# Buyer-Carts for B2B EC: The b-Cart Approach

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**Abstract**

*To support the purchasing process in the B2B EC platform, we analyze various architectures of buyer-carts. The desired features for buyer-carts are collection, recording, trashing, tracking, identification, ordering, payment, purchasing decision support, and transmission to e-procurement systems. Buyer-carts can be categorized as s-cart, i-cart, and b-cart depending upon its residing sites: seller, intermediary, and buyer sites. To design the architectures of B2B e-marketplaces considering the role of buyer-carts, we analyzed the meaningful combinations of marketplace operators, pricing mechanisms, and existing types of buyer-carts. Eleven types of B2B EC architectures are proposed in this regard, and their pros and cons are evaluated. Based on this framework, we design a prototype system MyCart, which allows the buyer to use b-cart along with s-cart and i-cart. By using b-cart, a buyer can visit multiple sites collecting information in his/her own cart. This will allow the tight integration of b-cart with the e-procurement system. We propose the b-cart approach can be a framework of integrating the e-marketplaces with e-procurement systems including ERP systems.*

***Keywords:***

B2B; EC; e-cart; shopping cart; CIS; ERP; integration; b-cart; buyer-cart; s-cart; seller-cart; i-cart; intermediary-cart

## 1. Introduction

Consumers' online demand has triggered the creation of B2C (Business-to-Consumer) e-marketplaces[1]. Owing to the nature of web technology, the sellers like manufactures and retailers opened the ***seller-centric e-marketplaces***, and intermediaries have opened the ***intermediary-centric e-marketplaces***[2]. In this paper, we define sellers as those who really fulfill the order, while the intermediaries are those who just match the buyers and sellers without order fulfillment service. Comparison shopping service sites like Compare.com[30] and Personalogic[34] belong to the category of intermediary.

In the seller- (intermediary-) centric marketplaces, the seller's server (intermediary's server) is supposed to wait for the visit of customers. In this architecture, the customers may be either private consumers or business buyers as depicted in Figure 1 and 2 respectively. This implies that the architecture of seller-centric and intermediary-centric marketplaces can be applied to both B2C and B2B (Business-to-Business) Electronic Commerce (EC).

However, the nature of private buyers and business buyers is quite different. Private consumers usually do not have to keep track of purchase transactions and their historic records. However, the business buyers have to precisely keep track of the purchase progress, store, and integrate them with the buyer's e-procurement system[3], which might have been implemented as a fragmented system or as part of an integrated ERP (Enterprise Resource Planning) system.

To support the buyers in B2B EC, we propose the architectures of the ***buyer-cart***, an electronic cart(e-cart) which is owned and used by the business buyers. The buyer-cart can be in contrast with the ***seller-cart***, an electronic cart which is owned and used by business salesmen. In this paper, we focus on the design of the buyer-cart. So the e-cart in this paper implies the buyer-cart henceforth.

In the seller-centric architecture, the buyer-carts are prepared and installed in the seller's server. Let us call this kind of e-cart ***s-cart***, which can be defined as a ***buyer-cart that resides on the seller's site.*** The s-cart is easy for customers to use and maintain because the software is fully developed and operated by the sellers. Customers just access the web site to use the s-cart installed in the seller's marketplaces. The ***i-cart*** can be defined in the same manner as a ***buyer-cart that resides on the intermediary's site***, and the nature of the i-cart is basically the same as the s-cart.

Since the business buyers need to consider the integration of the buyer-cart with the buyer's Corporate Information System (CIS), s-cart (i-cart) is no longer the most effective in B2B EC because the buyer's order information is scattered in the sellers' (intermediaries') sites[3].

To cope with this problem, we propose the ***b-cart***, which is defined as the ***buyer-cart that resides on the buyer's site***. The concept is that a buyer possesses his/her own buyer-cart on his/her PC or server, and carries it to the various e-marketplaces. This notion can be implemented by

displaying the b-cart as an overlaid window on the buyer's PC. To make the b-cart compatible with e-marketplaces, we need a mutually accepted protocol between them. The b-cart may be used in one e-marketplace at a time, but may also be used on more than one e-marketplace at a time because the b-cart can maintain the order information in one place.

In this paper, we propose the features of the desired buyer-cart and evaluate the capability of currently available e-carts in section 2. In section 3, we contrast the characteristics of s-cart, i-cart, and b-cart. In section 4, we propose the architecture of buyer-carts in the context of B2B e-marketplace types. In section 5, we design a prototype system, named ***MyCart***, which can be used on the seller-centric and intermediary-centric e-marketplaces. And we finish this paper with conclusions and roads ahead in section 6.

