



# Unleashing the Hidden Dashboard

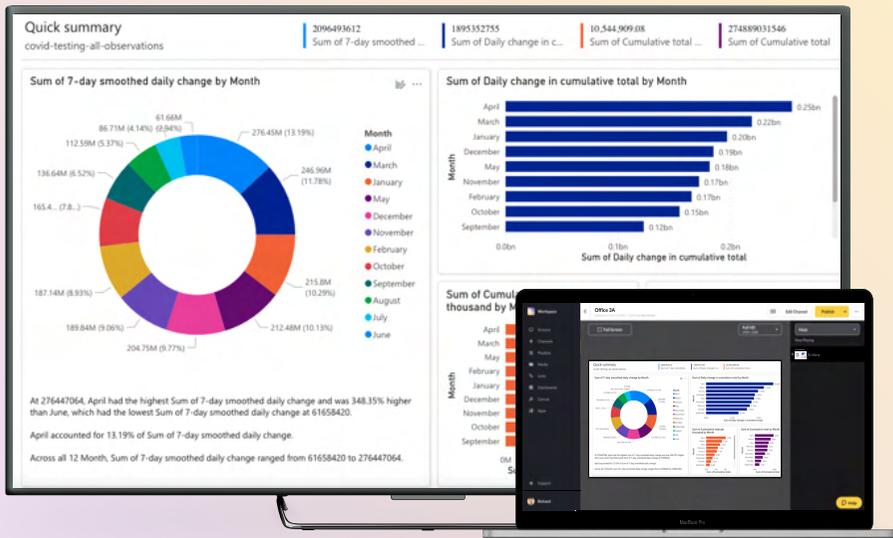
How secure data-sharing inspires employees and helps companies grow

**White Paper**



# Unleashing the Hidden Dashboard

How secure data-sharing inspires employees and helps companies grow



## Executive Summary

Business intelligence data visualization dashboards have become a mainstay of corporate management and decision-making, but most organizations are not getting the full value of these tools.

There is much untapped potential in getting this data in front of employees at scale. But there have not been many options for doing this with both the scale and security it requires. Most digital signage solutions, for example, are not able to keep companies' credentials secure enough so that leaders can do this with confidence.

A new, transformative approach to the security of sharing data across screens is opening up exciting new possibilities for using business intelligence to motivate employees and increase productivity.

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# The power of sharing data with your team

We all want engaged and productive employees, but motivating our teams can seem an elusive goal, especially in challenging environments. From benefits packages to team-building exercises, we provide scores of things to make them happy, yet there's one element we too-frequently overlook or somehow take for granted: Information.

Consider this classic anecdote: Steel magnate Charles Schwab wanted to motivate some of his mill workers who weren't meeting their quotas.

He visited the mill at the end of a day shift and asked a worker how many heats his shift had completed. "Six," the man responded, and Schwab wrote a huge "6" on the floor in chalk.

That night shift workers arrived and heard what the number meant, and the next morning Schwab saw that the night shift had erased the 6 and replaced it with a 7. At the end of the next day shift, the floor was graced with a 10. In short order the mill became the most productive in the plant.

Schwab's employees were motivated when they got to see how their efforts compared to their peers' and contributed to the mill's productivity. Schwab knew that encouragement, not criticism, breeds productivity and engagement at work. And he knew that sharing information is a key element of effective encouragement. Once they got insight into the mill's operations, the employees not only worked harder but seemed more intent on their role in the company, proudly sharing their accomplishments.

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The way to get things done is to stimulate competition. I do not mean in a sordid, money-getting way, but in the desire to excel.

Charles Schwab

This story suggests an important lesson for companies considering how to use their data in new and helpful ways: Employees who are given information about how their efforts assist in the company's progress will give more to their jobs.

