Shaking the Supply Cart
An Automotive Data Interchange Industry Overview

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Abstract

What occurs when a stable commerce sector suddenly undergoes a radical reformation? EDI[1] over VAN[2], an aging industry[3] of private networks bearing commercial transactions, is now in the cross-hairs of upstart competitors specializing in the secure carriage of B2B transactions over the Internet. While hardly an afterthought in B2C mega ventures, the EDI over Internet reformation is creating great turmoil in the world of supplier e-commerce. The fulfillment of orders, advisories, invoices, and bills of lading will never be the same. This change could be seen broadly arcing over the horizon while dominant players simply failed to react, and, in the case at hand, their fall from grace shall be a bitter pill.

EDI is nothing more than quasi-standard business documents (files) exchanged between CLOB[4] systems. The supply chain has relied upon dedicated routes and direct connections between peers for a long time - up to 90 % of data carriage and services revenue for the industrial supply chain is sourced from EDI riding over private (VAN) interconnects. Typically, these peerings have occurred between manufacturers and suppliers who are of roughly comparable size. A good example of the foregoing is the EDI peering relationships between the big three (GM, Ford, Daimler) and their troubled mega-suppliers, such as Delphi and Infineon. A nightmare of multiple overlapping interconnection scenarios exist for those trading partners not occupying the top levels of the supply chain, accompanied by numerous potential incompatibilities spawned by subtly modified EDI documents. All of the foregoing has led to numerous initiatives to flatten data models throughout the automotive industry, and to make the Internet a secure medium of exchange for B2B commerce data; such was the research directive that led the author to the present client, resulting in a featured Report on these dynamics.[5]

EDI's slow expansion has attempted to encroach upon all levels of the supply chain, but has failed to fully penetrate mid-tier suppliers due to incremental expense[6]. Until quite recently, implementing an EDI solution was at minimum an upper midrange IS solution. Prior to the advent of EDI over Internet and Supplier ASPs, the ante for a comprehensive EDI system's edge integration with a supplier's rapid replenishment system might tally several hundred thousand dollars (or more) in software and services.

Technology is a benevolent mistress, however, and the vendor community has been incredibly fecund in developing a remarkable panoply of solutions to enable EDI for ever smaller suppliers. With the dissolution of the domestic auto trade, and two of the largest OEM suppliers in receivership, the role of the midrange supplier has taken on a new urgency. In addition, the Japanese Automotive Industry's investment in American plant infrastructure has elevated the role of domestic suppliers unpolluted by the UAW's 'New Deal Mindset'. These fortunate suppliers, the shattered remnants of US industrial capacity, are eagerly taking up the EDI gauntlet in order to trade efficiently with their new found masters. It is these mid range suppliers, and other segments of the automotive trade, that will reform the B2B communications landscape.

The largest generator of automotive data networking revenues belongs to the retail dealership and after-market sector, where transaction volume and value added services far outstrip the modestly sized supplier value chain. This sector is wholly dominated by two large conglomerates who can no longer be properly classified as VANs, as their delivery of services is provisioned end-to-end. Industry revenue accounting for these leviathans are often

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[1] Electronic Data Interchange, EDI
[2] Value Added Networks
[3] Thirty Years of Automotive OEM to Supplier Commerce
[4] Capital Line of Business - ERP, Manufacturing Automation, Warehouse and Distribution; in short, any core system that runs the business.
[5] XML NETWORKS OPPORTUNITY / RISK PROFILE AND AUTOMOTIVE INDUSTRY SURVEY, January 1, 2007
[6] Electronic Data Interchange Study, Drexel University 2002

broken out separately from the automotive industrial supply and contract manufacturing sector for composite assemblies.

This monograph prefaces the encompassing report on Automotive Industry XML networking, placing within context data exchange modalities available within the contemporary vendor stream. The EDI industry is in the midst of a, *'delayed Internet revolution'*, and this dynamic is altering the landscape for those anticipating a move into the sector. These changes are occurring in real-time, in the earthly present.

This monograph deals strictly with the industry as it is today, and how it may appear tomorrow, nascent XML standards aside. SSFO R&D is closely monitoring trends emerging within the automotive XML standards upheaval, and is presently evolving product and architectural strategies to anticipate future opportunities.

I. Demise of the Smokestack Era VAN

Within the automotive sector, some of the earliest constructs of industry sponsored legacy-to-legacy interconnections were genuinely unique analog networks relying upon dedicated circuits, pre-X.25 systems, and much latter, Frame Relay networks. For the Author, (a pre-consent decree, CWA card carrying, Central Office 5ESS Frame Jockey), peering arrangements between automotive manufacturers (OEM) and suppliers of the first tier have always offered a fascinating study of prehistoric private data networking practices. Long before the advent of T-Carrier digital transmission systems, and the Client / Server computing revolution, the big three were dealing with the first legal constructs of non tariffed common carrier licensing outside of the AT&T monopoly.

