The WorkFlow.Plus system was designed to be the integrated system for all sales activities and inventory operations of an enterprise.

Integrating sales activities through the use of business lines which support the necessary interface for trade, web, mail order catalog and retail sales.

Integrating inventory logistics, the flow and fulfillment of orders through the use of a facility, warehouse and planned routing organization.

Working with such companies as Dylex (Blayv, NLS, Fairweather), Games Workshop, Trisi Sales, GolfTown, Your Expression we learned a great deal about retail, sales, logistics and making it all work together. This system was our way of making a home for all that experience and a place to integrate our legacy technology into a substantially more modern system and database.

We also wanted to achieve some new things such as a shared repository for images and digital media that we could associate with business elements like items and transactions. We called that Image++.

We also wanted a way to speed up the supply process using a more intelligent construct than min/max logic and we did that with a three stage automated replenishment model which can source from supply and supplier encompassing basic demand and the fluctuation of that demand over time.

The WorkFlow.Plus system exists to automate the product development and distribution activities of a business within a single system.

At the heart of the system is a relational database repository surrounded by both web and desktop applications and special attention to performance with a flexible component architecture which could be placed at the right location to support performance for small and large companies that have one or many locations and reduce the impact of database licensing costs.

The merchandise database provides for many elegant and straight forward ways to describe and present the product.

The Image++ component provides a digital media library with active objects such as a product image and rich text description that are equally useful on the desktop and on a web site.

Image++ also provides the ability to store any digital media file, such as drawing files, product specification and instruction documents, streaming data media such as video and sound and any other computer generated file. A system publishing control allows for items to be marked as public or remain private to the business, which also controls their availability at the web site level.

A hierarchical classification system with division, department, category and class of product provides the initial system catalog structure for a basic or complex search and grouping of items through other elements such as the use of customized groups or strategic units of a business.

EDI was important to integrate with the system, although we looked to the market for mapping software to work with, we integrated the workflow and standards into the system and it can work with any mapping software you choose.

Sales from channels are integrated into a common order processing workflow that streams into the order fulfillment process (EDI, Web, Mail Order, Trade orders) which is also combined with the retail chain store fulfillment process because we envisioned that happening at the same facility if that was needed. We developed an inventory transfer process to manage retail chain store replenishments from a central inventory distribution so that order fulfillment could be managed at the facility with a view of all requirements.

EDI orders and other multiple destination and “ship to distribution centre” requirements are supported via a product and destination subset to the standard order line level for greater control of fulfillment rates. So our orders can manage multiple ship to breakouts of line items.

This approach also holds true in other areas of the system such as orders for purchase and replenishment/transfer orders. A unique transaction number management organization uses both a master transaction number and a child transaction number, in order to give the operational level unique data level while holding the transaction together at the higher management level.

We envisioned different businesses and their unique models of planning and logistics to put our system together. We put a substantial amount of thought into WorkFlow.Plus (AOC) from what we learned working in the market space since 1990.
The Order

We wanted to be able to feed orders into the system in a variety of ways in order to manage different types of businesses. This meant we needed to create some essential elements that could be reused but plugged into a different facade or user interface that could do different things based on where the sale was happening and what the interaction with the customer was.

We created a trade order entry interface, a retail interface and a web based interface. The web interface was created envisioning not solely the internal sales person or entry staff but also the customer themselves and perhaps a third party agent working in a remote geography.

We broke out some essential pieces that could be reused in each of those and put some thought into how they could be useful. So we came up Image++ which could manage images and digital media associated with the product items and Product Explorer which could provide different ways of finding and grouping items as well as different ways of applying order quantities to them as you found them to bring more than one item back into your order entry process.

We also wanted to have a way to reference back to a catalog which a business may send out so we created a catalog view that could do that.

We also looked to create a common data stream so that we could look at orders coming from different interfaces on any interface that was being used. So we organized it with a Line of Business and store structure that would be associated with every order in the system. We took a harmonic approach across the entry process so that when the orders appeared elsewhere you wouldn’t need to change what you were using to see them.

The retail model required a desktop interface moulded for the scanner based checkout of product and quick receipt scenario. The ability to run on equipment platforms that are specific to the retailer such as IBM Point of Sale and other PC based equipment is an important element to this environment.