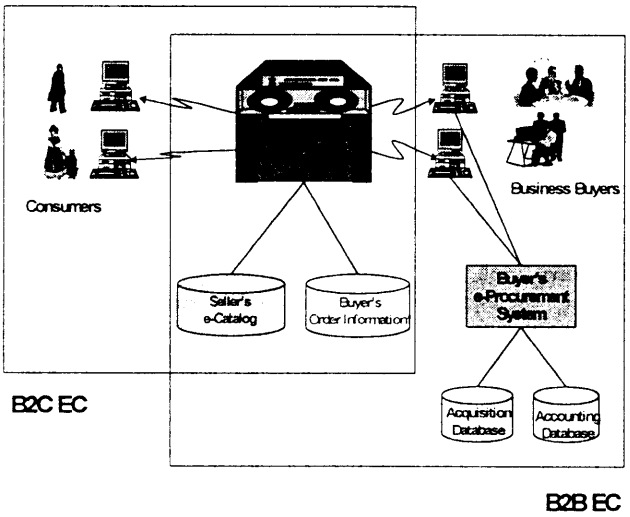


*Figure 1 - Architecture of Seller-centric B2B e-Marketplaces*

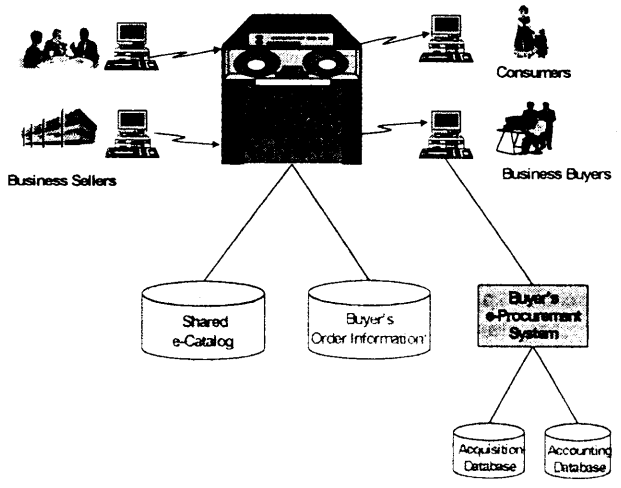


*Figure 2 - Architecture of Intermediary-centric B2B e-Marketplaces*

## 2. Desired Features and Status of Buyer-Carts

In this section, we present the desired features of buyer-carts, and evaluate the capability of currently available e-carts.

### 2.1 Desired Features of Buyer-Carts for B2B EC

For the purpose of this research, we propose the desired features of buyer-carts for B2B EC as follows:

1) ***Collection***: Collect interesting items possibly from multiple e-marketplaces
2) ***Recording***: Record the collected information permanently
3) ***Trashing***: Trash items that the buyer is not interested in buying from the current collection
4) ***Tracking***: Track the progress of current purchase and historic records
5) ***Identification***: Identify the e-cart's owner
6) ***Ordering***: Order the selected items
7) ***Payment***: Pay for the ordered items
8) ***Purchase Decision Support***: Support the buyer organization's purchase decision-making process
9) ***Transmission***: Transmit the buyer-cart information to the buyer's CIS

### 2.2 Characteristics of Currently Available Buyer-Carts

Most of currently available buyer-carts reside on the seller's site, so they resemble the s-cart. Within our knowledge, there is no commercially deployed i-cart and b-cart yet.

In the currently available buyer-carts, the collection function from an e-marketplace to which the e-cart belongs is fully supported, and the trashing function is a must to all e-carts. A few systems like Amazon[26], Buy.com[28] and Hansol Shopping Mall[32] support the permanent recording function. If there are permanent records, the tracking function is also provided to aid the retrieval of historic records as well as the current purchase progress.

There is no identification in the e-cart per se, because a disposable e-cart is assigned to each access. Nevertheless, the e-cart is implicitly identified by the access ID. The order function is a must for e-carts and obviously included. The payment function is usually not imbedded in the e-cart, but is available conjunctively.

Since the current e-carts resemble the nature of the s-cart, the e-carts cannot be tightly integrated with the buyer's e-procurement systems. Most disposable s-carts do not have the function of transmitting the residing information in the cart to the buyer's e-procurement systems.

## 3. Contrast of s-Cart, i-Cart, and b-Cart

In this section, we contrast the s-cart, i-cart and b-cart, and discuss the issue of open interface between e-marketplaces

and ERP.

### 3.1 Contrast by Features

The functions of each e-cart type are contrasted in terms of the features mentioned above.

1) **Collection**: The s-cart and i-cart collect information only from the e-marketplace to which the cart belongs. So a buyer has to visit multiple sites if s/he wants to compare the items in more than one place, making one e-cart in each place. However the b-cart allows visiting multiple e-marketplaces with the same cart for the collection of interesting items. So a buyer can compare personally over the collected items in a b-cart. For this purpose however, b-carts and e-marketplaces need to adopt a common protocol.

2) **Recording**: The s-cart and i-cart can store the progress and history of the transactions that happened within each e-marketplace. However, the b-cart can store the records from any of the e-marketplaces the buyer has visited.

3) **Trashing**: The trashing function is available in any type of buyer-carts.

4) **Tracking**: The s-cart and i-cart can support tracking within each e-marketplace. On the contrary, the b-cart can support integrated tracking against all sellers involved. However, to keep consistency between the e-marketplace and b-cart, we need to set up a consistency maintenance protocol. This causes overhead for the b-cart.

5) **Identification**: For the s-cart and i-cart, there is no need to assign the identification of the e-cart per se because the access ID implicitly identifies the user of the e-cart. However, the ID of the b-cart is a must. The ID of the b-cart should be identifiable within all e-marketplaces that adopt the common protocol. This implies that the b-carts can be registered one time in the buyer's site, and reusable in multiple e-marketplaces by exchanging the ID information in the b-cart. To identify the customers effectively in a society, the certification system may be adopted [4].

6) **Ordering**: The ordering function is available in any type of e-carts. However, the b-cart can have the capability of ordering to more than one e-marketplace at a time.

7) **Payment**: The payment function may be optionally implemented in the s-cart and i-cart. This means that the payment information (both current and historic) is fragmented in multiple sellers' sites, which is not efficient for the buyer's financial management. The b-cart can overcome this limit. In this regard, we can include the function of the digital wallet in the b-cart.

8) **Purchase Decision Support**: It is impossible for the s-cart and i-cart to tightly integrate with the buyer's e-procurement system, which supports the organizational purchase decision-making process. Since the integration is essential for B2B EC, the b-cart architecture is a suitable answer.

9) **Transmission**: The information in an e-cart needs to be automatically transmitted to the buyer's e-procurement system to maintain consistency between them. Any type of e-cart can be equipped with this function, however the b-cart can be easily equipped with the real time the transmission capability within the buyer's system.

