Klipfolio™

Klipfolio Dashboard Architecture and Deployment Planning Overview

A guide to understanding Klipfolio Dashboard and how to plan for a successful deployment

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I've Chosen Klipfolio Dashboard – Now What?

You have chosen Klipfolio Dashboard to help you to resolve the challenge of consolidating data from different data sources, departments or line of business into a real-time view of the relevant key performance indicators (KPIs) using Klips that clarify the presentation of the data and highlight exceptions enabling you to make faster, better business decisions.

We want your Klipfolio Dashboard deployment to be a success and to provide you with the information you need to develop and deploy Klips that add meaning and relevance to your users. This document provides an overview of the Klipfolio Dashboard architecture, how to plan your deployment and answers the common questions that are asked;

- What is the difference between Klipfolio Dashboard and Klipfolio Dashboard Developer Edition?
- What is a Klip and what can it do for me?
- How will Klipfolio Dashboard access our different data sources?
- How will it fit into our infrastructure?
- Are there performance and scalability issues to consider?
- How do we deploy and maintain Klipfolio effectively?
- What kinds of Klips should we develop for our different users?

To answer these and other questions, and to help you understand Klipfolio Dashboard better, this overview describes the components that make up Klipfolio Dashboard. It also provides guidelines for planning your Klipfolio Dashboard deployment.

What is the difference between Klipfolio Dashboard and Klipfolio Dashboard Developer Edition?

To simplify development and deployment we have two applications each specifically designed for developing Klips or viewing Klips.

Klipfolio Dashboard Developer Edition is a rapid development environment designed to simplify the development of new Klips. Once Developed and tested you can deploy these new Klips to the relevant business users who can use the Klipfolio Dashboard to view them.

The Developer Edition includes a step-by-step workflow, templates, debugging tools, code samples, demonstrations, and documentation in an easy-to-use development environment specifically designed to help you streamline Klip production.

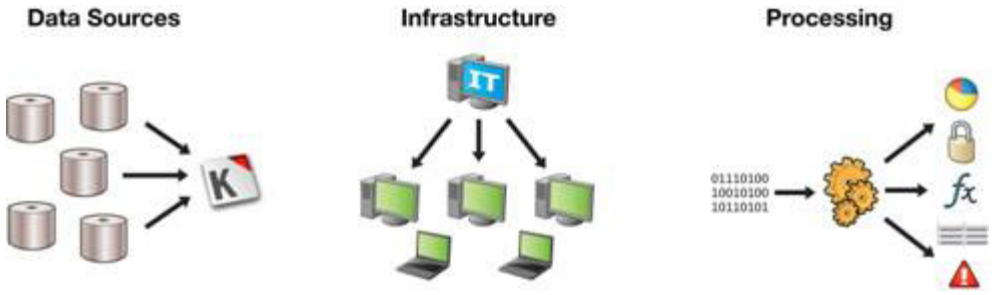
Klipfolio Dashboard is the viewer that is deployed to each user's desktop and is the container they use to view or launch Klips on their desktop.

What is a Klip and what can it do for me?

Klips are XML files that contain markup, styles and JavaScript and provide the Klipfolio Dashboard platform with rules for the retrieval, interpretation, and presentation of information sources such as flat file formatted data, XML based data feeds, relational databases and multi-dimensional databases/OLAP, in order to simplify the visibility of business critical data.

Klipfolio Dashboard in Your Environment

To better understand Klipfolio Dashboard, where it will fit into your infrastructure, and how it can provide the metrics you need, it's helpful to think of its components in terms of data, infrastructure, and processing.