We looked to a retail interface that would be as responsive to scanning as it was to keying and we wanted a fast keying environment that could also work well with a touch screen so we build that interface with those things in mind.

EDI was integrated as a feed to the ordering process and was integrated into the system that altered the way those orders were controlled but gave them a common view along with other orders in the overall system. With EDI there was a preamble requirement to ensure the accuracy of the information as well as the additional work requirements that came with those orders such as ticketing, packaging and shipment container labeling requirements associated with EDI.

Sales and inventory are integrated into the WorkFlow.Plus system through a client/line of business and store/facility architecture that organizes remote stores into a chain structured architecture. This allowed us to manage the transfer of goods from location to location in a very stream lined and straight forward way, by using transfer orders that had a source and destination routing built in. Line and store in and Line and store out. Line being the pre-defined Line of Business of the Enterprise.

We used transfer orders not only as a way to move goods from one retail store to another but also as the primary method of moving inventory from a distribution centre to chain stores while keeping the data in the system harmonic across the flow of all goods.

Vendor orders and transfer orders we done in a unified effort to be able to manage the different sources of goods and also as the direct output of our automated replenishment process which created these orders without keying but from planned models. We used a common interface to drive this that was very much like our trade order interface.

All orders allow for a on or many destination breakout of the line items. Thus supporting distribution of items in a single order entry view rather than many separate orders.

Not only does this architecture provide for a logical approach to a business using our system across all of its operations but it really gave us a lot of flexibility to work in different areas and integrate it with other systems. Integration with other systems has provided many benefits to doing business for our company and is also very beneficial for staged implementation at a head office, Distribution Centre or the store level.
When we envisioned the warehouse, inventory management and logistics of AOC we wanted the ability to manage multiple physical locations and run various warehousing functions within that facility which could serve one company or many companies.

We wanted it to be useful not only to companies that supported a single business but also to the logistics company that serviced many clients and billed for their services.

Our work with Dylex/Biway and their logistics division NLS (National Logistics Services) gave us some insight in how to achieve that business model.

The operational centre system is provided at a facility level that can be isolated to a particular enterprise/client or viewed at the facility level that serves more than one enterprise/client.

What that really means is that you can store product that belongs to many businesses in a facility and utilize that space more effectively rather than having to allocate blocks and waste space which is costly.

An assignment based routing structure that can bind customers and customer locations and the facilities of the business to carriers and a class of carrier service provides for flow throughs that makes sense from the start of a transaction.

Operational Centre functions include the picking and allocation of orders, receiving, inventory counting and adjustment, product and shipment labeling (industry accepted standard MH10, etc.), quality control checkout(s) for EDI and where required by company policy, pick face definition and automated replenishment.

Procurement and fulfillment logistics have been designed as a rule based process that controls the inbound and out-bound movement of goods through a facility.

Facilities (physical locations) are divided into zones and subsequently locations which can be defined as simple floor locations to complex high bay racking or pick faces along with the prioritization of those physical locations.

We wanted an automated and very flexible approach for the management of the flow of goods and the effort to move them. This was done to facilitate circumstances where issues such as product location, isolation, temperature, and other such important business concerns could be dealt with effectively and at the client/enterprise, facility/warehouse, routing code and product level.

The system promotes automated replenishment of product through a well defined and integrated module that is accessible at the product basis or product group basis. We call each product grouping and its replenishment structure “a model”.

Models, take a product group (grouped by any means) and define the replenishment scheme of that product based on rudimentary min and max, basic demand element and the ability to fluctuate that demand over a period of time. The time a model uses is also flexible, days, weeks, months. We had to cast those definitions into the model in order to make sense of what the numbers mean, we put the logic smarts in the system to be able to run the process at any frequency, so that we could plan and forecast at a monthly level but run at any time, daily, twice a week, and so on.

So if you make or sell snow blowers and lawn mowers you could have an annual plan and run it when you need to know what to do for the next cycle, whatever that cycle is in a single model or segment it into two models or repeat the process for different export continents which have seasonal variances.