What was to become known as 'Value Added Networks (VANs), were, at the time, private data interconnection services with very little or no added value whatsoever. The picture today, for these holdovers of yesteryear's automotive smokestack past, is very bleak indeed. Case in point: ANX. This private exchange primarily services old-line automotive supply chains, connecting databases and ERP systems to supply chain partners using bi-directional peering. Only recently has ANX offered tunneling, extranet services, VPN, and, ostensibly, modern services, such as layered identity and commerce portal broker services. Actually, to gauge from the ANX web site, such updated services may be unavailable, as any link to 'find out more', leads to an 'under construction', page. The news gets worse, however.

ANX was acquired by SAIC, an IT conglomerate, and within one year, divested, set free, and charged off to P&L as a non-performing asset. ANX has reduced its workforce to 20 employees, down from around 300 at the peak, with barely enough time to update its web site with the news that ANX is no longer an SAIC property. ANX is victim to the same torpor that infected the USA automotive industry in general, with comparable and far ranging disastrous consequences.

What is true for ANX and ENX (the EU Counterpart) will likely become manifest destiny for hundreds of other specialized private interconnection consortia, i.e., without the ability to deliver genuine added value, delivery of applications, and a comprehensive services package for enabling small and medium sized businesses, the future is bleak.

EDIINT and Supplier ASPs, amongst other forces shaking up the B2B sector, are causing heartache and almost certain failure for what was once a proud product of the Telcordia family. ANX is merely one of many sad stories yet to be told in the old-line EDI business.

II. The New Face of EDI

EDI over Internet and B2B Hubs[7] are changing the face of an old industry, and opening the door to smaller companies that otherwise could not to afford to trade using direct e-commerce systems. The Internet has not only reduced costs for the transmission of EDI data, (in some cases exceeding 50%), but has also multiplied available options for suppliers managing order fulfillment. EDIINT has also reshaped the options for upstream buyers dealing with smaller suppliers.

In the past, large buyers striving to include eager mid-sized suppliers were forced to recommend, or

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[7] B2B Hubs are commerce enabling, specialized application servers that are optimized for supply chain transaction orchestration as well as for streamlined integration with ERP and CLOB systems.

reluctantly mandate, costly midrange IS systems that were EDI compliant. Today, EDIINT and commerce enabling applications, such as B2B hubs, allow organizations such as Walmart to standardize on the EDIINT AS2[8] standard, thus allowing vendors configured as thin clients to participate as a spoke in the supply chain.

The options for Internet trading and supplier enablement go far beyond thin-client access, as a wide range of systems and solutions may be accommodated via Web Services, composite applications (SOA), and outsourced integration. An important revelation is that commerce hub systems also provide for the orchestration of commerce transactions between partners, bringing the benefit of automation to a far more diverse community. This underscores a vast distinction between old line modes of EDI commerce, where only large enterprises could participate in such sophisticated transaction models, and the new world of Internet enabled EDI commerce, where even humble enterprises are granted access to previously unimaginable computing power.

III. Commerce Services Providers and Business Hubs

Application Services Providers (ASP) have certainly caused their share of disruption in a broad swath of industries. Supply chain system vendors and old-line VANs hardly have a valid case to complain. Under the nose of these very mature institutions, companies in the dotcom mold are now providing fee-based access to applications that once cost hundreds of thousands of dollars to license. These services now obviate the need for capital expenditures, systems maintenance, and a great deal of internal IT support.

ASPs such as cc-hubwoo, a French supplier enablement hub, and SupplyOn, make a zero footprint commerce application similar to Salesforce.com's solution for the sales professional. At first glance, B2B hubs and Commerce ASPs seem similar, but there are distinctions:

1. B2B Commerce Hubs are most often licensed and located at the Buyer's data center; in other words, an upstream buyer of some size is operating the hub (a fairly sophisticated application server), for the benefit its downstream spoke suppliers.

2. ASPs are a black box, often developed as entirely custom applications on large platforms. However, although nothing prevents ASPs from deploying B2B hubs, the additional account management and billing functions are not normally a part of B2B hub's stock features.

3. Although both systems are Internet platforms, B2B hubs by Seeburger and Boomi also specialize in transaction orchestration and streamlined attachment to ERP systems.

4. Commerce ASPs, although on the cusp of offering a modest set of integration services, are optimized for buyer and seller management, such as catalog publishing, invoices, inventory, and logistics.

   It all boils down to having access to the right size and type of solution, or being allied with a trading partner with the muscle to enable your commerce needs.

