

## What CSPs can learn from Wal-Mart and the American flag

By Mark Nicholson and Adam Boone

A story goes that Wal-Mart noticed an odd thing happening to its inventory in September 2001.

In the days that followed the 9/11 terrorist attacks in the U.S., Wal-Mart detected a significant spike in the number of American flags being sold in its stores across the country. Based on this data, the company quickly bought up the available stock of American flags from every supplier it could reach. The company's competitors, the other discounters, noticed the spike some days later and attempted to buy more flags. By then, Wal-Mart had effectively cornered the market, and its competitors were unable to restock their shelves.

This story has become something of a legend in the supply chain and operations management communities because it illustrates so vividly the power of using IT-driven inventory practices for distinct competitive advantage. Whether or not this particular tale is true, Wal-Mart certainly has raised the matching of supply to demand to the level of an art form. Its adoption of point-of-sale inventory tracking set a new standard in how inventory should be managed in a retail environment and supply chain. The Wal-Mart example highlights the benefits of adopting a "live" and "adaptive" approach to resource management and inventory tracking.

Adaptive resource management is a relatively simple concept. In essence, adaptive resource management treats inventory as dynamic assets and their management as a dynamic process with the aim of perfectly matching inventory capacity to the actual patterns of demand and consumption. This is an approach proven not only by Wal-Mart but by many firms that have adopted the principles of lean operations in the manufacturing and logistics arenas as well.

While there are clear differences between retail and telecom, the time has come for telecom operators to consider how adaptive resource management can provide them with a competitive advantage and a basis for lean operations.

### Why Now?

Telecom operators are under intense pressure to transform their operations and their businesses. Competition and the need to increase per subscriber profit are driving them to concentrate now more than ever on higher-margin, "sticky" application and content services like IPTV, VoIP, software-as-a-service, and gaming. This means not only developing and launching such advanced services in weeks, rather than months or years, but also delivering services efficiently and virtually instantly to any endpoint

that can support them.

But transitioning to application-based services from traditional static connection-based services is no easy task.

These new services are multimedia, interactive and real-time. As a result, they impose much greater resource-sharing demands on the new converged network than traditional services, and they call for much more dynamic response from both network and supporting operations. Ensuring the “customer experience” for these services requires precise provisioning and control over how they share communications infrastructure and applications resources. This is particularly difficult in carrier environments where networks are geographically dispersed, subject to a range of federal and municipal regulations, and feature diverse capabilities, technologies, and transformation roadmaps.

On top of more complex provisioning and more demanding subscribers, today’s CSPs also face pressure from shareholders to maximize their return on network assets. So even as the cost of new communications technology falls and the capacity supplied by that technology increases, CSPs must pursue “build what is required” strategies and optimize resource utilization.

In the face of these challenges, service fulfillment depends heavily on the ability to efficiently, exactly, and automatically match resources (i.e., shared network capacity and application capabilities) to the changing needs of next-generation services. For offerings such as VoIP and IPTV, this can include managing high-volumes of feature changes as well as fine-tuning bandwidth, latency, and QoS across diverse equipment and bearer technologies.

Such exact resource management requires inventory tracking that is as close to real-time as possible. Unfortunately, most existing inventory systems can’t provide the telecom equivalent of Wal-Mart’s point-of-sale precision.

#### **WHY NOT TRADITIONAL INVENTORY?**

Service providers are learning the hard way that inventory management systems designed for yesterday’s services are not up to the task of rapidly delivering to market advanced services such as IPTV and Triple Play.

And it’s no wonder. Current inventory systems were developed to treat services purely as connectivity. So while these typically “off-line” systems are capable of managing traditional services and the physical network build-outs required to support new customers, they lack the native continuous discovery and the productized IP and application intelligence necessary to easily support services that extend up the network and provisioning stacks. They can’t maintain the accurate “service-to-network” pictures that are key to managing dynamic services and the shared resources that support them. And they’re not able to keep pace with the volumes, rate of change, and constant interactions of the application age.