We wanted WorkFlow.Plus to be a useful system for product fabricators, the logistics provider, wholesaler and retailer. Automating the product development and product distribution of your enterprise, designed to paint the portrait of the way you want your business to work.

Logistics

- Integrate any number of facilities into a cohesive management system with an operational center interface
- Create rule based and inventory based movement and storage management flows that are customer and facility centric
- Manage warehouses and distribution centers in any number and any location with picking and storage channeled workflow
- Plan your transportation network so that everything moves the way you expect it to and you know where to go looking.
- Know the costs of your logistics and transportation network so that your enterprise remains profitable.

Replenishment Run View

Replenishment run view based upon schedule that is periodic and accommodates the inventory status of the enterprise, sales experience and forecasted model or models within the system.

Integrate any size chain or multiple chains into a cohesive merchandising and multi-level inventory management and replenishment based system

Automate the receiving at the store level with data streams from your head office, distribution center, third party providers and vendors and transportation providers for a well rounded receiving and track and trace environment

Add the store level interface for an all around system solution or integrate your existing store level solution with Art of Commerce™

Integrate retail hardened point of sale equipment from vendors like IBM and bring your enterprise some well needed stability.
We designed and developed all of our forms to use barcodes to enable you to easily integrate them into your workflow and the data capture points of your business. All forms and reports also use a standard and open method for an ease of enhancement.

We integrated the EDI ticketing requirements of your customers as well, so that when you process their orders you can pass through the important information that came in with their order.

When done in a logical and workflow oriented fashion your outbound documents can be as easily injected back into your business with a document imaging and management solution such as our PatchWork.Plus web and workflow system or shiP2.com for transportation and logistics or any third party imaging system.

You can work the rule and work the exceptions or automated the rule and work the exceptions and we prefer the later. So when we put the final touches down on shiP2 we wanted to streamline the document flow by not only creating the important transaction barcode on documents but include the document type and a company designation.

CCB-324870-9, CCP-324870-9 using a short company code and standard check digit transaction code. Using SSC-18 would provide for long encoding which could also be used, in either case the purpose is to distinguish a code that is a) belonging to the company and b) the document type for automated image to carriage transaction association. Bill of Lading and Proof of delivery in the above two examples

Capturing information such as signature and relevant performance and cost information can be accomplished through predictive base line data along with before and after decision boxes to derive delivery date, time, wait time, and other relative information with signature area for a streamlined workflow that overlaps with source documents such as BOL, POD, Dock Control and other workflow documents in use at your enterprise.

Our PatchWork.Plus system creates service flows using case numbers, we called that in an effort to integrate them into your way of doing business. Work Order, Route Sheet, Service Call, Docket, Case File, whatever the case, to provide an additional pillar in the billing support function of your enterprise.

Art of Commerce™ forms, Sales Order, Transfer Order, Purchase Order, Pick Sheet, Packing Slip, Bill of Lading, Invoice, all utilize a barcode in this fashion to promote the workflow of your business the way you want it to work.
We wanted the facility interface of the AOC system to provide for an operational look and feel that could service the logistics operations for a business that either serviced itself or one that serviced many clients.

Our design model started that way because we already had the experience of what it was like to work with a third party service provider that cared about maximizing the use of space and integrating workflow and shipment operations.

This included operations like receiving, physical storage, quality control, inventory counting, order picking, shipment routing, consolidation and labeling and all of the important business documentation along the way. Outbound EDI and standards are also included therein.

The interface is specifically for the facility and operations service model through a sign on and desktop that fits a multiple client service centre environment and provides the ability to manage people more effectively.

Logistics provider facilities can house multiple logical facilities for their clients through a virtual warehouse and service routing interface. This makes the centre a more cohesive unit with a streamlined operation while keeping the client based inventory and workflow separate for reporting and billing purposes.

The systems remote reporting and automated label design and production environment eases the flow of outputs at the facility or multiple facility level by allowing for reporting and label definitions at the client level to be intermixed at the operational service level so that resources can be more focused with the workflow rather than the nuances of each client relationship the business provides service to.

People do care of course about service to a client, we just wanted to help them do that while attempting to streamline their work.

Such an environment is well suited to the third party service provider, as well as remote facilities of a larger company that is self serving.