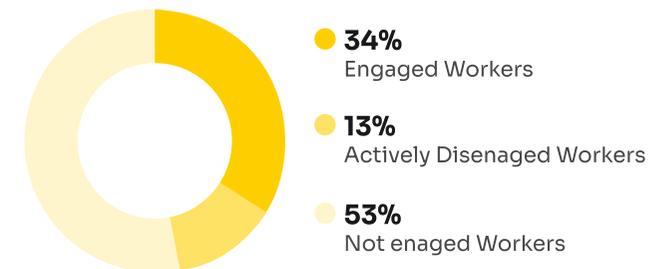
Leaders should ask themselves: Are the investments we are making in tech helping motivate our people to apply themselves to their work, as Schwab did with a simple piece of chalk?

# Employee engagement: What are we missing?

Workplaces these days are more theoretically and technically connected than they have ever been before. According to a study by identity-management firm Okta, large firms' use of software apps shot up 68% between 2015 and 2019<sup>1</sup> around the world, with the average company using 129 apps by the end of 2018. In 2019, researchers were referring to the spread of smart workplace technologies as “an explosion.”<sup>2</sup>

Yet data indicates that employees are disconnected and unhappy at work despite – or maybe because of – these proliferating digital tools. According to Gallup's 2018 State of the Global Workplace report, only 34% of workers are engaged at work, and 13% are actively disengaged. While this is an improvement over previous years, it still leaves 53% of workers in the “not engaged” category, meaning they aren't particularly enthusiastic about, or dedicated to, their jobs or workplaces.<sup>3</sup>

**68%**   
**Large firms' use of apps  
between 2015–2019**



<sup>1</sup> Okta, Businesses @ Work 2019 (February 2019)

<sup>2</sup> International Journal of Enterprise Information Systems, The Need for Digital Workplace: Increasing Workforce Productivity in the Information Age (January 2019)

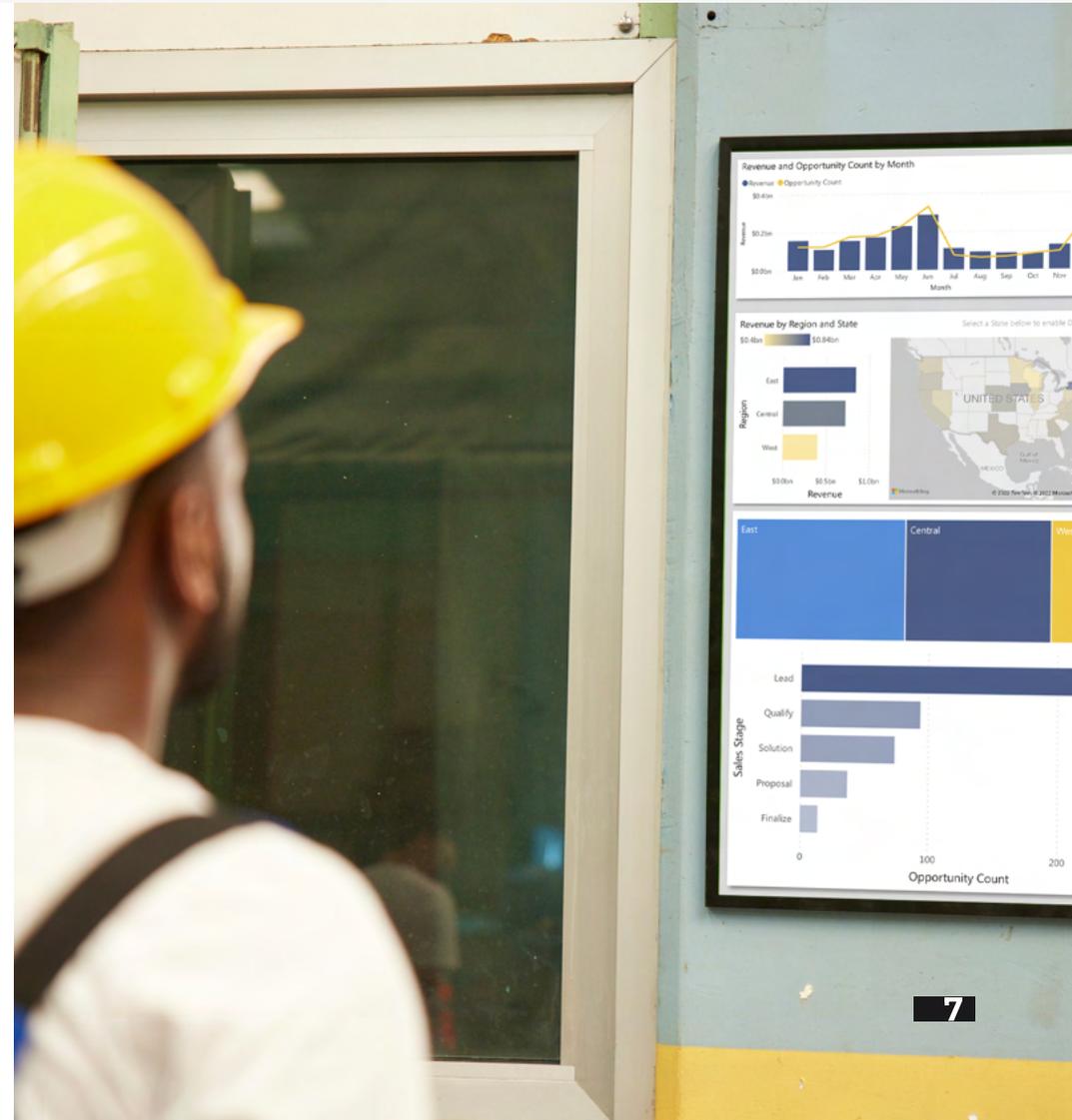
<sup>3</sup> Gallup, State of the Global Workplace (2018)

