

A HOLISTIC APPROACH TO MANAGING THE NETWORK LIFECYCLE

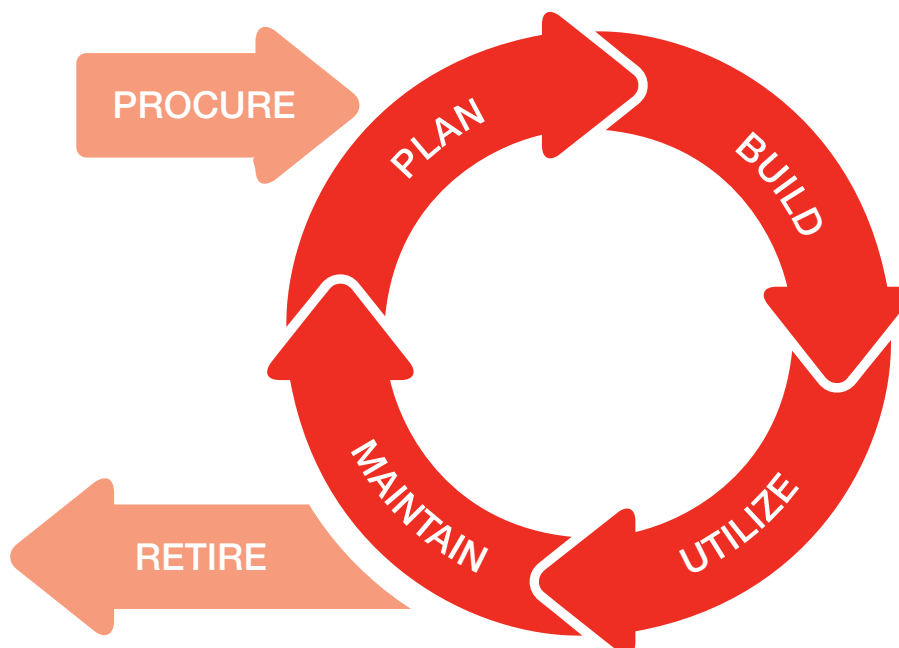
Network operators can operate more efficiently, optimize spending and meet demand for increased capacity when they have a transparent view of their network assets.

Each and every day, network operators collectively manage trillions of dollars' worth of network assets using information spread across a variety of business domains and systems. This is because the lifecycle of the network and all of its assets pass through the hands of multiple organizations including planning, engineering, procurement, finance, asset and materials management, construction, provisioning, maintenance and more.

For the very same asset, each group must record and maintain relevant information specific to its own needs. Pertinent data is stored and updated separately in isolated systems, which has made it difficult for "outside" organizations to access the data they need to accomplish their tasks and trust in its validity. Lack of a coordinated view often leads to inefficiencies within each domain.

For example, finance may lack clarity on the cost structure of the network as assets move from place to place within that network. This, in turn, leads to inaccuracies in financial and regulatory reporting, as well as the inability to monitor key performance indicators such as the profitability of a particular product or service. In another domain, lack of information regarding the location and availability of spare inventory may prohibit network planners from developing a reasonable business case for new network builds. In addition, construction projects may call for the purchase of assets that are already in a warehouse.

Figure 1: Typical network asset lifecycle



Network Planning and Asset Management – A Case Study on Transparency

Lack of ready access to integrated, accurate information about a particular network asset in the context of its purchase date, warranty, release number, repair history, geospatial location, equipment/rack/slot location, capacity, connectivity, status, service usage, etc., has been costly to network operators. They have lost untold amounts of time, money and productivity because they have not had clear, real-time visibility of their network assets.

To improve this situation, network operators now are implementing emerging state-of-the-art network planning systems that integrate and optimize the relevant data they need from their asset management systems. More importantly, the systems also synchronize any changes to relevant data bi-directionally across both platforms in real time. For example, this capacity makes possible any and all updates to both the network planning and asset management systems whenever network planners reserve or remove network assets and as technicians perform maintenance in the field. The system also provides an asset’s lifecycle information to network planning as it moves from procurement, to availability, to relocation and to retirement.

With integrated asset information at their fingertips, network operators can streamline daily tasks and plan for the future with confidence. They can see exactly where their network assets are at a very granular level and determine if they are available for use for specific

purposes. Operators also can design new networks, make changes to existing facilities, keep to important maintenance schedules and repair faults or restore networks with much greater speed and agility.