Klipfolio and your data sources

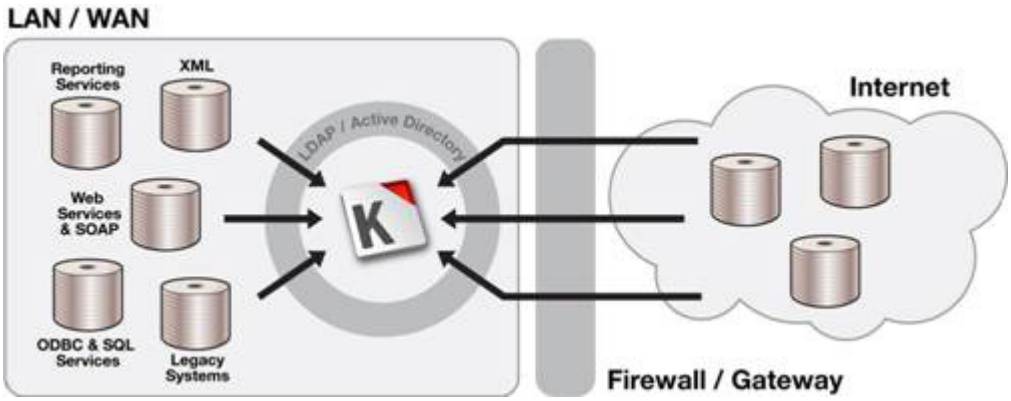
Klipfolio Dashboard can handle data from multiple sources, and combines and refreshes that data in Klips – small but powerful XML-based desktop modules. Klips are developed using the Klipfolio Dashboard Developer Edition. These Klips are then added to Klipfolio Dashboard and provide a complete and accurate picture of key business metrics on users' desktops. There are many ways that Klips can get data. For example, Klips can go directly to the data source, request a copy of data, and do all of the processing needed to get information. Typically, though, you will want Klips to do as little work as possible and will delegate processing to your servers.

The ability of Klipfolio Dashboard to deal with almost any type of data source means you can rapidly develop Klips using Klipfolio Dashboard Developer Edition and get them deployed to user communities using your existing systems and client-side processing, with minimal IT input. You can then target areas where you want to fine tune how Klipfolio Dashboard handles data, and gradually move processing to your servers.

Klipfolio Dashboard can access data from any network accessible file and from external sources via the Internet and extranets. Being designed to use data from almost any source, Klipfolio Dashboard can leverage existing systems and databases, including Enterprise Resource Planning (ERP), Business Intelligence (BI), Customer Relationship Management (CRM), and Sales Force Automation (SFA) systems.

Klipfolio Dashboard can access data in three ways:

- **Flat file.** Most web applications can export data on a periodic basis to an XML or CSV flat file. You can also choose to write an ASP or PHP script to extract the data from your application and use it to refresh an XML or CSV file. Klipfolio can read the file and parse its contents into meaningful information.
- **Direct access.** Klipfolio has numerous data-engines: ODBC, Microsoft Reporting Services, Salesforce and SOAP. You can use them to query and extract data directly from the source without needing an intermediate flat file. Klipfolio parses the data into XML, to which styles can be applied for presentation.
- **HTML Parsing.** Klipfolio can extract data directly from existing HTML. As a result, where data feeds aren't yet available you can use any static or dynamic web application as a data source. Using a combination of cascading style sheets (CSS) to parse XML, and JavaScript to create custom logic, a Klip can mimic the interaction of a browser with a remote site.



Whether it's in XML, OLAP, ODBC, reporting services, Web services like SOAP, a variety of legacy web formats, or other formats, Klipfolio can access and process the data needed to provide desktop dashboard users with real-time information. It makes that information available by dashboard users on local, wide area, and virtual private networks. For users in regulated

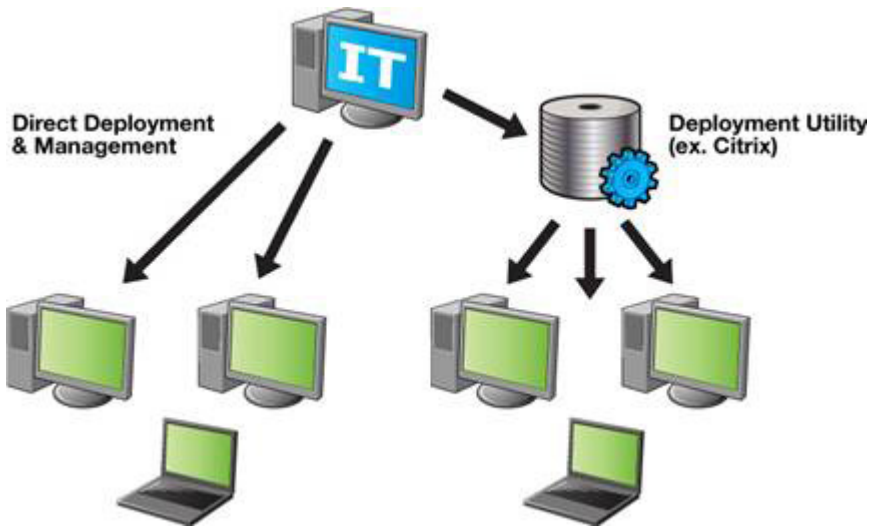
industries such as heathcare or financial services, increasingly tighter compliance legislation requires that access to data be limited to authenticated users. Klipfolio gives you the option of using existing Active Directory/LDAP services to ensure that only properly authenticated users can view the information displayed in a Klip.