# Employee engagement: What are we missing?

The Gallup report also shows, however, that engagement is highly related to a sense of being part of the company: “Organizations have more success with engagement and improve business performance when they treat employees as stakeholders of their own future and the company’s future.”<sup>4</sup>

Specifically, companies that are able to significantly boost employee engagement do so in part by “continuous company-wide communication.” Could the digital tools that we are loading into our workplaces be put to work in ways that motivate and inspire employees instead of stress and estrange them?

<sup>4</sup> Gallup, The Right Culture: Not Just About Employee Satisfaction



# Data visualization for inspiration

As Charles Schwab's experience at the mill demonstrates, putting data in front of employees can be an effective way to inspire. And ever since then managers and executives have been following in his footsteps with a variety of low-tech and homegrown solutions for displaying data for staff to see.

A step up from the chalk scrawl is a printed spreadsheet of sales data or other information pinned on a bulletin board or handed out to employees. Some more tech-savvy teams go a step farther and hack together solutions for getting data from one computer to one screen. In many cases this involves commandeering an old laptop or tablet that can be hooked up to a bigger monitor to display a data sheet via a closed network. Those wanting to display data from Cloud-based visualization tools might use a smart

TV or streaming device to put those images on-screen with a minor layer of security.

Such Cloud-based data visualization tools are prominent among the many apps that workplaces have been investing in over the last decade. These include Microsoft Power BI, Looker, Tableau, Grafana, DataDog, SignalFX, Sisense, Domo, Google Analytics, Salesforce Einstein Analytics, SAP Analytics Cloud, and Chartio, among others. The demand for these tools is reflected in their extraordinary valuations. In 2019, Google acquired Looker for \$2.6 billion,<sup>5</sup> and Salesforce paid \$15 billion for Tableau.<sup>6</sup> The market for data visualization tools was valued at almost \$9 billion in 2019 and is predicted to reach \$19 billion by the end of 2027.<sup>7</sup>

<sup>1</sup> CNBC, Google cloud boss Thomas Kurian makes his first big move — buys Looker for \$2.6 billion (June 6, 2019)

<sup>2</sup> CNBC, Salesforce bets on big data with \$15.3 billion Tableau buy (June 10, 2019)

<sup>3</sup> Global Newswire, Data Visualization Market to Reach USD 19.20 Billion by 2027; Rising Inclination towards Visual Analytics by Enterprises to Aid Growth, says Fortune Business Insights (July 9, 2020)

Data visualization dashboards can be used to display all manner of information applicable to teams in any area. IT managers can create dashboards that enumerate systems performance. Sales teams can use dashboards that tally opportunities and sales numbers. Fulfillment teams can benefit from seeing data about output and safety. And that's just to name a few use cases.

