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Review: PathSolutions solves the network monitoring maze

PathSolutions' TotalView provides a path-oriented view into network problems and acts as a superb companion to your traditional network monitoring system

NETWORK MONITORING HAS TRADITIONALLY BEEN device-centric, with a concentration on the health of the individual devices that make up your network. This is not a bad thing. After all, monitoring the health of network devices is critically important. But long missing has been an easier way to locate the bottlenecks and determine the root causes of problems rather than merely observing the symptoms.

One of my favorite tools of all time is the Fluke Networks OneTouch because it gives me a way to look at physical layer issues in conjunction with Ethernet and TCP/IP layer issues. With apologies to Fluke Networks, I'll compare PathSolutions' TotalView to having a OneTouch on every port in my network. Oh, and I'd really like to have the diagnostics in plain English, because not everyone in my shop has decades of training behind them.

While device-centric network monitoring solutions (such as the excellent ScienceLogic EM7) are as indispensable as ever, they were designed for a different purpose. PathSolutions offers a companion tool that gives me a different view into my network — one that is path oriented.

TotalView harvests SNMP data from your network devices (18 different counters) just like other network monitoring tools do, but it looks at that data differently, focusing on the connections between devices and how those devices interact. As a result, it quickly zeros in on many common network bugaboos. Even better, you don't have to be a senior network engineer to use it.

Lifting all boats

One of PathSolutions' biggest selling points is that it makes junior techs more productive. I haven't met an IT group yet that can afford to staff up with only seasoned engineers, and too many run their experts ragged because the kids haven't been smacked in the head enough times by the network of hard knocks. I've long wanted a tool that can make the kids more useful so that my experts can work on creating new services and refining existing ones — a tool that can take some of the guesswork out of network diagnostics, but not hide all the details and prevent my newbies from learning.

Apparently what I've been waiting for is PathSolutions' Network Prescription Engine, which correlates SNMP counters from the entire system and funnels the results into plain English suggestions that even junior techs can understand and act upon. For example:

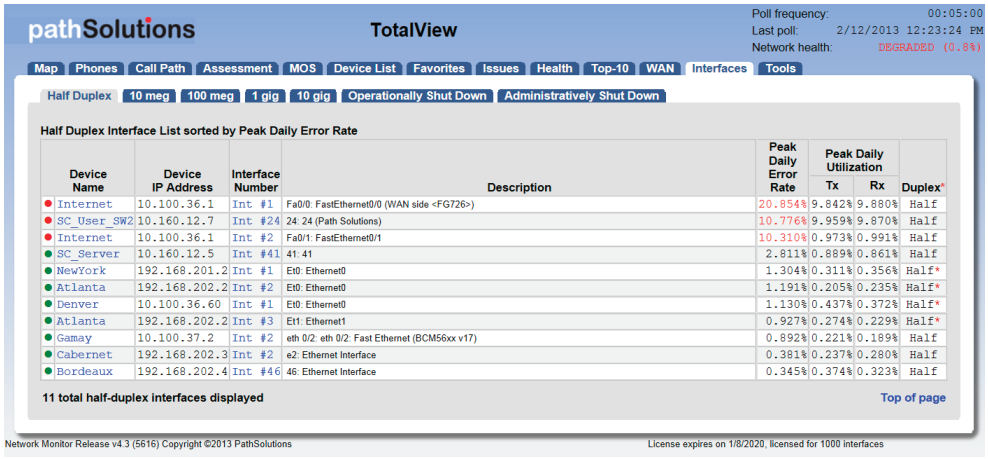
Alignment errors exist on this interface

There may be a Duplex problem on this interface. It appears that this interface is configured for full duplex. Alignment errors were detected with no collisions. There should be only one device connected to the other end of this interface, and that device should also be configured for full duplex. Note: Full duplex connections cannot function properly with a hub. If you need to use a hub, configure this interface for half-duplex. If there is no duplex problem on this interface, there may be a software driver problem. Check to see if all machines can communicate successfully on this segment."