Klipfolio in your infrastructure

Klipfolio Dashboard was designed to fit into any size enterprise IT environment, to have little impact on processing resources, and to scale easily to accommodate increasing numbers of users.

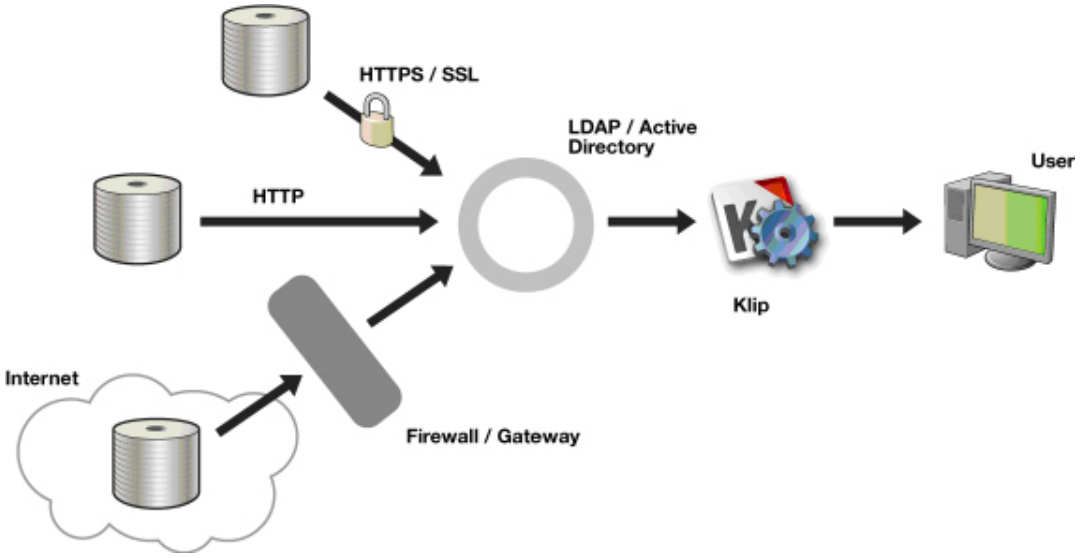
Klipfolio deployment

You can deploy Klipfolio Dashboard on laptops and desktops, either manually or using a deployment utility, such as Citrix. Later in this paper we provide information about the deployment approaches we've found most effective, based on number of users.



Klipfolio Dashboard ties into your existing gateways, firewalls, Active Directory/LDAP services, and security policies to ensure that data is protected and can be used by only properly

identified and authorized personnel. It supports HTTPS and SSL, and both basic and session-based user authentication. Klipfolio Dashboard can be signed by Microsoft Authenticode, and Klips can be digitally signed and encrypted to secure their logic.



