

CHOOSING THE RIGHT CHART FOR YOUR IT DATA



Introduction

Visualizations are a great way to gain insight on IT data. They help you understand complex data points, convey important findings, support theories, report progress, and correlate past and present trends. However, getting visualizations right isn't easy. With so many types of visualizations available, how do you choose which one's best for you?

Here at Analytics Plus, we follow two principles when designing a visualization:

1. Determine your visualization goal.

Unless you start out with a clear goal of what you want to achieve with a report, you're never going to get it right. Typically, the crux of visualization falls under one of these categories:

- To inform
- To compare
- To show the distribution
- To establish relationships

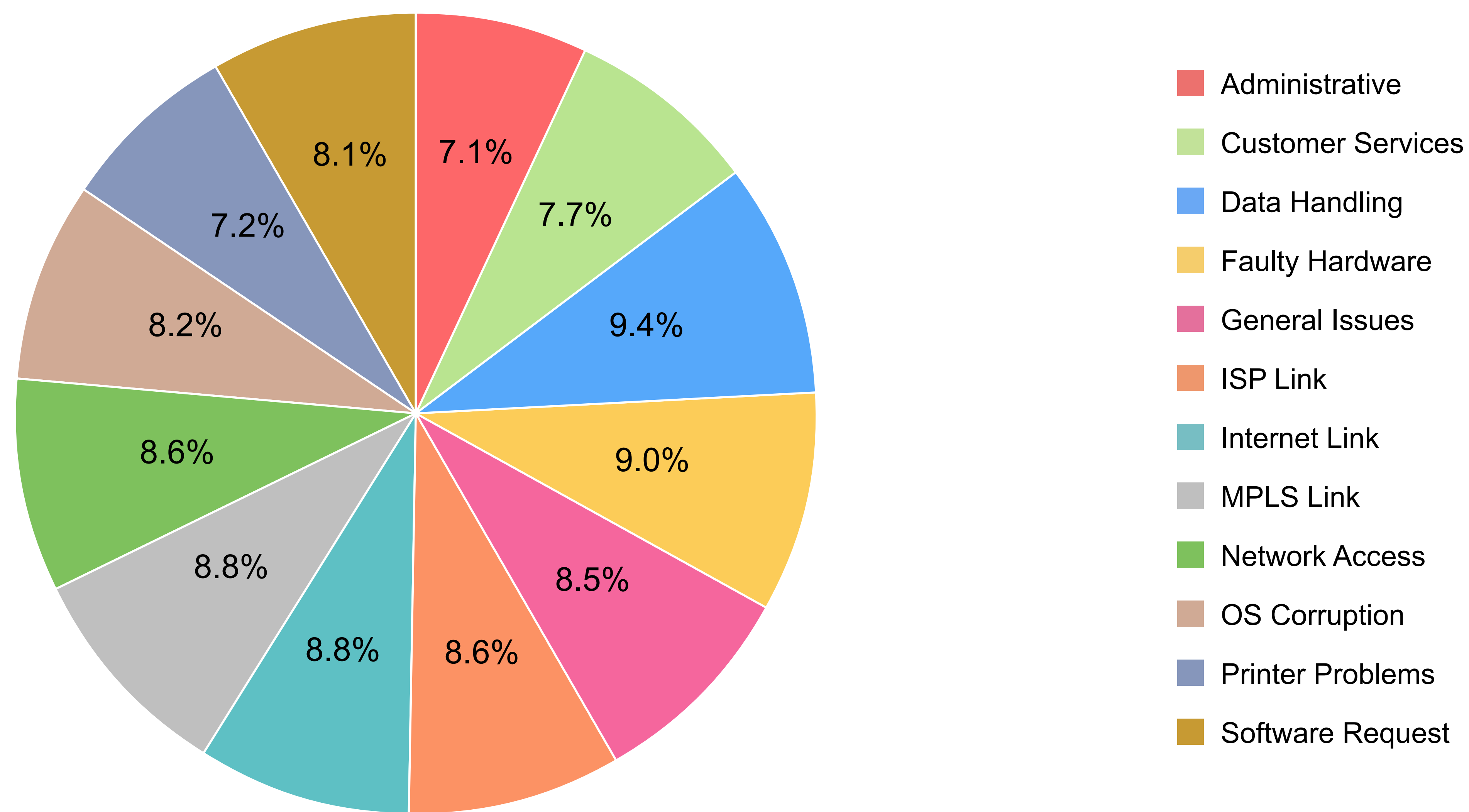
2. Choose the best visualization for your data.

Once you have a goal in place, the next step is to choose the visualization that best conveys your goals. For example, if your goal is to spot trouble areas, your visualization should help you achieve that with great clarity. Alternatively, if your goal is to plan for the future, your visualization should help you effectively look into your past trends.

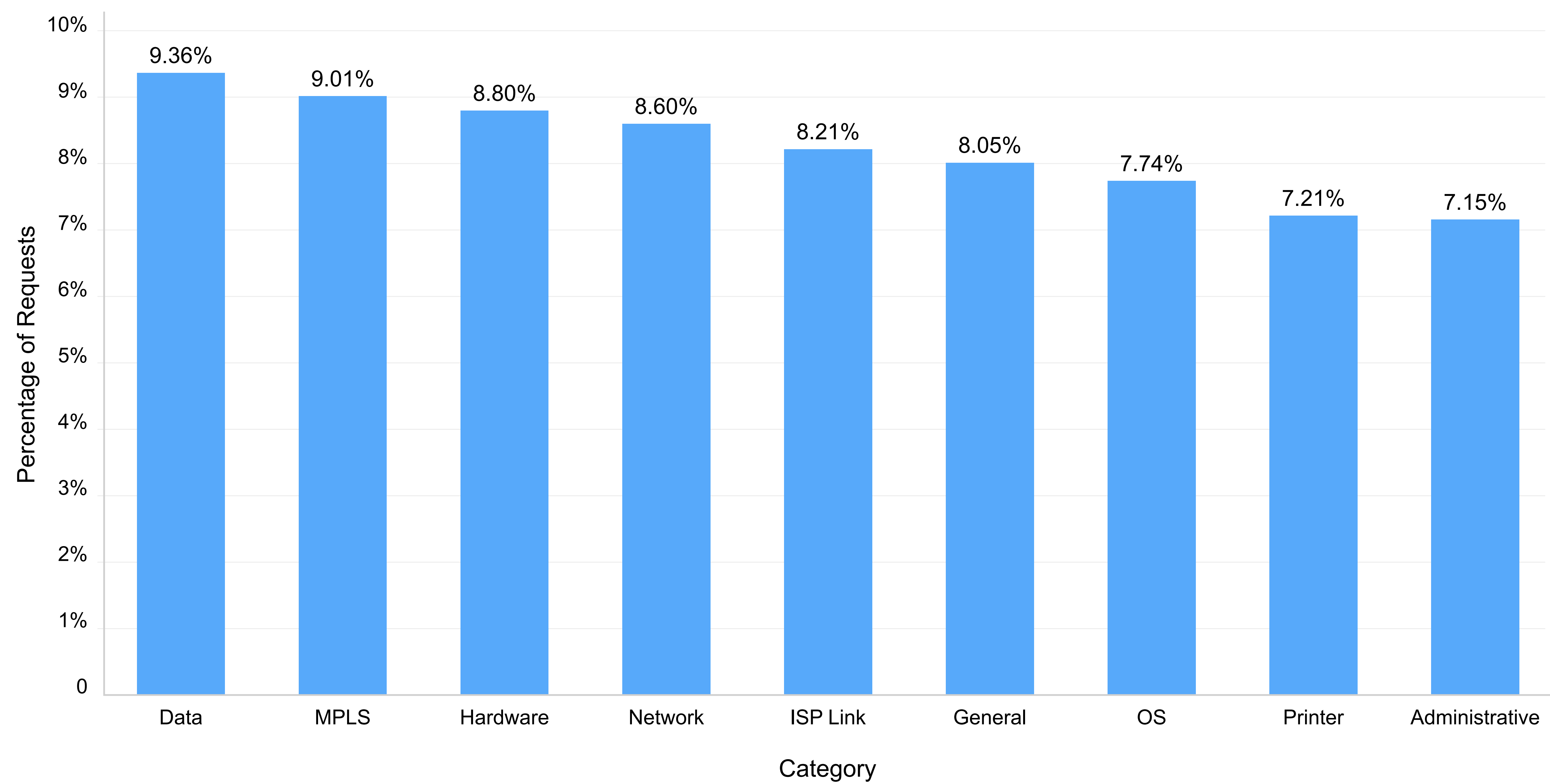
Let's work through an example:

Consider the charts below as a means to understand the percentage of incoming requests by category.

