n-Tier CPFR

A Proposal

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Introduction

This paper represents an update and extension to the original n-Tier CPFR concept that was introduced late in 1999 at a CPFR Committee Meeting. Rather then duplicate the original paper, this shorter update will review the original premise and define more clearly where n-Tier fits and works. It is assumed that the reader has a basic understanding of the CPFR business model.

In 1999 it was clear that CPFR would grow to be a major component in the arsenal of any major Supply Chain Management initiative. Further, it has become such a value-add service that it has now been recognized and supported by some of the largest B2B Trading Exchanges and Net Markets, such as Transora, World Wide Retail Exchange, GlobalNetXchange, and CPGMarkets.

As CPFR has evolved

Collaborative Planning, Forecasting and Replenishment® (CPFR®) is arguably the most leading-edge B2B relationship model for the bulk of non-commodity based B2B e-Commerce replenishments. It is an industry and technology-open process model that transcends industry segments. It leverages the best components of Efficient

Consumer Response (ECR) and Vendor Managed Inventory (VMI). More importantly, CPFR is the only process model that exclusively focuses on the "2" in B2B. The great majority of other so-called 'collaborative' efforts focus on the physical exchange of data or the simple web-enablement of information in order to provide visibility. There are other true collaborative processes that focus on the "2" in B2B and they typically focus on product design. However, these are very specific to industry segments and CPFR is industry agnostic.

One way to describe a B2B relationship that is based on CPFR is a "value chain". A Value Chain is a buyer (demand chain) and seller (supply chain) tied together in a manner that data is exchanged, systems and processes are integrated, and business plans (replenishments and sales forecasts) are jointly derived and executed against (collaboration). Consequently the very use of the phrase "supply chain" generally results in a discussion around the seller's enterprise – and "demand chain" around the customer or market. A value chain brings the two groups together and forges strategic relationships.

Historically, CPFR grew out of the retail consumer goods industry. Today, CPFR as a transportable model is being adopted "as is" in numerous industry segments and countries. Recently the very model itself has been extended to include the Carriers in a more rounded "3-way" CPFR model. This allows buyer, seller and carrier to come together to exchange key information, provides visibility to status data and conformance to plan, and then provides processes to jointly derive the plan itself. This is the very essence of (true) collaboration. This new initiative is called Collaborative Transportation Management, or CTM, and is a sub-committee under the VICS Logistics Committee.

