

Governed self-service analytics at scale

An overview of modern enterprise analytics

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Introduction

For the staff at Seattle Children's Hospital, speed is a matter of life and death. The faster a doctor or nurse can help a child, the better the outcome. Mere minutes can make a critical difference.

That's where real-time decisions come in. With self-service analytics, the hospital staff can ask urgent questions on the spot, respond quickly, and streamline efforts by prioritizing resources. They can get to their patients faster and save as many lives as possible.

"We're seeing analysts and managers as well as clinicians, doctors, and researchers using Tableau to solve problems in ways we couldn't do before, largely because we didn't have enough time or enough people," says Ted Corbett, Director of Knowledge Management at Seattle Children's.

That is the power of self-service analytics. It empowers organizations to fully leverage their data, be it for saving lives, driving supply-chain efficiency, or spotting new opportunities. The IT team at Seattle Children's recognized the need to convert data into information and enabled its users to self-serve.

The goals of self-service analytics are simple:

1. Empower people to ask and answer their own questions with data
2. Enable people to easily share their insights with their team and the rest of the organization
3. Ensure that the data driving the decisions is accurate

Today's organizations seek an approach to self-service analytics that balances the needs of both IT and the business. This modern approach to enterprise analytics ensures both governance and business agility.

People in your organization are already self-serving their analytical needs with spreadsheets and applications like Salesforce, Google Analytics, and Marketo. They need to answer their own questions rapidly. So how do you meet this need for self-service analytics while also ensuring a high standard of data governance, trust, security, and monitoring?

There are four key steps to successfully deploying governed self-service analytics across your organization:

1. Set up your environment rapidly to create immediate value
2. Empower your users to be self-reliant and build trust
3. Centralize and standardize your data models
4. Monitor and audit usage

With these steps, IT can partner with the business to meet both teams' needs and move the business forward.

1. Set up your environment rapidly

It's easy for one person to pick up Tableau Desktop and start exploring data in just minutes. The challenge is to quickly enable everyone in your organization with self-service analytics without spending months setting up your environment.

Tableau is flexible and powerful, able to handle tens of thousands of users, yet its server administration requirements are relatively minimal. In fact, after the initial setup, most organizations find they spend very little time on Tableau Server administration. And as your organization matures, you can easily add capacity and controls as needed.

"Because the deployment model is flexible, because the license costs aren't prohibitive, and because we can grow it organically, we don't have that big bit of decision point. And then we can scale this thing out in a very, very easy way."

—SIMON GATENBY, VP OF SEGMENTATION & TARGETING, VISA EUROPE

Install, configure, and upgrade

Tableau Server can be custom-configured based on your existing and future data infrastructure, user load and usage profile, device strategy, and goals. And yet Tableau is also fast and easy to install, configure, and update. You don't need to spend several months planning and upgrading Tableau with each new release. Tableau enables live backups which can be restored easily, allowing you to be up and running in minutes.

You can install Tableau Server on-premises with physical or virtual hardware, or in the public cloud on Amazon Web Services, Microsoft Azure, or Google Cloud Platform.

And if you don't want to manage your own licenses, you can use Tableau Online, a fully-hosted version of Tableau Server run by Tableau. With Tableau Online, you don't have to worry about installation, hardware management, or server scaling. It's all done for you.

Manage content

Tableau's user interface streamlines content viewing and management. You can see, in one place, key information about content including related items and available actions.

Tableau Server gives you the flexibility to structure your environment and manage your content based on your users and your governance needs.

If you need multi-tenancy for extra security, you can organize content on separate sites. Each site can have unique users, data, and content. Users of one site may not have access to another site or even be aware of its existence.

If you are looking to organize your content by folders, that's where projects come in. Projects are a basic container for your workbooks and data sources. They group together items and behave much like folders. Permissions can be handled at the project level, and users can have access to multiple projects.

Projects are typically used as a way to split content into functional areas with varying levels of permission. You may have Tableau users in various teams (like finance, marketing, sales, and IT) and wish to serve different content to each team even though all the content is based on the same data source.

IT can use different projects—for instance, sandbox and production—as a way to manage content. IT can create projects for teams to use as their self-service sandbox. This is where users can freely explore and perform ad hoc analysis. In addition, IT can manage and publish production data sources and dashboards in a separate production project, retaining more control over publishing in this space. IT can create the production folders, and business units can manage and vet their own content. That way, the entire organization can trust the data and use it with confidence.

A small group of users can handle the vetting process to approve content and promote it to the production folders. As the business iterates on trusted data and creates new content, these items can be blessed by IT and mainstreamed into the production environment. This ensures that the organization's primary data sources and dashboards are constantly improving and evolving as the business changes and grows.

For example, at Tableau, we organize our content into separate projects for the various teams. You can see that the customer solutions team has access to three different projects, one of which is the team's sandbox for works in progress. This is where users can ask and answer their own questions. The production folder houses vetted and published dashboards which the team manages internally. The last folder holds leadership-vetted content that has been made available to other teams. It provides visibility for the rest of the company into the performance of the customer solutions team.

