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Show Me the eMoney:

Business Models for eServices

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Proceedings

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Abstract

On January 26, 2000, nearly 45 of Silicon Valley's top thinkers and practitioners in the eServices space met at the Silicon Valley World Internet Center to discuss business models for eServices. Drawn from the vendor, consulting, start-up and customer communities, the Think Tank Session (TTS) participants debated the opportunities, solutions, implementation strategies, and attributes of successful eServices providers.

Opinions differed on the definition of eServices, their value, the best strategies for implementing them, and the best position for taking advantage of the eServices wave. However, participants agreed that eServices constitute a major new category of web-based commerce. They also agreed that, for the moment, partnering expertise was more valuable than technology in the eServices realm.

Introduction

eServices promise to take web-based commerce to its next evolutionary phase, in which business processes and data become seamlessly linked and interchangeable. New forms of middleware and meta-languages like the Extensible Markup Language (XML) are helping to create a foundation for collaboration among enterprise partners, suppliers, customers and employees.

For the Think Tank Session a working definition of eServices was used, along with five points that distinguish today's web-based applications from tomorrow's eServices. The working definition: "eServices are distributed Internet-based applications that interact with each other in order to execute a complex workflow or a transaction." In the course of the Session, participants changed the wording of this eServices definition.

There was general agreement on the five points that distinguished eServices and web-based applications. These distinctions were:

1) An end-user does not need to go to a website to trigger an eService. An application running in any device can request an eService. Once the request is received, the application triggers other appropriate eServices. For example, "smart" products contact remote diagnostic centers if they detect an imminent fault. Once the fault is detected, an eService broker composes a message to end-users to alert them via multiple clients that attention is required.
2) eServices are self-contained, modular, mix-and-match applications. Their software performs, initiates, schedules, or commits eServices without human intervention.
3) Supporting the concept of modularity and the ability to mix-and-match, an eService is a self-describing application that knows the functions it is capable of performing, along with the input it requires, the output it produces and relevant attributes such as cost, security or location.
4) eServices are visible and manageable. They are configured so external applications management and workflow control systems s monitor them. An eService application runs on a system an end-user does not control or own, yet the end-user is able to detect and manage the state of the eServices application and the status of its outcome.
5) eServices are brokered and auctioned. Once a request is received by an eServices broker or directory service, different applications compete to perform the requested function, and are chosen based on their attributes and their current state (available or busy, security level, price per transaction or the volume of transactions they can handle in a given time).

These distinctions promises a flexibility that will evolve web commerce beyond its current broadcast-like business model of one website, one product/service set and many customers. The new model is one in which

many websites cooperate to configure a heterogeneous product- or service-offering to many customers. However, challenges stand between this vision and its realization.

While the technology surrounding eServices evolves, the business models driving the next generation of web commerce are only now being considered. Questions about how complex service offerings are going to be presented to end-users in an easy-to-understand format confront those hoping to profit from multi-vendor collaborative services.

These were the issues faced by Think Tank participants. The Think Tank Session consisted of:

1) A keynote address from Jon Bosak, XML architect for Sun Microsystems who led the working group that created XML for the World Wide Web Consortium (W3C).
2) Sessions in which Think Tank participants outlined key eServices opportunities and plausible solutions and implementation strategies.
3) A final wrap-up to discuss the attributes of a workable business model for eServices.

Keynote Address

In his presentation, *How Will Open e-Services Work*, Jon Bosak cautioned, "I think that there are some hard questions facing us in eServices and what I am hearing are some answers that are just too darned easy."

In addition to basic questions such as how buyers and sellers find each other or how shared business semantics are defined, Bosak said the main issue facing the eServices space was how to implement solutions outside of a single vendor's architecture.

Creating an open eServices environment is more difficult than is often represented in the press or in company information. In many cases, the required architecture is not there. By way of example, Bosak described how CommerceNet had attempted to map the layers of standardized functionality required for an open eServices environment. After a year of hard thinking, the simplest diagram of an open eServices architecture required seven layers:

1) Market makers (those who can catalyze a market, such as Ford or General Motors).
2) Individual markets, such as those for engine parts or paint.
3) Businesses operating in those market segments.
4) Services offered by such businesses.
5) The transactions needed to trade services.
6) Documents embodying the transactions.
7) The information comprising the documents.

