

# Elfiq Link Balancers

A practical Q&A overview for  
academic institution management  
and information technology personnel



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## 1. Link Balancer Overview and Basics

### *What is a link balancer?*

A link balancer is a network device that enables the use of multiple concurrent Internet and private WAN links or data circuits for increased Internet access performance for academic users and redundancy should a link fail. This will also benefit the performance and availability of the administrative network.

### *Is this a software or hardware product?*

A link balancer is an all-inclusive appliance-based product, which means it runs its own proprietary software on a specific hardware device, simplifying use, management and maintenance.

### *How can such a product help deliver Internet access?*

A link balancer will enable significant benefits for any academic institution including:

- **“Always-on” Internet access:** This ensures that Internet access and related services/servers are always available by enabling the use of multiple concurrent ISPs with different access technologies. By combining “telco” links (DSL, T1, etc.), cable modems, microwave, alternative fiber links and more, connectivity is not dependent on a single provider technology, thus eliminating a strategic point of failure.
- **Bandwidth additions:** Link balancers enable the use of multiple concurrent Internet and private WAN links so more can be added to the existing infrastructure easily and securely as demand grows.
- **Bandwidth management:** Link balancers are able to direct traffic types to certain links based on availability and strategy. A cable modem is a preferable type of link for Web surfing since it provides great download speeds, while symmetrical links like T1s are better suited for upstream applications like file transfers and online course delivery.

Most link balancers also enable “Quality of Service” to promote or demote traffic based on customer-defined criteria so key applications have the required bandwidth and less useful traffic is properly limited.

- **Cost reduction:** Link balancers enable the use of any IP ISP link available on the market, including low-cost ones like DSL and cable modems. Many school boards have reduced their fiber link throughput and added cable modems, providing a significant increase to download speed and substantial savings in the thousands of dollars per month. This approach also enables a quick cost-justification scenario to implement such products, where the link balancer project will cost much less than the previously used bandwidth on an annual basis.

### *Which academic services or applications can benefit from a link balancer?*

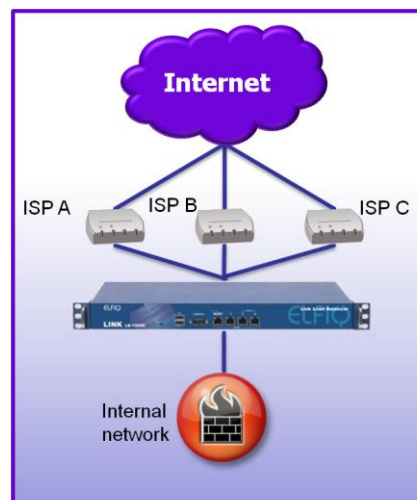
Any service or application using Internet access can benefit from a link balancer, such as Web surfing, email, email servers, Web servers, VPN access, online grade systems, online course delivery systems and much more.

#### *Where do you install it on the network?*

The link balancer should typically be positioned between the routers connected to it and the firewall. Some organizations employ different strategies based on the methodology used to manage private WAN links. (See Network Diagram 1)

#### *What kind of ISP links can Elfiq's link balancer products manage?*

Elfiq link balancers can handle almost any kind of ISP link (public or private), and customers can mix and match link technologies as they see fit. Commonly used links in the education vertical include DSL, T1s, DS3s, cable modems, fiber, fixed wireless and many more. For example, a site could have a T1 circuit with two DSL links and a cable modem, and the Elfiq product would balance the traffic on all links based on policies defined by the customer. Customers must plan the IP addressing they will need prior to installing a link balancer; please contact Elfiq for further information. Organizations planning to implement link balancers are encouraged to contact Elfiq to discuss which bandwidth options are the best and/or most cost-effective for a specific location.



Network Diagram 1

#### *Can I use mobile links in case all wired links fail?*

Yes, the Elfiq unit will handle wireless links such as 3G mobile and WiMax.

#### *How does a link balancer compare to a router?*

A link balancer is very different from a router, the device primarily designed to provide the bridge to the carrier's network. A link balancer is designed to use multiple routers concurrently for incremental benefits such as increased performance, network redundancy, data traffic management and more.

#### *Who are these products designed for?*

Elfiq's product line is the broadest in the industry, offering entry-level products for select-service to world-class datacenter products, which can support small education facilities to whole school districts. This breadth of products allows Elfiq to accommodate your organization. Elfiq's Link Balancers can help ensure Internet access performance and prevent Internet access outages.

#### *How much do these products cost and where can I purchase one?*

For pricing and availability information, please contact [info@elfiq.com](mailto:info@elfiq.com). Elfiq will consult with the customer to define the needs and recommend the best sized unit to serve those needs. Again, Elfiq provides the ability to scale cost-effectively as bandwidth needs grow.