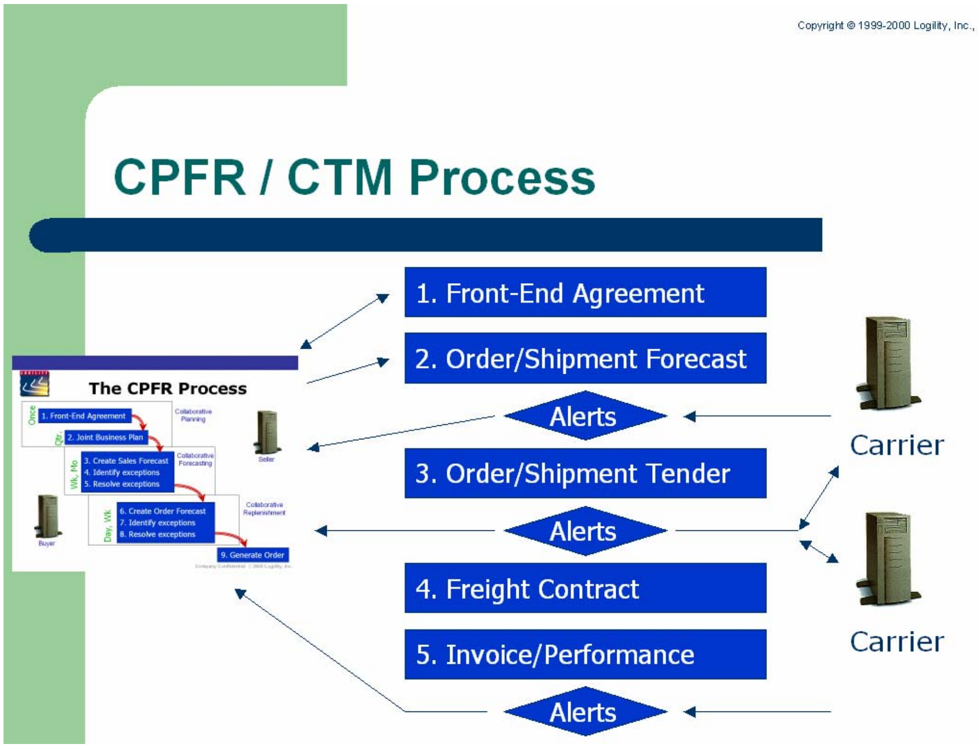

Figure 1: Potential (true) collaborative processes;
CPFR extended with CTM for
Collaborative Transportation Management

The next possible evolution for CPFR is what is being called "n-Tier CPFR". This model describes an environment in which multiple tiers of a particular value chain are aligned under the same tenets. This concept includes several interesting possibilities.

Not a Fit for All

CPFR does not itself fit all B2B replenishment needs. For products that are commodity-based, have many alternative sources of supply, are undifferentiated, or where price is the primary driver for acquisition, a legacy trade exchange model makes more sense. This is because a generally anonymous many-to-many exchange that focuses on transaction cost reduction works. Buyer and Seller are both motivated to reduce the cost of doing business – with any buyer or seller. CPFR better fits any B2B need where these characteristics are not apparent. CPFR is more applicable where customer service and buyer and seller agree to forgo the benefits of a short-term fix (price deal) for the greater mutual benefit of a longer-term relationship. CPFR makes sense when buyer and seller want to leverage each others assets and knowledge to create a value chain who's value is greater then the sum of the parts.

In the same sense, n-Tier CPFR will not fit every value chain. At each stage of the chain, the characteristics of the buy-sell transaction differ. For a Consumer Product at the retail/manufacturer end it can be a highly differentiated, branded product that fits with CPFR characteristics. The manufacturer/supplier chain for the raw materials may in fact assume the characteristics of a commodity buy/sell. Consequently, n-Tier CPFR may not fit every value chain, or every layer of any one value chain.

Why not multiple CPFR deployments?

CPFR is transportable. This means that the processes can be lifted up and put down in many different industry segments for any buyer/seller relationship. The question arises "why not just apply CPFR to the retail/manufacturer tier as well as separately to the manufacturer/supplier tier?" The answer lies in the reasoning behind the process itself. Ask yourself these two questions:

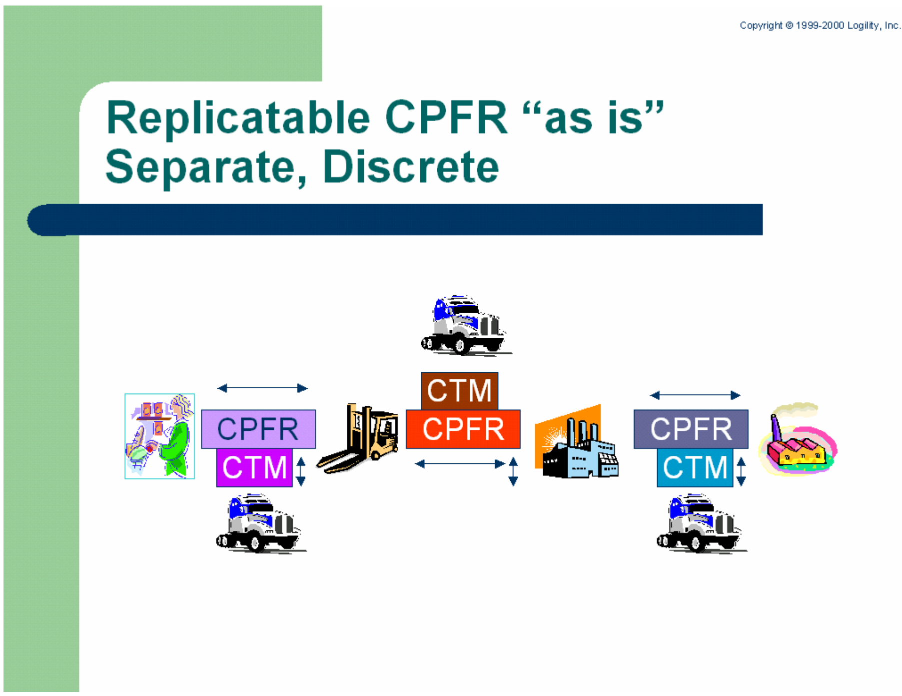

Figure 2: End-to-end Value Chain with each layer
of a value chain separately implementing CPFR (with CTM) etc.

1. Is there any benefit to be derived by the parties in the value chain if, when a change in demand is identified (reaction) or planned (promotion), it could be communicated to each party at all tiers?
2. And in so being communicated (visibility), can mutual processes receive the information, compare to current plans, and then automatically respond back with additional information on a more timely basis?

With a Demand-driven n-Tier model, information is shared more readily with aligned organizations that have a mutual benefit to deliver product to consumers. The benefits of the more timely information, and the use of alerts to compare plan to actual across the value chain, provide an environment in which the variance between plan and actual are reduced. This is the end game. This is another move toward the reduction and elimination of variability. Variability cannot be eliminated, but CPFR, and now n-Tier CPFR, makes more progress toward this than any other initiative. See Figure 3.

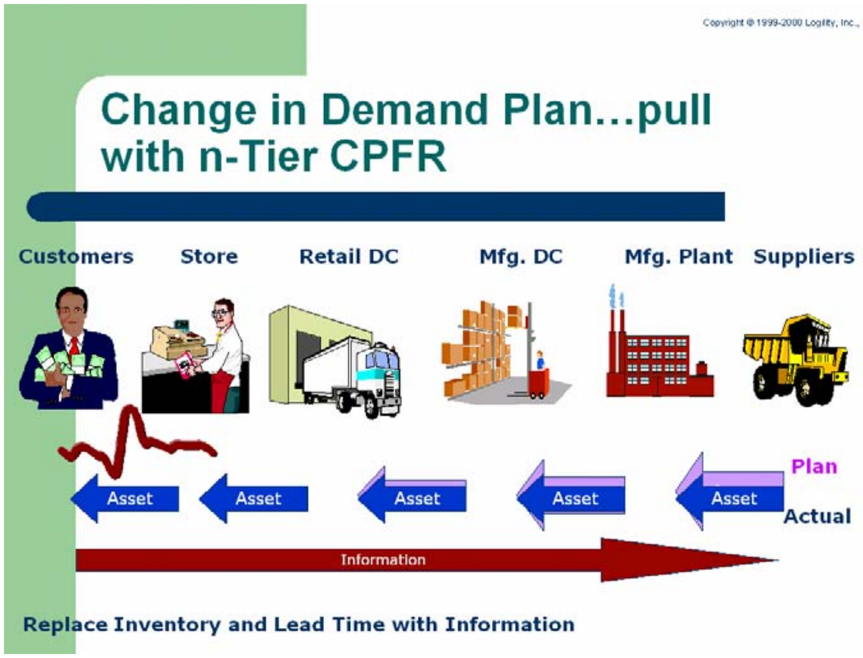

Figure 3: n-Tier CPFR supporting Demand-driven collaboration.
More information, more time to adjust plans, leads to less uncertainty,
more service and more revenue.

On the supply side, another alternative question arises. Is there any benefit to be derived in the value chain if, when a change in the ability to supply, is communicated and used at all tiers from supplier to retailer? See Figure 4.