Not only can these tools apply to all types of teams, they are also useful across sectors and verticals. Data dashboards can inspire employees in industries from tech to manufacturing to retail and beyond.

Surely, these digital data tools are the perfect vehicle for taking the steel barron's insight about motivation to its next level. And they can teach employees far more about their workplaces than a chalked number 6 on the floor could ever tell them.

Unfortunately, however, despite the quality and proliferation of data visualization tools, companies are so far largely missing this opportunity.

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**We're creating data at an unprecedented pace. Those who can visualize well will gain a competitive advantage.**

**Scott Berinato, senior editor  
Harvard Business Review**

# The missed opportunity of the hidden dashboard

While data dashboards are the new black when it comes to business intelligence tools, companies that invest in them usually reserve them for either high-level or otherwise narrow use. They tend to be seen largely as decision-making tools for the C-suite and other organizational leadership instead of approached also as potential drivers of information-based employee engagement and internal efficiency.

Indeed, data dashboards are “hidden” from most employees, cutting off major benefits of these tools and reducing their ROI.

Considering that dashboards can be used to give employees insight into their role in company growth, which in turn is likely to increase their engagement and productivity, the ROI for a dashboard robustly deployed in this manner can potentially be quite high.

Gallup found that business units in the top quartile of employee engagement have substantially higher productivity, better retention, and fewer accidents than those in the bottom quartile. They're also 21% more profitable. And their workers are healthier.

The proof is in the pudding: When a large e-commerce company, a ScreenCloud customer, put data on screens in its fulfillment centers to show employees how their performance related to the company's progress, productivity doubled within four months and tripled shortly thereafter.

There are other benefits as well: Sharing data tools widely within a company introduces a wider group of employees to their benefits and uses. Teams develop an interest in gaining access to these tools to inform their own workflows. A company with employees enthusiastic about data dashboards may find themselves going deeper with that software, bringing with it increased efficiency, effectiveness and strategic insight.

## Risk vs. Reward

With such a strong potential upside for sharing data with employees in this way, the phenomenon of the hidden dashboard seems inexplicable. Until, that is, you consider the security risk sharing a data dashboard presents.

The potential risk involved in using new digital tools to their fullest can overwhelm the strategic insight of leaders who are wary of changing technology. According to a survey by MIT Sloan Management Review, 82% of global business leaders believe that digital savvy is essential for success these days, but less than 10% strongly agree that their corporate leadership has skills that will help their companies thrive in the digital economy.<sup>8</sup>

This unfamiliarity with digital transformation often leads to a fear of new technology, as well as difficulty balancing potential risk against potential reward, which can stymie the adoption of essential new tools.

“When companies hear about a new product or service, all they see is risk in changing the status quo,” writes marketing expert Neil Baron. “Any potential value proposition is outweighed by the risk of failure.”<sup>9</sup>

<sup>8</sup> MIT Sloan Management Review, *The New Leadership Playbook for the Digital Age* (January 21, 2020)

<sup>9</sup> Fast Company, *Fresh Strategies For Introducing New Technologies To Risk-Averse, Frazzled Customers* (June 3, 2011)

“

**A little bit of the right information at the moment of truth is worth far more than all the information in the world two weeks after the fact.**

**Head of business analytics group for a financial services company, to Deloitte**



When considering data-sharing, business leaders need to parse risk accurately, to get an honest assessment of the nature of the risk, and investigate whether there are any strategies to reduce that risk. But the level of risk involved in broadcasting data dashboards on screens is hard to quantify and compare with the potential benefits, which can leave some business executives at a loss as to whether, and how, to use these tools outside the C-suite.