These Network Prescriptions are a joyous departure from the unreadable technobabble that makes up most device error reports (and

Test Center Scorecard

	Availability	Performance	Management	Scalability	Interoperability	Value	Overall Score
	20%	20%	20%	20%	10%	10%	
PathSolutions TotalView v4.3	9	9	9	9	9	10	9.1 Excellent



TotalView's Half Duplex tab serves up the low-hanging fruit of network bottlenecks.

keeps my experienced techs running ragged while my junior techs sit around twiddling their thumbs). On top of providing an uncluttered interface that makes it easy to see at a glance where the problems are, TotalView offers plain-English diagnostics that even my junior techs can understand and act upon.

At the same time, the tool gives advanced techs all the device detail and drill-down data they need. And for those times when you really want to analyze the historical data yourself, you can download the SNMP counter data in XML format. That means you can use Excel or a fairly up-to-date version of OpenOffice to run pivot tables on the data to your heart's content.

If you're tired of the avalanche of nightly/weekly/monthly reports that do nothing other than report symptoms, you'll appreciate TotalView's Weather Reports. Most network reports are like episodes in a soap opera: You need to have been paying attention to the previous reports in order to understand the current installment. Weather Reports are more like a movie: They provide a holistic view of what's been going on in the last 24 hours, including any issues that have popped up, the top 10 devices for errors, and the top 10 for utilization.

Slaying network dragons

But you don't always need a Weather Report to know which way the winds are blowing: TotalView pinpoints many common network problems automatically. For example, not all network equipment manufacturers have implemented the auto negotiation portion of the 802.11 Ethernet interface equally, and when the "handshaking" doesn't go perfectly, Ethernet is supposed to drop down to the lowest common denominator. In many cases that's half duplex — and so TotalView smartly keeps an eye out for half-duplex communications.

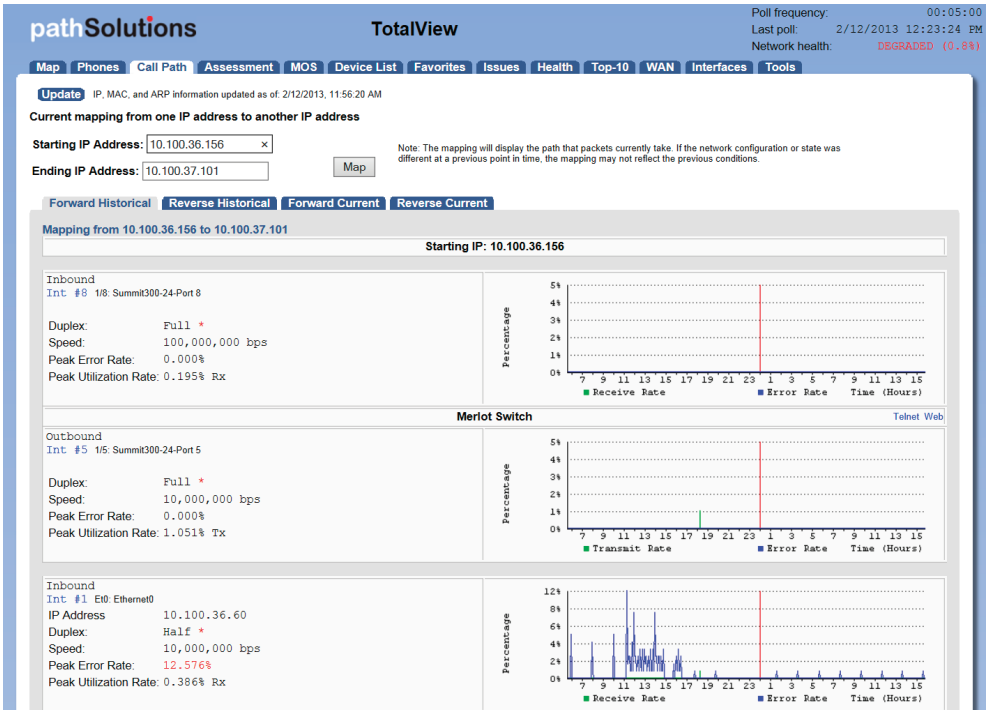
I can't tell you how many times I've added switches to a multivendor network only to find them not playing nice with the other switches. In many cases I've had to force interswitch link ports to my desired duplex and speed. Later, during troubleshooting sessions, a tech might start swapping cables, mispatch the switches, and negate the configuration changes I made at initial setup. TotalView's Half Duplex tab highlights these mistakes so that you can quickly eliminate these potential massive bottlenecks.

