to become acquainted with the vastly improved ILOG Rules and ILOG JRules, both setting standards for business rule development.

Already plans are being made for next year's ILOG users meeting. Those interested in attending it will soon find information for it on the Internet.

At www.ilog.com/corporate/users/ are the customer and product presentations given at the 2000 conference.

ILOG Listed among Top 12 IT Trendsetters for 2001

Company joins likes of IBM and Microsoft

Intelligent Enterprise has named ILOG among the *"12 Most Influential Companies in IT" for 2001.* Included with other newcomers – WebMethods Inc., Tibco Software Inc. and Xchange Inc. – ILOG was added to the list for the company's place in supplying the necessary ingredients for today's cutting-edge software solutions: intelligence, infrastructure, integration and collaboration.

For this year's annual list, the Intelligent Enterprise editors selected IT solution providers most critical to making businesses smarter, faster and more profitable. The companies do so by applying one or more of the ingredients above, enabling their customers to pursue business success with the most advanced computer technology.

"In the modern e-business ecosystem, no one element stands alone," writes David Stodder in *The Dozen 2001: 12 Most Influential Companies in IT*. *"Intelligence depends upon the integration of data resources, the infrastructure to crunch through massive quantities of data, and the collaborative sharing of information among business partners. In a complex world, integration itself will demand embedded intelligence, as will improving business process infrastructures. Leadership in collaborative B2B and B2C marketplaces will go to organizations that can orchestrate harmony among all four elements – in real time."*

ILOG's inclusion in the list places the company among some of the computer industry's top players, a few of which are longtime ILOG customers:

- i2 Technologies
- EMC Corporation
- IBM Corporation
- Oracle Corporation
- Microsoft Corporation
- Business Objects
- E.piphany, Inc.
- Intel Corporation

New ILOG R&D Officer Addresses Press in Berlin

Role of Internet set to change

The Internet will be transformed from a data display medium to a computing environment in which computers and other electronic equipment process and exchange information among themselves, said Jean-François Abramatic, ILOG senior vice president of R&D, recently at the ILOG Internet Trends 2001 press conference in Berlin.

Speaking before reporters from such leading press services as Reuters, AFP, Handelsblatt, DPA and Focus, Mr. Abramatic explained emerging trends in the Internet market. Also chairman of the World Wide Web Consortium (W3C), an international body charged with setting standards and security needs for the Internet, Mr. Abramatic has an extensive background in the industry.

Hundreds of Internet connections

Eventually, Mr. Abramatic said, everyone may have hundreds of Internet connections for cars, home appliances and other electronic equipment, such as watches and mobile phones. These connections will let machines share information, communicate with online services, and use data and applications stored on the Internet.

Making this possible will be the eXtensible Markup Language (XML) and business rule-based systems like those using ILOG Rules and ILOG JRules. XML enables different Internet connections and computers to exchange data, while business rules allow developers to create powerful personalization and real-time decision-support systems.

A person planning a vacation today, he explained, has to arrange all the elements of the trip himself. Soon, through online applications, all the arrangements will be made for him based on his preferences, and shared with the services at his vacation destination. Airlines, hotels and other businesses making up his trip will be automatically informed of his arrangements, and the costs charged to his bank account.

As the Internet expands, it will also further simplify our lives by performing routine tasks. "Smart" household appliances will be accessible through the Internet, allowing their owners to operate them through a browser. They will also be connected to online shopping services, automatically keeping homes stocked. ■

FOCUS

ILOG Greatly Simplifies Creation of Customized Supply-Chain Solutions

(Continued from Page 1)

Environment (ILOG CDE), a tool designed to create a cartridge architecture that clearly separates data connection, business logic and optimization algorithms. This architecture facilitates customization in mySAP SCM implementations, as development tasks involved in building ILOG ODF extension cartridges can be carried out in parallel and shared among the different participating organizations. Implementation is simplified as well, as are maintenance, enhancement and the sharing of cartridges.

