

Vendor-Managed Inventory in IT

Can It Revolutionize IT Infrastructure Outsourcing?

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Executive Summary

The concept of Vendor-Managed Inventory (VMI) revolutionized the retail industry by mitigating uncertainty of supply for retail stores, decreasing uncertainty of demand for manufacturers, and increasing customer satisfaction by eliminating stock-outs. The dynamics of IT asset-ownership in the IT Outsourcing (ITO) industry are strikingly similar to the consumption of the products in the retail industry.

Historically, the typical outsourcing contract required that the buyer transfer its IT assets to the supplier. Over time, the need for such transfer subsided and alternative models emerged. The infrastructure outsourcing industry reached a point where significant value could be derived through implementation of VMI aspects in the outsourcing deal.

On Demand and Pay-Per-Use (PPU) pricing models developed; as promoted by several hardware vendors, these models offer a way to implement VMI concepts in infrastructure outsourcing. Entry of these models into infrastructure outsourcing has the potential for significantly changing the game. VMI models sometimes can be confused with utility computing or leasing. Although the high-level business benefits might look similar, the models feature completely different sources of value creation.

This paper discusses:

- Emerging opportunities for buyers and suppliers of IT infrastructure outsourcing in taking advantage of the VMI concept
- Catalysts and roadblocks of VMI acceptance and likely adoption scenarios going forward
- Case study of VMI implementation in the storage tower

Evolution of Asset-Ownership in IT Outsourcing

The asset-ownership decision is quickly becoming one of the key determinants of the sourcing strategy and supplier selection approach

Historically, asset-ownership transfer to a supplier was an integral part of an infrastructure outsourcing engagement. Outsourcing suppliers needed to own the assets to deliver the key financial and operational benefits of infrastructure outsourcing.

Over time, the separation of asset control from asset-ownership through remote infrastructure management tools and changes in asset accounting reversed the dependence on asset-ownership transfer in infrastructure outsourcing and gave birth to the “asset-light” outsourcing model. The asset-light model addressed the shortcomings of asset-ownership transfer. In other words, not all buyers want to forfeit their assets and not all suppliers are in a hurry to accept them.

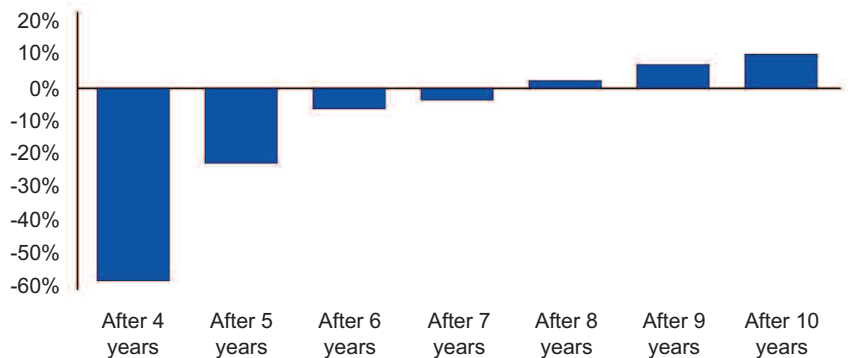
Some buyers find it beneficial to own their IT assets for flexibility reasons (e.g., uncertainty of the business and IT volume growth, merger and acquisition activity, broad changes in the technology landscape). In addition, certain buyers prefer to maintain control over the assets that are core to their strategic advantage. Finally, buyers with large IT operations often prefer to take advantage of scale themselves rather than pass it on to suppliers.

Suppliers, in turn, see the asset-light model as a solution to their struggle to make the economics of asset-based outsourcing feasible. Increased capital expenditure requirements in asset-heavy deals, coupled with the shortening of the average deal duration in infrastructure outsourcing, can seriously diminish the Return on Investment (ROI) for suppliers (see **Exhibit 1**).

