



## Klipfolio Dashboard and your network

The top five ways Klipfolio saves your network capacity.

Your network bandwidth is a precious commodity, and you spend a lot of time protecting it from adverse impacts of new software demands. That's why we've been very careful to minimize the effect of Klipfolio Dashboard on your corporate network. The Klipfolio design integrates special network-aware features that minimize bandwidth usage and optimize performance for your organization, whether it's a start-up or a geographically dispersed multi-national.

## **Klipfolio keeps your network in mind**

Klipfolio designers know that one of your greatest IT costs is network connectivity, so one of our primary design objectives is to reduce the impact of Klipfolio Dashboard on your network to the absolute minimum. New software can be detrimental to a smoothly functioning data center, particularly in the case of a new web application, but Klipfolio Dashboard is a very different entity. For instance, compared to an intranet portal page, Klipfolio Dashboard consumes several orders of magnitude less bandwidth in the network – think of a notepad text file instead of a web page.

In this paper, we introduce the top five factors of the Klipfolio design, which brings real-time, operational business intelligence to your users' desktops, while minimizing the cost of network traffic and the impact on your LAN.

## How Klipfolio protects your bandwidth from the hogs

Potential bandwidth hogs	Klipfolio solution
Text and graphics formatting instructions transmitted across the network can degrade network performance.	Client intelligence keeps the instructions for the managed presentation environment on the user's personal computer.
Large file sizes and repeat transmissions can quickly degrade the network's quality of service.	<p>Instead of one processing unit, Klipfolio Dashboard is formed of 'Klips,' which are separately optimized for small transmissions.</p> <p>Personalized dashboards ensure that each user is consuming only the resources they need</p> <p>Vector graphics and file compression take care of any large file sizes caused by bitmaps and uncompressed data.</p>
Dynamic update can cause more frequent transmission.	<p>Updates are scheduled to suit your data center's requirements.</p> <p>Incremental update means updating only the dashboard items that have changed since the last update.</p>
Protocols can vary in their effect on the network bandwidth by up to 10%.	Klipfolio Dashboard uses lower-level TCP whenever possible, reserving HTTP and HTTPS for security-related purposes.
Advertisements on websites consume bandwidth without providing business value.	Klipfolio Dashboard only presents the business information and strips the excess content.

# Reducing our impact on your network

Here are the top five ways we use tools, techniques, and know-how to minimize our footprint in your data center.

## **The Klipfolio Dashboard has client intelligence**

Unlike a web application client, the Klipfolio client on the user's computer produces a managed presentation environment. All the display formatting for the dashboard is applied locally, so there's no need to use up bandwidth by transmitting overhead like images, scripts, or formatting instructions. Even in the age of cascading style sheets and Java scripts, each web page transmission typically includes many megabytes of formatting instructions due to a lack of client intelligence. In contrast, the Klipfolio Dashboard client's managed presentation layer contains instructions behind each Klip, or dashboard unit, for the display of each possible type of data. Not only is it unnecessary to send the formatting instructions repeatedly, as with a web page, it isn't necessary to send them at all.

## **Klipfolio uses services in parallel**

The modular design of Klipfolio Dashboard also helps with your network impact, because each Klip operates independently and in parallel. A Klip is a unit of the dashboard that reflects a specific performance indicator for your user – and it's also the name of the software module behind the dashboard block. Each Klip understands where your data can be found on the network, how to extract, transform, and load (ETL) that data, and how you intend it to be presented to users. Each Klip can be separately optimized to exactly the requirements of each data source because of its independence. This design provides the most effective tool for reducing bandwidth consumption.

Klipfolio Dashboard is service-agnostic, able to connect to any source of information on your network, ranging from database queries such as DB2, MDX/OLAP, and MSSQL, to internal portals through HTTP, RSS, or Sharepoint, to proprietary protocols such as FIX or Microsoft Exchange Server. Additionally, the dashboard can interface with any web-based system, whether or not it includes an accessible API. For true real-time content, Klipfolio fully supports asynchronous data exchange over HTTP, and can integrate directly with legacy web systems using AJAX techniques to push dashboard updates.