The major benefit of the s-cart and i-cart is its easiness to use and maintain. But a limitation is that they can only be used within each e-marketplace and thus cannot be tightly integrated with the buyer's e-procurement systems. The b-cart can overcome such a limitation at the cost of establishing the common protocol between the b-carts and e-marketplaces/e-procurement systems. We expect that in the early stage of B2B EC, the s-cart will be popular. But in the matured stage, the b-cart will probably dominate the B2B EC community. Because of this reason, we adopt the b-cart architecture in the prototype of MyCart.

### 3.2 B-Cart Bridge between e-Marketplaces and ERP

We have seen the benefit of the b-cart for the integration between the e-marketplace and e-procurement system. When the e-procurement system is implemented using an ERP system, we need to integrate the e-marketplaces with ERP systems. Currently, there are two approaches of integration.

One is the web solution provider's approach that requires implementing the Application Server (a software that support the interfaces between the e-marketplace and ERP system)[27]. This approach is called ***Outside-In Approach*** as depicted in Figure 3. This approach requires extending the e-marketplace to be compatible with ERP. In this case, the e-marketplace solution provider will lead the interface standard. Example systems of this kind are the IPlanet Application Server, MicroSoft Windows NT Application Services, IBM WebSphere Application Server, Sybase Enterprise Application Studio, BEA WebLogic Application Server, Netscape Application Server, Sun Java Embedded Server, Lotus Domino Application Server and Bluestone Sapphire [6].

On the other hand, ERP solution providers take the ***Inside-Out Approach***, which attempts to build the ERP-compatible e-marketplace between the same ERP package users. This approach can be efficient between the same ERP package users, but it is hard to lead the general interface standard with commercial e-marketplace solutions. Typical players in this position are SAP(BBP, mySAP), Fujitsu (TranStream), PeopleSoft, Oracle, Baan, J.D. Edward, CommerceOne(MSC) and Clarus(e-procurement) [5,6].

The battle to win the advantageous boundary between the two communities is severe. We need to watch the result for a couple of years, but a common need for the B2B EC platform is a mutually accepted interface standard. In this

regard, the b-cart can be the third solution, possibly the best solution. Once we define an interface standard with the b-cart, all that both e-marketplace solution providers and ERP solution providers have to keep is interfacing with the b-cart's I/O standard. In this sense, the b-cart can play the role of bridging the two communities.

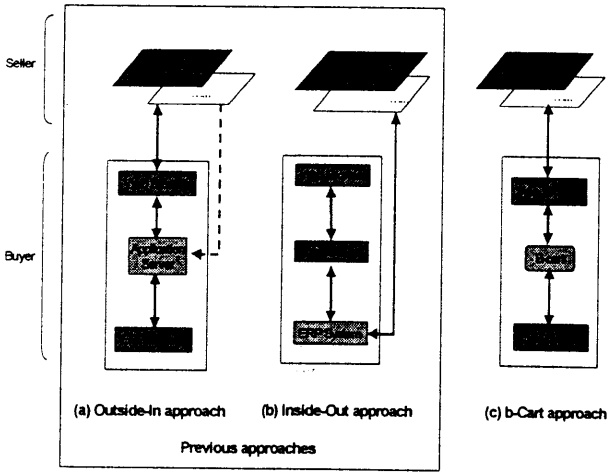


*Figure 3 - Approaches of Integrating e-Marketplaces with ERP Systems*

### 3.3 Architecture of B2B e-Marketplaces

So far we have introduced the seller-centric and intermediary-centric e-marketplaces as demonstrated in Figure 1 and 2. In addition, the ***buyer-centric e-marketplaces*** are ***Reverse Auction*** and ***Internalized e-Marketplaces*** as depicted in Figure 4 and 5. In the reverse auction marketplace, the buyer announces the call for bids in the buyer's or intermediary's server. Then potential sellers join the bid. In the internalized marketplace, sellers provide the offering price to the buyer and the buyer build an internalized e-catalog so that employees can order within the e-procurement system.

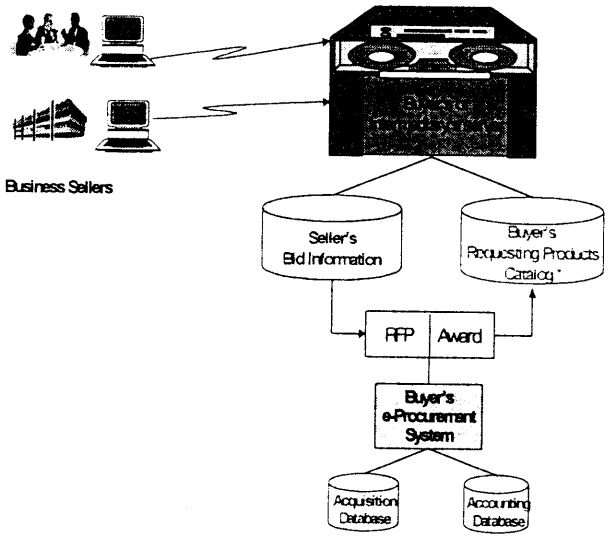


*Figure 4 - Architecture of Buyer-centric Reverse Auction e-Marketplace*

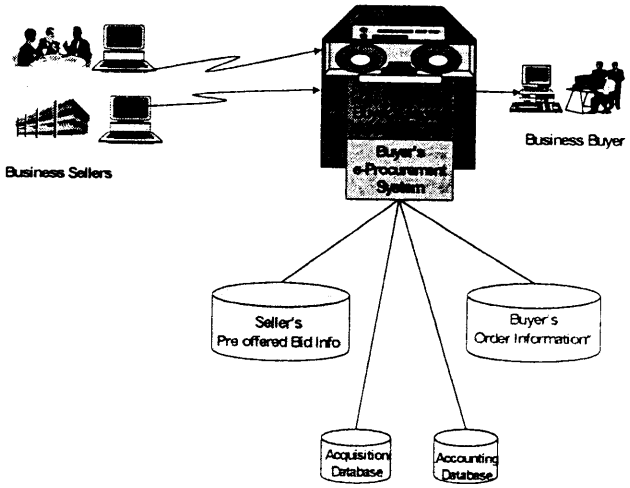


*Figure 5 - Architecture of Buyer-centric Internalized e-Marketplace*

## 4. Architectures of Buyer-Carts in the B2B e-Marketplaces

In this section, we design the possible buyer-cart architectures for each of the e-marketplaces. To define the characteristics of generic architectures formally, we adopt the notation in BNF(Backus Naur Form)[7]. The items separated by a comma in parenthesis { } imply optional conjunctive selection, while ones separated by the vertical bars in parenthesis ( ) imply mutually exclusive selection. The composition of generic architectures can derive more composite architectures as will be demonstrated in the prototype MyCart.