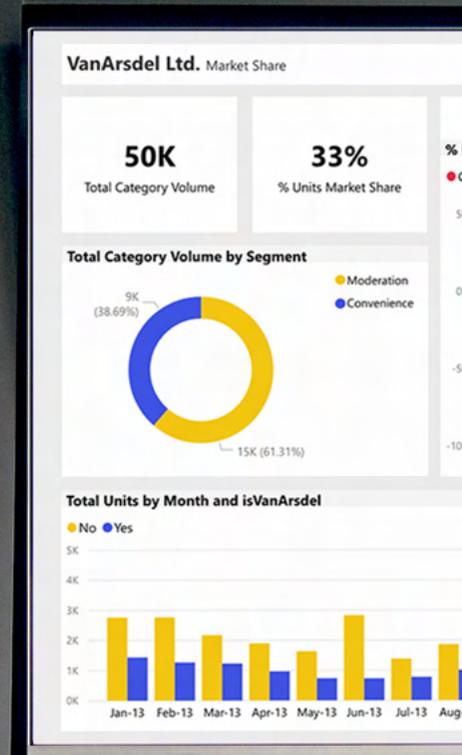


But there is now a new option that takes this risk away almost entirely. A low-risk, fully remote option for data sharing within a company, no matter how large, changes the risk-benefit calculation for business leaders who inadvertently hide their data from the majority of their employees.

# What's the risk in sharing dashboards?

The biggest risk in displaying dashboards on public screens is the possible exposure of credentials. Many security-minded companies use dedicated hardware at the site of the screen itself, such as a tablet or laptop attached to the screen or a streaming device inserted into the screen's USB port. While this solution may seem secure, the vast majority of screen-sharing solutions suffer from one fatal flaw: The streaming device must decrypt your credentials in order to sign into the business intelligence tool you want displayed.

Even those who are using a closed network via a laptop hooked up to a screen have security issues to contend with. The hardware will need manual updating to function properly. These devices tend to be older machines others in the organization have stopped using and therefore do not run dedicated anti-virus software. They are also usually not well considered in corporate firewall and maintenance plans. Those who are tasked with maintaining them must remember the password and may feel compelled to write it down instead, perhaps somewhere visible. Along with these security problems is a problem of scale: Such a solution can't display the same data on multiple screens and isn't easily replicable, which leads to inconsistent communication across teams.



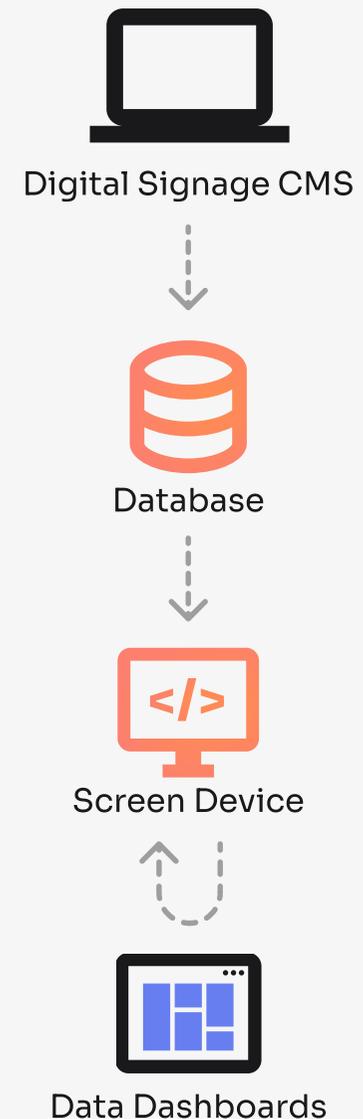
For the many companies now using dashboard-sharing solutions that draw data from a Cloud-based visualization tool, using a closed network is not possible. They will need to connect their screen to the open Web in some way, and the question that plagues them all is how to do it safely.

To understand why this is, examine what happens when you sign into your data dashboard via the streaming device attached to your screen (see diagram).