EXHIBIT 1

IRR profile of a basic IT outsourcing contract

Source: Bernstein Research

**Assumptions:**

- Fixed price contract with equal payments across the contract term
- Up-front capital costs are 5% of Total Contract Value
- Modest CAPEX “refresh” requirements
- 35% tax rate
- Assets depreciated over five years
- Client receives cost savings of about 15%
- Client’s original costs are reduced by about 20% by year 4 and 27% by year 7

It is also worth noting that the asset-heavy deals are not likely to disappear anytime soon for the following reasons:

- Many buyers still do not see the benefits of owning IT assets. Such buyers are likely to default to an asset-heavy approach.
- The long-delayed adoption of the utility computing model can introduce significant adjustments to the asset-light trend because asset-ownership transfer is a cornerstone of the utility computing model. Offering Pay-Per-Use (PPU) service, the key benefit of the utility computing model, requires ownership of the underlying assets.
- Suppliers that possess a hardware and software business (e.g., IBM and Oracle) are driving a significant share of the outsourcing market. For such suppliers, assuming the buyer’s assets along with the refresh responsibility presents an ideal way to acquire a captive customer for their hardware and software businesses.

While offshore suppliers widely publicized that they are not planning to make significant capital expenditures a part of their infrastructure outsourcing offerings, there are signs that they are likely to change this stance over time.

One thing is apparent. The asset-ownership (or asset-transfer) decision is quickly becoming one of the key determinants of the sourcing strategy and supplier-selection approach in infrastructure outsourcing.

On Demand Strategy – Myth and Reality

IBM On Demand solutions for the pSeries allow up to 75% of installed processors to be inactive with only a 20%-35% up-front charge

The term “On Demand” is attributable to IBM and gained recognition in early 2000. It is widely used by IBM on almost every product sold by the company. While terms like “Enterprise on Demand” and “Business on Demand” still remain conceptual rather than practical, the idea found its place and practical use in the hardware business.

In the context of this study, we are looking at the On Demand model as a creative approach to selling flexible hardware and software product configurations. The On Demand approach is based on delivering assets to a client before the need for the assets arises and activating these assets along with payment invoicing automatically upon client’s request.

It is notable that this strategy has been largely adopted by key IBM hardware competitors (e.g., Hewlett-Packard [HP], Sun Microsystems, and Dell) along with software vendors (e.g., Computer Associates and Vertias [Symantec]). These vendors each launched similar flexible-computing projects, often under different marketing terms than those of IBM.

The idea is based on a well-documented concept that is widely used in the retail industry – namely, the Vendor-Managed Inventory (VMI) approach. VMI is an inventory-planning and fulfillment technique in which a vendor is responsible for monitoring and replenishing customer inventory to ensure optimal levels. In this model, the vendor gains direct access and often ownership of the customer inventory and initiates replenishment as necessary.

Similarly, On Demand hardware vendors ensure that IT assets with ample inventory (i.e., computing power) are available at the customer’s locations and activated when the need for additional power arises. Examples of the On Demand model include:

1. **IBM’s** Capacity on Demand solutions for the pSeries allows 50%-75% of installed processors to be inactive with only a 20%-35% up-front charge for inactive processors. The processor power is then sold in capacity units of two Processor Days.

2. **HP** provides similar capability through either a Pay-Per-Use (PPU) or Instant Capacity on Demand (iCOD) approach.
 - a. The iCOD approach allows for the initial purchase of a specified number of activated processors, with an access fee for a specified number of deactivated processors. HP bills the client every time the inactive processor is activated. The iCOD Audit Application monitors the usage and billing.
 - b. HP's PPU model offers similar capabilities, charging clients only for actual processor usage. The client acquires a specific hardware platform and number of processors, and HP charges for the actual usage, based on the number of active processors in the complex.

Apart from subtle differences in pricing, marketing, and other terms, these approaches offer a very important feature that has the potential to significantly change the infrastructure outsourcing game.

Key Differences Between VMI-based Models, Utility Computing and Leasing

In addition to the concepts of On Demand/PPU and utility computing, leasing is another widely used mechanism for making variable capital expenditure.