ILOG ODF represents a new strategy for ILOG, leveraging the company's expertise in optimization software technology and its close ISV relationships to extend the capabilities of its partners' applications. ■

European Support Handles 50,000th Call

Worldwide support helps ensure customers' success

Pascale Montet
Head of Customer Support

ILOG European Support, part of a key service for assisting developers with questions about ILOG products, has received its 50,000th call. Coming from Casablanca in December, the call was handled by Alain Cohen, who was visiting from ILOG USA.

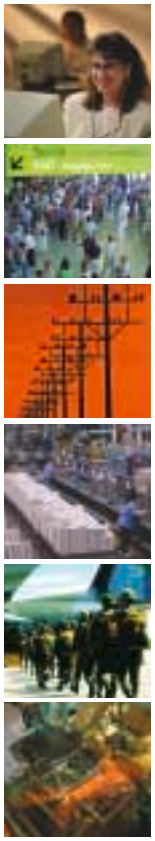
- **Problem:** How can an `IlcGoal` be turned into an `IloGoal`?
- **Answer:** There is a new special procedure for manipulating goals in ILOG Solver 5.0 that uses the `IloGoal` class as wrapping for the previous `IlcGoal`. This information can be found in the *Concert Migration Guide*, which was produced to help customers handle this kind of problem.

With that answer, the European Support team fielded its 50,000th inquiry, a typical example of the support ILOG provides when a customer seeks to benefit from the brand-new features in ILOG's latest products. The team is part of a worldwide network of Customer Support engineers headed by Pascale Montet, and committed to helping customers obtain the greatest benefits from ILOG products.

Customers needing information on how to use the products can reach the engineers by submitting their inquiries by e-mailing or calling one of the company's Customer Support Centers. The centers' contact information can be found at the company's website, www.ilog.com, on the Services page.

ILOG Concert Technology Unifies Optimization

ILOG CPLEX 7.0 sets new records with 60 percent boost in performance



ILOG has increased the flexibility with which developers create optimization applications, with ILOG Concert Technology (ILOG CT). A C++ modeling library and interface, ILOG CT makes it easier for developers to apply ILOG optimization in extending or creating applications.

ILOG CT has been integrated into the latest versions of two ILOG optimization engines – ILOG Solver 5.0 and ILOG CPLEX 7.0 – and upgrades of the ILOG Optimization Suite. ILOG CT bridges the gap between constraint programming (CP) and math programming (MP), enabling developers to tap both optimization methods without having to learn new software techniques.

"The ILOG Optimization Suite with Concert Technology culminates ILOG's three-year effort to integrate constraint programming and math programming," says ILOG CEO Pierre Haren. *"This represents another step in moving optimization from operations research and mathematics experts toward the broader community of software developers."*

Optimization applications help companies improve the way they use their resources. Operations such as sequencing automotive assembly lines and rostering airline personnel have all been vastly improved with ILOG optimization. And with the Internet becoming an essential tool for operating any company, ILOG optimization is improving ordering, helping customers select products and streamlining supply chains.

ILOG CT is expected to help operations research professionals and software developers to work more effectively together. Companies often employ an OR team to improve operations and develop a new planning model for the developers to implement. ILOG CT gives the OR team a familiar environment to create a model that can be quickly implemented by the developers.

This new technology also provides a means for blending long-term planning with short-term decision-making. CP scheduling and MP planning apply very different approaches to problem solving. But the Web's e-business environment is blurring the lines between the two methods, requiring tools that offer the benefits of both.

"ILOG optimization software components are a strategic part of the mySAP.com SCM solution as the optimization engine that has helped our customers improve business processes and efficiency," says Albrecht Diener, SAP A.G.'s senior vice president for supply-chain management products. *"High performance, the hallmark of ILOG optimization products, is an important part of mySAP.com SCM, so it's significant to note that using ILOG CPLEX 7.0 with ILOG Concert Technology, we've seen an impressive increase in optimization performance."*

Tighter C++ integration for ILOG CPLEX

ILOG CT provides a C++ object library for MP professionals, permitting C-based ILOG CPLEX to be used with C++. Optimization models can be specified using object-oriented programming, simplifying integration of optimization models into modern software packages.