The elements of the image that are rendered in orange are in danger of security breaches. The `</>` sign on the screen represents the code that verifies your credentials to sign into the data management system you'd like to display. As you can see, that code is running directly on the device that attaches your screen to the Web. The database that sends those credentials to the screen is likely housed on your host's server in an unknown state of security. The device decrypts those credentials and uses them to sign in, then it retrieves the data dashboard to display.

There are a number of security risks in this method beyond those involved in credentialing and access. Other software may run on your device and might inspect data sent and received, a feature that malicious actors can exploit. Additionally, the hardware that's using the decrypted credentials is usually located in a public place with high foot traffic. The Firestick or tablet attached to a screen in a company's lobby could easily be pocketed by an ill-intentioned passerby, who would then have access to critical company data.

## Handles Credentials

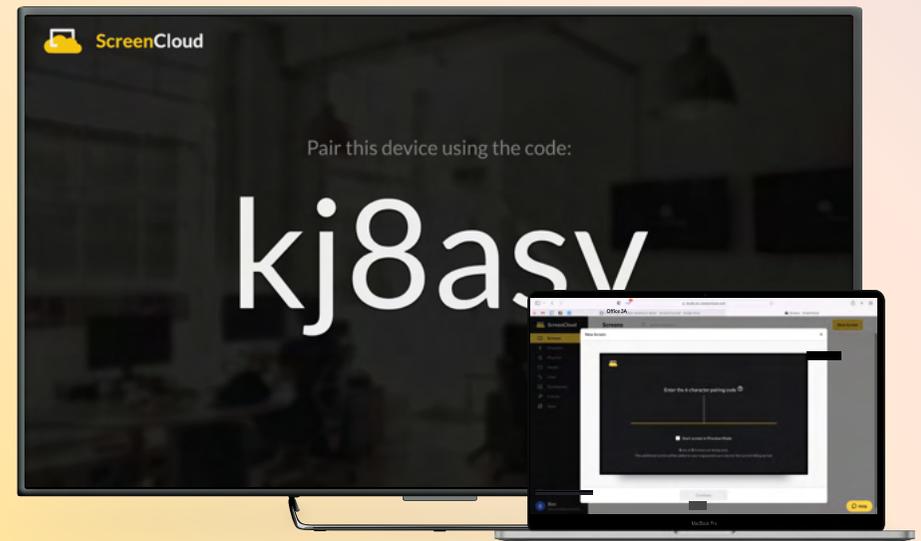


# A new option: High-security remote screen-sharing

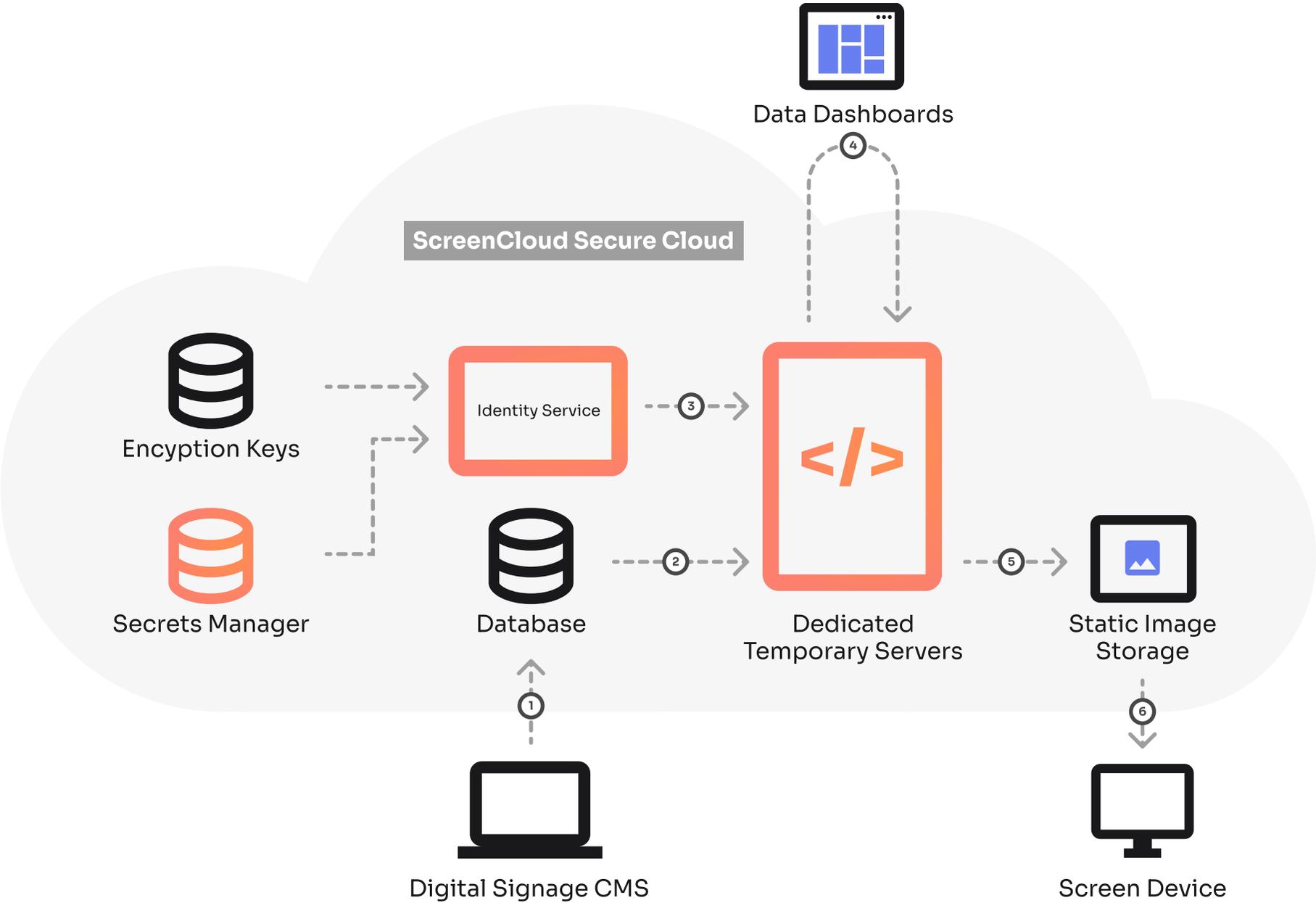