It is important to acknowledge that from a CFO's point of view these three models offer a very similar set of benefits, namely:

- More predictable operating cost
- Better ROI¹
- Increase in ROA² (which applies especially in the case of leasing)

The similarity in benefits often leads to a logical question from business executives: "What's the difference?" Although all three models target similar business benefits, the sources of value creation in IT are very different. The fundamental differences are as follows:

- **Utility computing**. The value of the utility computing model derives from taking additional advantage of economies of scale in hardware. This model seeks opportunity to share a hardware platform (e.g., server) with underlying system software and administration labor between multiple users. The key source of benefit in this model is an increase in asset utilization, leading to reduction in the supplier's capital and operational expenses.
- **Leasing (or leaseback)**. The sources of value in this model are purely financial. The buyer achieves an ROA increase by transferring IT assets off its balance sheet to the supplier's balance sheet. This financial transaction decreases the denominator in the buyer's ROA equation leading to an increase in the ROI metric. ROI benefit can be achieved by replacing the higher cost of capital of the buyer with the lower cost of the supplier's capital. Most certainly, this benefit is contingent on the considerable differential in the cost of capital of the buyer and supplier.
- **On Demand/PPU**. This model is based on the concept of Vendor-Managed Inventory; that is, it offers computing power, system software, and applications instantly available in the required quantities (e.g., required number of processors, required disk space, or required MIPS). The hardware vendor enables this benefit by delivering IT inventory in advance and keeping it readily available on the client's premises (e.g., keeping deactivated processors in the server ready to be deployed). The key sources of benefit in this model are the vendor's decrease in cost of sales and improvement in its planning and supply chain operations.

1 ROI – Return on Investment is a financial metric that is measured by dividing the incremental outcome of the investment by the total value of the investment.

2 ROA – Return on Assets is a financial metric that is measured by dividing a company's net income by the total value of a company's assets.

Maturation of the On Demand Strategy Has Potential for Changing the Game in IT Infrastructure Outsourcing

The IT outsourcing industry operates similarly to the retail industry with regard to consumption of IT assets

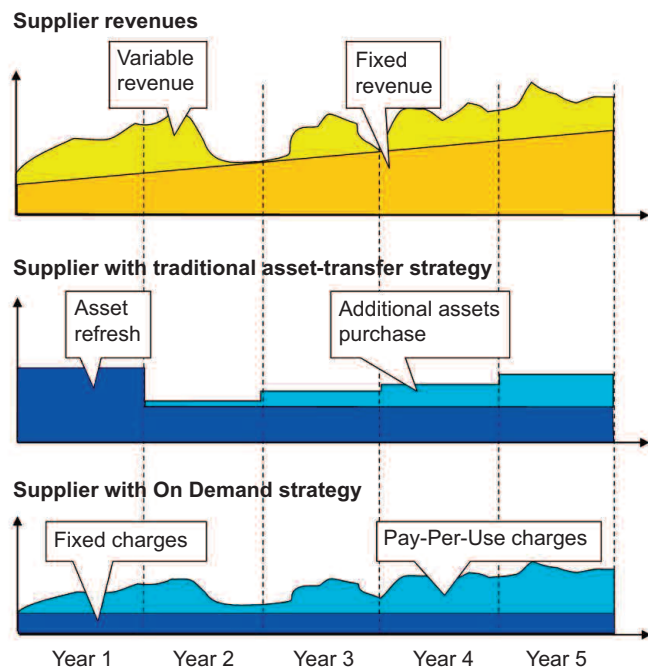
With the maturing of the On Demand or PPU approaches, the decision to transfer or retain asset-ownership might not remain as black and white as it appears today.

In an On Demand or PPU approach, the IT assets involved in service delivery become detached from the capital required to support these assets, making it possible for an outsourcing supplier to assume asset-refresh responsibilities without putting significant capital at play¹ (see **Exhibit 2**).

EXHIBIT 2

Hypothetical cash flows of the supplier in a typical five-year infrastructure outsourcing deal

Source: Everest Research Institute



Outsourcing suppliers stand to benefit from leveraging the On Demand/PPU pricing model in serving buyers, much like retail stores benefited from Vendor-Managed Inventory.

¹ The On Demand approach does not completely eliminate the need for capital expenditure. There are up-front fees and activation charges that require investment of a modest amount of capital.