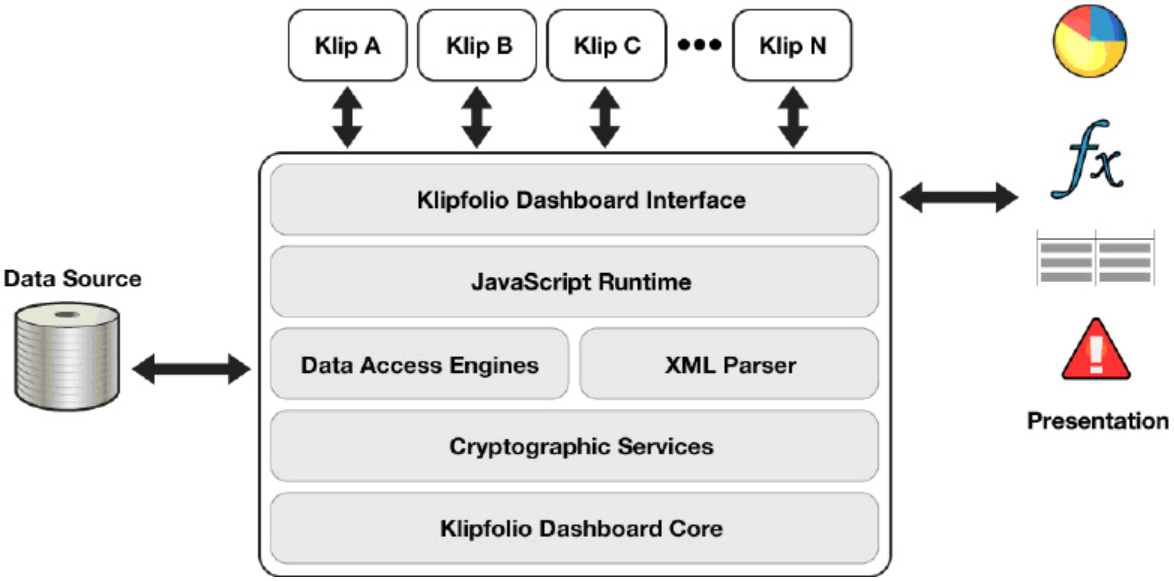
Klipfolio performance and scalability

The Klipfolio dashboard client is just over a megabyte in size and consumes negligible client memory and performance resources – usually between 5 and 25MB, depending on the number of Klips and their content.

Klipfolio Dashboard can process very large amounts of remote content and simultaneously refresh dozens of Klips using minimal CPU resources. This is possible because it features:

- A general caching system that ensures images downloaded to Klips are refreshed only when necessary
- Context-aware caching tuned by the Klip developer to specify that images should be refreshed as required.
- HTTP 304 Not Modified, Last-Modified, and E-Tag support that ensures only changed files are processed

As a Klip developer, you can control resource and performance impact by setting appropriate refresh rates, pre-processing data server-side, or limiting the amount of data Klipfolio Dashboard requests without impacting its end-user value.



Klipfolio Dashboard has proven to be highly scalable, with single customer deployments of over 45,000 users and data sources containing millions of records. With no server component to act as a bottleneck processing can be done centrally, on the client side, or both.

Klipfolio processing and information delivery

The power of Klipfolio Dashboard comes from its ability to process data needed to monitor and make users immediately aware of changes in key metrics. It does this using:

- An interface that displays changes in critical information
- A JavaScript Runtime engine, XML Parser, and Data Access Engine to process data
- Cryptographic services to ensure security
- A core for installing, uninstalling, and upgrading Klipfolio Dashboard

The Klipfolio Dashboard interface

The Klipfolio Dashboard user interface displays desktop dashboards made up of Klips. The interface lets you determine where on the desktop to display the dashboard and whether it is locked or floating. There are toolbars, icons, skins, sounds, and language preference settings. As a developer you can make these available for users to customize their dashboards, or turn them off to ensure standard dashboard deployments that users can't alter.

To refresh the information displayed in a dashboard, each Klip periodically:

- Accesses the remote content source
- Parses the incoming data and converts it to XML
- Processes the XML
- Displays new and updated content

Klipfolio JavaScript runtime processing

Behind the Klipfolio interface is the JavaScript Runtime environment needed to process data and display information in Klips.

Each Klip in your deployment is provided with an independent runtime environment for data processing and script execution. For Klips that do more than display simple data, this is where the heavy-lifting involved in processing data takes place.

Each runtime in turn provides a compartmentalized and secure instance of the tools and APIs within Klipfolio for the Klip to use as needed. Runtimes share objects and data using the marshaled DataPool API or by cooperating using a server.

The lifecycle of these runtimes mirror the lifecycle of the user interface for each Klip. The runtimes are created when the Klip is loaded, and terminated when the Klip is removed. All information contained or generated within a runtime is removed when it is closed.

Klipfolio Dashboard XML parser and data access engines

Processing involves parsing XML using Klipfolio's own very fast, non-validating XML parser. Using Cascading Style Sheets (CSS) syntax, a Klip can tell Klipfolio Dashboard's XML parser how to extract elements from incoming XML.