Considering that the usual way of sharing data publicly is too insecure to satisfy most modern security-minded companies, it's good news that there is now a new option that easily scales while being extremely secure.

Innovated exclusively by ScreenCloud, this high-security remote screen-sharing option provides a fundamentally different and entirely safe approach to data-sharing. This can now be accomplished without the hassle of setting up and maintaining dedicated hardware.

The core principle of this new method is that the system never connects the website that stores the data directly to the screens on which it is to be displayed. The most insecure part of the process – the credentialing – is handled securely in the Cloud, and the data that is displayed on the screen is essentially a slideshow instead of a doorway into a protected store of data.



# Handles Credentials



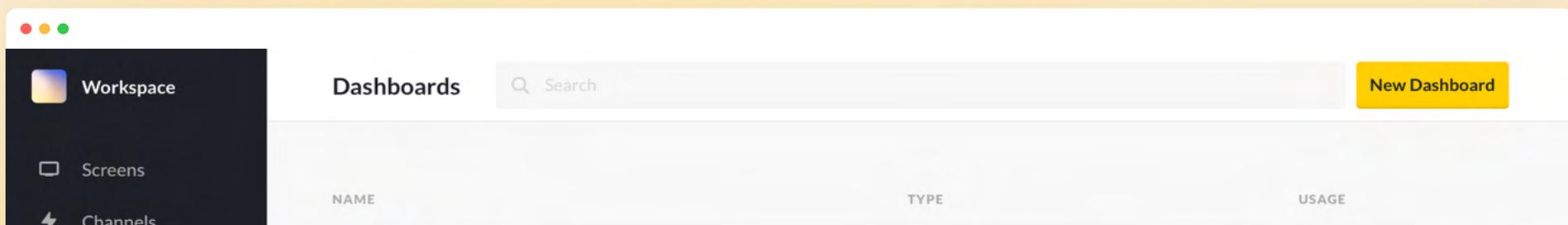
In the image of this process, you will see that the code that handles credentialing (the `</>` sign) is no longer on the screen. It is instead housed on a dedicated temporary server in the Cloud via Amazon Web Services (AWS). There are multiple servers pictured here because each new screen-sharing request will spin up a new server to keep each process entirely separate from anything else.