Incoming request by category



Incoming requests by category



Generally, pie charts are one of the most aesthetically appealing chart types; however, when your goal is to compare small differences between different categories of data, the bar chart is a better option to serve your goal.

Building great visualizations

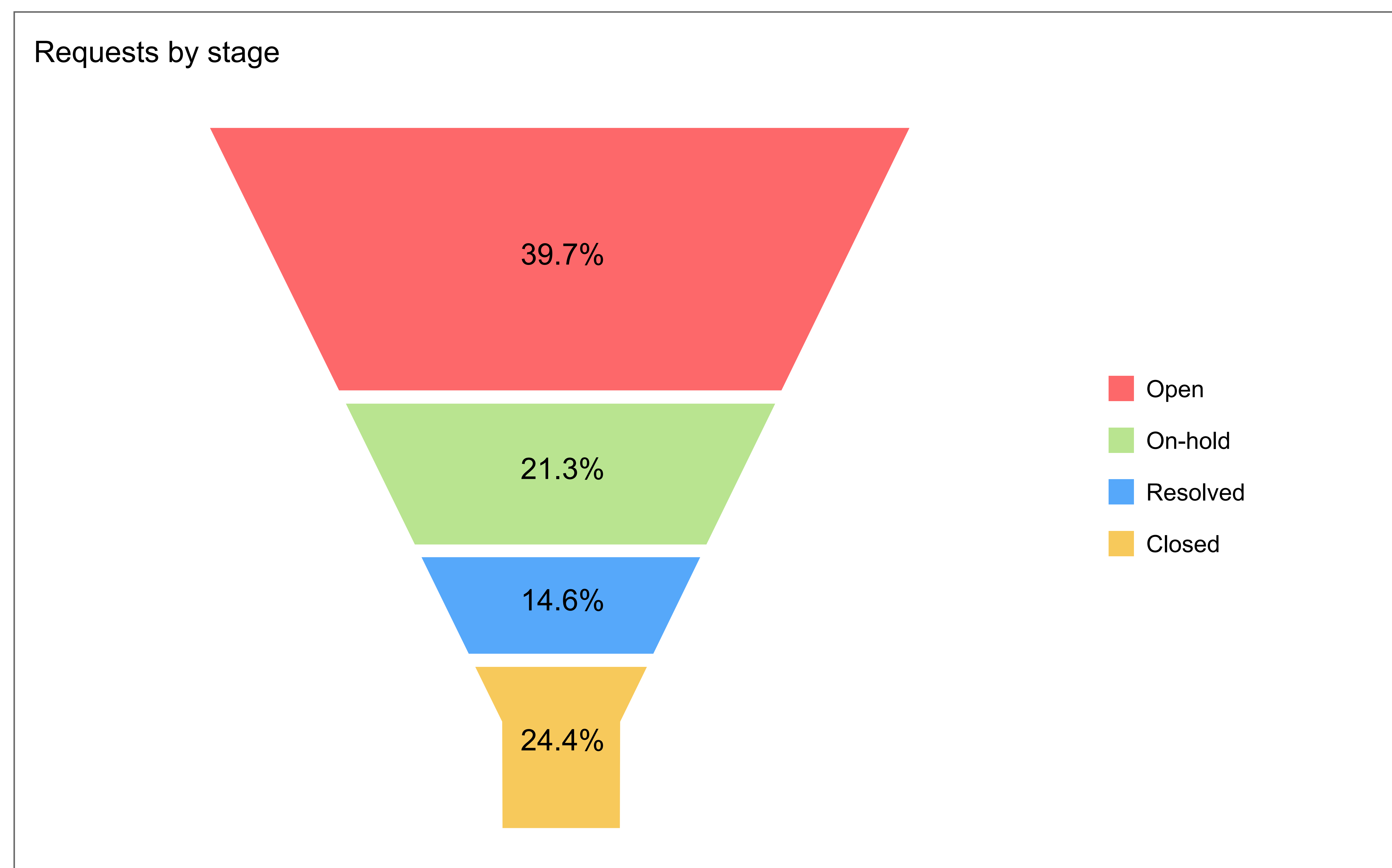
There are plenty of ways to visualize data. Depending on your goal, some charts are better than others. In this e-book, we'll explore some common types of charts and how you can use them to gain better insights.

Funnel chart

The funnel chart is a great tool to visualize different stages of a process. Funnel charts are great for depicting requests passing through the different stages of its life cycle as well as change requests in different stages of implementation.

Due to its structure—wide at the top and narrow at the bottom—the funnel chart makes it easy to spot where the maximum drop-offs occur, and it effectively illustrates transitions at each stage. This is why the funnel chart is predominantly used to visualize processes.

Here's an example of the funnel chart showing the request journey from request creation to request resolution.

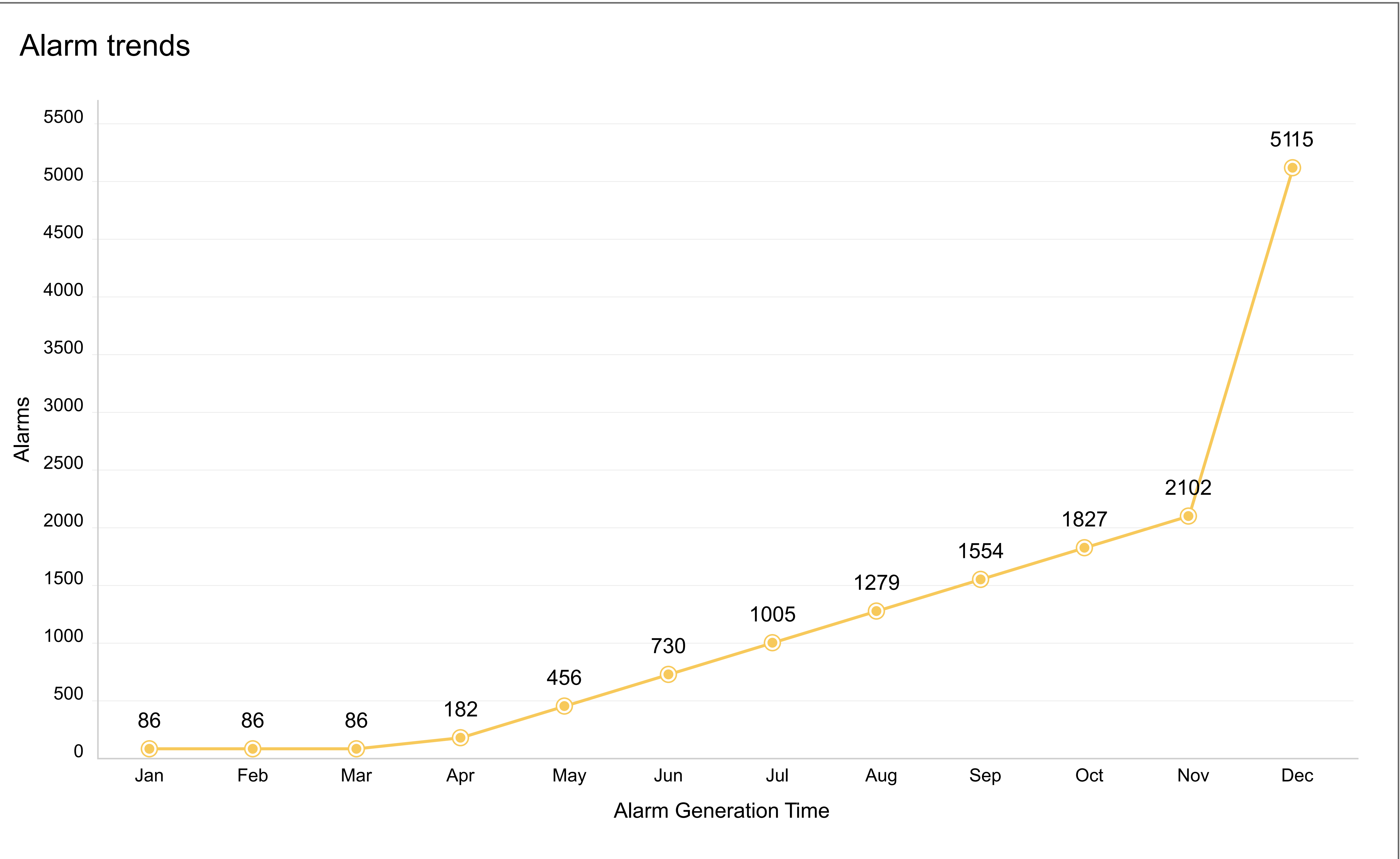


The funnel chart can be used when you want to:

- 1. *Display metrics across stages.* The funnel chart works well in dashboards or presentations, providing managers with a summary of request volumes in each stage without having to create multiple reports.
- 2. *Identify bottlenecks.* The funnel chart is also a helpful aid if you're looking to identify hold-ups in your process. The example above depicts a higher percentage of requests "On Hold," giving you a clear picture of where the bulk of your requests are held up.
- 3. *Understand transition rates.* Need to look into how quickly requests move from one status to the next? The funnel chart can help you visualize this with a single glance.

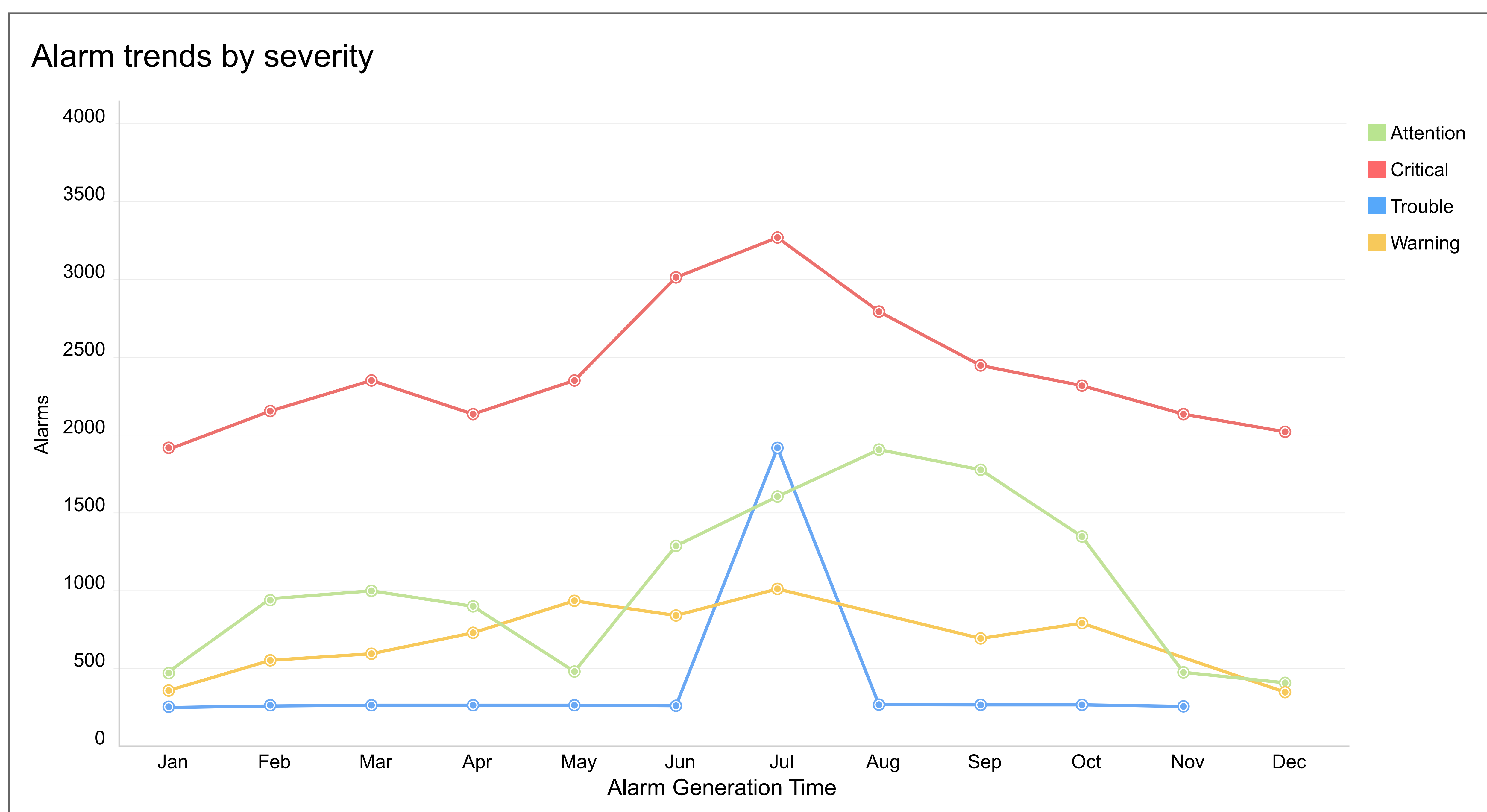
Line chart

When it comes to analyzing patterns in data trends, line charts are frequently the default choice. They help you understand patterns, identify deviations, and spot outliers in your data. The following line chart illustrates the alarm trends for the past year, starting with a sharp spike in April and reaching a peak in December.



The line chart can be used when you want to:

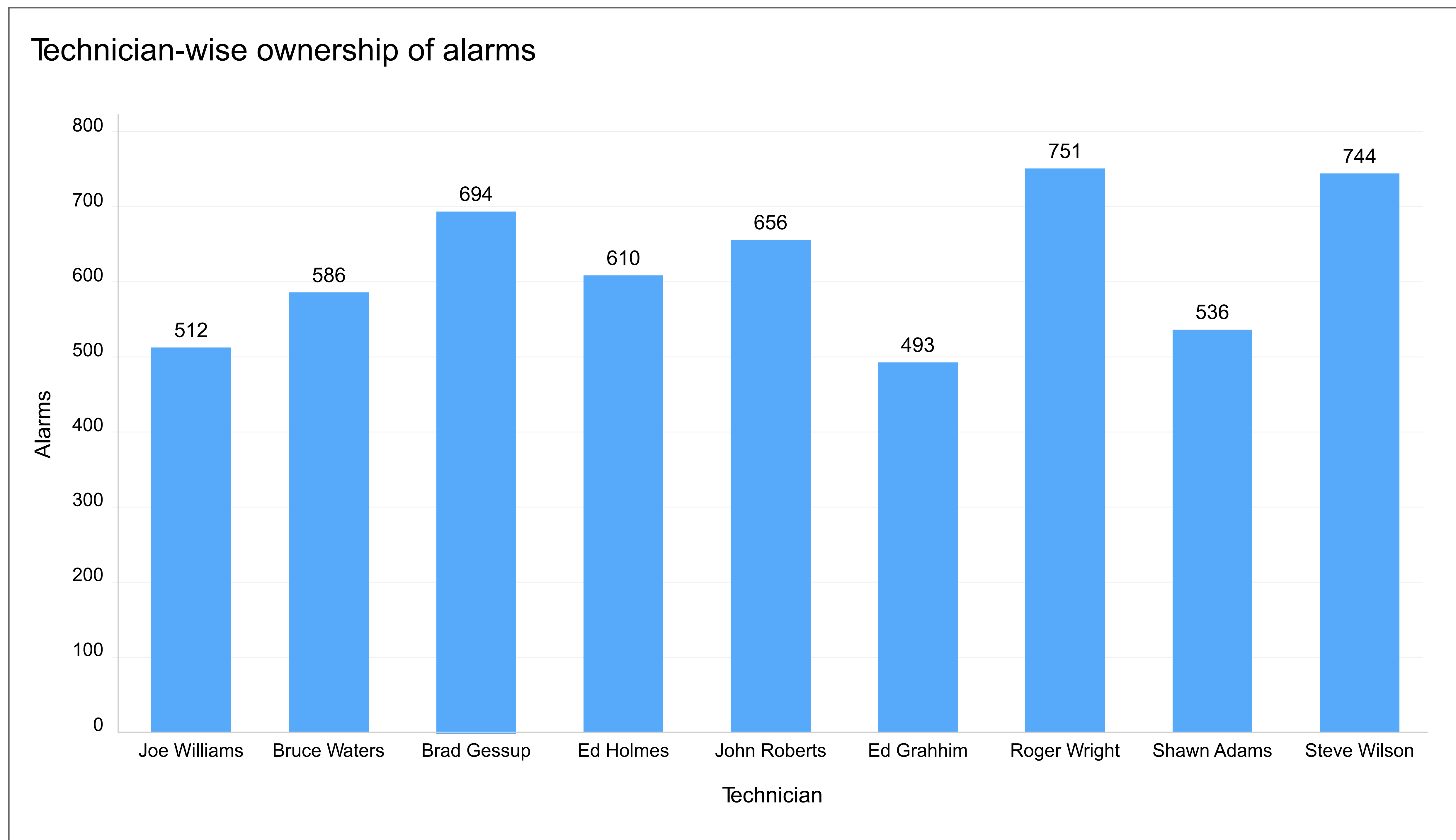
1. *Study trends.* It provides an easy way to visualize daily, weekly, monthly, or annual trends. So, anytime you want to go back and see how the numbers have changed over time, the line chart is your best option.
2. *Compare data patterns.* If you want a quick comparison of data trends between two or three groups, the line chart is your best choice. However, you need to be careful not to include too many lines, as it can clutter your graph. A quick comparison of alarm trends by severity highlights a gradual increase in critical alarms over the past year.