In the late 1990s, VMI brought three important benefits to the retail industry:

- Mitigated uncertainty of supply for retail stores by removing supply fluctuation based on suboptimal replenishment decisions (e.g., regular end-of-period purchasing) and increasing frequency of replenishment
- Decreased uncertainty of demand for vendors by allowing better demand planning and decreasing the need to maintain excess inventory
- Increased customer satisfaction by eliminating stock-outs

The IT outsourcing industry operation is strikingly similar to the retail industry with regard to consumption of IT assets. The outsourcing supplier acts essentially as a retail outlet by purchasing and replenishing IT assets from the hardware vendor, combining them with certain services, and making them available for the customer's (outsourcing buyer) consumption. Similarly, in the retail industry, suppliers used to purchase the assets and keep them in the inventory, absorbing the fluctuation of a buyer's usage.

By implementing VMI principles through the On Demand model into outsourcing deals, outsourcing stakeholders can gain the following benefits:

- **Traditional infrastructure outsourcing** suppliers can significantly improve the economics by avoiding large up-front capital investments and ongoing asset-refresh expenditures. The On Demand model will also expand the advantages of large players in the procurement area by helping them leverage their volumes to become aggregators of the hardware purchasing demand.
- **Infrastructure Management Outsourcing (IMO)** suppliers can successfully compete with their traditional competitors for the buyers that prefer an asset-heavy approach (i.e., would like to forego asset-ownership).
- **Buyers** are likely to embrace the On Demand concept because it has the potential to significantly lower their costs by delivering flexibility and control of the asset-light model, combined with the utility benefits of the asset-heavy model.
- **Hardware vendors** are likely to adopt VMI and On Demand principles to work with outsourcing suppliers. Their benefits are customer lock-in, competitive advantage (especially early adopters), and better inventory planning for each customer through improved communication (outsourcing deals have asset strategies outlined for at least a couple of years). As evidence of the adoption of these principles, consider the following:
 - IBM and HP used their strategies of On Demand and iCOD, respectively, for several years. Outsourcing might as well become a springboard for these strategies to gain wide adoption.
 - Sun and Dell are likely to look at partnerships with outsourcing suppliers as a way to obtain a level playing field to compete with hardware vendors that possess significant IT service/consulting capabilities, such as IBM and HP.
- **Network equipment vendors** such as CISCO are looking for ways to enter the outsourcing game and therefore are likely to show interest.

Several Challenges Might Slow Down the Adoption

IMO suppliers, especially new Indian outsourcing firms, represent the largest wild card in this game

The most pressing challenge for the adoption of the On Demand model into the infrastructure outsourcing business is a lack of working, proven VMI-based business models. Undoubtedly, IBM and HP are furthest ahead in building these models, but the market's lack of wide adoption suggests there are unresolved challenges.

In addition, the hardware industry will need to develop outsourcing-friendly business models such as:

- New lease-based pricing vehicles that map well into outsourcing arrangements and allow easy integration into outsourcing deals
- New, more advanced accounting/billing engines to accommodate outsourcing arrangements and ensure integration with outsourcing suppliers

The outsourcing industry will need to go through its own share of innovation including:

- Developing new outsourcing governance models that accommodate partnerships with hardware vendors
- Resolving likely Service-Level Agreement (SLA) issues and division of responsibilities for serving buyers' demand fluctuations
- Adding supply-chain skills into their outsourcing skill sets

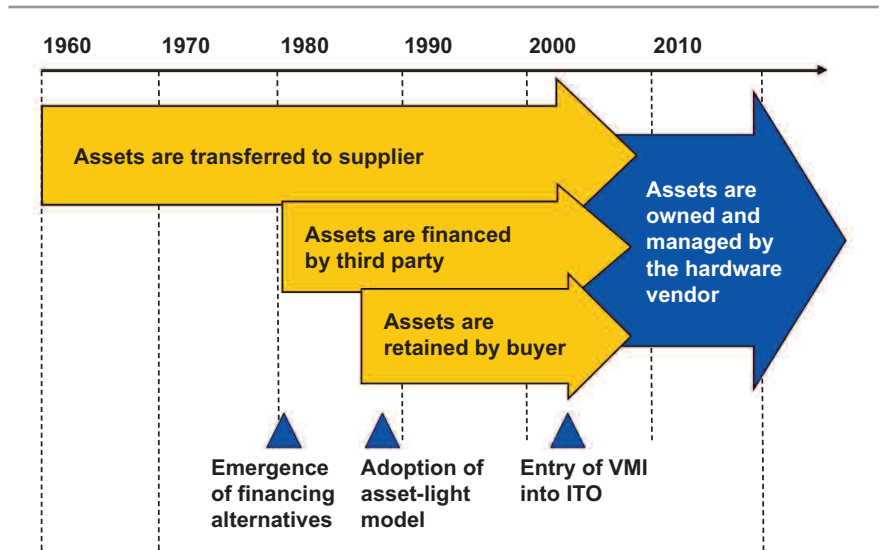
Finally, adoption of the On Demand model in outsourcing might face resistance from the traditional players, especially those with large IT services or outsourcing franchises.