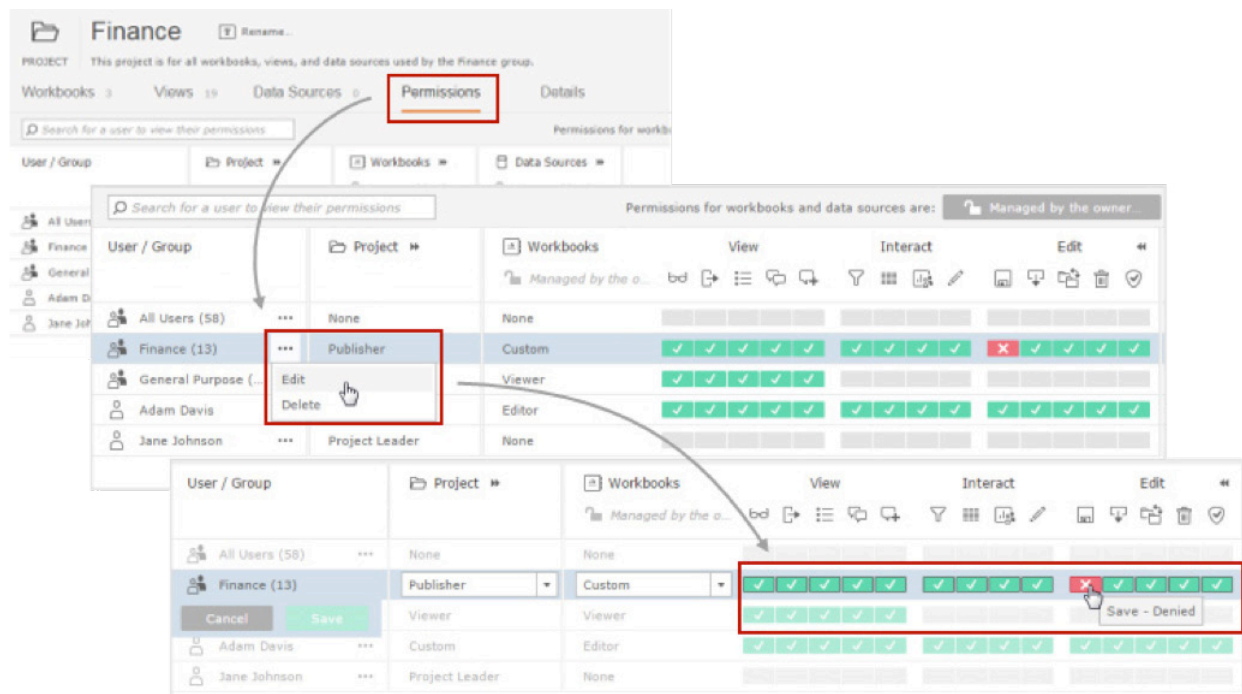
The screenshot shows the Tableau interface for a workspace named 'alpo'. The top navigation bar includes the Tableau logo, a search bar, and the user name 'Ryan McShane'. Below the navigation bar, a summary row shows: Projects 37, Workbooks 5,297, Views 20,586, and Data Sources 1,012. The main content area displays a grid of project cards, sorted by 'Name (A-Z)'. On the left, there are 'General Filters' for Owner, Created on or after, and Created on or before. The project cards are as follows:

- Boot Camp**: Content access, publishing rights, etc, please contact the project leaders. Project Leaders: Joe Odden, Rochelle Robison (backup). Publishing to Alpo. 6 workbooks, 9 views, 0 data sources.
- Channel Programs & Readiness**: Indirect Channel related reporting covering VARs, DMRs, GSI, SI, Tech Partners, other indirect channels. Content is intended for the Sales team and Executives. Project Leaders: Allen Smolinski, Tim Lens (backup). 54 workbooks, 282 views, 14 data sources.
- Customer 360**: A collection of content used to generate reports we can send to customers, providing them insight into their organization's investment in and usage of Tableau. Content access, publishing rights, etc, please contact the project leaders. Project Leaders: Sally Baldauf, Charles Schaefer (backup). Publishing to Alpo. 0 workbooks, 0 views, 0 data sources.
- Customer Solutions Production**: Primary location for content specific to the Customer Solutions organization. All users have viewer permissions on the project, with various CS teams granted greater editing permissions. Content access, publishing rights, etc, please contact the project leaders. Project Leaders: Nick Hara. Tips, gotchas, and best practices when publishing to Alpo. 357 workbooks, 1,101 views, 124 data sources.
- Customer Solutions Sandbox**: Primary location for content specific to the Customer Solutions organization. All users have viewer permissions on the project, with various CS teams granted greater editing permissions. Content access, publishing rights, etc, please contact the project leaders. Project Leaders: Nick Hara. Tips, gotchas, and best practices when publishing to Alpo. 357 workbooks, 1,101 views, 124 data sources.
- Customer Solutions Dashboards and Metrics**: Primary location for Dashboards and Metrics content specific to the Customer Solutions organization. All users have viewer permissions on the project, with various CS teams and individuals granted greater editing permissions. Content access, publishing rights, etc, please contact the project leaders. Project Leaders: Nick Hara. 39 workbooks, 139 views, 15 data sources.

Manage users and permissions

It's easy to integrate Tableau with the authentication and authorization standards that you already have in place. Tableau supports Kerberos, SAML, SSL, Active Directory, client certificates, and SSO for SAP HANA to help you secure user access to your content.

You can also manage permissions at the project level for groups of items (workbooks and data sources) or at the individual content level. Tableau's intuitive interface makes it easy to see who has access to which content and to manage permissions for users and groups. You can create groups locally on the server or import from Active Directory and sync on a set schedule. The permissions view also helps business users manage their own users and groups.



Decentralize administration

Tableau Server is so easy to manage that we often see IT delegate the role of site administrator to select business users, especially when it comes to departmental content management and permissions.

In large enterprise deployments, it becomes necessary to decentralize administration of both users and content. This helps remove IT from the task of self-service content generation.