TotalView also keeps tabs on PoE (Power over Ethernet) issues. Just because a switch supports power over Ethernet doesn't mean that its power supply can support full-power PoE on all of its ports. You must read the fine print on how many watts a switch can put out as PoE and how many ports can output PoE simultaneously. You also need to keep track of which ports are in low-power PoE mode and which are in high-power PoE mode.

If your traditional network monitoring system even supports the PoE MiB, it's highly unlikely it will tell you anything other than whether or not you have an overload condition. When you drill down on individual switches with PoE support, TotalView gives you the details on just how much power each port is using (view screen image). That means you can know how close to the limits you are before you add that new PoE VoIP phone to the CFO's desk.

For every superimportant videoconference or VoIP call, it seems there's always one misconfigured switch dragging the whole link into the crapper. Latency is merely one issue. It's possible the network suffers from some kind of bottleneck — like when a four-lane freeway tapers into a two-lane country road. If only you could do something like a traceroute, but gathering statistics on the links instead of statistics on the devices ...

Guess what? TotalView lets you do that — a "super traceroute" that shows how each link in the path has performed over time and highlights potential problems in red potential. When your CFO tells you he had a bad VoIP call last night, you can go back in time to



TotalView's "super traceroute" does a Layer 1, Layer 2, and Layer 3 mapping between any two IP addresses and discloses the historical utilization and 18 error counters for every device along the path.

see what else was happening that could have caused the problem.

TotalView takes a lightweight approach to figuring out what is happening between any two network devices — and to determining call quality between two phones. Instead of sending and receiving traffic to determine how the network would connect the two IP addresses, it reads the tables from the switches and routers to determine the path. It then displays the health and performance of every link, switch, and router along the way. TotalView gathers all of this information using SNMP queries, and it measures the latency, jitter, and loss of these SNMP queries to determine MOS scores for voice communications.

TotalView also provides a Call Simulator you can use to measure latency, jitter, and loss to or from a remote switch, router, server, or VoIP handset. The Call Simulator has two modes — an ICMP-based simulation that allows you to estimate call quality to nearly any network device that will respond to ICMP. The second mode requires the Call Simulator on both ends, but will send simulated VoIP calls over RTP on specific ports for testing through firewalls and to get closer to your actual configuration.

Finally, TotalView can even help you with your paperwork. Murphy's Law dictates that you will absolutely need support contract information and the license expiration date for a switch or router on a Sunday or after hours, when the file is locked away in a drawer in Finance. TotalView gives you a few fields in the device list to store this kind of information. It even sends you an email reminder (separate from your daily report) when your support contract is set to expire in 30 days. I only wish there were also a notes field to accommodate those odd pieces of info that I like to keep on each device.

TotalView is not just a VoIP analysis tool, nor is it a simple monitoring tool. It doesn't replace your traditional network monitoring system. It's a completely new kind of tool that will give you a view into your network not previously available. Shining a light into the paths between all of your network devices, TotalView removes much of the tedium involved in diagnosing network problems so that you can skip straight to the task of resolving them.

— Brian Chee

PathSolutions TotalView at a glance

Pros	• Zeros in on common network problems • Provides diagnoses in plain English • Installs in about 15 minutes • Very lightweight • Runs on older gear or virtualized • All dependencies are internalized
Cons	• Runs only on Windows (32-bit or 64-bit) • Runs only on a single server • Wants to monitor all of your ports (which drives up the cost), though you can delete extraneous ports to slide under your license limit
Cost	• $8,390 to monitor 1,000 interfaces on a network; volume pricing available