Klipfolio data access engines

Klipfolio data access engines enable Klips to access remote content through HTTP/HTTPS, either directly or using Basic User Authentication. They also enable access, through the File engine, to read content from any file accessible using a Windows Universal Naming Convention (UNC) path with full Active Directory/LDAP support. They enable access through the TCP/IP engine to read content from any remote TCP/IP server.

Cryptographic services

Klipfolio can use Public Key Cryptology to digitally encrypt and sign Klips. A digitally signed Klip leaves the JavaScript visible but prevents it from being modified.

When Klipfolio Dashboard loads a digitally signed Klip, it validates the signature block against the file loaded. If they don't match, Klipfolio assumes the script has been tampered with and does not run it.

The Klipfolio Dashboard core

The Klipfolio Dashboard core provides the Klipfolio Dashboard application framework and implements the logic for the installer, uninstaller, and cache management for images and XML.

The core includes a full graphics rendering engine that supports GIF, JPG, ICO, and 8-bit and 24-bit PNG images with alpha channels. Klipfolio Dashboard uses a bicubic spline interpolation algorithm to quickly scale images for display within a Klip, tooltip, or pop-up alert. Users never have to resize Klip images, because Klipfolio does it automatically.

If Klipfolio Dashboard was deployed manually, the core checks for remote upgrades of Klips and of the Klipfolio Dashboard application. If Klipfolio was deployed using a software deployment utility, then upgrading Klipfolio and adding, modifying, and removing Klips is done by upgrading the Klipfolio Dashboard application and its files on the software image.

Planning Your Klipfolio Dashboard Deployment

Whether you purchased the Klipfolio Dashboard QuickStart program for evaluation purposes, a Klipfolio Dashboard Developer Edition license or Klipfolio Dashboard runtime license, the process to follow to get your Klipfolio Dashboard deployment up and running is the same.

To deploy Klipfolio Dashboard, our professional services team work with you to capture your preferences for the look and feel you want (skin), the logo to display, the default Klips to include, whether Klips should be customizable by users, scrolling options, and a wide range of other variables. Based on your preferences, we create a Klipfolio Dashboard build that is unique to your requirements. Then we help you deploy that build and develop your first Klips.

Use the questions and answers that follow to help plan an efficient Klipfolio deployment and make the best use of the consulting services that come with Klipfolio Dashboard.

1.Should we deploy manually or use a utility?

You can deploy Klipfolio Dashboard manually or using a deployment utility, such as Citrix. We've found that deployments of fewer than 50 users typically can be managed manually or via email. If you are letting users install Klipfolio Dashboard manually, consider having them install a default version of the product without Klips. They can then pick the Klips that are most relevant to their needs. With a deployment of 50 to 250 users, an internal portal with download links and instructions works well.

When deploying Klipfolio Dashboard to 250 or more users, we suggest that you include it in your IT software stack and manage deployments, maintenance, and upgrades for both Klipfolio Dashboard and Klips using a software management utility. To support this, Klipfolio Dashboard can be set to "silent install." Deploying Klipfolio Dashboard with a utility gives you more control over your deployment. For example, you can make sure that users receive and can not uninstall Klipfolio Dashboard.

For any of these scenarios, our Klipfolio support team works with you to maintain and upgrade your deployment. Because the Klipfolio Dashboard build is configured to your requirements, your build includes the upgrade handler that best suits your needs. Each of your Klips also has built-in upgrade handling, so you can keep your Klips up to date remotely, without help.

2.What about a phased approach?

A phased deployment is often a good idea. Klipfolio Dashboard customers have told us that an initial rollout of 10 or 20 users provided them with a great opportunity to get feedback on how well their initial Klips met users' needs. This fits well with our initial starter package of 20 users, which also includes two Developer Edition clients, fundamentals training and support.

You might, for example, want to deploy Klipfolio Dashboard to your IT department or to Executives throughout your organization, and then gather feedback from them on the effectiveness of the KPIs to the strategic direction of the company, before carrying out a full deployment.

3.What Klips do we need?

The Klips you need depend on your business goals and users.

Analyzing your business needs

The first step when deciding what Klips you need is to think about the business goals you want to achieve. For example, you might provide executives with departmental, or line of business metrics. Operationally, you might want greater visibility into sales figures, or the ability to respond more quickly to exceptions in a call centre. You might want to track marketing campaigns and know when they started, how many leads they've generated, and whether they are on target. Or, you might want to display data that promotes adherence to company policies, Six Sigma, or other requirements.