Within this hierarchy, each layer needs to be standardized so business A can query business B as to whether a particular document set subscribes to a register. Registers allow businesses to post the kinds of documents and transactions they handle and communicate what they do.

To deal with the complexity of two businesses querying each other about what document exchange format works for them (a process called "choreography"), many pundits look to the Extensible Markup Language (XML). For Jon Bosak, XML's primary contribution towards developing eServices is that it allows the development of an unlimited number of special purpose data languages. This allows firms with common data exchange problems to work out open solutions without interference from third parties, dependence on large software vendors or language restrictions. It also permits others with similar problems to use the same solution.

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For example, it is widely agreed that Electronic Data Interchange (EDI) should migrate into XML form. In the EDI space a significant difference exists between U.S. and European implementation, with the X12 EDI flavor dominating in North America while Europe opts for EDIFACT. The Electronic Business XML initiative (ebXML) addresses this problem by looking to develop a foundation for long-term suitability of electronic data exchange. The ebXML project, a joint effort between the Organization for the Advancement of Structured Information Standards (OASIS) and the United National body for Trade Facilitation and Electronic Business (UN/CEFACT), has brought together the major EDI stakeholders to agree on how to migrate X12 and EDIFACT into an XML format.

Another missing piece in the open eServices puzzle involves registry and repository ("reg/rep") facilities for publishing XML agreements on the web. The goal of reg/rep is to allow businesses to access previously struck data exchange agreements so they need not start from scratch with their partners. With reg/rep in place, if a South American shoe manufacturer wishes to import a purchase order from a North American department store it indicates that it conforms to the shoe purchase order schema, a registered set of XML declarations that define the information comprising a standard purchase order for shoes.

While an XML register is attractive in theory, several difficulties must be overcome to make it practical. First, such a library would have to be amenable to human search. Operators need international classification schemes to help find the industry standards they are looking for. More important, such schemes must be set up so they could be found by humans but resolved by machines. A business operating at several thousand transactions per second must be able to retrieve necessary schemas out of its cache. Bosak suggested that a system mimicking the Domain Name System (DNS), in which human readable address schemes like www.getshoes.com are mapped back to machine-level IP addresses, is needed for XML schemas to be understandable to both humans and machines. Since these schemas would reside on multiple machines for efficiency, version control would be vital.

For an XML registry to work it must be self-supporting, universally accessible, trusted, vendor-neutral and based on international standards. In addition, it would require a low cost of entry for individuals and small- and medium-sized enterprises (SMEs), and would have to operate on a distributed model. Currently, an OASIS spin-off, XML.org, is trying to develop infrastructure for publishing schemas on the web. XML.org is not the only body doing this work; other schema repositories tied back to vendors are attempting the same thing. Whether they will be trusted enough to gain critical mass remains to be seen.

While XML provides a structure for agreeing about how to communicate, it does not decide what communication is important for a business relationship.

XML received attention during 1999 as the best hope for enabling businesses to exchange data in a standardized manner, no matter what information system they use. Because of this attention, both good and bad interpretations of XML's impact have been published. Many observers have mistakenly assumed that, with all its positive aspects (its ability to support unlimited numbers of industry-specific data exchange languages, any of which can be processed by a single lightweight parser), XML makes agreements between business partners happen almost automatically. According to Bosak, this interpretation obscures the real power of XML while assigning it a capability that no information framework can have. While XML provides a structure for agreeing about how to communicate, it does not decide what communication is important for a business relationship. In the absence

of real artificial intelligence, that messy task will always be the job of humans.

Session I: Key eServices Opportunities

The morning session's objective was to agree on a working definition for eServices and to develop short-term (18 months or less) scenarios for jump-starting the eServices market. Participants were asked to decide whether the primary value of eServices would be that they solved a nettlesome problem (pain relief) or opened up new possibilities. Although neither pole dominated, the goal was to decide which factor would determine strategy in the short-term.