*Architecture Type*
= *Marketplace-type [Pricing Mechanism;*
*{Existence of s-cart,*
*Existence of b-cart,*
*Existence of i-cart}]*

*Marketplace-type*
= *(Seller's Marketplace (SM) |*
*Buyer's Marketplace (BM) |*
*Intermediary's Marketplace (IM))*

*Pricing Mechanism*
= *(Seller's Fixed Price (SFP) |*
*Auction (Auc) |*
*Reverse Auction (RevAuc) |*
*Prices in the e-Procurement Database (ProcDB))*

*Existence of s-cart = (0 | S)*
*Existence of b-cart = (0 | B)*
*Existence of i-cart = (0 | I)*

According to this notation, the marketplace type, pricing mechanism and the existing types of buyer-carts define the architectures. There are three types of marketplaces in B2B EC: SM, BM, IM. Four types of pricing mechanisms

considered here are SFP, Auc, RevAuc, and ProcDB. Three types of buyer-carts in consideration are s, b, and i carts. The "0" symbol implies non-existence, while the symbol S, B, and I implies the existence of s, b, and i carts respectively.

Now, let us define the meaningful architectures one by one.

**1) SM[SFP;S]:** This is the most popular seller-centric marketplace with the s-cart in the seller's site (See Figure 6). In this architecture, the buyer visits the seller's site one at a time. The integration of the s-cart with the buyer's e-procurement system requires additional implementation of interface software. ***Auc*** may replace ***SFP*** for the representation of auction market.

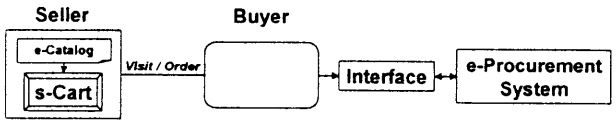


*Figure 6 - SM[SFP;S]*

**2) SM[SFP;B]**: In the seller-centric marketplace with the b-cart architecture (See Figure 7), the b-cart exists on the buyer's site. A buyer visits the seller's sites, and collects the information into the buyer's b-cart. The finally selected items to buy will be ordered through the b-cart. Since the b-cart exists in the buyer's system, its integration with buyer's e-procurement system can be implemented very easily.

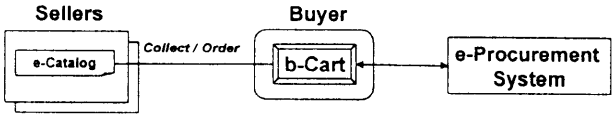


*Figure 7 - SM[SFP;B]*

**3) SM[SFP;S,B]:** In this architecture, the seller's site provides the s-cart while the buyer owns the b-cart (See Figure 8). The buyer may own both types of e-carts, but can use only one at a time. The s-cart is an essential service because not all customers are equipped with a b-cart. To support both types of e-carts, the seller site should provide two cart selection buttons (See Figure 18).

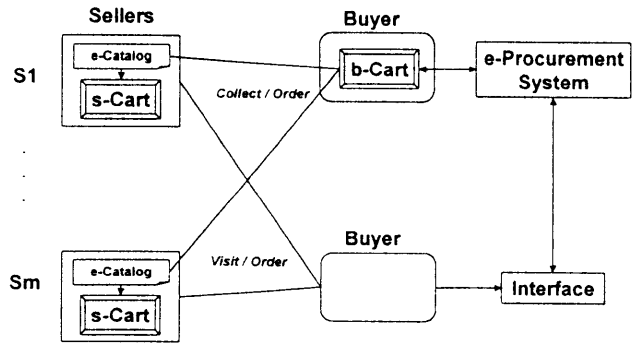


*Figure 8 - SM[SFP; S,B]*

**4) BM[RevAuc;B]:** In the buyer's e-reverse auction marketplace with the b-cart (See Figure 9), the b-cart supports the bidding process. By definition, BM(RevAuc;S) does not make sense.

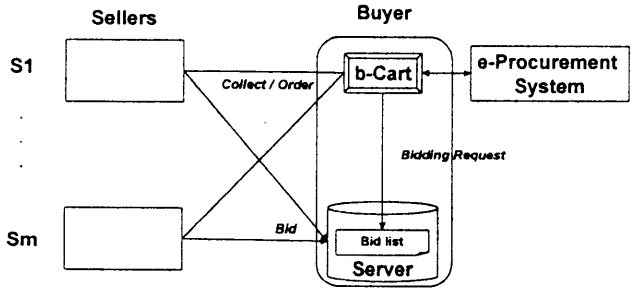


*Figure 9 - BM[RevAuc;B]*

**5) BM(ProcDB;B):** The b-cart in this architecture can be tightly integrated with e-procurement software which might have been implemented using ERP (See Figure 10).