Expanding the scope of some existing systems through extensive coding is certainly possible in theory, but stretching traditional inventory systems for higher-level services or new technologies does not usually work in practice. Such projects ultimately slow new service introduction and revenues. And lengthy, over-budget, or altogether failed projects are all too common.

With competitors breathing down their necks, CSPs can’t really afford to let an outmoded resource management strategy slow them down.

#### **WHAT ADAPTIVE RESOURCE MANAGEMENT MEANS FOR TELECOM**

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So if existing inventory isn't up to the task, how do CSPs speed high-demand services to market while achieving lean operations akin to Wal-Mart's?

That's where a more active and adaptive resource management strategy can make the difference.

When applied to telecom, adaptive resource management principles enable CSPs to align service provider business conditions and processes with technology resources, including both content-providing applications and communications infrastructure. In this way, adaptive resource management is a departure from existing OSS designed specifically to support connectivity services. By encompassing the complete deployment and consumption life cycle of both network capacity and application capabilities, adaptive resource management provides more comprehensive intelligence and control over the service provider enterprise. It also helps CSPs more effectively manage the impact of business and market change, whether caused by internal transformations or external customer demand fluctuations.

One key way it does this is by leveraging continuous discovery functionality and resource configuration monitoring – of both the physical and logical network – providing “live”, end-to-end visibility into CSPs' multi-layer networks. Not unlike Wal-Mart's point-of-sale inventory tracking, the ability to maintain such real-time resource views allows CSPs to accurately and efficiently match those resources (namely, network capacity and application availability) to anticipated patterns of consumption. It also enables more adaptive service delivery and management, which can address automatically the multi-layer requirements necessary to ensure end-to-end availability and QoS for application-based services that span shared resources.

Consider, for example, an IPTV deployment that offers extensive end user self-service capabilities. Suppose a user decides to order a new HDTV channel for their service. Because the IP network and the network layers below it are shared resources, the new, bandwidth-hungry, high definition channel may create contention with other traffic, such as the neighbor's VoIP service. In this way, the configuration of the new service's connectivity becomes inseparable from the QoS requirements of the application, such as latency and jitter parameters. This orchestration must happen seamlessly and automatically in a self-service environment.

With the detailed and continually up-to-date visibility that adaptive resource management provides – from connectivity to content – CSPs can realize such seamless orchestration. And in general, they can more efficiently and effectively:

- Support communication-intensive applications that require end-to-end networking resources;
- Perform resource reservation and resource adaptation in convergent, multi-bearer communications environments, ensuring service quality levels for dynamic offerings;
- Coordinate adaptation between the different layers of the network in order to solve the problems introduced by scarce, dynamic and/or shared network resources, providing just enough shared resources – both application and infrastructure – required for a particular service, based on demand; and
- Make continually accurate network and service data and its benefits available to the entire OSS/BSS and broader supply chain.

Ultimately, by employing adaptive resource management strategies, CSPs can respond more quickly to changing business and market dynamics. They won't be telecom's equivalent of the flagless stores in our Wal-Mart example.

## **BUT AMERICAN FLAGS AREN'T NEXT-GEN SERVICES**

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While CSPs can certainly learn a good deal about lean operations and live inventory from Wal-Mart, the American flag legend only gets us so far.

Wal-Mart's customer's, after all, are not likely to request customized American flags to meet their specific needs, demanding more stripes for certain occasions and applications, more stars for another. When it comes to American flags, one style fits all, and one size fits most.

Not so for new application-based services.

Which is why adopting a more precise and adaptive approach to inventory management is so important to the future of communications service delivery and management. The very nature of advanced application-based services – real-time, multi-media, interactive, bundled, personalized, resource-sharing and continually changing – demands a degree of visibility and responsiveness traditional inventory systems just can't provide.

But solutions based on the principles of "live" and adaptive resource management can. With them, CSPs can take inventory management to the next level, accurately, efficiently and profitably matching network and application resources to often very individual needs of next-generation services and the subscribers who receive them.

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