Tableau administrators can be assigned different levels of access with varying capabilities. Having physical access to the server hardware and server-admin credentials means complete access to all Tableau Server administration. Site-admin access allows control of content and users within a specific site, and project-leader credentials grant control of content and permissions within specific projects.

We encourage server administrators to offload some admin responsibilities to site administrators and select business users. Both system- and site administrators with the correct permissions can add new users via the UI, API, or command-line tool (tabcmd).

You don't personally have to manage permissions for all content on the server; business users and domain experts can manage content and permissions for their own groups. For example, the analyst aligned to the marketing department can be the project leader for marketing projects.

Automate using APIs

You can automate business processes using Tableau's REST API or the Tableau Server command-line tool (`tabcmd`). For example, you can build a script to log in, automatically onboard new users, generate PDFs of your views, and more. You can automate setting up new environments by creating a new site, adding individual projects, provisioning new users, assigning permissions, and even populating starter content.

The Tableau Server [REST API](#) and [tabcmd utility](#), along with the [JavaScript API](#) and [data extract APIs](#), offer simple and flexible ways to build on Tableau Server's capabilities.

2. Empower users to be self-reliant

What do new users need to quickly come up to speed in your environment? They need a trusted place where they can find answers to questions and share their insights.

Tableau empowers the people who know the data best and can maximize the impact of the insights. It enables people to perform complex analysis in just a few clicks. When users sign in, they see all the dashboards and data they have access to. Digging in is as easy as browsing, searching, opening, and exploring.

There are many BI tools that give people access to already-built dashboards. Tableau is unique in enabling deeper explorative analysis, letting people ask new questions even they themselves didn't anticipate. The dashboard is often just the beginning of that discovery process, not the end.

Tableau not only empowers business users but also allows IT to take on a more strategic role. With a governed self-service analytics platform in place, IT can leave behind the traditional report-factory role to enable business agility at scale and become a partner to the business.

Find insights and discover content from any device

In order to enable data-driven decision-making across the organization, users need easy access to data and dashboards at all times, even on the go.

Users can access and explore dashboards directly from Tableau Server and Tableau Online using any mobile browser or via Tableau Mobile, our native app available for iOS and Android devices. Offline snapshots of the dashboards let users have a quick glance at their favorite views without having to rely on network connectivity.

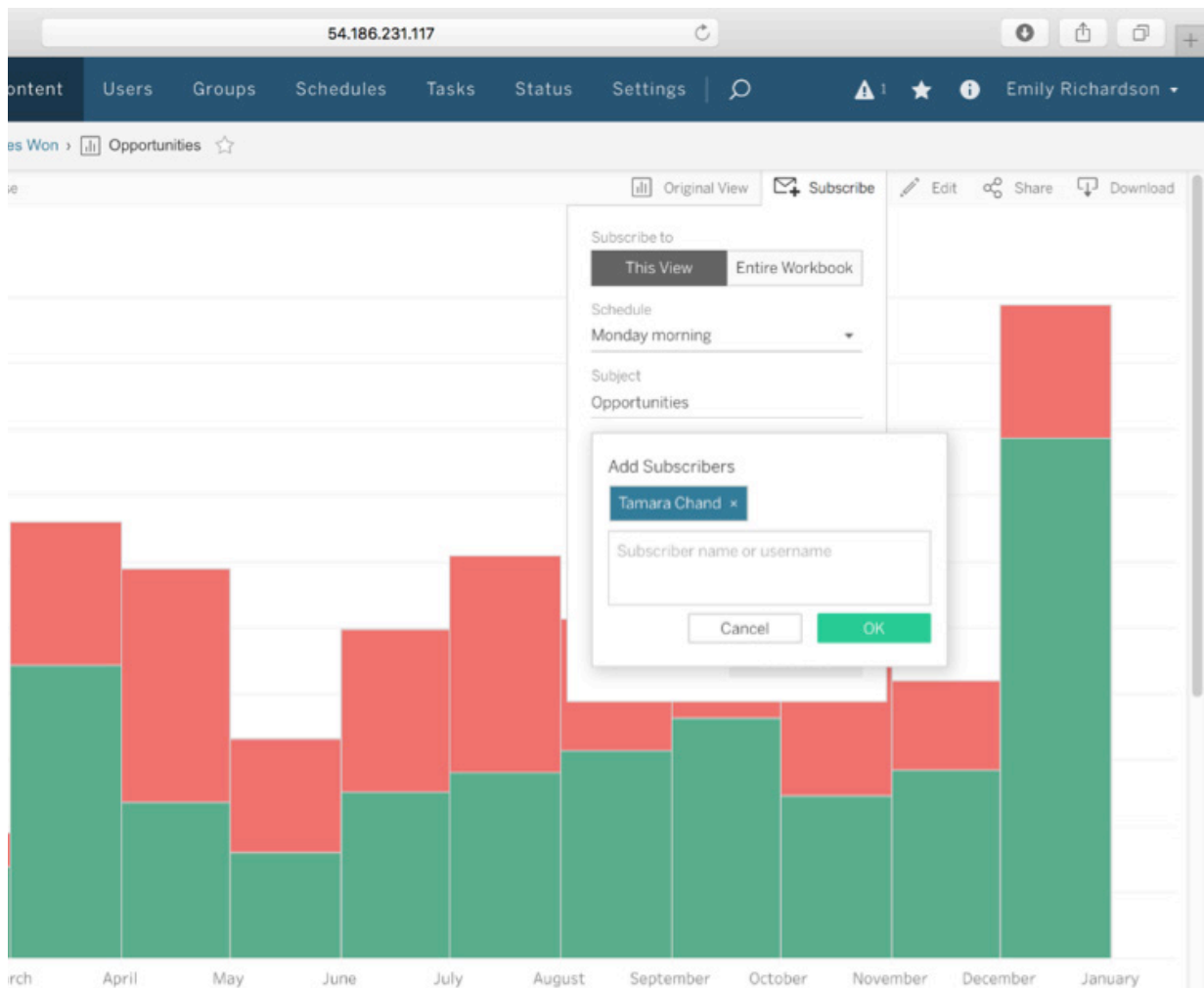
Tableau has several features to help users stay on top of relevant content. These include global search, tags, favorite views, and subscriptions. With visual search, users get an image preview of the view before they load the full dashboard.

