Integrating Legacy Systems with Leading-Edge Travel Distribution Technology

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Introduction

Recent reports continue to reaffirm the importance of online distribution channels for both business and leisure travel, as evidenced by the following recent headlines:

“Aer Lingus profits down but online sales rise”
TravelMole.com, 15 April 2005

“A survey of 500 Internet-enabled Britons has shown that more than one in ten had bought a holiday or flight online during the past month”
e-tid.com, 13 April 2005

“Massive upsurge in online travel sales is predicted”
eye for travel, 7 April 2005

“Internet Booking Continues to Grow in Popularity among Business Travelers, Accenture Survey Finds”
Travel Commerce Report, 6 April 2005

“Direct hotel internet bookings continues to rise”
TravelMole.com, 5 April 2005

At the same time, the emergence of new Web booking and distribution technologies creates fresh opportunities for travel suppliers to market directly to consumers and upgrade their business overall.

- Online content and booking engines allow the supplier to reach both new and old customers 24/7/365, and to offer self-service research and booking tools.
- Booking and content systems with service-based APIs enable the supplier to distribute their product to new markets through affiliate relationships or distribution outlets.
- Sophisticated CRM applications make it possible to maintain detailed, timely, and personalized customer service and marketing communications with both customers and prospects.
- Reporting tools give business owners the ability to monitor and analyze trends and activity, giving them the information they need to fine-tune operations and respond to market conditions.
For some suppliers, however, these technologies and the benefits they afford seem out of reach because the business is built upon legacy technology systems that either lack these newer features or simply are incapable of supporting them.

As the gap between the new technology and the old grows, and as the business value of that gap becomes critical, the need to upgrade becomes unavoidable. Unfortunately, the obstacles to migrating to new systems can be prohibitive, especially for the small to mid-sized company. An enterprise-level bespoke system can take years to build and cost hundreds of thousands—or even millions—of dollars; customized implementations of off-the-shelf software can be equally cost-prohibitive. Further, operational costs can be immeasurable: for a company that has grown up around a collection of business processes over 20 years or more, converting operations to an entirely new platform can be traumatically disruptive to the business as a whole.

While the need to deploy new technology at the enterprise level is inevitable for most companies, limited integration of new technologies with legacy systems provides an upgrade path that mitigates the impact of change while still reaping a significant share of the advantages of the new systems. Further, if done with a long-term view toward open systems and service-based architecture, this approach can be more than a stopgap measure: it can be the first step toward transitioning the business toward a strategic enterprise architecture.

**Example:**

**Company Profile: XYZ Tours**

- Has been in business for nearly 20 years
- Business runs on outdated VAX system
- Company maintains all inventory, bookings, passenger records, accounting and content in a flat file system
- Limited networking capability
- Company has a Web site but no DTC (direct-to-consumer) sales
- No CRM program in place
- All bookings come via phone or fax to call center
- No affiliate program in place
- Limited budget for technology improvements
- Requires measurable ROI for technology investments

Consider the example of the above established tour operator with a nearly 20-year-old, proprietary, VAX-based operations system. In this case, the operator maintains all of its inventory, bookings, passenger records, accounting, and content in a flat file system with very limited networking capability. The company has no consumer direct sales, so all business comes via phone or fax from reseller partners to call center reservations staff. This system makes it virtually impossible to make tours bookable online (either to agencies or directly to consumers), to make product available through automated distribution channels, and/or to make customer/passenger information available dynamically via the Web or to CRM systems.

**One Possible Solution:** Build a totally new system

**Rationale:** Implementing a new totally new system will:

- Allow the company to achieve significant business process improvements
- Fill existing gaps in:
  - Content management
  - Booking
  - Maintaining passenger/customer records
  - Networking applications and processes
  - Marketing programs
  - Affiliate program
- Integrate business processes for more efficient operations overall

**Implementation Timeline:** 1-2 years or more
A long-term solution that might be chosen by this supplier is to build a completely new, custom system that does all of these things and more. For the company that can afford it, this may be the right solution, but at best it can be expected to take two years or more to build and deploy, at very significant cost. Alternatively, this tour operator could deploy an existing enterprise software package. The direct cost of this path may be somewhat less, but the time to deployment (including vendor selection, customization, and implementation) is still likely to be close to a year or more. And in both cases, at the time of deployment virtually all business operations will have to be migrated to the new platform. To top it off, neither solution would allow the company to offer online booking, etc., for the duration of the build.

