

## **Cable Network Provisioning and Network Management: Tools for a New Era**

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In the days of simple one-way content delivery, manual order fulfillment, frequent truck rolls, and lack of competition were the norm. For contemporary cable operators, the relatively recent introduction of broadband has changed the landscape considerably. The local access market is now a hot spot of competitive activity, and multiple suppliers offer similar and overlapping services. Internet Service Providers (ISPs) supply high-speed, always-on data communications services. Telephone companies, traditionally concerned only with dial tone and profitable add-on services such as caller ID, now count competing data and video products among their offerings.

No longer playing to a captive audience, savvy cable operators know they must differentiate their services, offer value-added products, and improve operational margins to attain—and maintain—a competitive edge. The challenge lies in how to achieve that.

A major roadblock has been the operations support system (OSS) structure in use by many cable operators. Designed primarily to complement basic flat-fee video and data service models, the conventional OSS cannot scale to support either a more diverse service palette or a rapidly expanding user base. Lacking these capabilities, operators are limited to commodity data as their only broadband offering, leaving customers and value-added service profits to be picked up by other providers.

Fortunately, a new class of support system is available for the advanced level of data service provisioning, management, and support cable operators need to succeed in the new era. Modern network management systems automate end-to-end provisioning and control for all network services and elements. The result is a comprehensive and scalable management platform from which new and profitable services can be launched and easily maintained, with minimal human intervention and maximum benefits for the operator's bottom line.

## Possibilities in Value-added Services

Modern, services-driven network management systems are designed to integrate existing revenue-generating offerings with a competitive mix of add-on premium data, telephony, and video products. These value-added services contribute much-needed operator differentiation advantages and minimize subscriber churn and fall into three main service categories:

- o **Advanced Data Services.** High-speed data serves a variety of needs and has growth potential far exceeding that of casual Web browsing and e-mail. An increasing number of telecommuters and business-oriented residential users need high-speed data connectivity to exchange files and corporate e-mail, connect back to the main office, and interact with co-workers. Small and medium businesses use high-speed data links to interconnect branches. And both remote and business customers expect support for advanced business-level communications applications such as virtual private networking (VPN).
- o **IP Telephony.** Once an Internet protocol (IP) infrastructure is in place to deliver data, telephony over IP is a natural service extension; it also promises to be one of the most profitable services cable operators can provide. With an advanced network provisioning, management, and support system, cable operators can deliver highly competitive telephony services, with standard feature sets and quality of service (QoS) intact.
- o **Value-added Video.** Beyond simple content delivery, video-related services—gaming, interactive content, and Video on Demand (VoD)—are even more promising. Interactivity is an especially important differentiator and forms the basis of an advanced digital entertainment offering. Employing streaming media and generally more bandwidth intensive than current offerings, advanced video services require selective the bandwidth control and enhanced monitoring capabilities afforded by modern network management systems.

## Flow-through Network Management Advantages

Powerful new services need an equally prepared support infrastructure. A flow-through network management system offers key operator and service support, including deployment, interfacing, problem resolution, and customer self-help. A good network management system offers the following important advantages:

- o **Timely and accurate service provisioning.** Flow-through network management automatically provisions network and associated elements to assure timely and error-free service activation.
- o **Incorporation of existing business rules.** A critical step in provisioning and management automation—and in minimizing human intervention—is to identify and integrate the rules that govern each process. Through customizable rule sets, processes for all operator services can be clearly defined and optimized as needed.
- o **Seamless interworking between diverse systems, network elements, and layers.** Comprehensive device and software interface databases effectively facilitate interworking to eliminate delivery and support bottlenecks.
- o **Auto-discovery of network components and element capabilities.** Real-time views of network topology and network element identification assure operational efficiencies and recovery of stranded inventory.
- o **Comprehensive fault isolation and timely problem resolution.** Specific problem areas and affected customers are easily pinpointed, across a variety of network element and service components, to automatically prevent most problems. Multi-vendor, multi-protocol element status monitoring, fault isolation, and control assure consistent network and service performance.
- o **End-to-end cost control.** Rather than hiring additional employees or re-training the existing staff, operators can automate complex and time-consuming tasks, reduce error rates significantly, and optimize response time. The result is lower operating costs for all entertainment, telephony, and data services offered.
- o **Accurate metering and billing for value-added services.** One obvious reason for the delivery of multiple services is the ability to sell services of varying value, from commodity, price-sensitive data to premium, high-quality voice and video at a relatively premium price. Flow-through network management systems tightly couple service and billing operations
- o **Customer-initiated service activation and changes.** Very important, the ability select services as needed by user purchase

choices or by automatic response to service initiation (i.e., the selection of video delivery) facilitates impulse buying and eliminates the labor costs associated with conventional operator-initiated provisioning.

- o **Multi-service delivery and bandwidth on demand (BoD).** Service- and usage-based metering enables cable operators to break out of the flat pricing mode to bill for the specific value of services used.
- o **Extensibility to accommodate future needs and technologies.** To sustain a competitive edge, operators need flexible tools that both support existing services and provide a foundation for profitable add-ons, without starting from scratch each time.

## A New Era of Success

Demand for bandwidth has skyrocketed in recent years, and the trend has no end in sight. In nearly all markets, however, the widespread availability of high-bandwidth connections has led to fixed or falling price ceilings for data service, putting many unprepared cable operators in a difficult situation.

Cable operators have always shown high adaptability in the face of changing market conditions. To adapt again and do so successfully, operators must also begin to think along the lines of their competitors, particularly telephony providers, who add valuable features to basic services as an effective way to maximize per-subscriber revenue.

In the same fashion, cable operators must incorporate strong service differentiators that both attract new customers and retain existing subscribers. The key is to maximize the utility of commodity data by layering multiple value-added services on top—quickly provisioned and effectively managed.

Armed with a solid foundation, operators are then poised to offer the value-added services that bring real benefits in the new era of data delivery, including advanced data, IP telephony, and enhanced video services.

The new generation of network management systems stands to do just that. With seamless and automated workflow, real time resource access, and end-to-end process visibility, operators are equipped to serve more customers with a highly competitive set of value-added services.

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