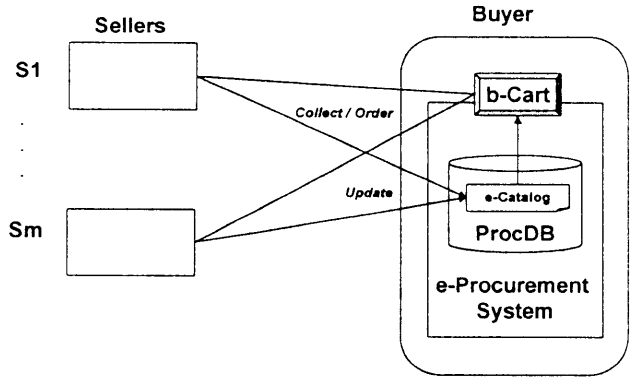


*Figure 10 - BM[ProcDB;B]*

**6) IM[SFP;I]:** This architecture is basically the same as SM[SFP;S], but the difference is that the buyer can collect information from all of the participating sellers in the intermediary. So the role of the intermediary is an ASP(Application Service Provider) for the management of the buyer-carts (See Figure 11).

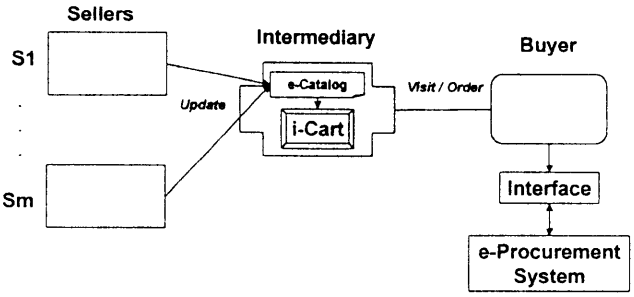


*Figure 11 - IM[SFP;I]*

7) **IM[SFP;S,I]:** Both seller and intermediary have a buyer-cart. The buyer may own both of them, but can use one at a time.

8) **IM(SFP;I,B):** Both buyer and intermediary provide a buyer-cart. The buyer may possess both of them, but can use one at a time like the case SM[SFP;S,B] (See Figure 12).

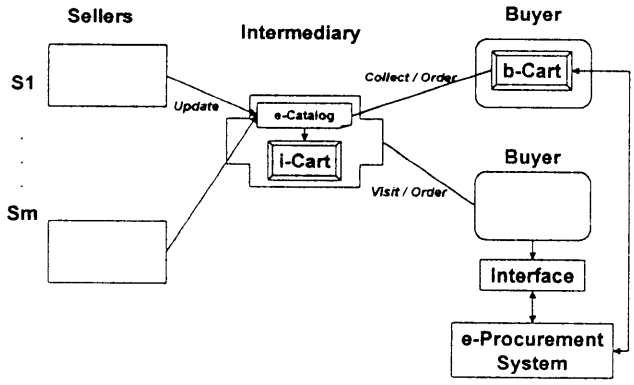


*Figure 12 - IM[SFP;I,B]*

9) **IM[SFP;S,I,B]:** This architecture has all types of buyer-carts (sellers, intermediaries, and buyers). A buyer can own all of them, but can use one at a time. For a buyer, it is recommendable to use the b-cart if the buyer has one. But if a buyer has an i-cart but not a b-cart, s/he is recommended to use the i-cart to cover all of the sellers listed in the intermediary. Finally, if a buyer has none of b-cart and i-cart, the only option left is to use the s-cart.

10) **IM[RevAuc;I]:** When an e-reverse auction marketplace is open by an intermediary, the i-cart can reside in the intermediary. The role of the i-cart here is similar to the b-cart in BM[RevAuc;B]. However, IM[RevAuc;S] and IM[RevAuc;S,I] do not make sense because the s-cart cannot exist in the reverse auction marketplace (See Figure 13).

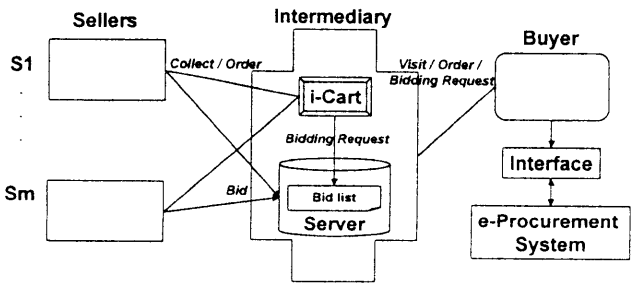


*Figure 13 - IM[RevAuc;I]*

11) **IM[RevAuc;I,B]**: Both the buyer and intermediary have a buyer-cart. The buyer may possess both of them, but can use one at a time as in IM[SFP;I,B] (See Figure 14).

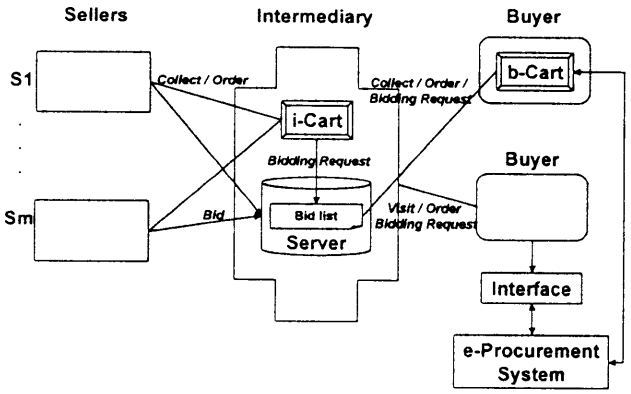


*Figure 14 - IM[RevAuc;I,B]*

Using the above architectures or a combination of them, we can design a system like MyCart.

## 5. A Prototype of Buyer-Cart: MyCart

### 5.1 The Architecture of MyCart

In this section, we propose a prototype of b-cart, named MyCart. This is a composition of seller and intermediary centric e-marketplaces as depicted in Figure 15. Notationally, MyCart = SM[SFP;S,B] + IM[SFP;I,B]. This architecture implies that a buyer who has a b-cart, can buy in seller and intermediary marketplaces. In addition, the seller and intermediary have an s-cart and i-cart respectively to be used particularly by those who do not have a b-cart. As mentioned above, the s-cart and i-cart can be used only within the corresponding seller and intermediary.

