

Tavant System Architecture for Sell-side Channel Management

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Abstract

This paper describes the challenges in building a next generation e-business solution that allows businesses to manage their sell-side distribution channels especially when the channels involve independent participants such as dealers and distributors. We present the Tavant platform that provides a solution to this complex problem and discuss some key components of the platform - the *X-tegration framework* that brings together the systems of the channel players, the *Collaboration framework* that allows the creation of collaborative business networks, and the *Application Delivery and Configuration framework* that enables easy deployment of the channel management features.

1 Introduction

Over the past few years, the web has revolutionized the way corporations conduct their businesses. From allowing companies to deal directly with customers, to enabling businesses to interact with one another in an efficient way, the web has impacted the functioning of businesses in a hitherto unprecedented manner. In this paper, we discuss the challenges in building a next generation e-business solution that allows corporations to manage their sell-side distribution channels. We discuss the dynamics of complex, fragmented and multi-brand distribution channels that involve various intermediaries (such as dealers, large buyers, etc.) and Tavant's unique approach to addressing its needs.

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Figure 1 illustrates an example sell-side distribution channel for a construction equipment manufacturer. The channel partners include dealers, distributors, and independent stores. The channel partners usually are independent, have their own geographically localized brands, and have relationships with multiple brands and/or manufacturers that may compete with each other. The channel partners are an essential part of the manufacturer's distribution strategy because they provide value added services like helping in product selection and configuration, supporting the after-sales needs of customers, managing the life-cycle of the products, and enhancing the value of the manufacturer's brand. Contrary to popular belief, the Internet will not dis-intermediate these critical cogs in the distribution wheel.

While the channel partners add great value and are critical to the success of a business, currently there exist no tools that help the manufacturer leverage the strength of the channel partners in an efficient way. Also, several channel factors have an adverse affect on the manufacturer.

- *Fragmentation/Autonomy*: Most channel partners (e.g., dealers) are localized, independently owned, and have a limited number of locations. Also, the business systems that run their operations are independent, isolated, and heterogeneous. This makes it difficult for the manufacturer to obtain integrated and up-to-date knowledge of their data and operations such as inventory, sales data, demand forecasting. For example, a manufacturer may not be able to view the inventory levels of the dealers in its sell-side channel.
- *Lack of knowledge of the customer*: The customers mostly interact with the channel partners and do not interact with the manufacturer. Thus, it is difficult for the manufacturer to understand the most important asset of its business – the customer.

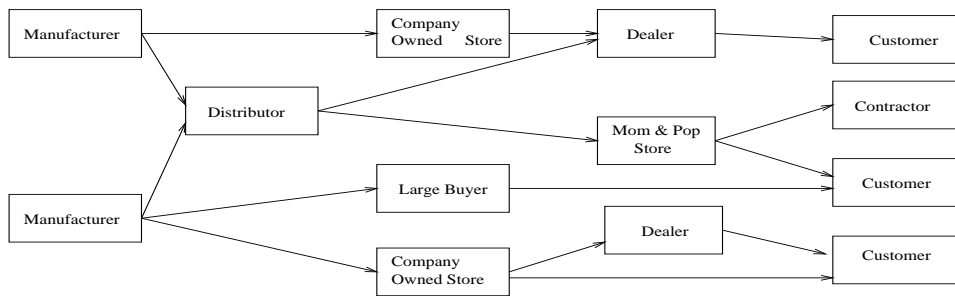


Figure 1: Example Sell-side Channel of a Large Manufacturer

Channel partners also face several difficulties that adversely affect their productivity.

- *Insufficient liquidity of inventory:* Most channel partners suffer from an inability to share resources such as inventory and customer information with their peers. For example, a dealer may not be able to satisfy a customer’s order by finding and transferring a product from another dealer. Sharing these resources can lead to tremendous benefits to the channel partners including better utilization of inventory and increased customer satisfaction.
- *Poor inventory planning:* For most channel partners, efficient management of the inventory is critical to the success of their business. The inability to share inventory supply and demand information with manufacturers leads to poor utilization of inventory. Manufacturers also face a similar problem due to their inability to access the inventory levels of channel partners such as dealers and distributors.

Finally, from the perspective of the customers, a complex distribution channel consisting of a variety of independent, autonomous channel partners ultimately leads to confusion and poor buying experience.

- *No single point of contact for after-sale needs:* Ideally, customers should be aware of only a single entity for their after-sales and service needs. Fragmented and loosely coupled distribution channel can lead to multiple points of contact for these needs leading to customer confusion.
- *No single point of contact for related product needs:* In order to get a seamless buying experience, customers should not have to deal with multiple sellers to obtain related products and services. A distribution channel that does not allow for sharing of resources and information among the partners will deprive the customers of their preferred “single point of contact” customer experience.