Integration with legacy systems and a gradual phase out and replacement of old technology will allow a company to continue a seamless business operation while upgrading business processes.

The Gap Solution – A Parallel Path

A viable option for a company in these circumstances is to take the parallel path of building the most critical functionality—e.g., a Web booking engine with e-CRM capability—and integrating it with the legacy system while the new system is being built.

Rationale: Integrating an interim solution will allow the company to:

- Begin to build online business channels immediately
- Begin to cultivate e-CRM operations immediately
- Develop and refine online workflows and models
- Introduce necessary changes to business processes gradually

Implementation Timeline: under 3 months

An agile Web developer, especially one with appropriate experience and an existing product or code base, could launch such a system in under 3 months. This approach allows the company to begin to reap the benefits of the online channel much sooner. Also, new business processes required for e-Business can be introduced more gradually,
and layered on top of existing processes, causing less drastic disruption to operations.

Finally, this approach gives the company the time and opportunity to build and refine online workflows and customer-facing applications. It is important to note that this effort will not be wasted: if the interim, integrated solution is built using Web Services or a service-based API, and if the new system being built also includes such an interface (which should be an absolute requirement), then it should be relatively easy to re-connect the now-established Web front-end to the new back-end system.

This last point is especially valuable in the case of affiliate or partner relationships and automated distribution channels. A Web Services-based interim solution allows the operator to begin developing the kinds of distribution channels made possible by the Internet. Partner resellers can integrate product directly into their own e-Commerce systems; GDSs and other distribution networks can make product available through multiple outlets; and smaller agencies can sell tours through white-label Web applications. When the new system comes online, these channels do not need to be re-built; rather, the services can be re-connected to the new API in the background, without disruption to the downline consumers.

**Integration as an Alternate Path**

In some instances the option of integrating an interim solution is not just a viable option as a parallel path, but really is a preferrable solution on its own. Obstacles to deploying an entirely new enterprise solution can include:

- Lack of sufficient funds for IT investment
- Lack of resources to manage extremely large implementations
- Lack of management support
- Questionable ROI value
Under these circumstances, integration with legacy systems allows a gradual phase out and replacement of old technology, which in turn allows a company to continue a seamless business operation while upgrading business processes.

**Web Services provide an abstraction layer that separate front-end UI from both the data and the business logic of the booking system.**

**HOW IT WORKS**

A Web booking engine for a tour operator like the one in the example above has four key components:

**Web User Interface**

This is the public face of the booking engine: Web pages that allow the end user (consumer or travel agent) to search and display product, specify booking details, and make payment. To be successful, like any Web UI, this interface must be well designed and user-friendly, and fit the supplier’s business.

This component, in particular, can be refined over time, and re-used if and when a new back-end system is deployed.

**Web Services API**

Web Services provide an abstraction layer that separates front-end UI from both the data and the business logic of the booking system. All transactions—searching the product database, displaying product content, capturing booking details, displaying price recap details, submitting the booking, and returning confirmation information—are defined as standardized methods of the Web Service. This interface serves the Web UI described above, as well as partner Web sites, centralized distribution systems, etc. Any interface that has access to the Web Service can request product data and submit bookings.

**Database**

Assuming that the legacy operations system is effectively closed, data—including both product data and bookings—is managed in a local database. The Web Service, described
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above, is responsible for communicating data between this database and the various front-end UIs.

Note that this database is required only because the legacy system cannot, in our example, be accessed directly. If this integration were being performed on a more modern database that could be accessed by the business layer of the Web booking engine, this database would be unnecessary. And if/when a new enterprise system is deployed, the existing Web Services can communicate either directly with its database or with its API.

Data Integration Module

Finally, to be integrated, the Web system must be able to exchange data with the legacy system. The degree to which this can be accomplished depends on the nature of that system, and the amount and kind of data available in it. The system described in our example—a closed, flat-file VAX system—has no native capability to exchange data, so a creative, custom solution must be devised. One option is to build a communications module on text files:

- The Web booking engine is pre-loaded with product data extracted from the legacy system, supplemented by richer product information (images, HTML text, etc.) managed via the Web system and its database.

- Routines are written on the legacy system that export availability data and booking records to text files on a scheduled basis.