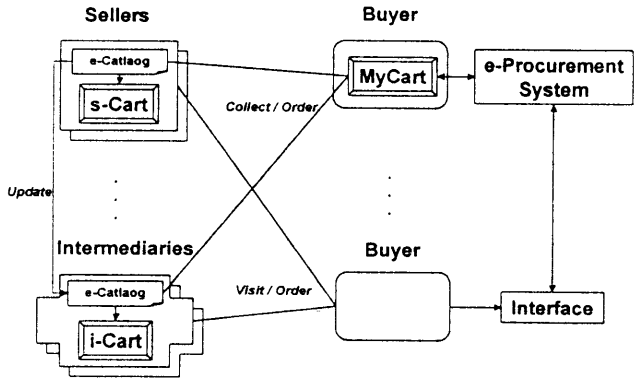


*Figure 15 - Architecture of MyCart*

The basically required features for the design of MyCart are: (Refer to an illustrative screen of b-cart in Figure 19)

① "***Insert to s-cart***" and "***Insert to b-cart***" buttons at the sellers' sites should be equipped (See the illustration in Figure 18).

② "***Insert to i-cart***" and "***Insert to b-cart***" buttons at the intermediaries' sites should be equipped.

③ Essential records about products and orders stored

in the b-cart should be standardized. Additional information may be optionally stored.

④ With the record standard in the b-cart, the messages to exchange with e-marketplace and buyer's e-procurement systems should be standardized.

⑤ The transaction should be processed in a secure manner satisfying confidentiality, integrity, authentication and non-repudiation. This goal can be fulfilled by adopting the PKI(Public Key Infrastructure)[4] based security protocol.

⑥ An installation of b-cart software in the buyer's client sites is essential. This software may be downloaded from a buyer server, intermediary server, or solution provider's server.

In addition to the above basic features, MyCart is designed to include the following features:

- ***Identification management***: A certificate is provided to identify a buyer in any e-marketplace.
- ***Personalized spreadsheet capability within MyCart***: The collected items can be sorted and summed to see the required amount (See Figure 19).
- ***User profile management***: The user profile is stored in the b-cart for automatic registration to affiliated sellers and intermediaries.

### 5.2 Message Interface Standard

The prototypical messages to exchange with MyCart are illustrated as followings:

1) **Quotation information(QI) for collection** [from e-marketplace to b-cart]: Quotation ID, seller, date, validity of quotation, product specification, quantity, amount, payment method and delivery method

2) **Certificate for identification** [from b-cart to e-marketplace]: buyer's certificate

3) **Buyer's profile information(BPI)** stored in the b-cart [from b-cart to e-marketplace]: ID, name, age, sex, birth date, occupation, mailing address, phone number, e-mail, url, and last updated date

4) **Transmission of quotation for purchasing decision** [from b-cart to e-procurement system]: Order ID, date, seller, product specification, quantity, amount, payment method, delivery date and method, quotation ID, and validity of quotation

5) **Purchasing order(PO)** [from b-cart to e-marketplace]: Order ID, date, seller, product specification, quantity, amount, payment method, delivery method, quotation ID and validity of quotation

6) **Transmission of purchase order for bookkeeping** [from b-cart to e-procurement]: Order ID, date, seller, product specification, quantity, amount, payment method, delivery method, quotation ID and validity of quotation

7) **Progress of order fulfillment** [from e-marketplace to b-cart]: Order ID, seller, product specification, quantity and delivered date and method

8) **Progress of payment information** [from e-marketplace to b-cart]: Order ID, payee, paid date, amount and payment method

9) **Report the fulfilled order for bookkeeping** [from b-cart to e-procurement system]: Order ID, seller, product specification, quantity, amount, delivered date, payee and payment method

These messages can be represented in a format of ACL(Agent Communication Language) like KQML(Knowledge Query and Manipulation Language)[8]. The message contents can be classified into three layers[9] as illustrated in Figure 16.

1) The ACL layer represents the generic terms necessary for agent communication

2) The EC layer represents the specific terms for EC processing such as quotation ID, order ID, date, payee, payment method and delivery method.

3) The Product Specification layer represents the specification of items.

These messages can be implemented with a well-defined XML format[10,11] according to the international standards like EDIFACT[12] or ebXML[31].

### 5.3 Structure of MyCart

To implement the functions of MyCart, we need the following capabilities as depicted in Figure 17:

1) ***Communication Controller*** which controls the incoming and outgoing messages. It consists of the XML Manager and Security Manager with the Transmission function.

- ***XML Manager*** which parses the incoming XML messages and composes outgoing XML messages.
- ***Security Manager*** which performs security checks on the parsed messages.

2) ***Identification Controller*** which controls the buyer's identification. It consists of the Certificate Manager and Buyer Profile Manager with the Identification function.

- ***Certificate Manager*** which manages the buyer's certificate.
- ***Buyer Profile Manager*** which manages the buyer's profile. A BPI message can be sent to any e-marketplace by this manager if the buyer wants to automatically register on that site.

3) ***Cart Controller*** which controls the main functions of the cart: collection, recording, trashing, tracking, ordering and payment functions.