With the subscription feature, executives can easily track weekly reports across the organization. And as the admin, you have control over all of the subscriptions; you can create new subscriptions and delete existing ones. You also control whether workbook authors are allowed to schedule their own subscriptions, and more foundationally, whether the server has subscriptions enabled at all.

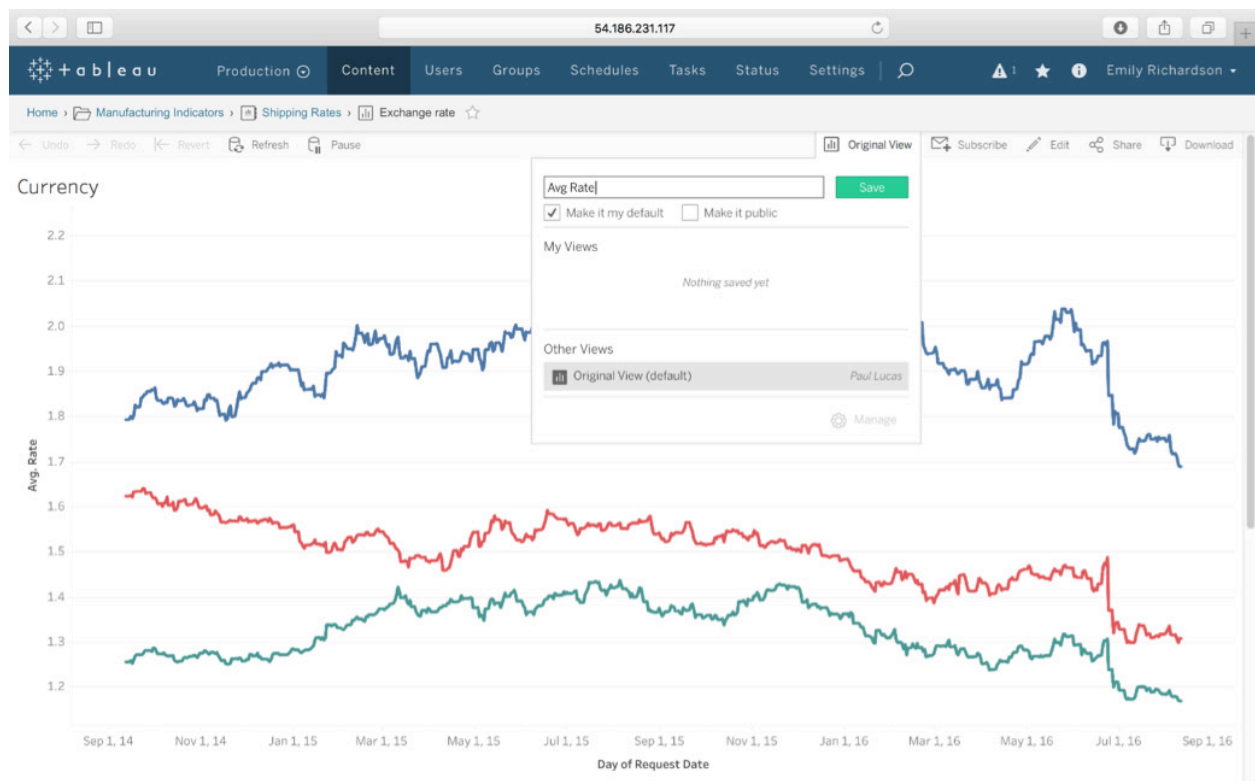
All of the ways people interact with content—tracked through the number of views, favorites, and subscriptions—provide valuable insights into the popularity and quality of content. Tableau leverages this data to improve search relevance and to help users discover new and rising content. IT can leverage this data to see trending topics surfacing across the business and identify key areas of focus for the business.

Securely share insights

Once users have explored their data, they can easily share their insights with others. Users can subscribe themselves and others to content to stay up to date on the key business metrics they care about most.



Users can share the original view or their custom-filtered and selected view of the visualization.



You can rest easy knowing that the security in Tableau Server and Tableau Online will protect against unauthorized access. Users without permission to certain content won't see it in their search results. For example, HR data can be hidden from all non-HR business units. Permissions can be applied to workbooks, data sources, projects, and sites using predefined group roles or custom permissions at the time of publishing.

Tableau's versioning feature helps ensure content is backed up and can be easily recovered should someone overwrite a preferred version of a workbook.