**Outcomes**

- Integrate the day to day and web delivery system merchandising activities into a single streaming management effort.
- Organize your product development document and digital media into a centralized and accessible database with a powerful global search capability.
- Integrate trade, distribution, web and mail order, telephone sales, and EDI into a single system.
- Create an automated inventory replenishment environment with presentation stock, basic demand, seasonal forecasting and actual sales values that drive the availability of your product where you sell it. Automated Replenishment from Vendor or Logistics Facility.
- Integrate the industry standard product and delivery documentation and presentation requirements into the workflow of the system. Ticket & Bar Code Labeling, EDI Compliance.
- Connect your customers and third parties to the business with a web enabled access capability and self managed portal that is available in a business to business and consumer model. Internet E-Commerce.
- Create a streamlined operational centre workflow by flowing sales channel, customer and supply activities into a single or multiple location warehouse/distribution centre environment housed in a single system.
- Create a paper free environment with web enabled devices in your inventory presence locations and a customer/consumer access web site.

**Replenishment Models**

Automate vendor and store replenishments of inventory with automated replenishment models and forecasting.

**Purchase/Transfer Order**

Movement and procurement of goods orders. keyed, EDI or generated by replenishment runs.

**ED1**

Electronic Data Interchange transaction are integrated into the system flow.

**INDUSTRIES**

- Product development
- Distribution
- Retail
- Merchandising
- Wholesale and trade sales
- Import and Export
- Web and Mail order
- Logistics service providers
- Warehouse
- Transportation
- Third party service providers
The application architecture provides for a service and digital delivery media and information library development, presentation, procurement, fulfillment and work flow that has been put together to form a simple step by step process in a high demand and transaction based environment that permits the use of the system for enterprises with a single or many locations.

The database is client/server architecture developed in a Microsoft SQL Server environment and is also adaptable to other database platforms such as Oracle and other relational database platforms.

The desktop application is Microsoft Windows in a Visual Basic and .NET development environment. The web applications are also .NET and function across a the full spectrum of browser applications.

Reports and Forms are provided in both a web and desktop delivery architecture. Additional report and form objects can be developed and integrated into the system as required.

The operating environment requires a server based architecture that can house a database and internet information server service or a multiple server based architecture that segments the database from the web server(s).

The system supports a component object model interface that allows for server banks and multiple location service and server architectures.

The financial environment presently supports a batch driven collection and export process that provides Accounts Receivable, Accounts Payable and General Ledger transactions in a batch. The environment has been implemented in an ACCPAC Accounting interface and can be easily geared to other accounting applications using this process.

The EDI interface is presently supported with an Inovis™ EDI mapping and communications interface, selected for price point, flexibility and user base, it provides a suitable platform for the more than one EDI trading partner environment. EDI mapping for other platforms can also be supported with additional development efforts.

Industry standard bar code generation is built in to the system with support for present and future technologies through a simple embedded format code interface designed into the system. The system has been designed with Zebra, TEC and Monarch printing platform technologies with multiple format support at the product, customer and customer/shipment carrier levels in an automated workflow environment.
**Art of Commerce™**

Simply add what it is you are selling.

The Art of Commerce™ system is designed for enterprises in the product development and distribution industry that integrates the merchandise development and presentation, sales channel integration, logistics and fulfillment operations and retail specific requirements into a web and desktop enabled system that delivers value to the enterprises resources, customers and business relationships.

Art of Commerce™ paints your merchandising challenge simple.