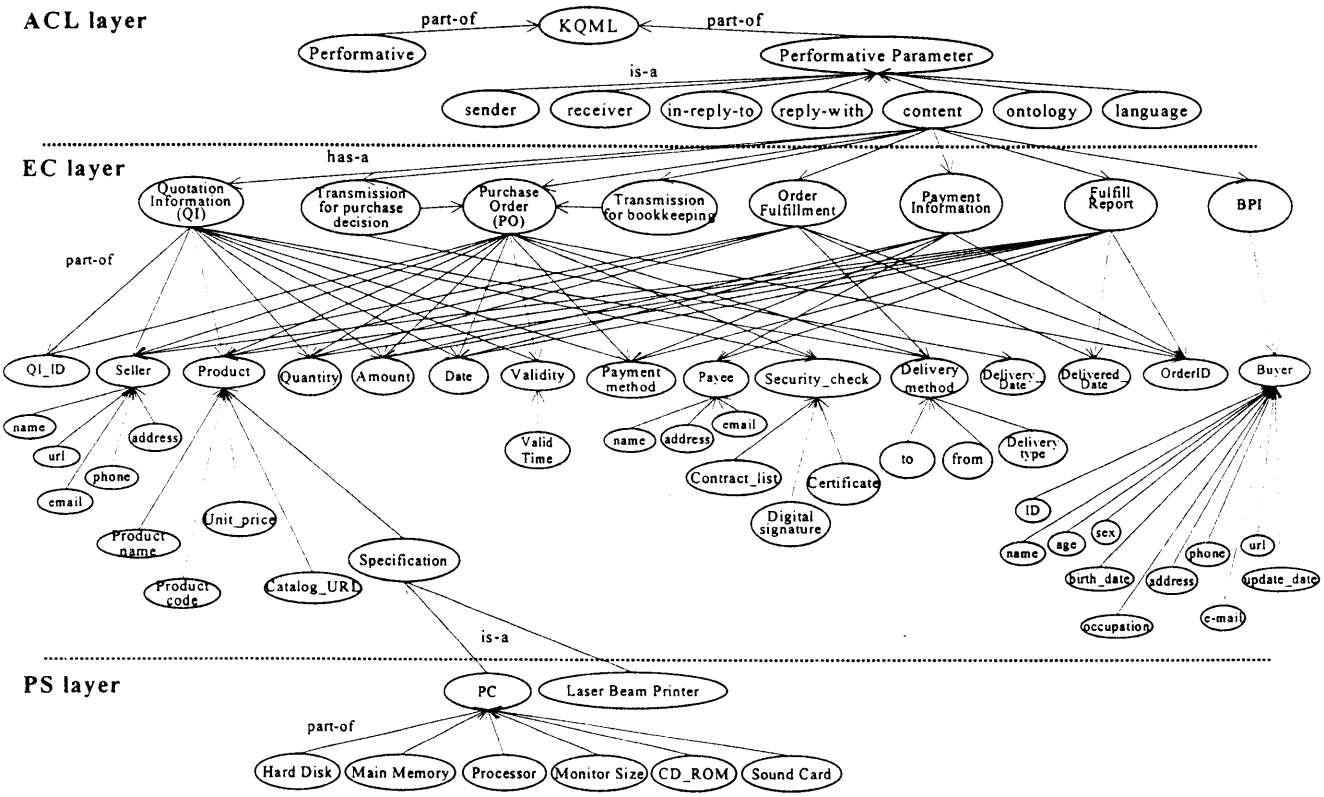


*Figure 16 - Message Layers for b-Cart based Electronic Commerce*

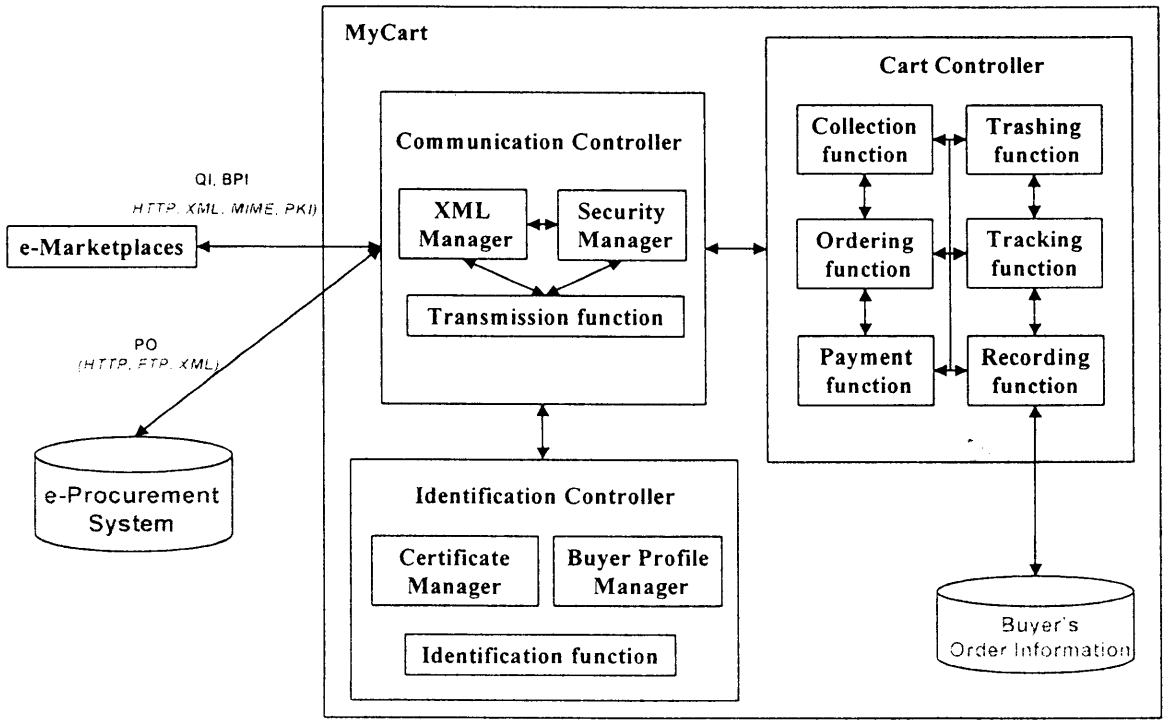


*Figure 17 – The Architecture of MyCart*

The message exchange with e-marketplaces can be performed through HTTP protocol with a predefined XML-based format using MIME type[13] (for example, application/x-quotation). For secure transactions, the messages are constructed using the PKI-based XML format like XML-signature[14]. The interface with e-procurement for complete bookkeeping and purchase approval is performed via FTP or HTTP in the XML file format. Because the interface is done through HTTP in MIME type XML format, we do not need an additional program module between the seller and the buyer. So, the buyer can purchase from various sellers and intermediaries.