IV. The New Age, Multi-Layer Networks

Automotive OEMs are famous for sponsoring partnerships within the supply chain community in order to jump start initiatives that may lead to better efficiencies of scale. Case in point, Covisint, covered in excruciating detail in the main report. A product of the big three, Covisint was the most advanced network architecture for fostering enhanced systems integration between trading partners. The layered approach taken by Covisint, a combination of application agnostic and commerce specific features, is now a model for many New Age commerce providers. Although Covisint came to the brink of utter demise before being stolen by Compuware, the company finds itself at the center of the emerging market maelstrom of the Far East, and is the most profitable of Compuware's many fabled divisions.

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[8] Applicability Statement #2, EDI over Internet Protocol HTTP

Covisint's endurance has inspired competitors and copycats, some[9] already in the dead pool. Some of these network providers are specialists, such as ICC, an Internet VAN that also delivers applications and expertise, having just acquired Kodiak Group, an entity specializing in professional services and commerce system configuration - a smart buy by any measure.

If there is anything lacking in the New Age commerce networks, and this includes Covisint's grand vision, it is the Global reach needed to drop services into developing economies. Even Compuware, a 1.2 Billion per year enterprise, finds this aspiration a bridge too far. Compuware participated in the FT Labs XML Survey, and was forthright in exclaiming their unabashed enthusiasm for partnership with a global telecom.

Another fascinating EDI over Internet Provider is Loren Data, a wholesale EDI carrier that services other VANs wishing complex peering arrangements and sophisticated trading partner attachment. Loren is tiny, merely 20 employees and around 1M / year, but is growing its technology infrastructure. Loren's CEO, Mr. Todd Gould, is an EDI system's master, and a domain expert of phenomenal repute. Loren participated late in the Auto XML network study, and agrees with the author that exposing EDI interconnection service as Web Service endpoints and composite application components is a worthwhile construct, and in fact, Loren is well on its way to realizing this in practice. Loren Data would be a prime example of an affordable, like minded, target of acquisition.

The foregoing set's up our next and final topic - the consolidation of the industry by Global Carriers and Private Equity firms on a buying spree for B2B commerce enabling properties.

V.   Global Carriers and Industry Consolidation - the Glass is Half Full School, and the GSX push to China

The AT&T acquisition of Sterling Commerce and Comergent signals the birth of a new era of fully-formed commerce deliverables. Examination of the domestic and emerging markets reveals a stark trend toward the Small and Medium sized enterprise - this is where all the growth is occurring in the EDI business.

As OEMs and Tier One suppliers are saturated, locked in to capital IT systems, or just plain hurting, the B2B market is self correcting its alignment of services to cater to the SME. This significant trend is not just ripe for the domestic automotive value chains, but is even more profound for the Far East, where dynamic and collapsible supply chains are made up almost entirely of mid-tier suppliers. AT&T's astute study of the industry dynamics led the carrier to comprehend that merely offering interconnection services would not suffice for the 'less IT endowed' mid-tier supplier; these vital actors would need not only connectivity (a commodity with tariff margins on the wane), but also a full palette of B2B commerce enabling services.

The formation of this triumvirate was a miraculous and farseeing coup. Sterling Commerce, a thirty year veteran of large system, wide area, horizontal expertise, is now joined to a Global Transmission plant, and an innovative leader in web-based commerce applications (Comergent). This combination will allow AT&T to enter any market in which they have POPs, and present the widest array of choices to suppliers and manufacturers of any size and shape.

The ability to create bridges of functionality between enterprises of mismatched size and differing IT capabilities fosters an alchemical influence that grows emerging markets. Such providers, offering holistic, fully formed solutions (and executing with distinction), shall own the emerging markets.

General Electric's sale of its B2B VAN business unit, GXS, was unexpected. GE is well known for never divesting a performing asset. The writing must have been on the wall for such a violation of prime 'Welchian' principles, as GXS was a profitable division, albeit serving a troubled sector and facing stern competition. GXS was sold to a private equity group here in the bay area, Francisco Partners - a turnaround team that saw potential in the GXS unit serving one highly valuable market....the glass is more than half-full in China!

GXS still serves its domestic constituency, but the press package touts partnerships with a number of Chinese trade consortia. The complementary marketing message is that GXS, through its trade relations in the Far East, can help other global suppliers gain a foothold in this wild, emerging market.

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[9] Grand Central Networks, a creation of Halsey Minor, the founder of Cnet.com and an super entrepreneur.

VI. Summary

The purpose of this brief monograph was to whet the appetite before asking the reader to digest the main report's 69 pages of analysis. The Automotive Industry's vast footprint, and the highly dynamic commerce market, do not lend themselves to a brief study.

However, the author is hopeful that the main points of the discussion have been adequately drawn; that the industry is stratifying along the lines of old and new, dedicated connections vs. Internet routing, and services delivery as holistic offerings for the SME, as opposed to untenable mandates handed down from OEM to suppliers. If the reader is inspired, the author is, of course, available for extended comment.