3. *Forecast future trends.* Although trend-forecasting is not a surefire way of predicting future outcomes, the line chart can, to some extent, help you gauge how your metric is likely to behave in the future.

Bar chart

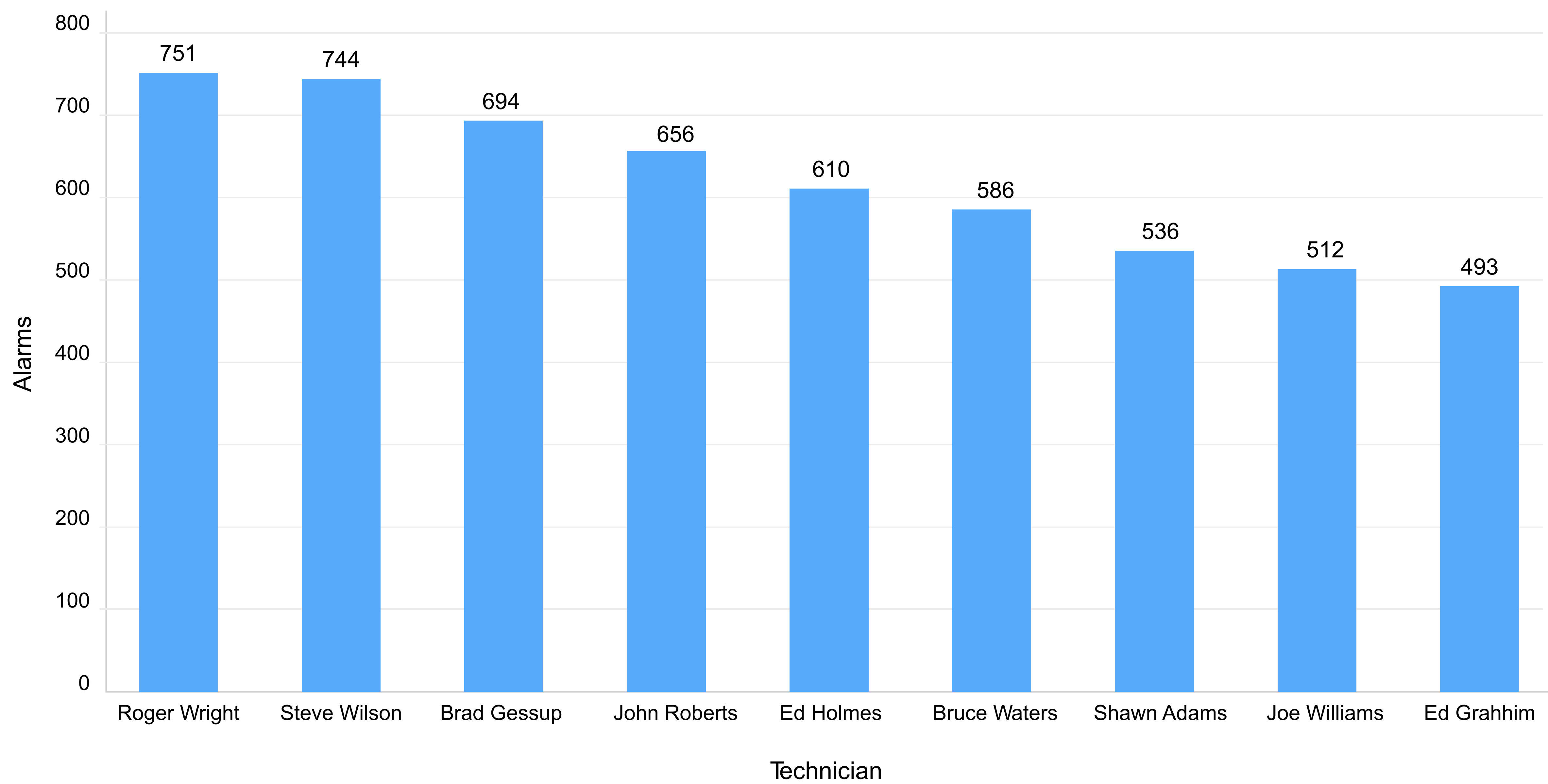
The bar chart is suitable for comparing discrete categories of data alongside one another. Bar charts allow you to effectively visualize the average request resolution times by site or by technician, request volumes by categories, technician-wise ownership of alarms, technician workload, etc.