Deciding on a working definition for eServices was not easy. Participants were given materials that defined eServices as distributed Internet-based applications that interacted in order to execute a transaction or complex workflow. Some participants found this too constraining because it declared transactions to be merely payments (what database people believe constitutes a transaction is different from what network people believe) while the idea of workflow did not capture the brokering elements that set eServices apart from web server scripts. Eventually, the working definition was revised to say:

> "eServices were distributed Internet-based applications that interacted to add perceived value."

The Think Tank participants then identified seven categories where eService applications might be developed and exploited: **ACCESS, TRADE, MEDIATION, CUSTOMER RELATIONSHIP MANAGEMENT (CRM), EVENT MANAGEMENT, PAYMENTS, and SUPPORT.**

1) **ACCESS-**oriented eServices included providing timely business information to traveling executives anytime, anywhere; replacing paper with electronic versions of magazines and books; creating ethnic portals to serve the interests of various communities. The emphasis here concerned making wireless communications more information-friendly and location aware.
2) **TRADE** included single click purchasing across multiple retail web-sites through catalog aggregation and dynamic pricing, and 'e-identity' applications to make personal information available to automatically complete web transactions without having to fill out forms. Some electronic wallet schemes, such as Microsoft's Passport, are attempting to address this need.
3) **CUSTOMER RELATIONSHIP MANAGEMENT (CRM)** touched on not only sophisticated supply chain management (often via business-to-business exchanges) but also easy and efficient ways of returning unwanted merchandise or merchandise in need of recycling or repair. The front-end of CRM eServices also provided e-marketers with the ability to reach individuals directly—the famous market of one scenario.
4) **MEDIATION** concerned both physical and virtual eServices applications. For instance, a case might arise where an automobile required service but the owner was too busy to take it to a service provider. However, embedded eServices within the car allow for not just remote diagnostics but also they can search for the nearest or least expensive vendor. eServices were also tapped to provide for the dynamic composition of existing services without human intervention (for example, the processes required for a loan broker to respond with a quote).

The last three areas—EVENT MANAGEMENT, SUPPORT, and PAYMENT dealt more with the fulfillment side of a web transaction rather than the front end that faces an end-user.

5) **EVENT MANAGEMENT** eServices concern any repetitive transaction that requires scheduling coordination such as buying theater tickets, making restaurant reservations or periodic maintenance for large complex items such as automobiles or computers. This calendar-

ing function is already common in enterprises. However, certain participants felt that this capability could be extended to self-selected groups.

6) **SUPPORT** functions included dedicated fulfillment centers that encompassed customer-facing technical assistance in addition to their former warehousing function.
7) **PAYMENT** eServices using an easily adopted web currency (not to be confused with ecash) based on scrip or credits would allow users to capture and pay for value delivered.

Turning Opportunity into Action

Participants took up the identified eService opportunities and came up with plausible solutions, implementation strategies, and possible service providers. The list of opportunities was prioritized to four: ACCESS, CRM, TRADE, and MEDIATION. Participants in breakout groups examined these opportunities. Each group created a plausible solution and identified supporting business processes and technologies. The results were then presented to the group. After the presentations, the participants voted three times for the most compelling short-term eService opportunity.

The first group, addressing ACCESS, stated that its value was in streamlining admission to any relevant multimedia information. The group proposed two eServices solutions: a universal translation eServices called "Babel-Fish" and a portable personal portal dubbed "eP3". The concept of a "Babel-Fish" is from The Hitchhiker's Guide to the Galaxy in which a universal translator called a Babel-Fish, inserted into a user's ear, could translate any language in the universe.

With that model, Group 1 proposed an eService that would translate online in real-time. The solution called for matching end-users with existing translation services. It would focus primarily on translating standard business documents rather than academic or natural language translation. This strategy assumed that not only were business documents more valuable to a greater number of users, but that increased standardization would lend itself to incorporating a Babel-Fish-like translator at the machine level. So there might be a network of broker/translators where a voice mail or an email would be captured, translated and routed to the correct recipient. The Babel-Fish concept could also be applied to a context-aware word processing program that would know a document was to be translated and identify idiomatic phrases not well understood in the target language. A current attempt to provide this service can be found at eTranslate.com.