Because of these challenges, we expect gradual adoption of the On Demand model in infrastructure outsourcing. The concept is likely to start in the category of simple IT assets (e.g., laptops and desktops), eventually moving to networking. Nonetheless, the full potential of this approach will not be realized until this strategy finds its way into the data centers. Large servers and storage arrays promise the most opportunity for the suppliers.

EXHIBIT 3

Evolution of asset-ownership in IT outsourcing

Source: Everest Research Institute



IMO suppliers, especially new Indian outsourcing firms, represent the largest wild card in this game. Their ability to move fast, desire to compete for large and often asset-heavy deals, and insatiable appetite for growth, driven by large valuations, can prompt them to act faster and speed up the adoption of the On Demand model. We believe that the industry will see the first alliances and partnerships between IMO players and hardware companies as early as 2007-2008.

Case Study: VMI Implementation in Storage Management

This case study investigates the successful implementation of VMI principles in storage management by **HCL Technologies**.

Client background

The client, a leading provider of and pioneer of trenchless technology, faced challenges of fast growth and rapid expansion. Their flagship Insituform® process of pipe reconstruction led to 100% revenue growth projection in five years, 65% user growth, and expansion across the globe. This business success led to IT infrastructure quickly becoming inadequate for supporting the company's future growth.

The IT infrastructure group was facing challenging objectives:

- Support dynamic business growth with a reduced percentage of IT budget
- Gradually replace the existing legacy technology without major IT investments
- Develop an effective storage solution to support the projected usage growth (storage needs were expected to grow from 3 to 100 TB in three years)

Finally, an existing leasing arrangement for a significant piece of hardware was approaching expiration, leading to a natural decision point.

Proposed solution

HCL proposed scalable VMI-based storage management solution with Pay-Per-Use (PPU) pricing, which included:

- Legacy migration to latest, more flexible technology, including a transition from server-based storage to SAN¹
- Effective postponement of investment in the storage infrastructure through the ability to invest in the hardware depending on the short-term requirement rather than a long-term forecast
- Reduction in the risk of IT investments through the ability to scale storage up and down, reflecting the evolving nature of the IT architecture and business needs

¹ SAN – storage area network.

- Optimal asset utilization throughout the lifecycle of the contract
- Overall reduction of 37% of the current costs over 3 years through offshoring of infrastructure management services

HCL managed to support this flexibility through a partnership with Sun Microsystems. This partnership enabled hardware Pay-Per-Use (PPU) and joint implementation for VMI principles in the storage management.

Conclusion

The advent of VMI had a profound effect on the retail industry, revolutionizing the relationship between retailers and manufacturers. The basic aspects of VMI are applicable to the IT outsourcing industry and have the potential for transforming the industry.

The evolution of IT asset-ownership in ITO is at the point of nearing alignment between the way key stakeholders in the outsourcing industry view asset-ownership and the concept of VMI. VMI is experiencing practical implementation in hardware sales through the On Demand/PPU model. Adoption of the VMI concept is likely to significantly affect the asset-ownership paradigm in IT outsourcing and become the missing piece to the ownership puzzle.

A first-mover advantage can play an important role in the adoption of the VMI concept. By establishing the right relationships and alliances with hardware vendors, outsourcing suppliers can gain competitive advantages, thus offering the best of both worlds to buyers (i.e., the flexibility and control of the asset-light model along with the utility computing benefits of the asset-heavy model).

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