### BENEFITS

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<tr>
<th>Feature</th>
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<tr>
<td>Integrate the day to day and web delivery system merchandising activities into a single streaming management effort</td>
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<tr>
<td>Organize your product development document and digital media into a centralized and accessible database with a powerful global search capability called Image++ and its connected to your the merchandise and inventory management</td>
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<tr>
<td>Integrate trade, distribution, telephone sales, web and mail order, and EDI sales processes into a single system</td>
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<td>Create an automated inventory replenishment environment with demand and seasonal forecasting and actual sales values to drive the availability of your product where you sell it</td>
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<td>Integrate the industry standard product and delivery documentation and presentation requirements into the workflow of the system</td>
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<td>Connect your customers and third parties to the business with a web enabled access capability and self management portal that is available in a business to business and a business to consumer model</td>
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<td>Create a streamlined operational center workflow by flowing sales channel, customer and supply activities into a single or multiple location warehouse/distribution center environment in one system</td>
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<td>Create a paper free environment with web enabled devices in your inventory presence locations and a customer access web site</td>
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<td>Create an automated and predictive delivery and transportation model for your business and service level objectives.</td>
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<td>Provide an operational center interface for facility and inventory centric resources and a customer and business interface for sales, business and customer centric resources</td>
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<td>Integrate any size chain or multiple chains into a cohesive merchandising and multiple tiered inventory management and replenishment system</td>
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<td>Automate the receiving at the store level with data streams from your head office, distribution center, third party providers and vendors and transportation providers for a well rounded receiving and track and trace environment</td>
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<td>Add the store level interface for an all around system solution or integrate your existing store level solution into the Art of Commerce™ system</td>
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<td>Integrate any number of facilities into a cohesive management system with an operational center interface</td>
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<td>Create rule based and inventory based movement and storage management flows that are customer and facility centric</td>
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<td>Create a single system for all your business requirements and add value to the business</td>
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### FEATURES

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<tr>
<td>Web and Desktop Merchandising</td>
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<tr>
<td>Robust Product Search and Organization</td>
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<tr>
<td>Document and Image Product Library</td>
</tr>
<tr>
<td>Basic and Complex Component Inventories</td>
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<tr>
<td>Multiple Channel Sales Integration</td>
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<tr>
<td>Distribution and Standard Order Entry</td>
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<td>Distribution and Standard Purchase and Supply</td>
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<td>Distribution and Standard Transfers Supply</td>
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<td>Cycle and Full Inventory Counts (Online/Paper)</td>
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<td>Automated Inventory Replenishment</td>
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<td>Manage a single or many businesses</td>
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<td>Warehouse and Distribution Center Management</td>
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<td>Enterprise Wide Inventory Movement</td>
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<tr>
<td>Paperless and Wireless Operations</td>
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<td>Dynamic Real Time Reporting and Delivery</td>
</tr>
<tr>
<td>Financial A/R, A/P and G/L integration</td>
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<td>Customer Self Management and Access</td>
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<td>Web Content Management</td>
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<td>Industry Standard Signage and Label Formatting, Design and Production</td>
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<td>Client/Server Centralized Database</td>
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**PRODUCT EXPLORER AND MERCHANDISE MANAGEMENT**
Define your product in a structure that matches your business, your strategy and your hierarchy.

**INVENTORY AND CHAIN AUTOMATED REPLENISHMENT**
Automate your inventory replenishment and planning using min and max, demand and seasonal/period fluctuations.

**IMAGE++ MANAGEMENT, IMAGE, RTF DOCUMENTS AND STREAMING OBJECTS**
Expand the information for your product by adding digital media to your product development and presentation via the web or the desktop.

**PURCHASE/TRANSFER ORDER**
Control the inventory requirements and movement of your inventory in multiple location stores and structure.

**WEBMANAGEMENT**
Define and manage web content such as news, events, positions, etc.

**SALES ORDER**
An integrated order entry and management environment for telesales, remote sales, web sales and EDI order management and entry.

**E-COMMERCE STORE & BUSINESS PRODUCT PUBLISHING**
Deliver your products and Image++ media to the web customer, customer sign-on accounts, your sales representatives and your business resources.

**IMAGE++ MANAGEMENT, IMAGE, RTF DOCUMENTS AND STREAMING OBJECTS**
Expand the information for your product by adding digital media to your product development and presentation via the web or the desktop.

**E-COMMERCE CUSTOMER MANAGEMENT**
Allow your customer accounts a window into your business and their business forms in a paperless environment.

**CE RETAIL INTERFACE**
A Retail Store Check Out Interface to the Art of Commerce System.
EDN/INBOUND
EDI Order processing and crosscheck integrated into the sales order environment.

EDN/OUTBOUND
EDI Advanced Ship Notice Management for order fulfillment and integration with the Inventory Warehouse Picking and Packing environment.