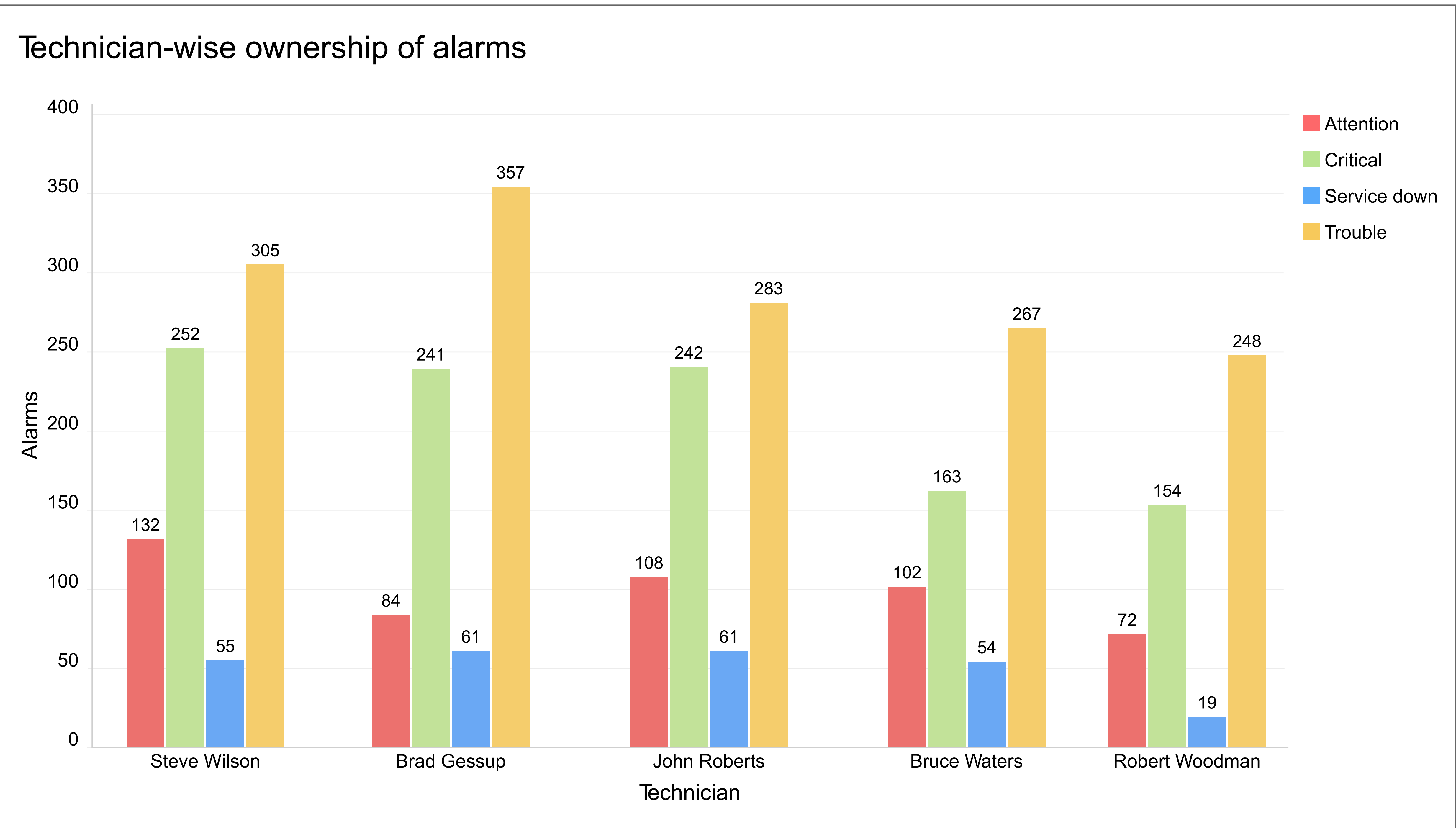
The bar chart can be used when you want to:

1. *Compare discrete sets of data.* Bar charts can be used to compare discrete data sets, such as the number of alarms owned by each technician as shown in the graph above. Such a side-by-side visual comparison allows you to spot anomalies right away without the need for further analysis.
2. *Arrange categories by rank.* A typical use case for the bar chart is to build ranked reports, for example: top 10 alarm categories, top 10 popular knowledge base solutions, most expensive projects, and top performing technicians. These ranked reports can provide top-level management with visibility into vital help desk metrics, empowering them to make educated decisions backed by data.

Technician-wise ownership of alarms



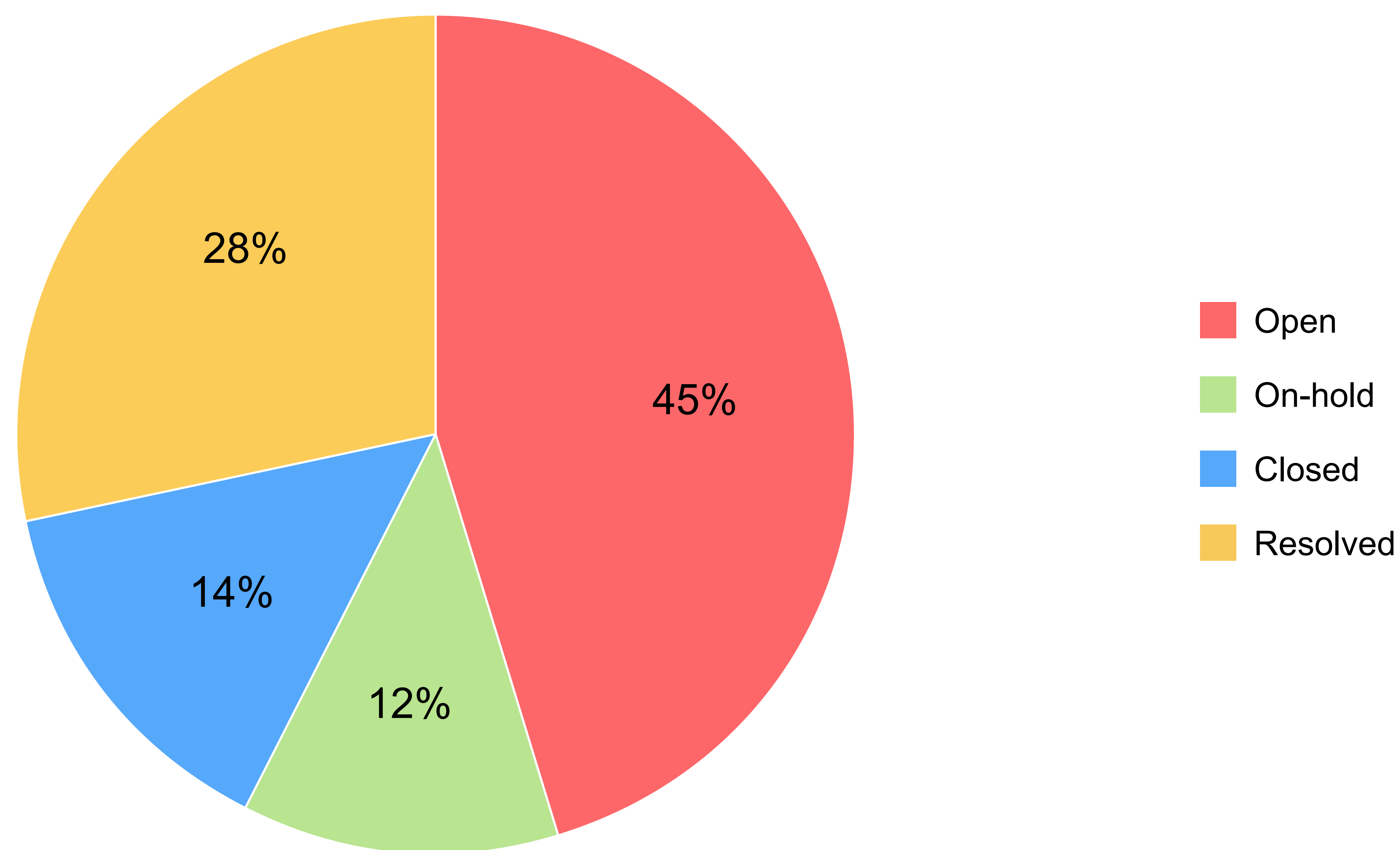
3. *Compare multiple categories.* In addition to the horizontal and vertical chart types, the bar chart has many nuanced versions. The grouped bar chart can help you perform complex comparisons between categories in your data sets. For example, if you wish to compare the "number of alarms owned by technicians" by the status of the alarm, a group bar chart like the one given below provides greater clarity into who owns what. Using the report below, help desk managers can see that all technicians own a greater number of alarms in "Trouble" status.



Pie chart

The pie chart is useful for communicating the percentage distribution of data among different categories. For example, the pie chart below shows the current status of help desk requests each day, making it easy for your help desk to see where they need to focus, so they can reassign their workforce and resolve incoming requests efficiently.