Developers who want to apply MP to optimization problems can avoid complicated lower-level mathematics, greatly shortening time to market.

With the ILOG CT interface, ILOG Solver customers using C++ constraint programming can easily create hybrid strategies that take advantage of ILOG CPLEX's solving ability.

Developers can shorten schedules and experiment with a wide array of strategies for solving problems using constraint programming, benefiting users of ILOG Solver, ILOG Scheduler, ILOG Configurator and ILOG Dispatcher.

New ILOG CPLEX 7.0 runs 60 percent faster

ILOG CPLEX 7.0 includes significant performance enhancements, boosting its speed beyond that of ILOG CPLEX 6.5, the fastest MP-based optimization engine in the industry.

On average, the ILOG CPLEX Mixed Integer Optimizer is 60 percent faster on a large collection of hard industrial problems. In addition, the ILOG CPLEX Barrier Optimizer averages 60 percent faster on a large collection of linear programs. CPLEX has also been enhanced with new features for advanced MIP users, allowing customization of solving strategies. ■

ILOG Supports Emerging Graphics Standard

Company plays key role in Batik project to standardize scalable vector graphics

ILOG has created the new ILOG JViews Component Suite 3.5 with support for the scalable vector graphics (SVG) format, and is backing the emerging graphics standard by participating directly in the Batik project of the Apache Software Foundation.

Currently out in beta, Batik 1.0 is the first open-source SVG toolkit based on the Java platform. It is being developed with contributions from ILOG, Sun Microsystems, Eastman Kodak Co. and CSIRO Australia.

New graphics language

SVG is a new graphics language created by the World Wide Web Consortium (W3C) and based on the eXtensible Markup Language (XML). It is expected to become the new standard for Web-based graphics. ILOG is participating in the Batik project because SVG enables developers to obtain graphics of higher quality and interoperability than ever before.

"The industry has recognized that today's bitmap-based graphics are not up to the task of creating the richer, more compelling online experience that Web content providers and users want, and this is why SVG was created," says Jean-François Abramatic, ILOG senior vice president of research and development. *"As a provider of Web interfaces that thousands of people use every day, ILOG recognizes the potential for SVG in improving the Web experience for our customers."*

For content providers, SVG is expected to move Web design beyond the static bitmaps of today's Internet toward more scalable, dynamic and interactive content. For Web users of the future, SVG images will download much faster than current GIF and JPEG images, and provide greater functionality. Users are able to zoom and pan graphics with simple mouse movements without waiting for extra graphics data to be downloaded.

HTML replacement

The SVG 1.0 specification, currently in the W3C candidate recommendation review period, is widely seen as the replacement for static HTML for generating Web graphics. It is the promise of SVG that convinced ILOG to become involved in W3C's standardization effort from the beginning as a member of the working group, a contributor of development expertise for Batik and a provider of the potential standard in ILOG JViews 3.5.

By supporting SVG, the new ILOG JViews release extends the developer's deployment options. Using embeddable ILOG 2D libraries, developers can quickly create rich user interfaces for both fat and thin clients. These include DHTML pages, the most common vehicle for displaying graphics in a browser, and SVG files on up to the most graphics-intensive Java applets. Client hardware can include PCs, workstations, personal digital assistants and WAP mobile phones. ■

New to ILOG JViews

The new ILOG JViews release addresses the client-side graphics limitations inherent in server-side Java applications. Now advanced, intuitive and interactive graphical interfaces can reside on the server and be deployed on a client.

Besides SVG support, the new ILOG JViews Component Suite 3.5 includes the following among it new features:

Graphics Framework Package

- **Thin client support:** All ILOG JViews applications can now be deployed on the server side, using the Java servlet application program interface (API).
- **Support of JDK 1.3:** ILOG JViews now supports JDK 1.1 with its AWT drawing primitives, as well as 1.2 and 1.3, with Java 2D drawing primitives.
- **Enhanced graphic objects:** Text objects can now take advantage of Java2D pattern and gradient fills.
- **Animation of moving objects:** An object can be made to automatically move along a specified path.