For these reasons and more, network operators are embracing a more holistic approach to network asset management, and they are not wasting any time when it comes to reaping the many resulting benefits. The following use cases illustrate the potential that integrated asset data makes possible on a daily basis, as well as the game-changing role it can play across network operators’ businesses going forward.

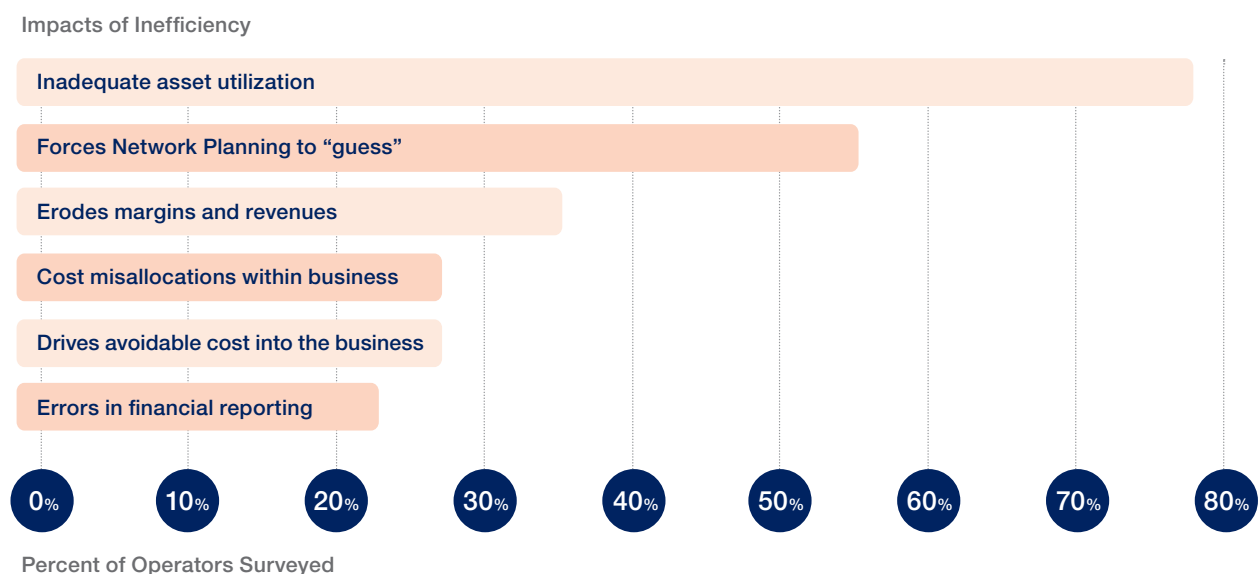
Network Maintenance – Power Supply Audit

- > Challenge – Coordinating field audits and enabling accurate information exchange
- > Solution – Work management capability with automated notification to network planners
- > Benefit – Proactive, preventative maintenance for better service quality

Operators deploy a large number of batteries throughout their networks for many purposes, including back-up power support in case of a power outage. Maintaining those batteries and checking their ability to supply the necessary level of power is critical to network reliability and customer satisfaction.

According to a set schedule, the asset management system issues a work order for a routine inspection of a battery array at a given location. The work order specifies the skill level and tools needed to perform the job and only assigns the task to a trained and properly equipped field worker. After inspecting the noted

Figure 2: Impact of Inefficient Network Asset Management¹



¹ Network Asset Management – International Operator Survey Report, TM Forum, March 2015
Copyright © TM Forum 2015. All rights reserved.

batteries, the technician records each status in the asset management system, which in turn automatically synchronizes the new information with the network planning system. Therefore, anyone performing either a planning function or a materials management function at that location can see which battery has just been inspected along with its working status, in addition to any other pertinent contextual or lifecycle information.

If the audit shows that the total power draw from the battery array is exceeding its capacity threshold, the planners can be notified that the site is in need of more battery power. In addition to performing routine scheduled maintenance, the information provided by the technician has proactively facilitated preventive maintenance to ensure that power is available at that location according to specifications. This kind of network optimization gives network planners a timely edge they previously have lacked.