Incoming tickets by category



For a pie chart to be effective:

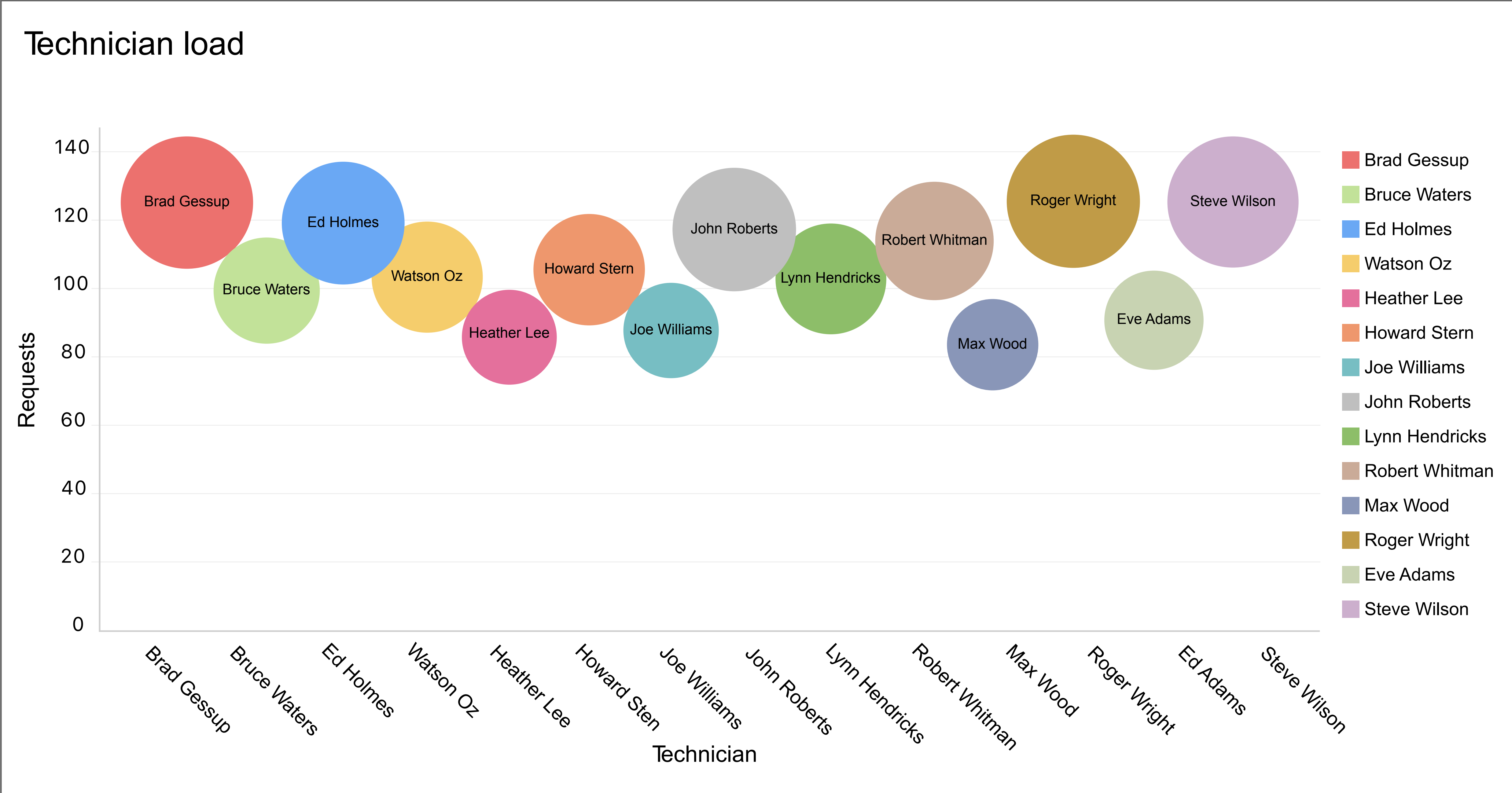
- Keep the number of categories to a minimum.
- In addition to the in-chart text, always have a legend by the side to offer an explanation for your pie chart.

The pie chart can be used when you want to:

1. *Understand percentage distribution.* If you're looking to understand how the total is split among different categories, the pie chart is your best bet. It's visually appealing and helps the audience quickly understand the contribution from each category.
2. *Compare percentage distribution.* One look at the pie chart above and it's easy to deduce that close to half of the incoming requests are still unassigned or open, while on-hold requests make up one-third of the total requests. Using this chart, it's easy to deduce the statuses that have the lowest percentage of requests.

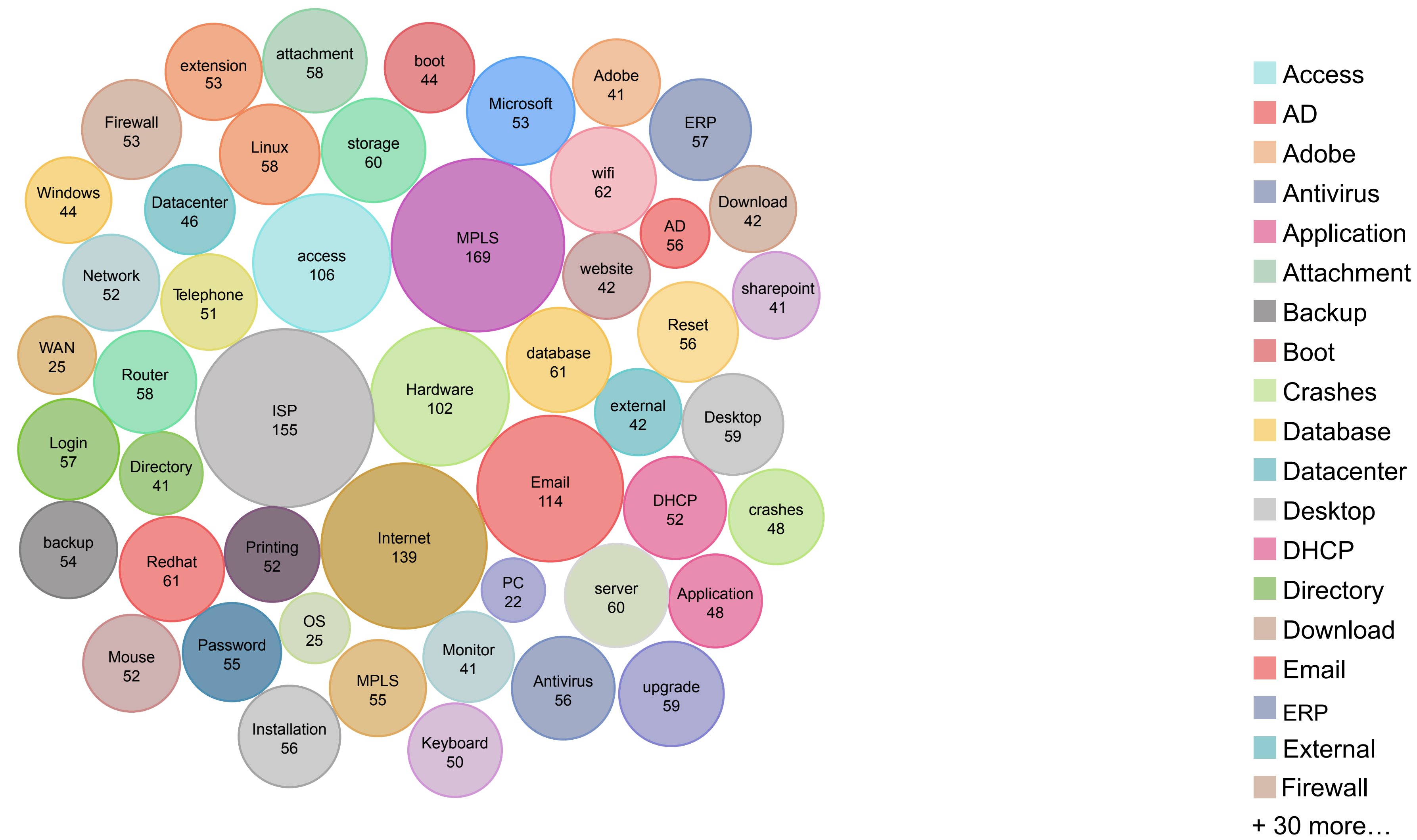
Bubble chart

Bubble charts are versatile, simple to create, and easy to interpret. For example, the bubble chart below clearly shows how much work each technician has on their plate. In this case, the color of the bubbles represent the different technicians, and the size of the bubble represents each technician's relative workload.



A popular spin-off of the bubble chart, the packed bubble chart, is often used to present the keyword cloud—a cluster of bubbles—each representing a keyword used by end users to register their request. In this instance again, the relative size of the bubble indicates the frequency of occurrence of the keyword.

