10 Network Inventory Management

10.1 Introduction

Telecom network inventory is slightly different from inventory in the “bricks-and-mortar” world. When one thinks about physical inventory, one generally considers that the inventory itself has intrinsic value that can be realised by its sale. For example, if a Parisian patisserie has 1000 croissants in inventory, then by selling those croissants their value is realised. A service provider does not realise the value in their network by selling the network itself. Rather, the service provider sells capacity in the network’s traffic-carrying capability. Thus, physical network inventory needs to be managed primarily for maintenance and for usage accounting purposes. Usage accounting is necessary for billing. On the other hand, a bakery must manage its physical inventory to realise optimally the value in its capital, which includes raw materials, baking oven and other requirements. In short, the physical inventory in a telecom network is a capital good that is not offered for sale as part of the service provider’s day-to-day business operations. Only the service-carrying capacity of the physical network is offered for sale in day-to-day business.

The role of a network infrastructure manager in network inventory will largely be to pull together the inventory information provided by a number of systems. That is, network equipment usually either comes with a network management system that is equipped with inventory management functionality for that network equipment, or the company that installed the network equipment will have purchased a management system that includes network inventory management functionality. The point will be that any given network will have network equipment from a multiplicity of vendors installed over a long time period. Hence there will be multiple NMS. Therefore, a network manager’s difficulty will often not begin with inventory management per se. Rather, it will be in managing network inventory management systems!

Service providers who own and manage their own network infrastructure often use “swivel chair integration” which means that network managers literally sit on a swivel chair allowing them to switch quickly between the various inventory management systems that are being used for the network. The humans do the pulling together of the information. Centralised information stores may exist in the form of spreadsheets, word processing documents, notepads and so on. It is easy to see that this is inefficient and expensive, and ultimately an inferior way of carrying out
inventory management. Many companies now sell software designed to integrate multiple network inventory management systems and to provide centralised network inventory management. The benefits of this are now outlined.

10.2 The Business Case for Inventory Management

This section is based on the approach taken by BoldTech to network inventory management. BoldTech is an OSS software vendor and service provider.

The provisioning process must be efficient in order for telecommunications service providers to be able to deliver service to their customers quickly and at low cost. Inventory management is central to the provisioning process. The ultimate aim is to have a provisioning environment where orders can flow from inception to activation on the network with minimal manual intervention, or "zero touch provisioning". There are several issues with many providers that prevent this from happening. Among these, inventory inaccuracy most increases the chance that a provisioning cycle will be unsuccessful. Since multiple workgroups may be involved in provisioning, either independently or interdependently, real-time accuracy of inventory is a worthwhile goal.

An ROI-based business case exists for network inventory for incumbent and next-generation service providers. This works by quantifying the costs and benefits associated with a network inventory system, including economic valuation. The economic valuation includes:

- payback
- cash flow analysis
- benefit-to-cost ratio
- net present value
- internal rate of return
- payback period
- sensitivity analysis.

The business case focuses on:

1. revenue recognition through acceleration of customer in-service dates through provisioning processes improvement
2. savings in operational expenses by increasing the productivity of provisioning personnel
3. capital expenditure offsets achieved by recovery of existing network asset inventory, and the correct and appropriate classification of the existing inventory state.

BoldTech issued a whitepaper entitled "Network Inventory: a Critical Piece for Solving the Elusive Flow-through Provisioning Problem" that was helpful in quantifying the cost–benefit trade-offs of implementing a network inventory solution.

While the business case presents an enterprise-based focus on costs and benefits, and identifies critical areas for improvement, more detail is needed to drill down to provide a network inventory solution. A network inventory solution should provide an integrated view of the entire network, bringing together inside and outside plant