The screenshot shows a 'Revision History' dialog box in Tableau. The dialog has a title bar with a close button. Below the title, it says 'Select a previous revision of workbook "Area Code Analysis"'. There is a table with three columns: 'Revision Number', 'Owner', and 'Publish Date'. The table contains four rows of data. The first row is 'Revision 4 (current)' by 'Ryan McShane' published on 'Feb 8, 2016, 5:25 PM'. The second row is 'Revision 3' by 'Ryan McShane' published on 'Feb 6, 2016, 4:24 PM' with a three-dot menu icon. The third row is 'Revision 2' by 'Ryan McShane' published on 'Feb 4, 2016, 4:21 PM' with a three-dot menu icon. The fourth row is 'Revision 1' by 'Tyler Doyle' published on 'Jan 22, 2016, 9:48 AM' with a three-dot menu icon. At the bottom of the dialog are two buttons: 'Cancel' and 'Download Selected Revision'.

Revision Number	Owner	Publish Date
Revision 4 (current)	Ryan McShane	Feb 8, 2016, 5:25 PM
Revision 3	Ryan McShane	Feb 6, 2016, 4:24 PM ...
Revision 2	Ryan McShane	Feb 4, 2016, 4:21 PM ...
Revision 1	Tyler Doyle	Jan 22, 2016, 9:48 AM ...

Bring insights to the users

Once users uncover insights, IT can help share the findings by embedding them in the platforms already in use.

Many of our enterprise customers have embedded Tableau visualizations in their existing portals so that business users can access data as a part of their usual workflow. These portals include wikis, client-facing sites, SharePoint, and more.

[LinkedIn](#), for instance, embedded Tableau dashboards in an internal portal that has saved its sales team 100,000 hours of work. At Tableau, we embed our dashboards in Salesforce. The views are connected to live data so our sales team can get a quick view of their account, right in the flow of their workday.



3. Centralize your data models

While decentralized control helps your business users move faster, it can also lead to chaos. The challenge is maintaining data integrity and security without hindering self-service analytics at the speed of business. Tableau has the flexibility to establish the right levels of control based on the content, the users, and the data in question. Some reports can take a connect-and-go approach while others are based on a shared or governed data source managed by IT.

You can help jumpstart your users' analyses by allowing them to connect live to their own data sources. This way, they can jump right into analysis, no need to wait for extracts or metadata setup. Then as you see which data sets are being accessed most frequently, you can begin curating central, governed, and accurate versions of those data sources and related dashboards, spreading their value across the organization.

Data governance ensures the accuracy of the data driving your users' decisions. IT can empower the business to be self-reliant by providing a trusted and centralized environment. And that's where the Tableau Data Server comes in.

With Tableau Data Server, you can:

- Share data models
- Secure how your users access data
- Manage and consolidate extracts

Tableau also integrates seamlessly with enterprise ETL tools such as Informatica, Alteryx, Trifacta, and many others to help you make the most of your existing analytics investment. Our partners' tools extend Tableau's capabilities so organizations can more easily collect, store, transform, and connect to their data.

Share data models

With the Tableau Data Server, you can leverage and share data models. Tableau connects to dozens of databases with optimized native drivers. And with the Web Data Connector SDK, you can unlock the entire world of web data from virtually any site that publishes data in JSON, XML, or HTML. You can set up connections once and enable all users to access and analyze the data consistently.

Tableau data sources (connections, data models, and extracts) can be published to Tableau Server, which can then be reused by others. Changes to a master data source are automatically propagated to workbooks built using that data source. Once you have published a data source that contains all the connection information such as tables and joins, business users can connect to it and add their own calculations or even blend in additional data.

A very powerful feature of Tableau is the ability to join tables from different vendors and databases then save them as a new single data source for others to find and reuse. You can keep your customer data in SQL Server and inventory management data in Amazon RedShift. Your business users don't have to know the specifics; for them, it just works as a part of a seamless experience.

Business users who are closest to their data can also be granted permission to publish new data sources with custom field definitions, calculations, parameters, and groups. This means any metadata changes you make to the source (calculated fields, parameters, aliases, or definitions) can be saved and shared with others, allowing for a secure, centrally-managed, and standardized data set. All of this is done right in Tableau, no separate tools needed.

This approach also allows users to prototype the data then have IT check it for errors before publishing it to production sites. Published data sources also give users an accurate starting point for new analyses, promoting sharing and reuse of consolidated data.

Maintain control of data security

In addition to maintaining the data model for a data source, you can set secure access to your data at multiple levels.

- **Permissions on the database:** Tableau respects the security that you have on your database and only provides the data that a user has access to. You can choose to require user authentication with each access to the database, or you can embed the author's credentials directly in the data source for everyone to reuse.
- **Permissions on data sources in Tableau:** Similar to content permissions in Tableau, you can also set permissions on your data source. You can allow an entire team to connect to the data source but limit permissions for editing metadata to a few named users responsible for data integrity and administration.

- **User filters on workbooks:** You can set user filters on workbooks you publish in order to show users only the data they need to see based on their Tableau Server credentials.

These measures allow the business user to focus on deriving insights from the data instead of having to worry about the underlying database structure, proper field definitions, or data integrity. The maintenance of the data source can either fall to IT, database administrators, or business users.

Manage and consolidate extracts

Use the Tableau Data Server to consolidate your extracts and provide data in one place. This way, you can avoid unnecessary processing and storage of large, separate, overlapping files. You can schedule automatic refreshes for each published extract. These can run multiple times per day on a schedule that works best for you.

Issues with extract refreshes are visible to all users so they'll be aware of any impacts to their dashboards. The admin views also let you know if automatic refreshes fail so you'll know when your organization isn't using the most recent data available and require notification. Admins and workbook authors can schedule extract refreshes when they publish their workbooks or data sources.