Keyword cloud report



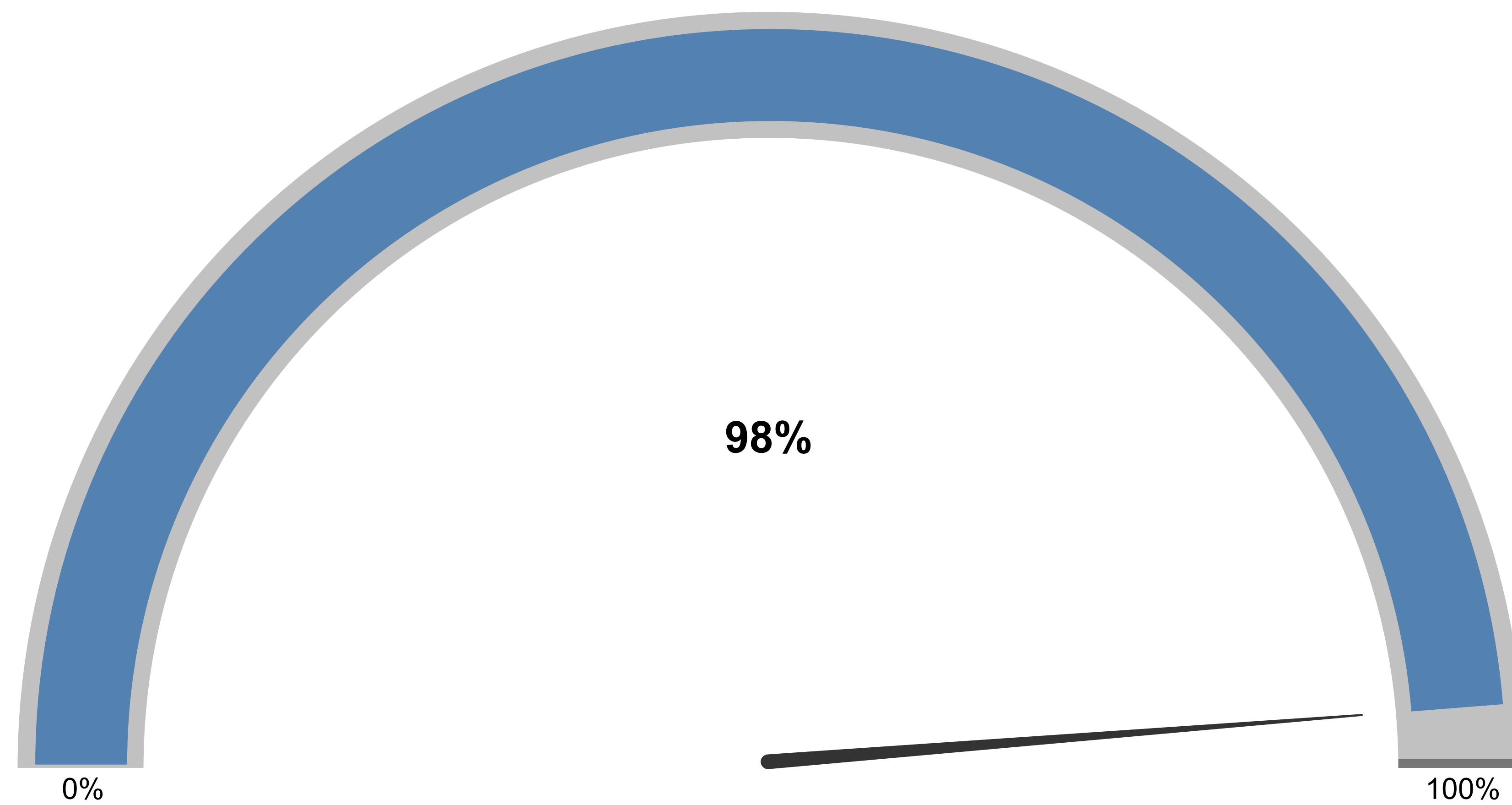
Bubble charts can be used when you want to:

1. *Draw comparisons.* Bubble charts are a good way to draw comparisons among values by comparing the size of the bubbles. In the above report, you can infer that the keywords "password" and "network" are more frequently used by end users simply by looking at the size of those bubbles.
2. *Create word graphs.* Words graphs are a great way to keep track of how many times specific keywords were used by your customers. These graphs can help you monitor the status of requests.

Dial chart

Also known as a gauge chart or a speedometer chart, the dial chart is best used for target-based performance tracking, including tracking for CPU performance, the amount of storage device memory used in a month, or the percentage of requests within SLAs as well as SLA compliance rates.

Percentage of requests within SLA



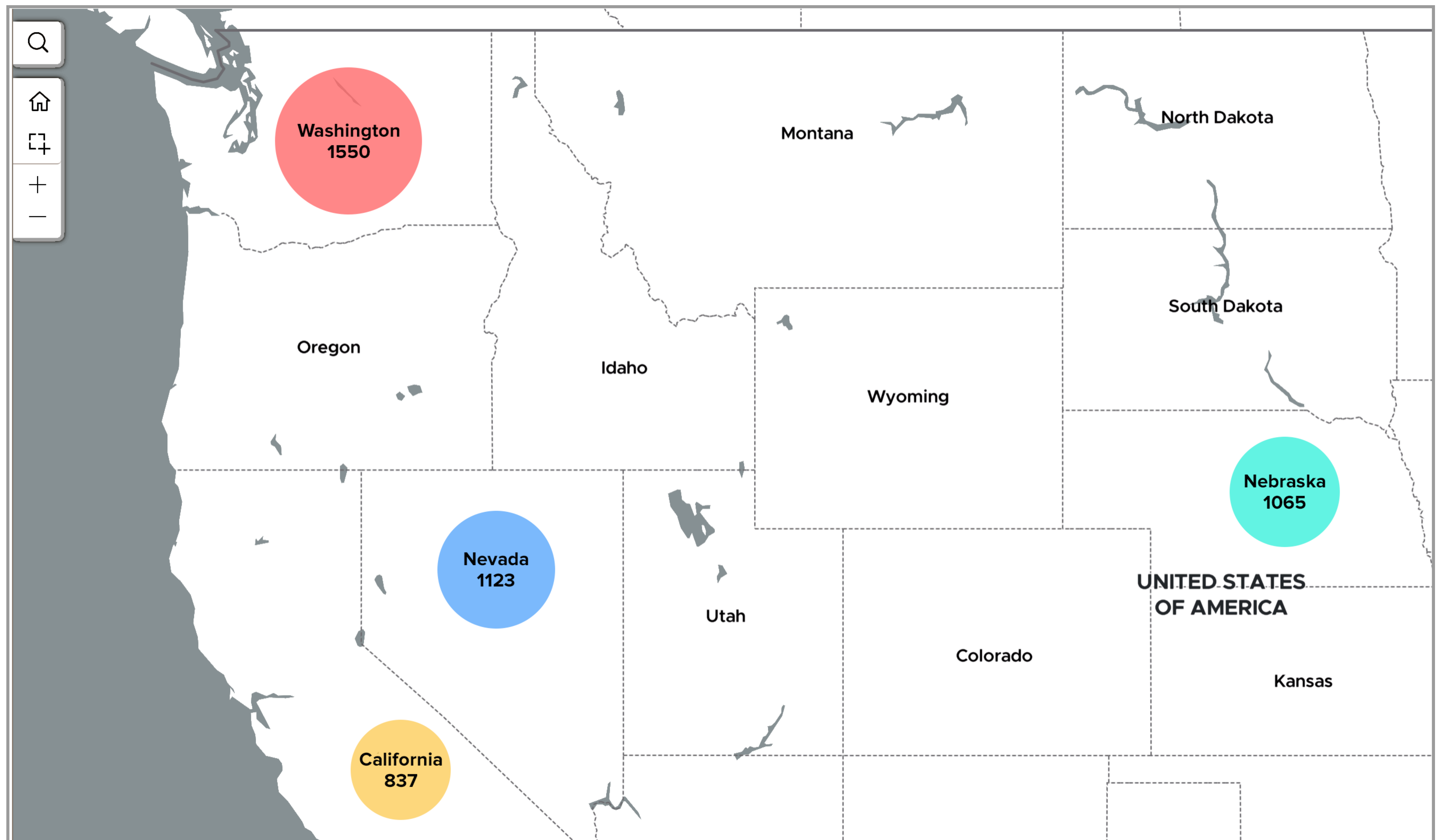
The dial chart can be used when you want to:

1. *Indicate performance.* Dial charts provide instant insights into data, and they're often used in executive dashboards to present performance results. Dial charts are great for highlighting technician performance and focusing on compliance levels.