Spares Management – Optimizing Network Utilization

- > Challenge – Tracking the location of network assets, whether in-service or available for use
- > Solution – Synchronization between network planning and asset management systems
- > Benefit – Cost savings from just-in-time inventory management

Because they are geospatially-oriented, new network planning systems have a unique data-object modeling capability that allows planners to perform a range of queries based on the exact location of physical networks and their proximity to other objects such as network elements, customers' premises, roads, rights-of-way, etc. This capability also enables planners and others to accurately and quickly identify and examine the physical connectivity and capacity needed between important network points.

In this scenario, the network planning system documents the fiber facilities that connect several critical data centers in an enterprise data network. Due to reduced demand at one of the data centers, a fiber multiplexer is now oversized and can be better utilized elsewhere. The network planning system provides a work order to remove the multiplexer from service and return it to the warehouse. The planning system records its removal and immediately provides the updated status to the asset management system. By showing the multiplexer as available and tracking its location across both systems, it will not get lost in the back of a truck never to be used again, potentially saving thousands of dollars for just that one item.

The same treatment applies to the replacement of a defective piece of equipment. The network planning system enables engineers to pinpoint the manhole, cable tray, rack or slot where defective equipment is

located. When it is replaced, the technician enters the serial number and warranty dates of the new equipment into the asset management system, which shares it with the network planning system.

In all of these cases, the network planning and asset management systems use relevant information about network equipment to treat it appropriately during the course of its lifecycle. For example, if a certain type of card from the same supplier becomes faulty in a similar time frame or fashion, that information can help an operator identify a problem that is bigger than it looks at first glance. The operator can follow up with that supplier to correct any problems that neither party would have learned of as quickly, or at all, otherwise. Because there are so many cards in their networks, resolving these issues can add up to significant savings.

Site Inspection – Controlled Environmental Vault

- > Challenge – Proper identification and recording of network assets
- > Solution – Ability to access accurate information on the spot
- > Benefit – Quickly identify and correct errors regarding equipment attributes

Outside plant equipment located at cell sites or in underground vaults is subject to weather conditions, unpredictable deterioration, vandalism and destruction by animals, vehicles, etc.

In this scenario, a field technician returning to the garage is notified to stop and check for a trouble situation at a controlled environment vault that houses several racks of active equipment. Upon inspection, the technician finds that a card is pulled out slightly from its chassis. In addition, the card type does not match the type that is recorded in the network planning system. The technician suspects that when the original card was swapped out, the new one was not seated properly.

After confirming that the card is of the proper type, the technician reseats it and enters the correct card type and serial number into the network planning system. The information is updated automatically in the asset management system and anyone who needs to use that card or piece of equipment now has accurate information that will enable better decision making. Also, the location of the card that was swapped out originally can be determined by tracking its serial number.

The technician's ability to record accurate information about the equipment on the spot enables the asset management system to ensure that the card's type, usage, SLAs and warranties are recorded accurately. Improperly identified equipment cannot be used to its fullest, nor can it reliably support future plans for its use.

The ability to collect data in the field, both routinely and randomly, and share it immediately across both network planning and asset management systems broadens the capabilities of those systems and the technicians who are performing maintenance tasks or making repairs in the field. Transparency of up-to-date, relevant data makes important information available to everyone who can make good use of it.

Benefits from an Integrated Approach

Integrating network planning with asset management system capabilities enables operators to better serve customers and halt the erosion of margins and revenues. Asset transparency makes it possible for them to ensure that each and every available piece of network equipment is being used to its most efficient capacity, which, in turn, enables operators to optimize their networks overall.

Knowing the precise location and status of assets also helps operators to streamline their daily workflows. Technicians working in the field on specific tasks are able to identify the location of needed network components and add or correct asset information across systems on the spot. On the business side, real-time, reliable data takes the guesswork out of financial and compliance report preparation. Being able to account for all assets and ensure their compliance not only saves operators time, it also prevents potential penalties from reporting errors.

It is easy to imagine many other scenarios in which access to integrated asset data is changing the way network operators work and how it is saving them countless hours and money in the process. Eliminating guesswork enables them to optimize the use of their assets, networks and the rest of their valuable resources.

Figure 3: Benefits Span Organizations, Functions and Tasks

