

## **“Integrated OSS Solutions for Broadband - Benefits and Lessons Learned”**

For Cable-Tec Expo 2003 panel:

### **“OSS Requirements for Efficient Delivery of Multiple Advanced Services for MSOs Today and Their Future”**

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Information is a powerful thing. One of the greatest benefits that modern integrated OSS solutions promise is access to information: information that the operator has never had timely access to before.

In the past, cable operators have relied on legacy billing providers' systems to store and serve up information on all of its customers, services, and work in progress. Access to that information was usually limited to call center employees and managers. Field service technicians have had little or no access to this information, such as it is. It was limited to what services a customer subscribed to, some limited history on work order information, and information on currently scheduled work for that customer. There was no insight into how the network was performing, and what the field workforce was doing.

Many element management systems have been created to address the network performance problem. However, these have not easily been integrated together, or with the billing system, and have tended to be multiple standalone tools and get little exposure within the enterprise. They have been useful in assisting in maintenance of specific network elements, but have not truly provided information on how the overall network was performing, much less the delivery of individual services.

In recent years, new interactive services such as high-speed data and interactive video services such as video on demand have introduced CPE devices with intelligence the network transmission elements have never had before. This has created new opportunities for OSS systems to monitor and manage a cable network in a more meaningful way than ever before. By polling elements at the endpoints of the network, the condition of the unmanaged devices in the transmission path can be inferred.

An integrated OSS solution for today's networks should have the following attributes.

- Polls CPE devices to determine real time network availability.
- Connects to existing element management systems to provide a seamless look and feel and correlate data and events across those pieces of the overall network.

- Incorporates network topology information in order to perform root cause analysis.
- Connects to the customer database in order to report current service status by customer, and provide accurate statistics about customers and services affected when problems arise.
- Connects to the work order management system, so that work orders can be dispatched efficiently to the most qualified personnel, with the right information about the problem.
- Contains a historical database to enable trending analysis of network performance to detect degradation and anticipate/prevent customer outages.
- Contains a reporting engine to provide the enterprise with real-time business intelligence.

The benefits of the system outlined above are to allow the cable operator to take a truly proactive approach in managing its networks and services and leave behind the reactive days of simply responding to telephone complaints from customers. Some examples of these benefits are as follows:

- Network Operations Center (NOC) engineers would have real-time information about how well the entire HFC network is performing along with interrelated aspects such as the backbone network, CMTSSs, Return DeMods, CPE, etc., as well as what customers and services are affected when outages do occur.
- Customer Service Representatives (CSR) would have real-time information about network or service outages and how they affect a specific customer when the customer calls in to inquire about a problem.
- Dispatchers would have real-time information regarding outages including the location, most probable cause, and where the most qualified technician to address the problem is located. The dispatcher would be able to prioritize outage response by customers and services affected.
- Field Service Representatives (FSR) would have real-time information on where to look for the cause of a problem. They would also have real-time feedback on corrective measures as they were taken.
- Maintenance technicians and supervisors could use trending analysis and real-time data to determine where to focus preventative maintenance efforts.
- Business Managers would have real-time information available to assist them in making day-to-day decisions affecting workforce effectiveness and service reliability, and have quantifiable results to evaluate their decisions.

All of these benefits come at a price. The most difficult hurdle to overcome in deploying an enterprise-wide integrated OSS solution is changing the way people do their jobs. These systems require some adjustments in day-to-day procedures from nearly every department to be effective. However, the most dramatic impact is in the plant engineering realm. Accurate network topology is essential for accurate root cause analysis. Outside plant documentation has been a fixture in modern cable television systems for years, but has suffered from inaccuracies that would render modern OSS solutions useless.

Attention must be focused on daily maintenance operations, and construction planning gets a new wrinkle. Thorough planning is necessary before modifications are made to the plant to ensure that the topology information used by the root cause analysis algorithms is accurate day to day and minute to minute.

Inside plant documentation would have suffered in a similar fashion, but it rarely exists in any complete form. Like network topology documentation, this information must be gathered and maintained as well for root cause analysis to be successful. The tools used to design and document inside and outside plant information must be integrated into the OSS solution with care. As plant additions and redesigns are contemplated, the “production” copy of the network as it currently operates must remain unchanged. As the changes become reality, the topology must be updated in a timely manner within the OSS system to prevent false alarms and inaccurate results for root cause analysis.

Integrated OSS solutions for broadband cable operators are a reality and promise to transform and dramatically improve customer service as we know it. CSRs and FSRs will be armed with real-time information to provide customers with a level of service and support that was unimaginable just a few years ago. These solutions promise to give the operator the tools to manage the business more efficiently than ever before. They will require attention to detail and documentation that has been lacking in the past. Today’s OSS solutions will truly be “just what the operator ordered”. With this kind of capability, cable operators will be poised to deliver superior service and fare better against current and future competitors.