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Bonding With Enterprise Customers Electronically

An overview of benefits, requirements and challenges for automating inter-company processes between service providers and their enterprise customers

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When we first started working on customer eBonding (electronic bonding) in 2002, it was a very novel concept. Most of our clients had not heard about it and could hardly see any need for it. That was understandable. In the past, large business customers had been served by armies of account managers – compliment from their telecom service providers. These account managers did just about everything for the customers: entering orders, reporting and tracking trouble tickets, and generating various reports as requested. Therefore, for the customers, there seemed no need to automate these activities, which is what eBonding is exactly all about. Then two things took place in the last decade, and are still continuing to happen. First of all, communication services became increasingly commoditized. For this reason service providers were forced to slash cost of doing business, and could no longer afford the assignment of a large number of account managers for each of their business customers. Secondly, communication services have penetrated into every aspect of customers' business, and become increasingly mission-critical to almost all customers. As a result, no large enterprise customer would choose a telecom service provider that is not ready to offer first-class eBonding services.

The benefits of eBonding are real and enormous to both service providers and their customers. To service providers, the benefits are threefold: 1) internal cost savings achieved through process automation, 2) increased revenue and reduced penalty through faster service provisioning and incident resolution, and 3) improved customer satisfaction and retention. The benefits in the first category can also be achieved if a service provider adopts a web portal approach and integrates its back-office applications with the web portal server(s). However, as we will discuss later, such a web portal approach may not be appropriate or sufficient for many large enterprise customers. The savings derived from the second benefit by a service provider can also be significant. Internal studies show that even just for a medium-size enterprise that opens 200 trouble tickets and creates 20 orders per month, the annual savings for the service provider by eBonding the customer can be well over $90,000. And without a doubt, the benefits from improved customer satisfaction and retention are very hard to quantify monetarily if not priceless. Losing an enterprise customer may result in the loss of millions of dollars' annual revenue for the service provider. On the other hand, enterprise customers can also greatly benefit from eBonding. As communication services are mission-critical to most businesses nowadays, shortening service provisioning time and network outage time enables companies to be more agile and competitive in the marketplace. Of course, eBonding also reduces the amount of manual work and operation costs for enterprise customers, as much as it does for service providers.

Integrating with an enterprise customer is not a simple matter. In fact, it is usually more difficult than integrating with another service provider because most enterprise customers are not service providers themselves and therefore do not really understand the service provider's terminologies, processes and standards. Connecting two dissimilar environments is often harder than connecting two similar ones. More often than not, the integration goes beyond merely allowing one system to send/receive messages from another system. It needs not only to support complete business scenarios such as ordering, incident reporting and resolution, change management, and inventory synchronization, as illustrated in the diagram below, but also – or at least by enabling others – to handle exceptions and reconcile any discrepancies caused by such exceptions.

Many of these inter-company processes are still carried out through faxes, emails, phone calls, and web portals. They are tedious, time-consuming and error-prone.

The web portal solution that many service providers use today works well, for consumers and small/medium businesses. But large enterprise customers demand an automated solution that is fully integrated into their business processes.