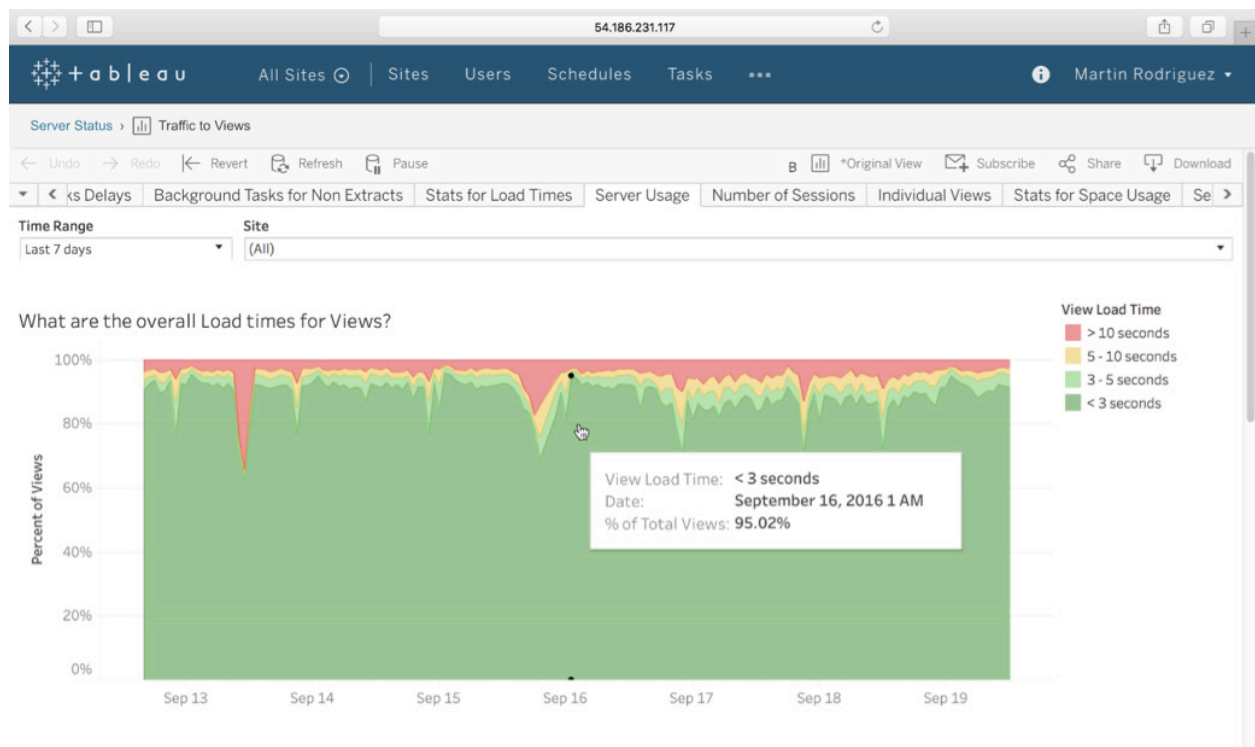
4. Track usage

Monitoring usage is a critical piece of the self-service model as it allows IT to be proactive and responsive about usage, performance, and failures. You can reach out to workbook authors to help optimize performance and to identify popular resources to promote greater adoption and awareness.

Just as business users leverage data to make smarter decisions, you, too, are empowered to make data-driven decisions on your Tableau deployment based on your admin-data views.

Tableau Server provides a set of curated interactive admin views. You can drill down, aggregate, and answer your questions to find your own insights.

The server admin views let you clearly see the usage of your Tableau Server deployment. You can identify and track popular dashboards and data sources that have become mission-critical and should be reviewed and hardened by IT. You can also find content that's not being widely use and archive it.



You can detect patterns in your organization's data consumption, then focus your efforts on maintaining the most widely-used data. If you are trying to resolve an issue for a particular user, you can also filter and see the activity for just that user.

Track failures

Tableau Server provides visibility into server health issues and background tasks through email alerts and admin views. You can see the status of all currently-running server processes and choose to be notified if any of the server processes go down. When scheduled tasks fail, you can see why they failed, take action, and prevent future failures.

Monitor performance and capacity

Keep track of load times and space utilization to ensure the performance of your system meets the requirements of your users. Visibility and historical trends will help you better understand the usage patterns and provision new capacity before users are impacted. You can set up alerts to warn you when space falls below a certain threshold you've set. When necessary, Tableau is easy to scale up or out to support more users and departments.

Customize for your needs

Tableau allows direct access to the Tableau Server Repository which includes information about user activities, data connections, queries, extracts, errors, views, and interactions on Tableau Server. To get a better view into performance and to identify your resource and performance bottlenecks, you can bring in data from your preferred resource monitoring tools like Perfmon or Zabbix and collate that information with performance data from Tableau.