Map chart

Geographical data looks best when visualized on a map. In the map chart, we assign values to a specific location based on continent, country, state/province, county, or latitude and longitude.

The map chart provides two key pieces of information; it shows where things are happening and how much is happening. In the graph below, you can easily spot the regions where the bulk of your incoming requests come from (North or South America) and see the numbers recorded by each site. Strategic insights like this can help you instantly identify soft spots in your agent assignment time across different locations.

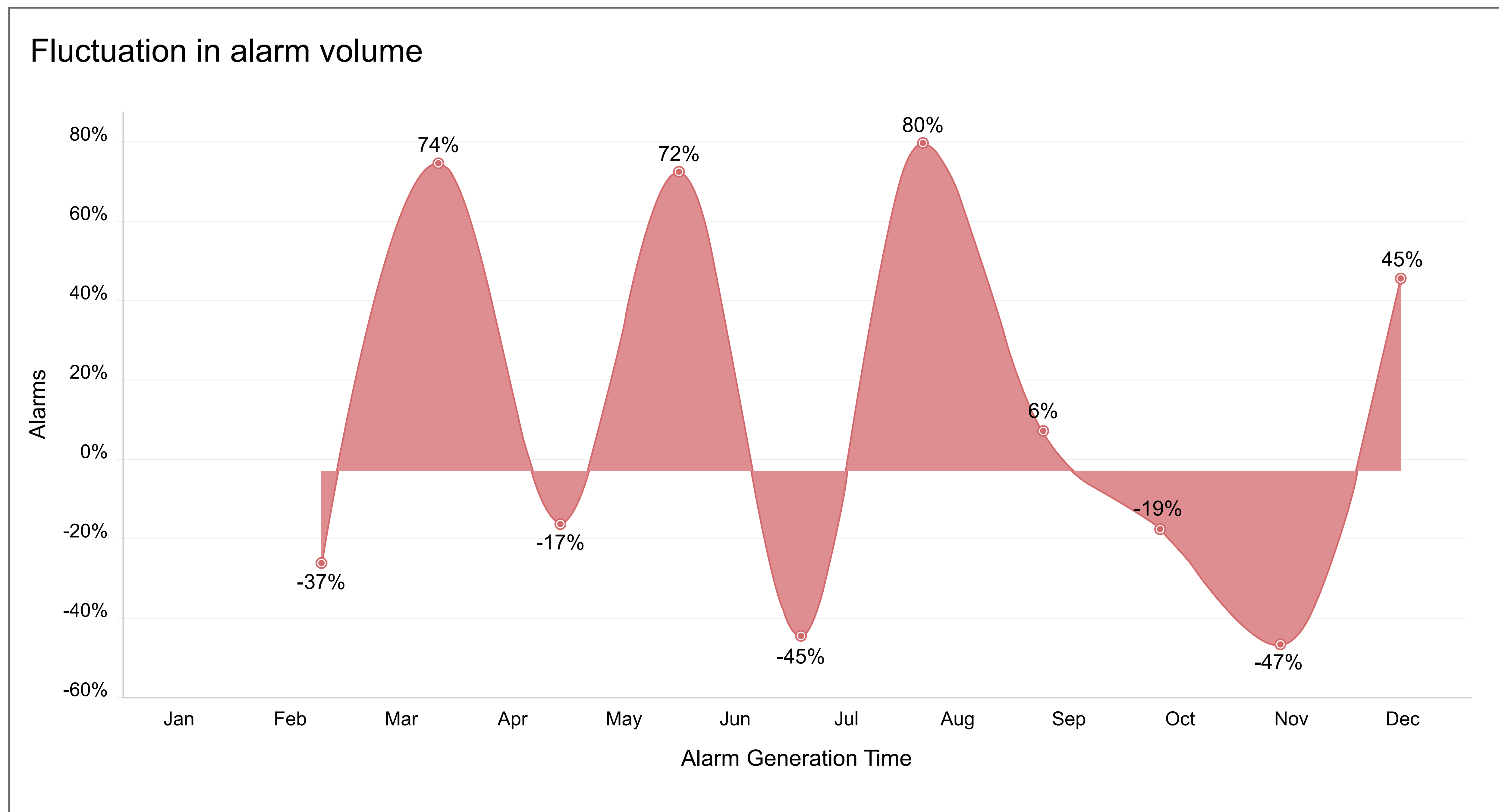


The map chart can be used when you want to:

1. *Study geo-spatial spread.* With map charts, it's easy to pin down and study data points against geographical locations. For example, you can easily examine SLA violations by site, alarms by site, total requests by site, or cost per request by site.
2. *Create a combination of charts.* Map charts can be used in combination with other chart types. Let's look at an example. Say I need to visualize geographical data multidimensionally. Examining the size of the bubbles in the above map, it's easy to conclude that the Cape Town office witnessed the highest number of requests for the month.

Area chart

The area chart can be used when you want to emphasize the magnitude of fluctuations. For example, in the area chart below, you can easily make out the fluctuations in alarm volumes over the past eight months.



The area chart can be used when you want to:

1. *View data trends across time.* Area charts allow you to visualize data trends of different categories over time with remarkable clarity.
2. *Understand the magnitude of change.* Although you can spot fluctuations in your data trends by using a line chart, the filling between the line segments in the area chart helps you understand the magnitude of changes with greater clarity.

Pivot chart

The pivot chart, or pivot table, allows you to dynamically group and summarize large sets of data for easy analysis. It helps you transform tabular data into meaningful grid summaries.

In the example below, data for the complex change approval stage and status information are presented in the form of a grid that makes it easy to find the data you are looking for. For example, if you wanted to look at the number of change requests rejected in the approval stage in the month of October 2015, it would be much easier to get this information using a pivot chart, as opposed to looking through the entire change table.

	Scheduled Start Time	Status	Planning	Implementation	Review	Approval
1	Oct 2018	Accepted	4	3	5	5
2		Rejected	4	2	1	3
3		Requested	3	2		4
4		Requested for Information	7	2	1	3
5		Submitted for Authorization	2	2	1	2
	Oct 2018		20	11	8	17
6	Nov 2018	Accepted	6	2	3	3
7		Rejected	1	2	6	1
8		Requested	1	3	1	2
9		Requested for Information	5	1	4	4
10		Submitted for Authorization	6	1	7	1
	Nov 2018		19	9	21	11
11	Dec 2018	Accepted	8	6	4	9
12		Failed		1		
13		Rejected	2	3	5	4
14		Requested for Information	2	2	4	2
15		Submitted for Authorization	1	1	3	2
	Dec 2018		13	13	16	17

One clear advantage of using the pivot table is that it allows you to meaningfully summarize text-based rows and columns into grids. In the above example, you can see the total number of change requests approved or rejected each month as well as the number of change requests that were submitted or were in the planning, review, or approval stages.

The pivot chart can be used when you want to:

1. *Perform multidimensional data analysis.* The pivot chart provides granularity to complex data sets, and it allows you to view the data from different perspectives at a glance, without having to go through multiple reports or charts.

Summary

Building great visualizations doesn't have to be a headache. With the right charts, it can be fun and eye-opening; you might even discover a new opportunity simply by gaining a fresh perspective on your data.

Can't wait to get started? Download a free, 30-day trial of Analytics Plus now, and start creating stunning visuals today: <https://www.manageengine.com/analytics-plus/download.html>

About Analytics Plus

Analytics Plus is self-service IT analytics software that lets you visualize your IT data in the form of colorful charts, reports, and dashboards. It offers out-of-the-box integrations with ServiceDesk Plus and other ManageEngine tools that help you get an in-depth look at your IT infrastructure. It features a simple drag-and-drop reporting interface that eliminates the need for a data analyst to help your helpdesk managers optimize operations and improve service delivery.

Check us out at <https://www.manageengine.com/analytics-plus/>