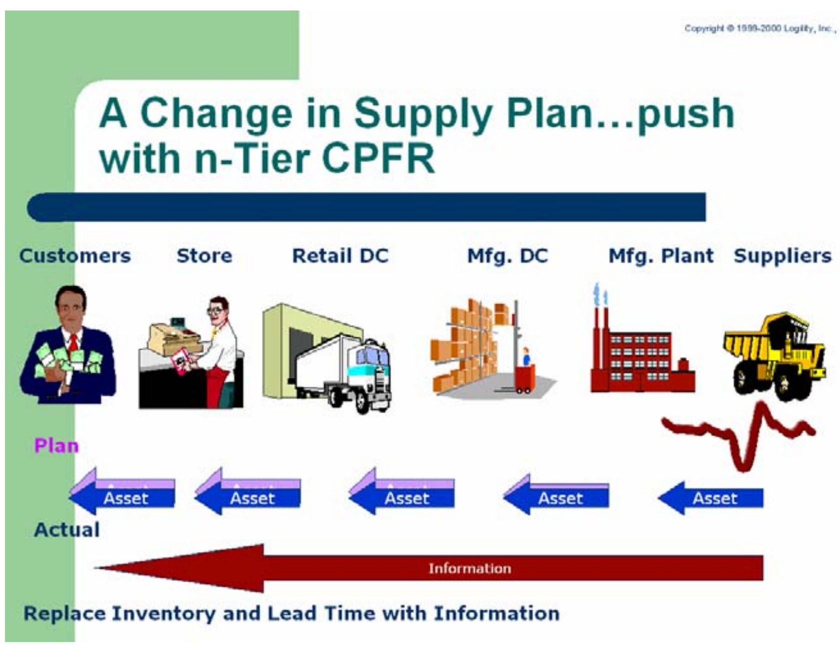

Figure 4: n-Tier CPFR supporting Supply-driven collaboration.
More information, more time to adjust plans, leads to less uncertainty,
less inventory.

The answer to each of the questions above is a resounding YES! However, this is not a blind proposal. Not all changes or all events will be or should be communicated end-to-end. This N-Tier discussion simply suggests that, if there is a need to deliver n-tier processes, and then a new model, broader in scope, needs to be defined.

What about CPFR and Trade Exchanges?

Trade exchanges are all about reduction in transaction costs – the cost of placing an order. They are transaction level focused. They are providing the most economically efficient environment for buyer and seller to transact their business. They are not today able to provide support for a collaborative relationship. Trade Exchanges are designed for environments where the benefit is being derived from the (spot) transaction. All subsequent or greater benefits derived from a relationship are ignored; this is the idea for commodity markets. CPFR creates a one-to-many community; Exchanges create many-to-many, sometimes anonymous markets. As explained earlier, CPFR is not applicable everywhere. Trade Exchanges are also not applicable everywhere.

