

A network diagram with white nodes and connecting lines on a dark blue background, spanning the top of the page.A white circle containing a black upward-pointing arrow, located on the right side of the page.

The most trusted name in **uptime**

Top 5 Ways to Maximize Network Uptime



5 ways to maximize uptime



Introduction

Let's face it, in today's always-on world no one can afford downtime. Downtime can create catastrophic financial consequences for network operators, since their key customers are losing profits due to annoyed end-users that are fed up with a lack of service reliability. Companies that lose access to key systems, applications, and databases are also faced with decreased productivity, performance, and efficiency.

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Reports on the true costs of network downtime are quite telling. According to IDC, Fortune 1000 companies lose between \$1.25 billion and \$2.5 billion every year because of application outages. A company that brings in more than \$1 billion in annual revenue could lose around \$686,000 in revenue per minute of downtime.

Needless to say, network downtime can be fatal to a business, especially if an outage lasts for an extended period of time. There are a variety of ways to react to downtime. The best approach calls for proactivity, rather than reactivity.

To preempt downtime, the most pragmatic strategy is to employ initiatives that foster increased network uptime.

Top 5 Ways to maximize uptime

Below are the top five factors you should consider to maximize your network uptime:

1. Bandwidth



Bandwidth demands are higher than they have ever been with the onset of new technology and applications emerging on a seemingly daily basis. One of the biggest contributing factors to facilitating uptime is ensuring your network is operating with the appropriate amount of bandwidth.

Ideally, your network operations team is monitoring its bandwidth usage through the use of network management software, and can be on alert as the network approaches maximum utilization. In this scenario, the appropriate measures can be taken to increase bandwidth levels to meet the expected future needs of the network, well before there is cause for major concern. Those that find themselves in a reactive situation where they have hit their top-level bandwidth threshold are forced to react, likely needing a very quick response from an optics provider.

It's critical to understand your optics provider's turnaround and delivery times. Many of the large Original Equipment Manufacturers (OEMs) have the optics that you're looking for, but can take weeks or months to get them to you.

Consider partnering with an optics provider who typically delivers optics in days, rather than weeks or months. It could end up saving your company from a prolonged outage, as well as further ensure you can turn up networks quickly and avoid revenue loss.

2. Monitoring



As networks become more virtualized, the need for visibility into the performance of the network vastly increases. The deployment of Digital Diagnostic Monitoring / Digital Optical Monitoring (DDM / DOM) capable optics allows your network operations team to gather both real-time and historical data on network performance.

Having access to historical data can be crucial in determining the health of the components within your network. For example, if your network operations team notices a substantial increase in packet loss or a decrease in transmission signals within your network over time, they can begin to investigate which network components might be contributing to the issue and fix the faulty devices before they cause any significant downtime. Being able to monitor the network continuously on the optics side is key, and these days organizations can have access to digital diagnostics such as network performance, CPU utilization, and bandwidth usage, without having to necessarily increase costs. Network monitoring is typically a two-pronged approach that includes:

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Periodic Monitoring: This type of monitoring typically occurs in set intervals (for example, every five minutes), whereas network software runs diagnostics on critical network components on an on-going basis. A Network Management System (NMS) polls each device on the network and gathers parameters. This then feeds into historical and real-time performance data, which can be referenced by network monitoring engineers so that any potential red flags can be addressed as they occur.

Monitoring of Critical Errors: If there is a critical error or other type of suspicious event, the network gear being monitored will actively generate a SNMP (Simple Network Management Protocol) trap, that is interpreted as an alarm. When an alarm is triggered, the network operations team is dispatched to address the failure.

3. Access to Redundant Network Paths



Redundancy is an age-old network design practice that can't be overstated. The laws of physics will only allow a certain amount of traffic to pass through a single network route. That is why it is key to have diverse paths that travel from point A to point B to meet the needs of all customers attempting to access the heavy traffic portions of your network.