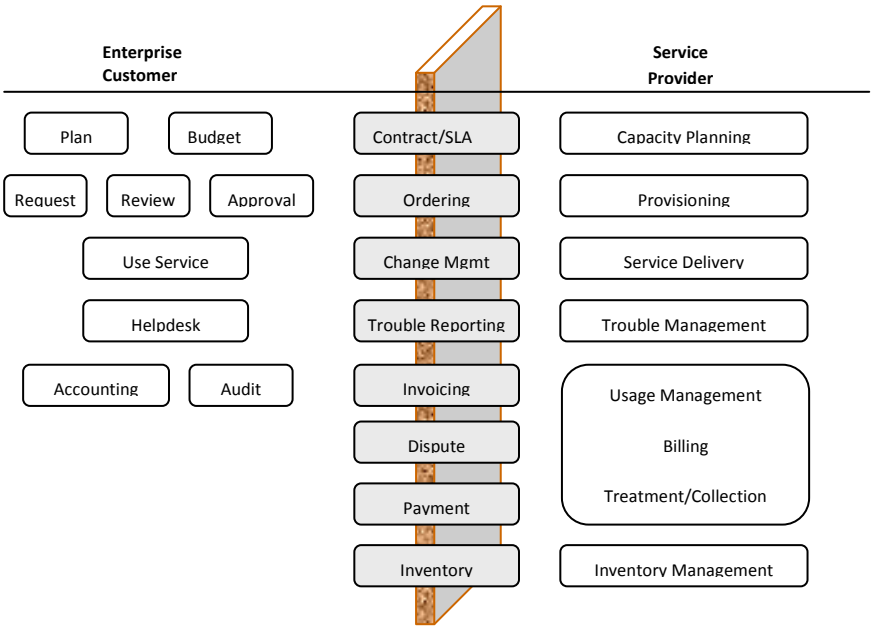

Figure 1. The inter-company processes

In the diagram above, each row represents the process that each corresponding business scenario consists of. Some of the steps in a process are in the customer company and others reside with the service provider shop. More often than not, neither side truly understands the other one's processes. These disjointed steps are supposed to be connected together by the inter-company processes (in shaded boxes). Today, many of these inter-company processes are still being handled manually through phone calls, emails, faxes and web portals. Even with web portals that are considered a more advanced approach, customers still have to take the data out of their own systems and re-key them into the service provider's web page, as illustrated in the diagram below. These manual processes are error-prone and expensive. To reduce the operation costs as well as improve customer satisfaction and retention, service providers, especially large tier-1 service providers, must streamline, integrate and automate these inter-company processes.

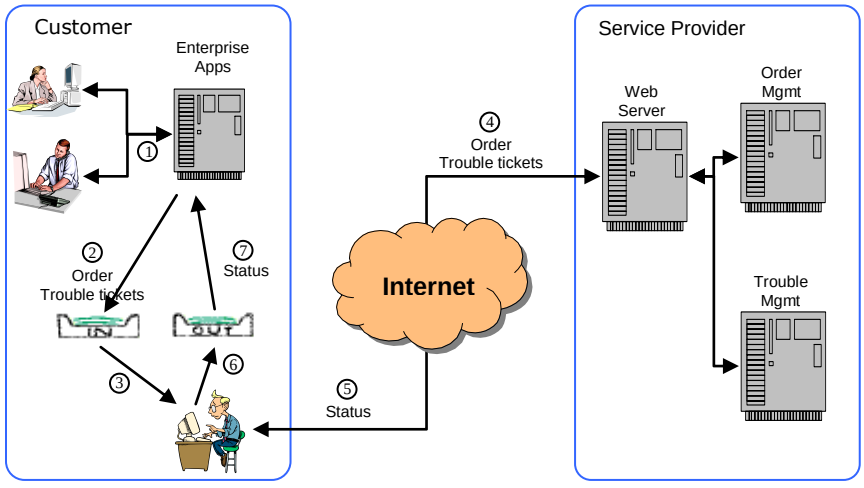

Figure 2. The limitation of web portal

This white paper will focus on two major challenges for customer eBonding: 1) deploying an eBonding solution to a large number of customers with diverse IT environments and capabilities, and 2) managing and maintaining a large number of such integrations on an ongoing basis.

Integrating With A Large Number of Customers

With enough time and money, a service provider can integrate with any one of its enterprise customers. Usually such an integration process includes the following steps:

1. Customer qualification – to make sure the customer has an adequate internal IT infrastructure to be integrated with, after ascertaining business justification for the integration.
2. Customer education about the eBonding solution – to make sure the customer understands
   - the benefits of eBonding
   - the impact that eBonding will have on the customer's existing processes and operations
   - the interfaces the customer needs to use to communicate electronically with the service provider
   - the process for ongoing maintenance, and
   - the overall cost and resource requirement
3. Requirement analysis, architecture and design which includes
   - Understanding customer's processes, workflow, data model, IT architecture, internal systems' API, security, performance and availability requirements,
   - Identifying user cases to be enabled and supported by the integration
   - Modifying the existing architecture to incorporate the new systems, applications, data and interactions required for the integration
   - Evaluating and selecting hardware, software systems and components, and communication protocols that are required to implement the integration
4. Implementation – to procure, install and configure any required hardware/software systems, make necessary changes to existing systems, and develop any new software required
5. Testing – to make sure all the scenarios work as designed. This usually requires joint efforts by the customer and service provider
6. Training – to make sure all people involved know what they need to do in the new, integrated environment and how to handle and recover from exceptions
7. Migration to production – to promote the tested implementation to the production environment and transition from the old way of doing business to the new one
8. Support – to resolve problems in the implementation

Even if the customer or a third-party integrator performs all the integration tasks on the customer side, many of these steps (e.g. steps 2 and 5) can be very time-consuming for the service provider, especially if the customer is not familiar with the

service provider's terminologies, processes and interface technologies, such as XML, PKI, SOAP and Web Services. Hence, to integrate with hundreds, or even only dozens, of customers using the traditional integration methods, the time and money required would be prohibitive to the service provider. Therefore, the integration solution itself must be scalable. One way for the service provider to make the integration solution scalable is to make the bulk of the solution "identical" across all the integrations with its customers. To pursue scalability, many service providers simply publish integration interfaces (usually a Web Services interface) and ask their customers and partners to reach for it. This does make all the integrations "identical" from the service provider's perspective and seems to minimize what the service provider has to do, but in reality it creates a lot of problems for the service provider as explained below.

Because of the nature of the relationship, when an enterprise customer, especially a large one, runs into problems with the integration regardless of the cause, the service provider has to step up with help. Depending on the level of experience that the customer has with integration over the Internet, the customer may need help from the service provider in order to

- understand what XML, SOAP and Web Services are and how to use them
- interpret the service provider's terminologies, interfaces and protocols
- acquire, install and configure public key certificates
- acquire, install and configure Internet B2B integration software
- configure security firewall and internal network to open up only the necessary communication channels
- debug errors in the integration solution, and
- interpret and handle exceptions and error codes from the service provider

In general, the more work that a customer has to do, the more support the customer would need from the service provider. If any of these support is not provided when needed, a lot more effort will be required from the service provider later to help the customer correct its implementation during testing and even production, make internal changes to accommodate the customer's implementation, and/or find ways to salvage a botched integration and strained customer relationship.

eBonding a large number of enterprise customers requires a proven, scalable solution that productizes most of the eBonding integration.

The correct approach for the service provider is to go beyond the wall in Figure 1. The service provider should understand thoroughly the basic processes that most of its customers use to interact with it for ordering, problem reporting, invoicing, payment, and inventory management. Based on such an understanding, it should come up with a software/hardware integration component(s) or toolkit that encapsulates as many of its interfaces, protocols, data formats, and security requirements as possible. When such a component is deployed, it can communicate correctly and securely with the service provider's systems with very little, if any, effort from the customer. Furthermore, this component could include integration-enabling functions such as data transformation, rule validation, reliability enhancement, Web Services interfaces and APIs so that it can be easily integrated with the customer's internal systems and processes. The data translation capability allows both parties of the integration to continue to use its own terminologies, data formats and protocols without having to learn and accommodate those of the other party. This will maximize the consistency among different integrations, significantly reduce the time and resources required for steps 2, 3, 4, 5 and 8, and thus the total cost of the integration by up to 75 percent. This is what we call an "asymmetric" integration approach, i.e. the integration

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boundary is not at the center between the service provider and the customer, but much closer to the customer. For more information about this asymmetric approach, please refer to the white paper, *Using Asymmetry to Achieve eBonding Scalability*. With an asymmetric approach, each improvement to the integration solution has a greater chance of being applicable to all customers.

As we will see in the section below, if this integration component is packaged properly, it can also help to address the second key challenge of customer eBonding: how to manage and maintain a large number of such integrations over time.