Graph Layout Package

- **New grid-layout algorithm:** Nodes can be arranged to follow a row-column order for an initial layout before applying a second algorithm for a final layout, as in drawing communications networks.
- **Smart layout of disconnected graphs:** All algorithms are now able to nicely organize disconnected elements in the display.
- **New link layout algorithm:** Long links with multiple vertices (or curves) may be more effectively routed with the new long-link layout.
- **Completely new tree layout:** This new implementation improves both speed and feature set.

Maps Package

- **Oracle Spatial support:** ILOG JViews can now be connected to the Oracle Spatial 8i database. Coupled with the load-on-demand features, this allows developers to create applications where large maps are efficiently stored.
- **New map projections:** The following projections have been added: Cassini, gnomonic, and orthographic.

Gantt Chart Package

- **Load on demand:** The Gantt module now includes an extensible mechanism for handling large sets of scheduling data.
- **Serializable data model:** Elements of the default data model implementation are now serializable, enabling developers to include such functionality as cut and paste, and drag and drop. XML binding is included. ■

COMMUNICATIONS NEWS

Orange Automates with ILOG Rules

Can process more than 50 million call data records per day

Orange Plc., the UK's largest and fastest growing mobile phone network operator, has selected ILOG Rules to automate its new call data record (CDR) processing system: CDRA.

Powered by ILOG's advanced rule engine, CDRA is able to process more than 50 million CDRs per day in gathering and summarizing network information.

The automation enabled by ILOG Rules has improved customer service and helps Orange offer electronic billing and payment options to its customers via the Internet.

"ILOG Rules was ideal for meeting our high performance and scalability requirements," says Nick Martlew, business analyst at Orange. *"We were able to expedite deployment of the CDR application, and an otherwise complex task was much simplified by the use of ILOG Rules. The maximum flexibility and maintenance offered by the technology are essential in our rapidly expanding system."*

Easily embedded ILOG Rules

Typically, the technical challenges resulting from software complexity, high data volume and speed can keep a CDR system under development for six or more months.

CDRA was created in just three months by a team of two developers and the assistance of ILOG consultants, underscoring the ease of embedding ILOG Rules.

Orange has more than doubled its customer base in less than nine months.

ILOG Rules enables the seamless integration of business logic into applications, with a fast, lightweight rule engine. It is widely used in alarm filtering and correlation for network management, as well as mediation, billing and marketing automation for the growing customer relationship management segment of telecom.

VCM NEWS

Retek Foresees Millions Saved with ILOG CPLEX

Partnership to make 'unrivaled' solution

Retail applications leader Retek Inc. is adding ILOG CPLEX optimization software to the company's proven retail supply-chain products to help customers achieve millions in savings.

ILOG CPLEX will be integrated into Retek replenishment optimization products, adding value throughout the supply chain. The products include Retek Replenishment Optimization, Retek Markdown Optimization and Retek Promotional Optimization, along with the leading causal forecasting solution, Retek Demand Forecasting.

"The scientists at Retek Labs ... have been working for eight years to take the most sophisticated predictive and optimization technologies and apply them to solve the challenging problems in the retail supply chain," says Jeremy Thomas, Retek CTO. *"We anticipate the partnership with ILOG will bring an unrivaled supply-chain solution to the retail industry while producing an estimated millions of dollars in savings for supply-chain customers through the use of optimization."*

Reducing inventory holding time

The goal of replenishment is to minimize the combined cost of holding inventory and lost sales. While other replenishment methods offer limited control over the cost equation, they present the retailer with a dilemma: either reduce inventory levels at the expense of lost sales or reduce lost sales – stock outs – at the expense of bloated inventories.

ILOG optimization in Retek's existing and future retail supply-chain products is expected to allow automatic management of these parameters using retailer cost data, including cost elements associated with carrying inventory and lost sales, making the dilemma moot.

ILOG Optimization Backs Chrysler PT Cruiser

ILOG Solver cuts time and cost of building vehicle

The new Chrysler PT Cruiser from DaimlerChrysler is setting sales records across North America, and to meet demand, the carmaker is relying on the Centralized Vehicle Scheduler (CVS), based on ILOG optimization, to keep the car rolling off the assembly line on time.