### 5.4 Illustration of MyCart

Figure 18 illustrates the two buttons in an intermediary's e-marketplace: "***Insert to s-Cart***" and "***Insert to b-Cart***" buttons. Figure 19 illustrates the screen of MyCart installed on a buyer's PC. This is implemented with VC++.

We can see the buttons for collection, recording, trashing, tracking, payment method selection, order, certificate and profile manager, and transmission to e-procurement system. The payment can be implicitly executed as a part of order.

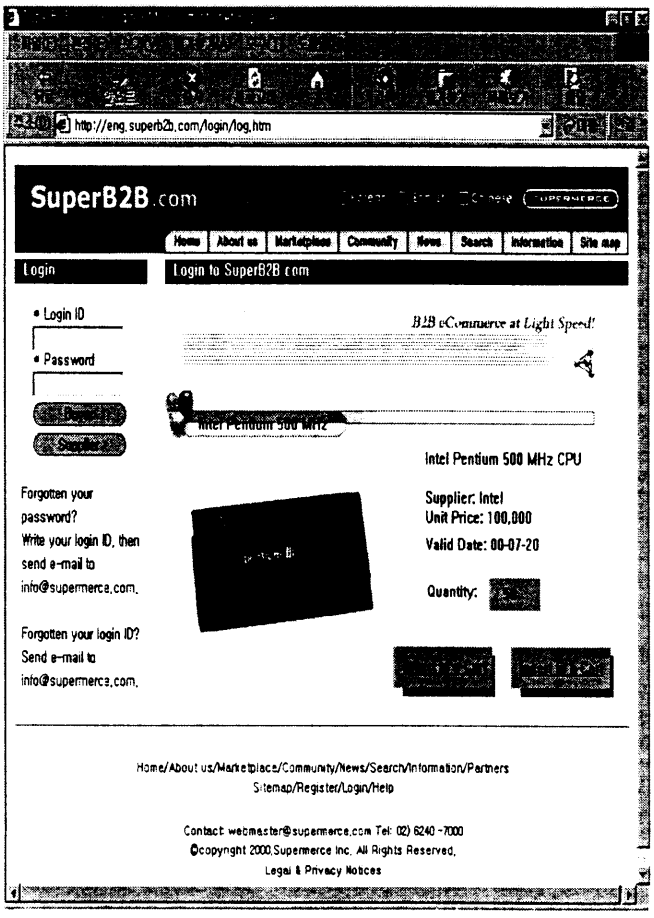


*Figure 18 – An Illustration of e-Marketplace Compatibility with b-Cart*

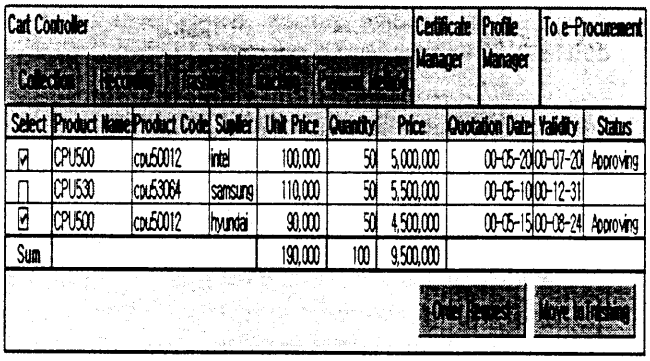


*Figure 19 - An Illustrative Screen of MyCart*

## 6 Conclusion and Roads Ahead

To design an effective B2B EC platform, we have adopted the buyer-cart approach. Buyer-carts are categorized into s-cart, i-cart, and b-cart depending upon their residing sites: seller, intermediary, and buyer sites. To evaluate the current status of buyer-carts and evaluate various types of them, we proposed the desired features for buyer-carts. They are collection, recording, trashing, tracking, identification, ordering, payment, purchasing decision support, and transmission to e-procurement systems.

The eleven architectures of B2B e-marketplaces are designed depending upon the marketplace operators, pricing mechanisms, and existing types of buyer-carts. Based on this framework, we designed a prototype system MyCart, which allows the use of the b-cart along with the s-cart and i-cart. By using the b-cart, a buyer can visit multiple sites collecting information in his/her own cart. This will allow the tight integration of the b-cart with the e-procurement system. We propose that the b-cart approach can be a framework of integrating the e-marketplaces with e-procurement systems including ERP systems.

The next step is the full implementation of MyCart, and establishment of a standard protocol which defines the format of storing records in the b-cart and exchanging messages between the b-cart and e-marketplaces/ e-procurement systems. We need to solve not only technical issues, but also social issues of mutual agreement among the stakeholders.

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## Related Sites

[26]Amazon Site http://www.amazon.com

[27]ApplicationServer Zone http://www.appserver-zone.com

[28]Buy.Com Site http://www.buy.com

[29]Clarus e-procurement http://www.claruscorp.com

[30]Compare.com http://www.compare.com

[31]EbXML http://www.ebxml.org

[32]Hansol Shopping Mall http://www.csclub.com

[33]IBM Site http://www.ibm.com

[34]Personalogic Site http://www.personalogic.com

[35]SuperB2B Site http://www.superb2b.com

[36]SAP Site http://www.sap.com