Tavant has built a sell-side commerce platform to specifically address the above needs by enabling manufacturers as well as the channel partners to better

manage the channel by improving communication between each other and with the end-customers. Tavant’s solution gives manufacturers more visibility into the channel, enables them to extend the reach of their brands, and allows them to participate in downstream revenues¹. Channel partners, in turn, get a solution that gives them access to the manufacturers resources such as inventory, allows them to participate in multiple networks where they can cross-sell complementary inventory to customers, and lets them manage their existing business relationships more efficiently.

Current sell-side solutions are focused on enabling manufacturers to establish direct relationships with customers. These attempts have not been well-received by the channel partners and have created channel conflict, resulting in limited success. Tavant’s solution, on the other hand, is architected to address the challenges in integrating complex distribution channels and is designed to empower the channel partners.

One of the important challenges in building a channel management solution is to bring together the existing systems of the various players in the channel. As enterprises electronically connect their systems they need a flavor of integration that we term *X-tegration*. Some characteristics of X-tegration are:

- The emphasis is on integrating business processes as opposed to integrating data alone. Data integration is motivated by and geared towards enabling process integration.
- The component systems typically reside at different businesses and hence are highly autonomous, heterogeneous, and loosely coupled. The X-tegration process has to function without requiring business process re-engineering.
- There is a need for *partial* integration of data and processes. In particular, the system should be able to function well in the midst of unknown information.
- There is a need for minimal interference with the functioning of the component systems.

¹Revenues generated after initial sale through services, parts sale, etc.

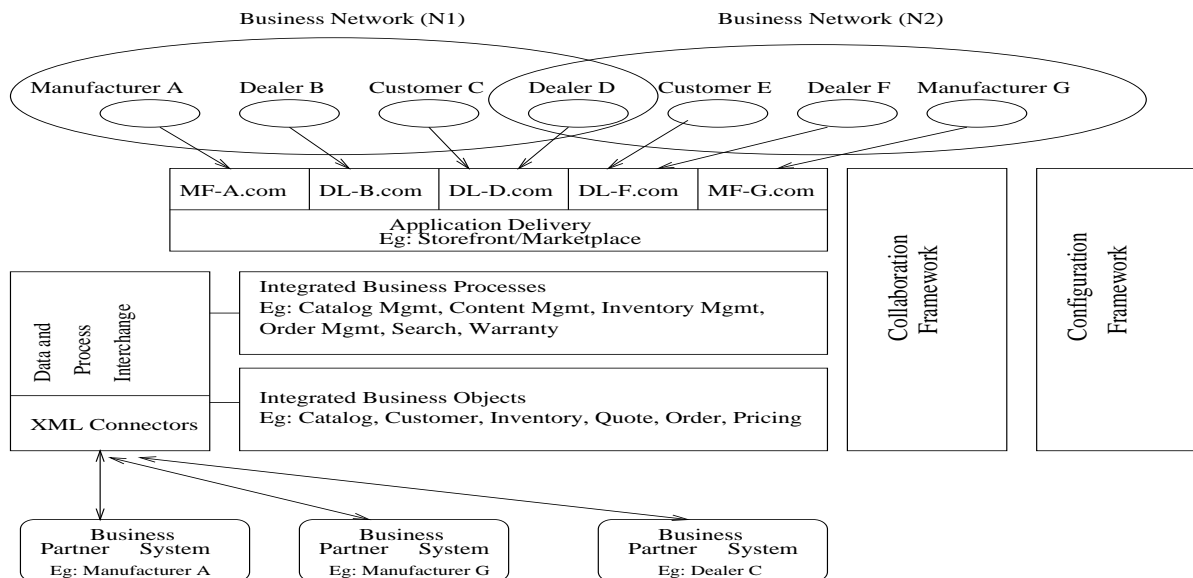


Figure 2: Tavant Platform - Application Architecture

- The integration process, if required, must be incremental in nature.
- There is a need for rapid deployment of the solution.
- The integration requirements are driven by business needs more than IT needs.

The above characteristics necessitate different mindsets, paradigms, and ways of building systems. Addressing the above needs of X-tegration forms a key component of the Tavant platform.

2 Tavant Platform

The Tavant platform is built on a flexible model and consists of a variety of features that address the complex needs of channel management. In this section, we discuss three important frameworks of the Tavant platform.