## **Klipfolio transmits minimal data in incremental, scheduled updates**

The Klipfolio software takes data from your servers in a raw form – and only the data that's changed since the last dashboard update. Raw text and graphics data in vector format, rather than bitmaps, dramatically reduces bandwidth usage, and data compression is used to further reduce the possibility of the kind of network congestion that can occur with web applications. This kind of incremental update is a major factor in Klipfolio's design principle of using the minimum set of data to get the necessary information to the user.

Update scheduling is another factor. Individual Klips have complete freedom to decide when it's time to get updates. In the simplest case, each Klip is assigned a rate for checking its data sources – every hour, every 15 minutes, once a minute, or whatever is appropriate for that Klip. These updates can be scheduled so that the Klip only fetches data during core business hours, during off hours, or at specific times when you know your data warehouse will have updated content.

In a dashboard, it's all about the trade-off between providing updated performance indicators to the user and saving network resources. And with Klipfolio Dashboard, the trade-off is a dynamic process – for instance, it's important to maintain the immediacy of the dashboard, but you can also configure the update frequency yourself when necessary, based on data-center events like maintenance windows or server failure.

## **Klipfolio Dashboard is personalized**

Each user of Klipfolio Dashboard can have a dashboard which is uniquely designed for their role in the organization. This means that each user is accessing and consuming only the resources needed to meet their business objectives.

By personalizing dashboards to specific users and groups, it's possible to manage costly WAN traffic effectively. For example, each group in a geographic region can be provided with Klips that are configured to access only local data centers, even if the domain structure isn't configured to do that automatically. For users who move between areas, each Klip can be designed to query the local domain controller and dynamically identify the most appropriate path to its data sources, reducing international bandwidth usage.

Easy integration with Active Directory or LDAP directories allows Klips connecting to SSPI data sources to transfer only the data relevant to each individual domain user. Connecting to database systems such as MSSQL, Reporting Services, and Microsoft Analytics with SSPI from your Klips isn't just a way of securing your data, it's also a way to ensure that Klips keep data transfer to a minimum.

## **Klipfolio uses the best transmission protocol**

The main principle of network design is to minimize resource usage while maximizing capacity and controlling cost. Applying this principle to network transmission means avoiding network protocol limitations by choosing the best protocol for the job. Whenever possible, Klipfolio uses the lower-level TCP protocol, which reduces network traffic by about 10% compared to higher-level protocols. Klipfolio reserves the higher-level HTTP and HTTPS protocols for situations in which firewalls and secure socket layer sites demand them.

## **Klipfolio does the math**

At Klipfolio, we have studied our software's 'quality of service' – a concept used in telephony and networking to define how effectively a networked service meets the needs and expectations of users. In Klipfolio Dashboard, there are three factors that define quality of service:

- The rate at which Klip requests occur
- The rate at which data changes in the source database
- The maximum acceptable delay between a change occurring and a user seeing the change

Of course, the values of these three factors differ for every Klip in every dashboard, because they depend on the individual characteristics and requirements of each organization. However, combining the three factors allows Klipfolio to quantify the impact of accessing operational business intelligence through Klipfolio Dashboard on your network and define what is and isn't an acceptable impact in your situation.

Regardless of how the three quality-of-service factors are juggled, Klipfolio Dashboard uses about 4.9 times less bandwidth compared to typical web application page queries <sup>1</sup>. And because it's so important to us, Klipfolio Dashboard is also the leader in the bandwidth stakes when it's compared to other desktop dashboards.

## In summary...

The key concepts presented here are only a small sample of how Klipfolio has found ways to use less bandwidth and reduce the impact on customers' data centers. For more examples, such as embedded assets, vector-based charting, generated content, and dynamic formula calculation, check out our online documentation, or discuss them over the phone with our support team.

With careful planning and requirements gathering, it's easy to meet the needs of the IT department for controlling cost and complexity – without compromising on the needs of business users.

For more details, visit us at <http://www.klipfolio.com>

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*<sup>1</sup>Test performed by Klipfolio Inc. to compare receiving data with Klipfolio Dashboard to visiting individual sites to access the same information. Please contact Klipfolio at [info@klipfolio.com](mailto:info@klipfolio.com) to learn more about our test procedures and results, or to perform the same testing on your own.*

**Klipfolio**<sup>™</sup> The KPI Dashboard – Evolved.

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