Having diverse network routes allows the re-routing of traffic in an emergency scenario without ever impacting the end-user of the network

For example, if a truck hits a pole and the impact causes a disruption in your fiber-optic network, you need a way to re-route the affected network traffic before your network goes down. Having diverse network routes allows the re-routing of traffic in an emergency scenario without ever impacting the end-user of the network. Using a high-quality optics provider that incorporates added value via optimized manufacturing, refined testing, and a dedicated customer service team will allow you to have room in your budget to invest in an alternate network path.

4. Quality of Network Components



Quality network components can make a significant difference in your overall network performance. You wouldn't put cheap tires on an expensive sports car. By the same token, you shouldn't put "cheap" components in your crucial network infrastructure. If you choose to buy network components at a bargain, you are potentially setting yourself up for network failure.

Not all network optics are created equal. Did you know that most optics sold in the U.S. are coded in China, with no quality control between the factory and your network? It is virtually impossible to know if any particular optic is coded correctly until you reboot your equipment and the ill-coded component causes your network to fail. That's a risk that few companies can afford to take. Some view transceivers as commodities, but that thought process is flawed because it does not factor in manufacturing practices (automation versus manual), testing protocol, scalability, or the optic provider's customer service reputation.

There is a tendency in today's market to source low-cost optics via the Internet. While there are network components for sale via online marketplaces, you should think twice before purchasing such vital equipment via online retail sites or any other third-party Internet reseller. Making the upfront investment in quality optics is critically important to overall network reliability.

Cut-rate components are one pitfall to network reliability. Another is expensive components that don't offer much better functionality. Many OEMs would have you believe that you should only use network components purchased directly from them.

While OEMs will certainly provide you compatible components, they will do so at a higher price. Purchasing a component directly from the OEM doesn't guarantee prolonged functionality. In fact, 3% of OEM optics will fail in the first year of life. In the event that you need customer service assistance, you may be waiting quite a while before a resolution is reached due to the sheer volume of requests that OEMs field. Contrary to what OEMs would like you to believe, there are many vendors that provide OEM compatible components at a fraction of the cost while offering exceptional customer service. Suppliers that are truly committed to uptime will rigorously test every optic before it's shipped, ensuring that the components you get have the highest likelihood of keeping the network up.

From a manufacturing standpoint, a component partner that offers traceable parts via a trackable production system can save you a serious headache in the event that one of your transceivers turns faulty.

When it comes to optics, you don't want to deploy previously used components in your network that aren't calibrated to your system specs. Doing that is sure to take you down the path of downtime.

5. Network Component Sparing



Having a spare component is a beautiful thing! If one of your transceivers becomes faulty, it's much easier to take a look at your component inventory and grab the desired device than wait for the delivery of a component to fix the network disruption.

That said, the price points of OEM components don't support this model of sparing. Sourcing a component vendor that prices its components more reasonably allows you to stock up on the most crucial components for your network and facilitate faster troubleshooting of network issues.

Improperly coded or uncoded optics can fail when network updates occur, which results in SLA issues, downtime and overall customer dissatisfaction.

Integra Optics offers further value via its SmartCoder. The SmartCoder allows network engineers to quickly and easily reconfigure transceivers for any network hardware. It provides interfaces for SFP/SFP+, XFP, and QSFP optical transceivers. The SmartCoder can be used to recode optics in the field, saving time and allowing engineers to complete projects more efficiently. Improperly coded or uncoded optics can fail when network updates occur, which results in SLA issues, downtime and overall customer dissatisfaction.

The SmartCoder also allows the user to measure transceiver functionality and grants access to the transceivers' diagnostics and coding history. For those that need coding assistance, Integra Optics has an in-house Engineering staff that is able to configure compliant components to work in any network.

The Smart Coder actually complements the concept of sparing very well. It allows a network operator to require fewer spare parts, as components can be re-configured to the needs of the customer. Network operators that utilize the Smart Coder spend less on spare parts and get their networks back up-and-running in streamlined fashion.

For more information on keeping your network up and running please contact a sales representative at sales@integraoptics.com or visit integraoptics.com