REMOTE AGENT
PROCESS AND PRINT
Automated Print Job Design and Production in a local and remote environment providing print job processing and network access to physical printing devices that would not be available otherwise.

WIRELESS STORE FUNCTIONS
Inventory quantity and location inquiry via a handheld interface.

REPORTING AND FORMS
Customizable reporting of business reports and forms via Crystal Reports designed reports.

E-COMMERCE FORMS
Production of forms via the web for customer and representative delivery in multiple output formats, PDF, TIFF, etc.

OPERATIONAL CENTER MANAGEMENT
RECEIVING AND FULFILLMENT
Inventory Warehouse and Store management in an unlimited number of locations with Receiving and Put-a-way functions, Inventory allotment, Picking, Packing and Shipping. Both in paper based and wireless environments.

INVENTORY COUNTING PAPER FREE
PAPER BASED
Paper based and Wireless Inventory counting, inventory adjustment and valuation automation.

WIRELESS OPERATIONAL CENTER
PICKING AND RECEIVING
Wireless Receiving, Inventory Count and Picking operations via a hand held web enabled interface.
CUSTOMER WEB INTERFACE
Web portal for customer account access to transactions and supportive document images.

CUSTOMER SERVICE REPRESENTATIVE WEB INTERFACE
Web portal for customer service representatives in support of transactions, support documents and operational information cohesion.

BUSINESS/ALLIANCE PARTNER WEB INTERFACE
Web portal for third party company access to transactions relevant to their service responsibilities and freight consolidations inbound.

CONSIGNEE/SHIPPER WEB INTERFACE
Web portal for arms length operational relationships with a focus on non-account based service destinations and information on freight and freight consolidation inbound.

TOKENIMPORT
Inbound transactions from operational day to day system.

IMAGE++/RDOC SERVER
Inbound document images via e-mail and fax, queued and injected into the workflow.

MAILSEND
Automated mail and XML communications program module.

WEBMANAGEMENT
Define and manage web content such as news, events, positions, etc.

DASHBOARD
Business analysis and periodic review with linkage to document workflow and images from a high level functional rule based interface.
CUSTOMER/THIRD PARTY RESOURCE WEB INTERFACE
Web portal for customers, resources and third party user access to the PatchWork.Plus system.

WEB INTERFACE CASE DISPLAY
Web access to case editing and display functions, Image++, customer and resource notes, report production, communications and resource time allotments.

DASHBOARD
Business analysis and periodic review with linkage to document workflow and images from a high level functional rule based and user customizable interface.

CASE E-MAIL INTERFACE
Web electronic mail interface for inbound and outbound communications with ability to track attachments in/out and resend capabilities.

WEBMANAGEMENT
Define and manage web content such as news, events, positions, etc.

IMAGE++/RDOC SERVER
Inbound document images and media via an e-mail and/or fax or other communications method, queued and injected into the workflow.

USER PROFILE
Control the presentation and options at the user level with My Profile.

INBOUND COMMUNICATIONS GALLERY
Inbound communications gallery for case assignment and workflow booking creating a communication to work translation and automation if required or desirable.

E-COMMERCE CUSTOMER MANAGEMENT
Allow your customer accounts a window into the business and their business forms in a paperless environment.
DESKTOP SYSTEM
Provides a desktop access method to the case management and Image++ functions of the system in addition to the web user interface.

IMAGE++ MANAGEMENT
Provides a desktop Image++ management capability in addition to the web interface for injection of all media types and classes.

MAILSEND
Automated mail and XML communications program module

TOKENIMPORT
Inbound transactions from operational day to day systems/Art of Commerce

REMOTE AGENT PROCESS AND PRINT
Automated Print Job Design and Production in a local and remote environment providing print job processing and network access to physical printing devices that would not be available otherwise.

CASE REPORTING
Case reporting is done in real time and encapsulates all information at the point in time that it is produced, online or on the desktop. Case Reports are used as the foundation of the billing package.

BILLING PACKAGE PRODUCTION
Billing package production with summary by period, by day, by case, case reports all bundled together to support project and time reporting and electronic billing in a customizable format.

The billing package provides daily, project and event based views of the workflow.