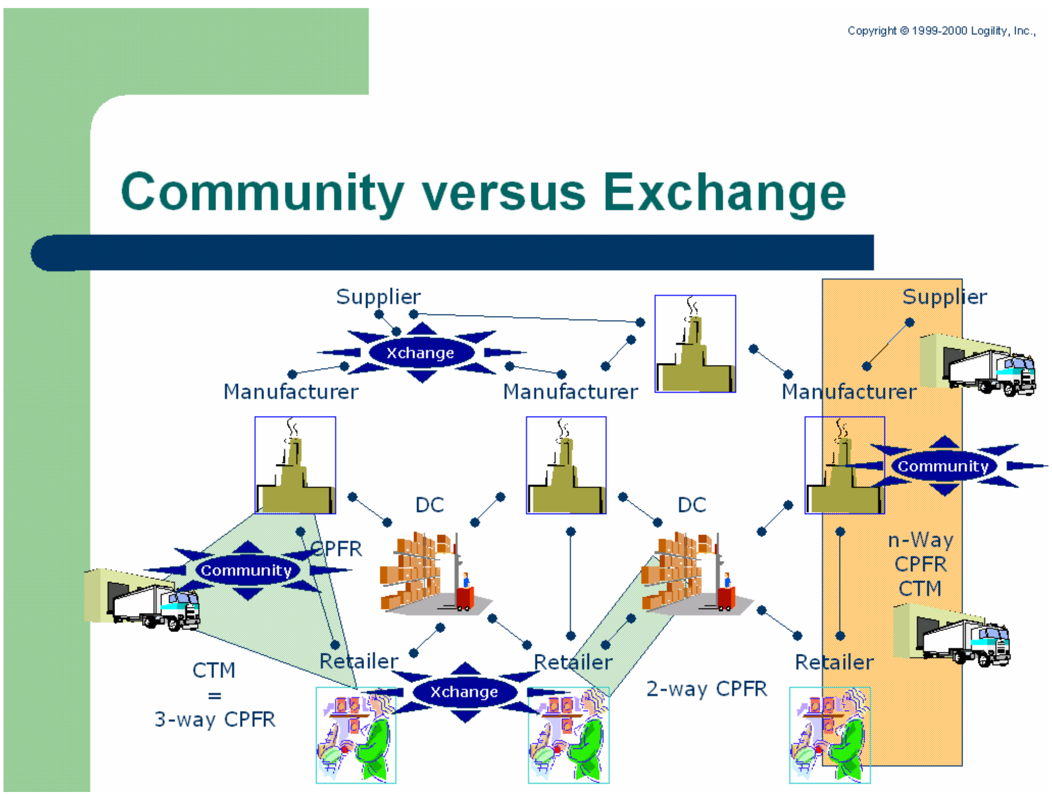

Figure 5: Exchanges and Partner Communities co-habiting an industry based on demand/supply and buy/sell characteristics.

Figure 5 describes where all the components of an e-Commerce strategy apply in relation to replenishment. Two-way CPFR is shown between a retailer and a manufacturer's DC. CTM is shown as part of 3-way CPFR to include a carrier. N-Tier CPFR is shown through a complete value chain – an alignment of several tiers. N-Tier is also described including the carrier at each layer of the chain. Lastly, a Trade

Exchange is shown at the raw material to supplier end of the chain for some materials – where commodity-type characteristics are observed.

Is this a Value Chain or a Value Web??

Out in the industry some have said that the "supply chain" concept is dead. This is indeed true and has been replaced with a value chain concept. A Supply Chain is all the assets, information and processes that provide supply. A demand chain is all the assets, information and processes that define demand. A value chain is a joining of the two to mutual benefit.

Some have said that the "chain" concept is dead – that it is too rigid and that a web is a better way to describe the future of B2B. This is indeed a partial truth. In reality, the flow of materials remains a chain (for the most part) and only looks like a web when the material flow is re-designed or when, perhaps, returns or reverse logistics are applied. A web is not necessarily a good analogy even for the information flow. For example, why would an end-consumer want to communicate with the guy that pumps the oil out of the ground? The answer is that the information flow still follows a chain metaphor, but the definition of a chain has expanded. n-Tier CPFR is a value chain that extends from end consumer (retailer's sales forecast) through to raw material supplier. Specific information flows from consumer to retailer, from retailer to manufacturer, from manufacturer to raw material supplier – and from retailer to raw material supplier – and back again. This looks like a web if you draw it one way. It looks like a chain if you draw it another way.

n-Tier CPFR – The Proposal

The proposal is that n-Tier CPFR offers tremendous opportunities for the continued removal of waste throughout the whole value chain. All other initiatives, included CPFR as it is today, focus on one or two tiers of a given value chain. Nothing else provides a framework through the whole chain. By synchronizing (visibility) and integrating (velocity) and collaborating (innovation) among all tiers of a value chain, a unique, highly competitive "conglomerate" is created that should be more able to respond from end-to-end to changes in demand and/or supply. This is the original goal of Supply Chain Management. This is what is now possible in the Digital Economy.