Used in manufacturing and painting operations, CVS is expected to save the company an estimated $27 million annually through increased efficiency.

"The CVS system has enabled us to significantly increase efficiency by improving the sequencing of vehicles during painting and other stages of production," says James Whitfield, manager of centralized vehicle scheduling and forecasting at DaimlerChrysler. *"ILOG optimization technology not only solves problems that were once impossible, it does the job quickly. This is a tremendous advantage because in this industry, time isn't just money - it's survival."*

The Cruiser was unveiled at the 1999 North American International Car Show, and November 2000 sales figures showed approximately 45,609 had been sold in the United States, making it one of the carmaker's fastest-selling models. DaimlerChrysler started full production of the car at its Toluca, Mexico, plant two weeks earlier than planned, producing 4,000 additional vehicles for the year without additional tooling. Both achievements were supported by ILOG Solver, CVS's optimization core.

Sabre Signs Up for Five Years with ILOG

Transportation leader basing products on ILOG software

Under a five-year agreement with ILOG, Sabre Holdings Corp. will upgrade and create its solutions for the transportation industry with ILOG optimization, interface and business rule products. The ILOG software included in the agreement are used to automate functions on the Web, optimize operations, and graphically depict and manage geographically distributed resources.

Sabre will start by integrating ILOG technology into AirCrews 5.0, the company's newest Web-enabled crew management system. Sabre already uses market-leading ILOG CPLEX for optimizing airline flight scheduling with AirFlite and yield management with AirMax. The company also uses ILOG OPL Studio, an interactive design environment for creating sophisticated optimization models without an in-depth knowledge of computer programming.

"Teaming with ILOG illustrates our commitment to investing in new technology," says Richard Ratliff, vice president of technology and product integration at Sabre. *"We selected ILOG because we judged their products to be the best against competitive offerings, and because they are the market leader in most, if not all of their product categories. We look forward to integrating these tools as we continue to develop world-class solutions for the travel and transportation industries."*

The company is currently evaluating ILOG Solver optimization software for integration into a B2B computer reservation system, to provide better real-time decision support. Sabre operates the world's No. 1 computer reservation system and provides software solutions to 150 airlines around the world, including the top 10.

abaXX Adds ILOG JRules

Top software component simplifies rule creation

The Internet market requires rapid deployment of marketing, sales and customer service solutions, and abaXX Technologies AG is meeting demand for these systems with E-Business-Suite 2.0 and its ILOG JRules-enhanced Rule-Engine.

E-Business-Suite is a comprehensive software package that maps all the functions and processes for Web-based transactions among companies, suppliers and customers. Part of a new generation of rapid-deployment e-commerce software, the suite is designed to get a company online in the shortest time possible, with a complete, fully customized solution that can be easily updated as the company's offers change.

Helping make the suite's fast deployment possible is industry-leading ILOG JRules, the core technology of Rule-Engine. The ILOG component's expressive syntax makes it considerably easier for programmers and non-programmers alike to write business rules for tailoring the suite to the specific requirements of a customer.

"The goal is quick and easy creation of portals and online marketplaces, both in B2B and B2C," says Dr. Albert J. Enders, director of abaXX. *"ILOG JRules enables us to meet requirements for application flexibility and fast time to market."*

E-Business-Suite is fully equipped to create e-commerce websites, with such functions as ordering, personalization and customer record management. The suite is fully compliant with Java 2 Enterprise Edition (J2EE), enabling it to work with most application servers, including those of the leading software companies.

Chordiant Betters Unified with ILOG JRules

Improves personalization and marketing

Chordiant Software is reinforcing the personalization and one-to-one marketing features of Chordiant Unified, a customer relationship management (CRM) solution, with the ILOG JRules business rule engine.

ILOG JRules will be used to implement business policies consistently across CRM applications and customer touch points, helping Chordiant customers build closer customer relationships by targeting service and product offerings.