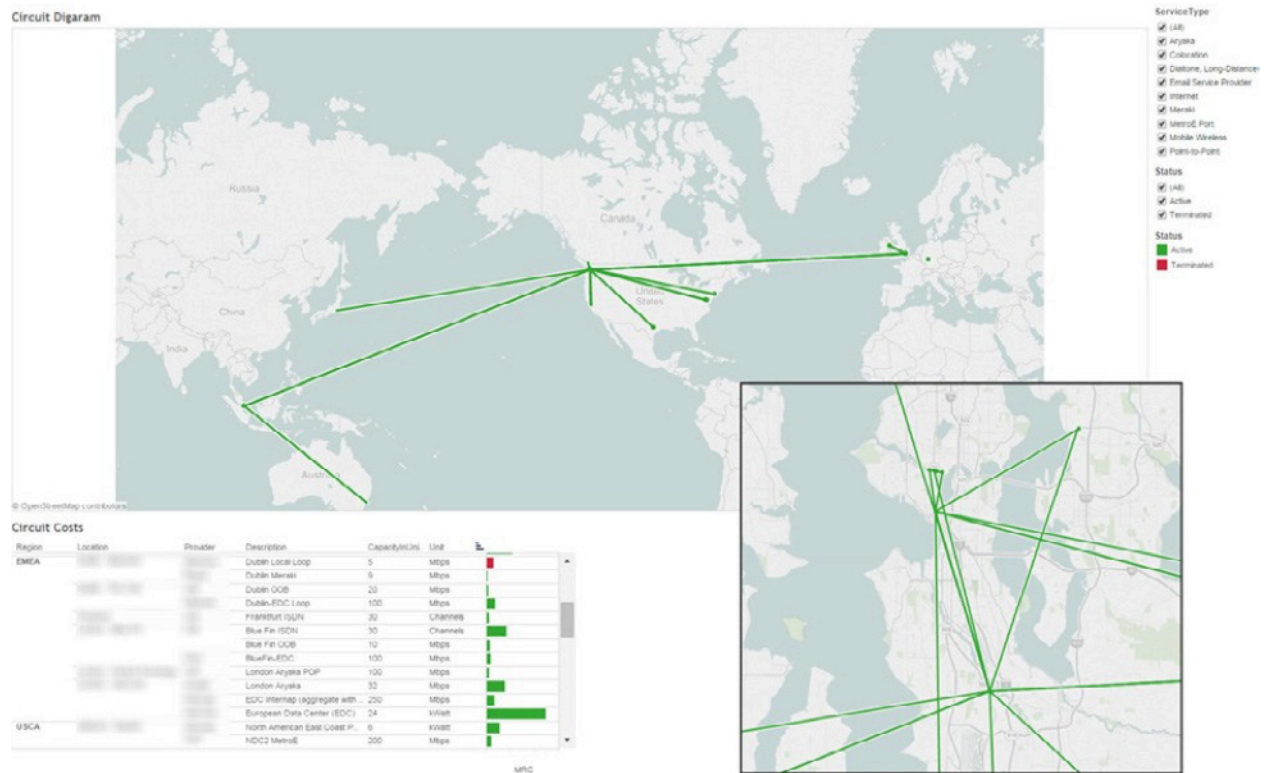
Uncover Your Own Insights with Tableau

Why limit yourself to just monitoring Tableau usage data? Just like any other business unit, you can use Tableau to visually monitor all your IT systems. Check out how Tableau's own IT team uses Tableau as part of the daily workflow.

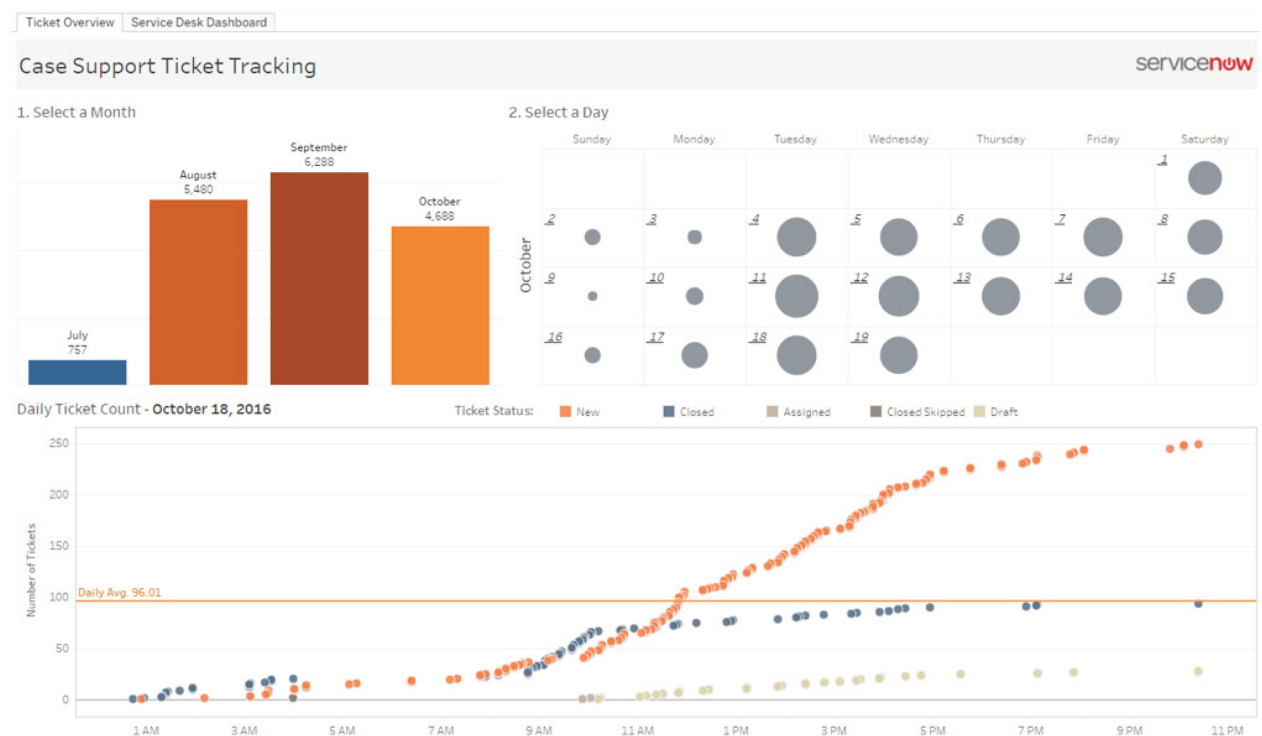
This dashboard monitors the performance of our own installs of Tableau:



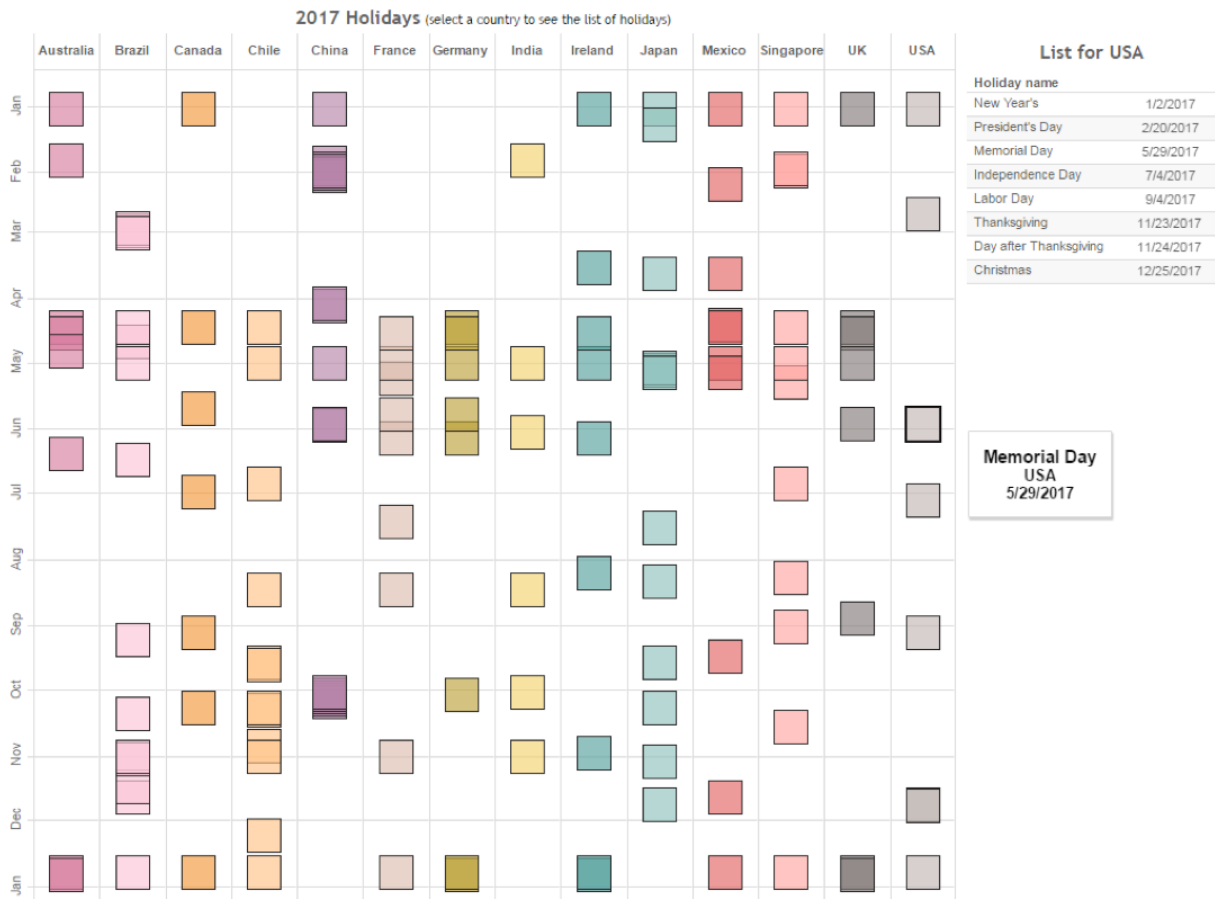
This one tracks network connectivity:



This view tracks IT helpdesk tickets:



And this one, our most-viewed dashboard across all of Tableau, shows the list of company holidays by region:



Next steps

Enabling self-service analytics requires a true partnership between the business and IT. It also requires the right enterprise platform as a foundation to build upon.

Tableau is easy to manage and deploy. It is reliable, highly available, and scalable. It also provides the governance and security IT requires without hindering the flexibility and agility of the business.

Tableau is a proven solution with both public-facing and corporate deployments in industries with the most stringent security requirements including financial services, government, education, and healthcare.

But don't just take our word for it. Try Tableau with your own data. Partner with the business and empower your organization to explore trusted data in a secure and scalable environment. Help your business gain a competitive advantage by transforming your data into valuable insights.

About Tableau

Tableau helps people transform data into actionable insights that make an impact. Easily connect to data stored anywhere, in any format. Quickly perform ad hoc analyses that reveal hidden opportunities. Drag and drop to create interactive dashboards with advanced visual analytics. Then share across your organization and empower teammates to explore their perspective on data. From global enterprises to early-stage startups and small businesses, people everywhere use Tableau's analytics platform to see and understand their data.

Resources

[Evaluation Guide: How to choose the right modern BI & analytics platform](#)

[Redefining the role of IT in a modern BI world](#)

[Tableau for the Enterprise: An IT Overview](#)

[Tableau Server Scalability – Introductory overview to scaling Tableau Server across your enterprise](#)