Managing and Maintaining EBonding Solutions

Maintaining ongoing integration between two autonomous companies, i.e. each can make changes to its data, processes, applications, systems, network, organization and personnel regularly and independently, is often much harder than doing the initial integration. Such changes usually cause a profound and often unpredictable impact to the integrated solution. Changes to data and processes can cause the two sides to get out of synchronization. Changes to applications, systems and network can lead to loss of connectivity and breakdown of workflow. Changes to organization and personnel may result in permanent loss of knowledge about the integration required to support the integration. Such challenges will grow rapidly out of hand for a service provider as the number of eBonded customers increases, if each customer is integrated differently than the others. To address such challenges, two steps must be taken. The first has been discussed in the last section, i.e. the integration must be made "identical" across different customers. The second is to make the integration solution manageable and maintainable.

Maintaining the integration between two autonomous companies…is often much harder than doing the initial integration. The eBonding solution, therefore, must minimize and facilitate the ongoing maintenance and support.

A manageable and maintainable integration solution should have the following features and characteristics:

- loosely-coupled by encapsulating as many of the specifics as possible into the right places
- remote manageability that includes monitoring, starting/stopping, and configuring the integration solution remotely, backing up data, and generating alerts automatically
- management interfaces to leading enterprise system management applications to allow the integration solution to be managed by an enterprise system management application used by a customer and/or service provider
- remote maintainability that includes updating the integration software, managing version control for such software, and performing tests and regression tests.

A loosely-coupled architecture is very important to making integrations scalable and maintainable. We have written a separate white paper just on that - *Loosely-Coupled eBonding for Trouble Management*.

PartnerCommunity has developed an integration appliance that helps service providers make such integrations both manageable and reusable. The appliance can be monitored, managed and upgraded remotely in a holistic fashion, and also be treated like a plug-and-play black-box. By pre-installing and pre-configuring the appliance with the web integration software and the service provider's interface, data

format, and process, the appliance captures between 50 to 75 percent of the integration in a highly reusable form. Furthermore, using pre-developed application adaptors, the appliance can easily interact with leading customer applications such as Remedy and HP Service Center (formerly Peregrine) without any code development. When the service provider needs to change its data format or interface, such changes can be pushed to the appliances remotely and automatically. Any changes made on the customer side can be validated and regression tested against the appliance without impacting the service provider. As shown in the following diagram, the appliances significantly reduce the otherwise unmanageable complexity at the service provider's gateway so as to mediate the different characteristics of different customers, and help to push the asymmetric integration boundary well into the customer side.

The use of a specialized integration appliance for customer eBonding is proven to be cost-effective and scalable

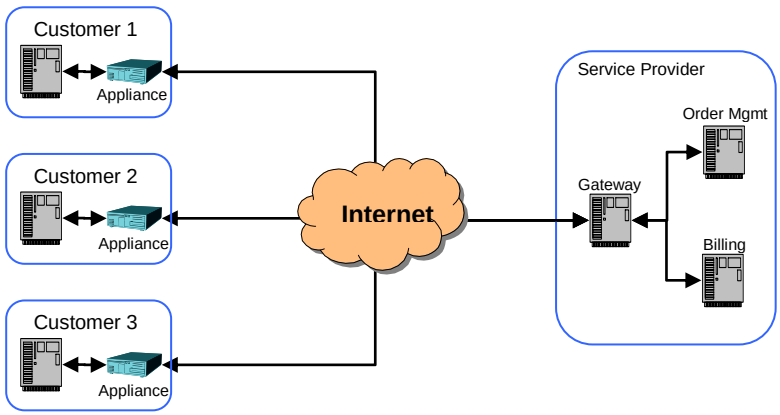

Figure 3. A scalable integration solution using integration appliances

PARTNERCOMMUNITY HAS THE RIGHT SOLUTION

The integration appliance is an innovative solution that PartnerCommunity developed specifically for leading service providers to address these eBonding challenges. It slashes both the integration and maintenance costs and makes it possible for a tier-1 service provider to deploy its eBonding solution to a large number of customers. The integration appliance has been certified and proven by leading telecommunication service providers. For more information about this solution, please contact:

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