Want ideas for using Klipfolio to achieve business goals?

At Klipfolio.com, click the Downloads tab to evaluate Klipfolio Dashboard for:

- *Executives*
- *Call Center*
- *Help Desk*
- *Sales*
- *Marketing*
- *Supply Chain*
- *Google Analytics*
- *Internal Communications*

Some of our customers use Klipfolio Dashboard to get more value from systems they already have but are not being used to their full potential. For example, you can increase the use of Salesforce.com by ensuring that key sales indicators are always present on the desktops of sales people. Or, perhaps there is information in an existing dashboard or other business intelligence system that is hidden unless a user opens the application. Using Klipfolio, you can display that information on the desktops of key users

at all times, keeping it “top of mind” and ensuring they take immediate action when a critical indicator changes.

When analyzing the goals you want to achieve with Klipfolio Dashboard, think about the systems and approaches you are already using to try to achieve those goals, and how you might make the best use of them. Think about the types of challenges you want to solve, and whether they are related to data visibility, real-time notification of changes in data, or application adoption.

Profiling your users

You also need to be aware of who in your organization will be using Klipfolio Dashboard, and how they will use it to achieve their goals. Are the needs of all users the same, or do they vary? Decide what data is critical for different users. What data should people be paying attention to? Should the data always be visible, or only when the Klip is expanded? What do you want users to see when their cursor hovers over a Klip? Will you provide a link to a web-based application where they can see additional details?

Also think about how you want to present information to users. Will you use icons? Charts? If you haven’t already, you might want to view the sample dashboards, demos, and video tour available at Klipfolio.com to see examples of the types of Klipfolio dashboards you can develop, and the features you can include in Klips.

4. How can we get or develop Klips?

Adding Klips to a dashboard can be as simple as using predefined Klips that come with Klipfolio Dashboard, or downloading additional pre-defined Klips from an internal portal or from the Klipfolio website.

Klip development has been simplified and streamlined with Klipfolio Dashboard Developer Edition. It incorporates all the tools needed for rapid Klip development including a logical step-by-step workflow, templates, debugging tools, code samples, demonstrations and documentation. The time and effort needed to develop more complex Klips depends on their complexity, the sophistication of the intended users, and the number and complexity of the data sources. Typically, though, developing a simple Klip takes anywhere from fifteen minutes to an hour, a Klip of medium complexity can take from one to three days, and an extremely complex Klip might take as much as a week.

Want to know more about developing Klips?

Download the 30 day trial of the Developer Edition At Klipfolio.com, or click on the Developer tab for:

- *The Klip Developer Guide*
- *Detailed information about the Klipfolio API*
- *Cookbooks with examples of code, Klip recipes, and tutorials from Klipfolio Inc. and Klipfolio users*
- *Articles to help design and develop Klips*
- *The Developer forum, where you can share information about Klip development with Klipfolio staff and other Klip builders*

The Developer section of Klipfolio.com website includes a Klipfolio Developer Guide that provides the information needed to understand and create Klips. You can also download “How-To Articles” and Klip examples to get ideas of the kinds of Klips you can develop and sample Klip code. You can share information with our developers and other customers in the Klipfolio Developer Forum.

Beyond Deployment – Klipfolio Support

Your initial deployment of Klipfolio Dashboard is not the end of the story. As your organization grows and its goals change, as you add more Klipfolio dashboard users, and as you uncover new ways of using Klipfolio Dashboard to drive performance, your use of Klipfolio is bound to evolve.

When you need help, Klipfolio Inc. consulting and support staff are ready to help – whether that involves further Klip development, additional customization, or troubleshooting.

To learn about Klipfolio Support services, click the Support tab at www.klipfolio.com

About Klipfolio Inc.

Klipfolio Inc. develops Klipfolio Dashboard — the desktop dashboard for business — and is helping Fortune 1000 companies, like lufthansa, IBM, and American Express, increase the visibility of business information for faster, informed decisions that improve performance and profitability. Klipfolio Dashboard is the only enterprise dashboard that presents information directly on the desktop where it's always visible, accessible, and actionable. Founded in 2001, Klipfolio Inc. is privately held and headquartered in Ottawa, Canada. For more information, visit www.klipfolio.com.

Klipfolio™ The KPI Dashboard – Evolved.

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