The critical factors for the success of a universal translator have more to do with partnering and customer definition than infrastructure and technology. Given that natural language translation remains more art than science, suggestions focused on how to limit the vocabulary of commercial communications to allow for near real-time translation. A participant suggested a translation-oriented eService would be best served by partnering with vertical portals and existing translation companies. For example, a translation eService provider could partner with both Berlitz—because it already has a network of translators— and a vertical portal like Chemdex, whose life sciences customer base shares a common scientific language. A "Babel-Fish" style eService could execute machine-level business document translation within this carefully defined community.

The second ACCESS based eService involved the wireless space more than the B2B space. Called "eP3", this eService offered a portable personal portal where a user's relevant information is matched to a contextual situation. Features include shopping functions such as maps, schedules and calendaring. Other eP3 services would be providing links to emergency services for users with drug allergies and chronic health conditions. Also the services could link users to fire, police, and ambulance services.

Factors affecting the commercial appeal for eP3 type eServices had to do with partnering and content services for end-users. Not only would a portal-based eService need to operate with other eServices, the content exchange between service providers and the portal owner would have to be rigorously choreographed. Necessary to the success of such a service would be the ability to assure data security. Group 1 referred to this security as a data-centric firewall instead of an enterprise-centric firewall.

The closest thing to an eP3-type eService currently marketed is MobileID, a Los Gatos-based service provider that offers access to email and personalized Internet content to mobile phones and personal digital assistants (PDAs). With the MobileID service, users receive email, have access to personalized content channels, and are provided with smart mail forwarding as well as an online address book.

Customer Relationship Management (CRM)

Within this space, two solutions were proposed: an return service for physical goods bought over the web and another eService to allow digital goods (often called 'soft goods') such as software or digital video to be returned for a refund.

Group 2 proposed a returns-oriented eService that allowed customers to return items to physical points-of-presence (POPs) or arrange for a carrier to pick up items from their homes. For this to work, customers would go to a web site and obtain a return to print a barcode marking the item for return. The customer could then request immediate reimbursement for the returned item, which would be paid either by the POP or the carrier who picked up the item. The revenue model for the express return eService was based on the discount on the total value (commonly known as 'factoring') of the returned item, depending on whether the customer took it to a local POP or requested that it be picked up.

For this eService, the factors most critical to success were the ability to partner with owners of local POPs, such as grocery stores, as well as with large parcel carriers that would take delivery of returned items, like UPS or FedEx. Other partners would be financial institutions that could develop factoring schemes and underwrite the risk involved in handling returned items.

Another CRM eService addressed the problem of returning soft goods, where customers make an online purchase that does not meet their needs or which they believe was misrepresented by advertising. In these cases, a trusted third party would monitor contract compliance. The scenario, which Group 2 called "TrustE with Teeth", would be based on certificates and certificate revocation. Again, the revenue model would depend on factoring (discounting the face value of the return in exchange for immediate settlement with the customer).

Within this eServices space, it is would be important for merchants to feel confident that customers were not making copies of the digital products for which they were now asking reimbursement. The group suggested that customer refunds be disbursed only as an attachment to an uninstall program that would search a user's hard drive for the digital asset.

Among the Critical Success Factors for TrustE with Teeth was the idea of partnering with subscription-based software and/or content providers. Under this model, if a customer defaults on payment or if the vendor believes that the customer is engaged in piracy, the subscription can be cancelled. This seemed a more tractable protection solution than attempting to secure a product's use once it has been paid for. Time constraints prevented Group 2 from exploring more real-time contract monitoring issues faced by a TrustE with Teeth.