#### *How is this product sold – is it by user?*

Elfiq's products are sold per link balancer unit and not by student/administrative PC/server/user.

#### *We do not have IT staff on site to deploy these units, what can we do?*

Elfiq's professional services and Elfiq's partners can assist with local or remote deployment of these units. The process has been completed successfully without IT staff involved in well over 200 deployments.

## 2. Customer References – Who Uses Elfiq Products in Education

### *How long has Elfiq been servicing the academic sector?*

Elfiq has been servicing this market since 2006 and has built a level of expertise to deliver these projects seamlessly through a detailed methodology including a thorough analysis phase, installation procedures and academic-specific configurations.

### *What types of academic customers use Elfiq products?*

Elfiq's academic customers range from single-property schools to school districts with over 7,000 full-time students and private learning centers. A technology school in the USA also uses Elfiq but as part of their curriculum for information technology and networking curricula.

### *What are academic customers saying?*

Here are quotes from some Elfiq customers:

#### ***Western Dubuque School Board***

"The Elfiq Link Load Balancer 1100E was one of the most cost-effective and beneficial units to meet the unique needs of our school district. From the pre-sales to the post-sales experience, we could not be more ecstatic with the service and product support we have received. Elfiq devices work exactly as advertised, right out of the box; this is the true meaning of "plug and play". Without hesitation, I would strongly recommend Elfiq as a product fit for education."

*Coby E. Culbertson*

*Director of Technology*

*Western Dubuque County Community School District, USA*

#### ***Navigateurs School Board***

"The Elfiq unit has enabled us to add more Internet bandwidth while reducing our recurring connectivity costs. The integration of the unit was very easy, and we did not have to modify our IP network at all.

The Elfiq support team assisted throughout the deployment, and service was quick and professional. The return on investment will be quite fast, and the unit guarantees Internet access for inbound and outbound traffic."

*Jacques Sansfaçon*

*Director, Information Technology and Communications*

*Commission scolaire des Navigateurs, Canada*

#### ***St Paul's School***

"We chose Elfiq after an extensive investigation of similar products. Elfiq offered by far the most comprehensive feature set and the best support at an unbeatable price. The product has been performing better than we might have expected and is now a critical part of our infrastructure. Our sincere thanks to the Elfiq team for their great support."

*Andy Reid*

*IT Manager*

*St Paul's School, UK*

### 3. Overview of Elfiq Link Balancer Features – Academic Vertical

#### 1. Basic Operations

*Will all my ISP links be used concurrently?*

Yes, all ISP links will be used concurrently to provide maximum results for faculty and student Internet access.

*What happens when a link fails?*

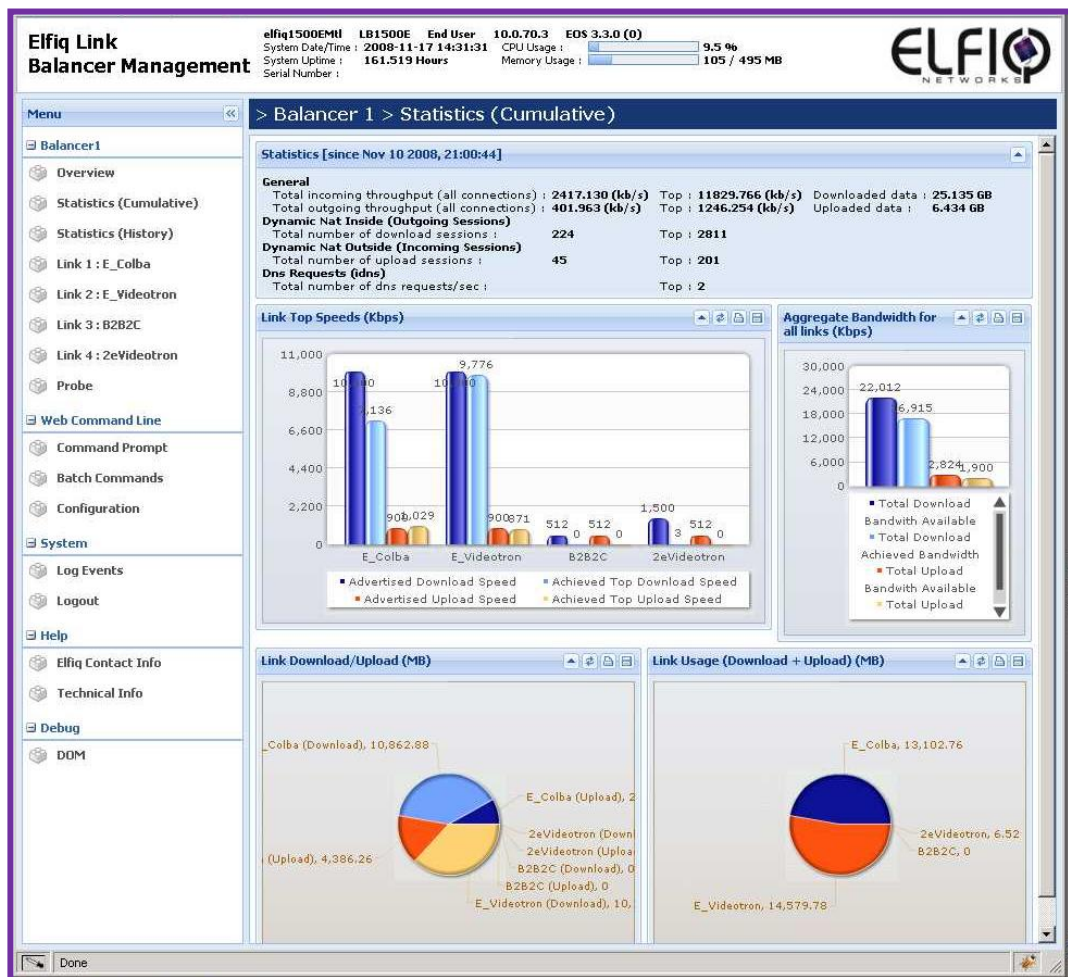
When a link fails, the Elfiq Link Balancer will sense that it is no longer able to send and receive data and stop using it until it is available again. During a link outage, the Elfiq unit will redistribute traffic on the other available link(s) with the selected algorithms.