That firewalling is essential to the security of this system. Crucially, the part of the system that handles sensitive credentialing information — a database in AWS Secrets Manager — is separated from other data stores. AWS Dashboards Identity Service manages the credentials with a unique encryption key and IAM role for your organization. No service other than the Identity Service can assume your access role or fetch your unique key.

The other major difference here is that the dashboard is accessed only by the dedicated Cloud-based server, not by the screen-based device. The system generates and stores a screenshot of the dashboard on the server.

When the screen-based device connects to retrieve the data to display on the screen — after authenticating with ScreenCloud — this image is what it retrieves using a time-limited, signed URL. The server generates new images frequently — perhaps multiple times a minute — and replaces and destroys old ones. Additionally, the signed URLs expire after 24 hours, so there is no archive of private content accessible to a malicious script. Handling the process in this way keeps the sensitive data well hidden from hackers or light-fingered hardware thieves. If anyone penetrates the device that makes your screen into a public display, they will be left with a single time-limited screenshot. They will not be able to access any of the data on which the numbers are based or get updates on that data at any later time.

Not only does this method increase security, it also boosts the flexibility of your screen-sharing options. Because the screenshots are generated and stored in a secure server in the Cloud, you can safely send them to a multitude of screens around the country or the world for simultaneous display.



# Secure sharing means more sharing

A secure screen-sharing solution will inevitably open up new thinking about how to use public screens for company benefit. It may be strategic to display different images or data on different screens depending on the audience. The goal of secure screen-sharing, after all, is to share content that will best motivate and meet the needs of your employees, and each team in your organization may need something different.

Along with dashboards displaying various kinds of metrics and KPIs, you might consider a range of other content ideas across multiple information categories, such as:

- **News:** Company, Social Media, Industry, Mainstream Media, Weather, Sports, Stocks
- **People:** Birthdays, Praise, Work Anniversaries, New Joiners, Meet the Team, Benefits, Fun & Social, Polls
- **Training:** Compliance, New Products, Upskilling, Best Practice
- **Events:** All Hands, Town Halls, Async Video, Promos
- **Functional:** Directory, Wayfinding, Meeting Rooms, Desk Booking, Menus

Your screens can function as blank slates for management's creative thinking, as the mill's floor did for Charles Schwab.



# Easily share your data securely

Data visualization is here to stay, and data dashboards will continue to hold a prominent role in how companies evaluate their performance and communicate information. In fact, we've only seen an initial wave so far; the next big wave is coming your way.

The question business leaders need to ask themselves is: Are we getting enough out of this technology?

Data visualization has come a long way from Charles Schwab's scrawled number. With access to the sophisticated dashboard tools on the market today, business leaders have something truly powerful at their fingertips. Now they're starting to embrace the full spectrum of benefits these tools enable — not just informing the C-suite but also getting data in front of everybody in the company who could use it to learn, grow and perform even better.

It's time to democratize the data dashboard. To do so, methods for sharing them widely within companies must be unquestionably secure. And with the right security solution in place, winning companies will be able to use their dashboards to their fullest potential.





# About ScreenCloud

ScreenCloud is a leading digital signage solution for securely sharing what matters most via screens. With an emphasis on serving companies that are committed to improving connection with employees, ScreenCloud enables screen-based communication across locations and teams to increase engagement and productivity.

ScreenCloud Dashboards represents a fundamentally different approach to sharing dashboards across public screens, allowing data to be distributed via any screen securely without sacrificing flexibility or scale.

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**Contact Us:** [hello@screencloud.com](mailto:hello@screencloud.com)

Harness the power of digital signage across your workplace and create a more connected workforce.



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