- The Web system periodically polls a specified directory for these updates, parses them, and updates its inventory data.

- Similarly, all bookings made online are written to text files placed in a directory for the legacy system.

- Again, custom routines are added to the legacy system to import the text files, parse them, and import them into the native data structure.
In this way, bookings can be taken online against almost-live inventory, and the ultimate management and “ownership” of the booking record can stay with the legacy operations software.

**EXTENDING THE CONCEPT**

The underlying principle in this example is that while a company is addressing systemic technology issues at the enterprise level, they can also start from the other end, as it were, and work backwards: deploy a solution that uses available new technologies on the front-end to gain business advantage, and integrate with existing systems until the new platforms come online. For the travel supplier, similar opportunities exist in other areas as well:

**GDS Integration**

All of the major GDSs, and of course the GNEs, are somewhere in the process of deploying Web Service-based interfaces to their systems. While this technology opens many doors, especially for travel portals and dynamic packagers, it also creates opportunity for smaller players to integrate select pieces of GDS functionality in their online booking engines. For example, the tour operator that bundles negotiated net airfares with their land product can offer real-time availability and booking of that air inventory in their Web booking engine. Customers can be encouraged to purchase the land and air product with the reassurance that they are getting specific flights on a known carrier.

**IVR**

Once a bridge to the operations data is created, the ability to give customers access to booking and payment data using IVR technologies is a relatively small step away. In addition to the Web, customer service can be extended to a telephone-based system for even greater customer service quality and reduced cost.
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As the President/CEO of Electric Vine, Joshua Rich has been providing technology solutions to travel companies for more than 6 years. He has extensive expertise integrating web and CRM applications with booking and transactional capabilities. He is a Web Services fanatic. Based in New Jersey, he can be reached at jrich@electricvine.com

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As Director of Travel Technology, Ben oversees strategy, design and implementation for all projects under EVI’s travel division including R & D. A former internet marketing director for a major national travel agency, he brings a deep knowledge of how travel companies can leverage the power of the internet to expand business and create new revenue streams. Based in New Jersey, he can be reached at bvonk@electricvine.com

e-CRM

Numerous services and software packages exist for sending marketing e-Mail messages to lists of customers exported from an operations system or maintained in a separate marketing database. Integration-friendly e-CRM tools, on the other hand, can be layered directly on top of the operations system, opening the door to far richer and more personalized relationship-building opportunities. If the CRM solution can reach into the operations database, the business can build automated campaigns of triggered events, such as pre-departure reminders (with cross-sell messages), trip-specific content, timed reminders or teasers to reduce cancellations, etc.

Reporting and Analysis

The ability for business owners—C-level executives, marketing leaders, etc.—to get detailed information on their company’s performance is crucial to their ability to manage the company toward continued success. In the past, such information was often limited and delayed, available only after extensive analysis of old activity data. In newer enterprise systems, sophisticated reporting features make this information much more readily available. An integration strategy, however, can accomplish much of the same functionality even on legacy systems: flexible reporting tools can be layered on the legacy systems, giving current and detailed reports and trend analysis of purchases, the performance of channel partners, web site behavior, ROI on marketing and advertising campaigns, and more.
About Electric Vine:

Electric Vine Inc. is an established Internet software consulting and interactive marketing firm with more than six years experience specializing in the development of high-profile, business-critical Web sites and Internet software applications across a wide array of industries and sectors with specialization in the vertical markets of Travel, State Government and Medical-Pharmaceuticals. Electric Vine is located in Somerset, New Jersey and employs a staff of 25 people including software designers, programmers, product managers and marketing & design professionals.

Electric Vine Travel Services:

EVI specializes in the travel industry in the development of high-profile, business-critical Web sites and Internet software applications. EVI’s Travel Technology Group will assist you in opening new distribution channels to reach more customers while reducing operating costs and increasing efficiencies. Solid travel industry experience, a core group of SMEs (subject matter experts) and expertise in Web Services combined with a commitment to understanding and growing your business are the hallmarks of Electric Vine.

EVI offers a full range of consulting, development, and integration services, including:

- Web booking engine development & integration
- GDS & supplier Web Services integration
- Direct-to-consumer strategy & implementation
- Online affiliate/agency reseller support
- Dynamic Web content management systems
- e-Commerce development & integration
- e-Marketing/CRM strategy & implementation

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