As discussed in Section 1, an important aspect of a channel management platform is its ability to integrate existing data and business processes of its component systems. Equally important is the ability to aggregate this information in different ways to create *business networks* - an amalgamation of channel members that share data and processes in a meaningful manner. The Tavant solution is built on the tenets of *Business Object Integration*, *Business Process Integration*, and *Collaborative Business Networks*. We discuss the first two integration aspects in section 2.1. We discuss collaboration in section 2.2. In section 2.3, we discuss the framework through which the various features of the Tavant platform can be deployed on the web for diverse customers.

2.1 Data and Process Integration Framework

The requirements of channel integration are similar to those of X-tegration outlined in Section 1. The Tavant system architecture shown in Figure 2 is built to address these needs. The integration framework consists of an *Integrated Business Objects* layer that is built on a common model to which component systems' business concepts and entities (such as Orders, Inventory etc.) can be mapped. This common business object model is highly flexible and allows for integrating business objects from a variety of disparate component systems such as ERP systems, Sales-force automation systems, and proprietary business systems. *The Integrated Business Processes* layer provides a set of traditional business processes (e.g., Order Creation, Catalog Management) as well as enable novel business processes such as inter-business inventory sharing. The common business object model is geared towards an easy integration of these business processes rather than a deep semantic integration of highly diverse business data.

The process integration layer enables various business processes on the integrated business objects. Besides providing for automation of traditional business processes (such as Order creation and Order Status checking), it also provides several novel processes that are useful for businesses. Examples include (a) creation of a virtual inventory from the individual inventory of component companies that can be easily accessed via features such as advanced search and browse, (b) allowing for inventory transfer requests between companies, and (c) report generation on inventory in the entire network.

The integration framework enables better communication across different businesses rather than cater

to the requirements (typically of a IT department) to unify different systems within a business. The framework also supports partial integration of systems where only certain specific modules of a system (such as Inventory Management) can be integrated. Also, the integration layer allows for continued operation of the component systems and acts as a complement to these systems instead of acting as a replacement.

2.2 Collaboration Framework

Another key feature of the Tavant platform is the Collaboration framework that allows businesses to come together to form “business networks”. A business network is a set of companies that collaborate to share resources and perform business processes according to a set of rules. The collaboration framework provides a model for grouping resources (such as Inventory, Customers etc.) in meaningful ways that can then be associated with the business networks. It also provides mechanisms to setup rules and to specify operations that can be performed by the business network members on the resources in the network. For example, an equipment manufacturing company can form a business network comprising all its dealer companies. The inventory of all the dealers can then be grouped together to form a “Virtual Inventory” of all the dealers inventory. Rules can be setup that allow all the dealers to view and search the inventory of other dealers, and to use that inventory to fulfill orders. The manufacturer can also setup the business network to allow certain preferred dealers a view into its own inventory levels.

2.3 Application Delivery and Configuration Framework

The Tavant system is a web-based application that is offered as a hosted service (ASP) to its customers. As shown in Figure 2, the application delivery layer allows for creating a website associated with a business network and makes the network’s business processes and data visible through the website. For example, a manufacturer network website (e.g., MF-A.com in Figure 2) can enable the manufacturer to view information about all its dealers and to process orders placed by dealers on the website. As another example, a dealer can setup a dealer-specific website, also called a “store-front” (e.g., DL-B.com in Figure 2). A dealer can also share its inventory information with other dealers in its network (e.g., Dealer F can share its inventory with all dealers in business network N2).

A website corresponding to a network can be customized along various dimensions such as:

- **Data** : Select from available product categories; filter products based on attributes such as manufacturer.

- **Operations** : Choose from available applications such as Sales (New/Used), Rentals; choose from various workflow models such as *Instant Orders*, *Request-Response-Confirm*, and *RFQ*.
- **Presentation (Look-and-Feel)** : Choose from a set of UI styles; pick branding, logo, and colors.

The Tavant configuration framework caters to the these complex configurability requirements for application delivery. One of the important challenges in architecting this framework is to support these high-configurability requirements in a single platform. Further, the interplay between the various functionalities and the variety of configuration needs also pose special challenges – for example, supporting keyword based product search on a large number of websites with varying data filters on each website. The Configuration framework has been architected with the aim of enabling our solution for “*configurability without custom programming*”. This approach, unlike many ERP solutions that require programming and huge deployment costs for client-side customization, allows for easy and rapid customization of Tavant’s solution.

3 Conclusion

Tavant’s sell-side channel management solution focuses on maximizing the economic value of sell-side distribution channels by making it easier for all participants (such as dealers, large buyers, etc.) to interact, leverage each others knowledge and customers, and gain transparency in the channel. The platform addresses the X-tegration needs for the sell-side channel, enables collaboration between players in the channel, and delivers a variety of channel management features on highly configurable websites with low customization and deployment costs.