*Will someone be notified if a link goes down?*

Yes, the Elfiq unit will be able to email pertinent information on link availability when one fails or returns to normal operations.

*Can I get reports of the traffic for my WAN network?*

Yes, the Elfiq unit's Web management interface will enable telecom and network operators to view link availability, usage and other metrics.





**What happens if the unit loses power?**

In this case, the unit will no longer process data with the balancing features, but it will not stop the traffic completely. The LAN Failsafe feature is unique to Elfiq Networks in the link balancing product segment, where a link designated as the primary link and the gateway device attached to it will continue to process traffic in “pass-through” mode.



1U rack mountable units are available in failover kits. This type of configuration is highly recommended in hotel [academic??] properties where a lot of guests [users??] require constant Internet access and where a larger number of rooms are involved.

**Even without IT staff at the location, can this product be updated or reconfigured?**

Yes, through remote access over the Internet, and through Elfiq’s innovative USB technology. A local configuration can be done using a standard USB flash memory drive to store the configuration file. For this operation to be performed, the balancer must be turned off prior to inserting the USB drive into the balancer and then powering it on. The Elfiq unit will perform the update without any other intervention.



## 2. Advanced Balancing Features

*How many algorithms can the Elfiq products use for regular balancing?*

The Elfiq units utilize seven techniques to proactively balance traffic.

*Can I prevent students or applications from utilizing all the bandwidth?*

Yes, the Elfiq units enable this type of management with two key features:

- 1- **Traffic segmentation:** Establishments can select on which links certain traffic types will be able to flow through to ensure that key applications like Web surfing, VPNs and email have priority.
- 2- **Quality of service:** QoS can promote or limit certain types of bandwidth making sure that resource-intense users do not use all the available bandwidth. For example, on the primary T1 link on a site, 50% of the bandwidth could be reserved for VPN access and the balance reserved for other types of data traffic like Web surfing.



## 4. Planning an Elfiq Implementation for Your Network

*Before I start this process, is there help available?*

Yes, the Elfiq professional services team and the Elfiq business partner network can assist in preparing a deployment should your organization not have the resources available. Elfiq also offers a remote deployment program.

*What steps should I expect in the process using professional services for remote deployment?*

An organization should expect the following process to happen to deploy an Elfiq unit:

- 1- **Information gathering:** The information for each ISP link and internal gateway and/or firewall will be necessary, along with the information on all the services to be balanced. Elfiq can supply a Microsoft Excel template for easy information gathering. To get a copy please contact [support@elfiq.com](mailto:support@elfiq.com).
- 2- **Preparation and shipment:** The Elfiq team or the business partner will pre-configure the unit prior to shipping to facilitate the installation process.
- 3- **When the unit is received,** a contact person will be needed to complete the process at the installation site by simply connecting the cables into the proper devices. Most physical installations are completed in under ten minutes.
- 4- **The Elfiq team will then access the unit remotely to finalize the configuration and ensure proper operation of the unit in place.**

## Produced by Elfiq Networks

Elfiq Networks is a technology leader and innovator in the field of WAN link management and balancing. With hundreds of successful installations in over 44 countries, Elfiq's Link Balancer products help organizations of any type and size perform more competitively every day with the ability to use multiple Internet and private links easily and securely.

For more information on Elfiq Networks' products and technologies, please contact:

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