Group 3 presented its ideas for the TRADE aspect of eServices: trading networks and dynamic pricing services. The elements comprising TRADE-based eServices include

discovery services (how do buyers and sellers find each other?); aggregation services for catalogs; price; availability; terms and conditions data; product and service rating services, as well as community management and marketing technologies. These elements were grouped under the broad term "Trading Keiretsu" to emphasize the interlocked nature of an exchange that seeks to make trade more efficient.

The Group 3 proposal that received the most attention involved setting up near real-time exchanges that allow participants to engage in dynamic pricing and pricing optimization. While this is common in securities trading networks or yield-management systems used by the airlines, it is now being moved into non-traditional activities such as telecommunications bandwidth trading, steel or plastics commodity exchanges and buyer-led auctions offered by firms such as Priceline.com.

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Group 3 suggested that, as with the financial securities model, enlisting the expertise of economists and domain experts was critical for making dynamic pricing scenarios work. Technically speaking, data exchange formats provided by XML or EDI and security and middleware such as the Common Object Request Broker Architecture (CORBA) or Microsoft's Distributed Common Object Model (DCOM) were pivotal to setting up trading exchanges and augmenting them with value-added-services like dynamic pricing.

Group 4 focused on MEDIATION, the eService space that monitors interaction between buyers and sellers to create a new service or act upon a new opportunity. This eService broadly captured 'brokering' functions. eService brokering goes beyond bid/ask matching to help participants discover and compose complex service offerings out of existing component services.

Group 4 offered two proposals addressing this opportunity. The first was called "Fairplay", a capacity optimization eService for brokering unused shipping resources. In this model, tracking and matching services using global positioning system (GPS) technology would permit near on-the-fly insurance and data management (for example, customs documentation) configured to profit from a temporary opportunity. Factors necessary for the success of Fairplay were the types of relationships possible with the container industry and consolidators and brokers. Possible partners would be publishers of publications such as Lloyd's List, one of the oldest shipping publications.

Another mediating service advocated by Group 4 brought the words 'synthesis' and 'expertise' together in an eService called "Synertise". This eService would dynamically match experts in a problem domain with a start-up incubation environment. Clients could be venture capitalists and investment houses, incubator operators and the companies themselves. After a start-up company defined a problem (for example, developing their marketing operations plan) the system could provide them with a list of experts to help solve it. The main technology-related activity would be to follow deal flow and track the commissions associated with it.

Critical factors for success for Synertise included the need to define specific areas of expertise that lent themselves to aggregate experts (perhaps accounting services) as well as technologies that could correlate a registered expert's availability with the request for proposal (RFP) published by a client. Possible partners for these ventures included publishers and consultants. Websites such as Guru.com are trying to take this eService model to market for independent consultants.

Attributes of Successful Business Models for eServices

The group voted on the eServices models most likely to succeed in the short term, with ACCESS receiving the most votes for further development. The most popular service within the ACCESS category was the eP3 portal application. Second place went to the Babel-Fish universal translator. Following ACCESS, CRM and TRADE seemed most likely realms for successful exploitation in the near future.

Regardless of which category garnered the most votes, it was striking that eServices technology did not figure prominently in any of the market strategies. Partners, customer demographics and integration skills were more esteemed than pure technology. This is not to say that technology doesn't matter in the eServices space. However, the critical success factors identified by Think Tank participants concerned human interaction.

Think Tank Session participants also indicated that, from an investment standpoint, the eServices space remains immature. While the standards and technologies surrounding eServices, such as XML or HP's E-Speak technology, offer an understandable migration path, the possibilities for partnerships among potential eService providers remain quite fluid. Consequently, participants agreed that one of the most critical elements of a successful eServices business model was first-mover advantage.

Given the lessons learned from the web's first generation, when software and services were given away to build the network effects that allowed leverage for a business model, many participants felt similar strategies will be played out in the eServices space. Many reasoned that there was too much at stake to attempt perfection within the four walls of an enterprise. As such, we can expect experimentation and fallout as business models for eServices endure their baptism by fire on the World Wide Web.

These proceedings were written by John du Pré Gauntt, a freelance consultant and participant of this Think Tank Session, and Jeff McNish, a freelance writer.