"We selected ILOG JRules because its flexibility allowed us to integrate the technology in record time – crucial for fast deployment – and the customizable business rule language support will allow us to offer a solution that business people can use," says Sam Spadafora, CEO of Chordiant Software. "Customers are demanding more personalized Web experiences and the ability to receive the right offer at the right time based on their need. ILOG's JRules will help us to deliver that one-to-one marketing."

Automated business policies

The new Chordiant solution will automate the execution of business policies affecting customer data and knowledge domains (e.g., groups of business policies on a particular topic).

This automation means that Chordiant customers will be able to provide a fast, consistent and personalized customer service experience, regardless of whether a customer calls, faxes or visits a company's website.

Talking about ILOG

DaimlerChrysler

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Nick Martlew
Business Analyst

ILOG Connection
9 rue de Verdun – 94253 Gentilly, France
Tel: 33 1 49 08 35 00
Fax: 33 1 49 08 35 10
E-mail: info@ilog.com – www.ilog.com

ILOG Worldwide Information Center
Tel: 1 (775) 831-7744 or 1 (800) 367-4564

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CUSTOMER FOCUS

Vehicle Plant Scheduling

Nissan Creates 'Virtual' Car Production Line

ILOG Solver lets automaker build third model at factory

Already considered Europe's most efficient auto plant, the Nissan factory in Sunderland, UK, makes 334,000 cars per year – 38 complete vehicles per hour. Now Nissan is doing what many might consider impossible: upping production at the plant by as much as 30 percent by adding a "virtual" production line.

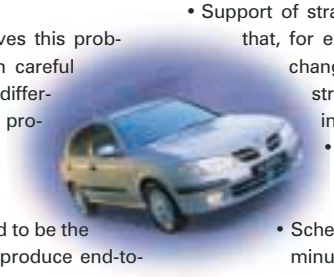
Helping make this possible is ILOG Solver. Part of a scheduling system developed by PA Consulting, the advanced optimization software engine has increased potential production by working to find a way to build three car models on two production lines, resulting in substantial savings from not having to build a new line.

"Today, up to 70 percent of all Nissans sold in Europe originate at Sunderland," says Frank Berkovits, production planning manager at the Nissan Sunderland plant. *"The new scheduling tool from PA Consulting and ILOG not only gives us better scheduling capabilities but has also reduced the order cycle time and given greater flexibility to our customers. This leading-edge tool reinforces Nissan's position at the forefront of technology applications in car production."*

Three out of two

The Nissan Sunderland plant's efficiency resulted in its being selected to make the company's new Almera model for the European market. Meanwhile, the plant is to continue producing the Micra and Primera models. This presents the problem of building three cars on two production lines without affecting efficiency or significantly increasing production costs.

The new scheduling system solves this problem, mixing the models through careful scheduling that allows the three different cars to be made with existing production facilities.



Unique solution

The scheduling system is believed to be the first tool of its kind. It is able to produce end-to-end, parallel car sequencing tasks for a whole week's production while accommodating plant crossovers where a car body can go from one body shop to one of two paint lines and then from the paint line to one of two trim and chassis lines.

Monitoring it all is a graphical user interface made with ILOG Views, ILOG's top-selling visualization product. It also allows planners to quickly change schedules by hand with on-screen editing.

"This Nissan application is the perfect example of optimization, specifically, how companies can maximize the output of existing resources," says Denis Sennechael, sales director for ILOG's Automotive Division, based in Detroit. *"The competitive advantages of ILOG Solver are drawn from the strengths of constraint programming technologies. This provides production planners with the most accurate, up-to-date vehicle sequencing information."*

Benefits of optimization

The primary benefit of the system is that it enables three car models to be built with the existing facilities at Sunderland without major retooling or an additional production line. Other benefits of the new scheduling system include:

- Elimination of the need to resequence vehicles while they are in storage buffers between major sections of the plant. Storage buffers are used by carmakers to help overcome scheduling problems.
- Support of strategic "what if" investigation so that, for example, the impact of potential changes to operational rules or constraints within the plant can be fully investigated.
- Schedule adherence rose from 3 percent to 90 percent with the system's implementation.
- Schedule results can be produced in minutes, instead of days. ■