



Scalability, Reliability, and Security:

Why Terminal Emulators Matter in an Age of Digitalization



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Overview

The earliest mainframe computers were developed in the 1940s and 1950s. Then, in the 1960s, came the terminal emulator, a software that allows users to access a mainframe computer from any physical location — whether desktop, home office or remotely. This enabled businesses to leverage the power of mainframes without investing in the hardware or software required for an individual terminal.

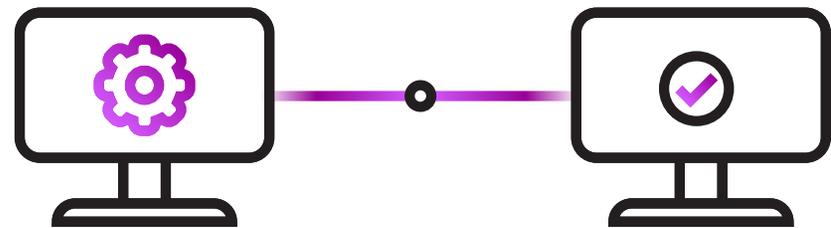
Terminal emulators were revolutionary at the time. They allowed companies to access and use their data more efficiently than ever. This began the era of distributed computing, which has only become more powerful ever since. In addition to making mainframes more widely accessible, terminal emulators allowed for greater flexibility in computing, as users were no longer bound to a single physical location.

Technology has since evolved significantly. At first, these programs ran through text-based interfaces and were limited to basic functions like file transfers and remote logins. With the introduction of graphical user interfaces (GUI), terminal emulators became more intuitive and user-friendly, allowing for more complex tasks like managing databases and running applications.

The new age terminal emulation software includes 3270 emulation, 5250 emulation, and Wyse terminal emulation, to name a few. These emulators run on different platforms, including Microsoft Windows, barcode scanners, industrial computers, point-of-sale systems, and even smartphones.

Today, mainframe computers and terminal emulators are challenged by what some deem as more efficient and cost-effective options like cloud-based services and open-source solutions. However, many businesses still choose mainframes to store important data because of their scalability, reliability, and security. And terminal emulators are still used to access legacy applications that have yet to be migrated to a modern system, or simply as a means of more secure remote access.

Throughout this e-book, we will provide insights to help you prepare your terminal emulations environments, teams, and users for the age of digital transformation. We hope to demystify the notion that legacy solutions like z/OS® and IBM® i don't play nicely with new technology and change.



Why the terminal emulator matters in an age of digitalization

A terminal emulator is an invaluable tool for modern businesses, offering advantages. The following are just some of them:

Flexibility



Terminal emulators enable users to access resources stored on a mainframe computer, no matter the user's location.

Cost saving



By using a terminal emulator, businesses can save on the cost of hardware and maintenance associated with traditional computer terminals.

Enhanced security



Terminal emulators can ensure that remote connections are secure and encrypted, making it difficult for cyber attackers to gain unauthorized access or sensitive information from the system.

User-friendly interface



Many terminal emulators feature a GUI, allowing users to access data stored in the mainframe computer easily.

Multiplatform support



Terminal emulator software is compatible with a wide range of platforms, making it accessible to many users regardless of their device and systems, including Windows, Linux, and Unix servers.

The threat of digital transformation

We can't discuss IT mainframe transformation without discussing modernization.

Historically, when an organization decides to modernize its applications, it is often an all-or-nothing approach: everything gets modernized. Rip and replace. Don't look back. It doesn't work so well.

Gartner has published a few reports on how businesses that have tried to modernize by replacing the mainframe have found themselves with a high-risk, expensive undertaking that wasn't worth the time and financial investment. Many of these organizations are now looking for solutions that run on top of the mainframe and preserve the critical infrastructure on the platform but make it more accessible to modern technology and user needs.

Two trends that don't involve "rip and replace" are cloud and open source.

While cloud strategy has been top of mind for CIOs and IT leaders worldwide, we've been hearing that larger companies are finding the cost of hosting that much data and applications in the cloud, especially when it comes to backup solutions, end up about the same as keeping everything on-prem.

In fact, the just-released "Flexera 2023 State of the Cloud Report" mentions that given the current global economic volatility, 2023 marks the first time that managing cloud spend has overtaken security as the top challenge facing all organizations. It also highlights that data security is vulnerable without the proper resources and expertise, which closely impacts information hosted on the cloud and terminal emulator data.

Similarly, open source — although solving mainframe challenges like the widening skill gap due to the exodus of legacy programmers — comes with security and compliance challenges that put the mainframe at risk.

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Responding to customer and market needs with the terminal emulator

The ability to respond to changes in industry is increasingly expected from IT departments. Their tasks include requesting licenses for easy access to a platform and anticipating developing plans supporting the delivery of elevated service experiences that customers now demand. This includes researching trends that affect how your organization uses terminal emulation.

For example, a large retailer with hundreds of store locations in Europe discovered that their customers were expecting information about product availability while browsing store floors. But their employees found it difficult and time-consuming to run back and forth to the computer in the inventory room to look up the products and find the correct information. The retailer decided the best way to serve their customers would be to provide their workers with access to an inventory system when and where they needed it, and that meant access right on the shop floor with a mobile device. The right terminal emulator helps businesses streamline the process of accessing data stored on a centralized computer, saving time while increasing productivity and efficiency.

Many terminal emulators can be programmed to run certain commands and tasks automatically. Businesses also can customize their terminal emulators according to specific needs and preferences, and upgrade or downgrade without investing in new infrastructure.

Building a smart modernization strategy

From working with customers over the last few decades, we've learned that the most successful modernization plans include a nuanced strategy that closely aligns with business objectives. Instead of replacing all code or modernizing every application, we see customers take a more scalpel-like approach, making strategic decisions about their host access and applications — figuring out where the gaps are within the current use of their terminal emulation and using our expertise and recommendations on how to modernize.

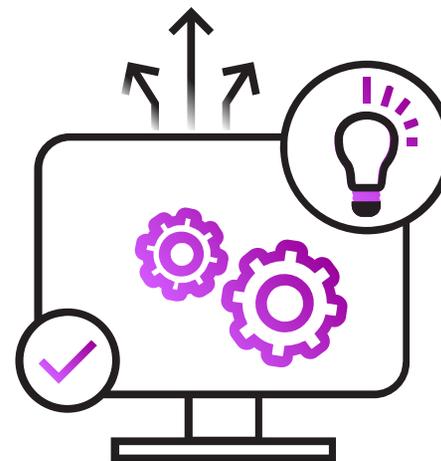
We call this "Smart Modernization," and we see mainframe administrators playing a crucial role in this strategy. They understand the host applications and how they are used better than anyone in the company, and can help your business through this process.

For example, in some use cases, the speed at which current users work might make them hesitant to disrupt their workflow for a new GUI. Maybe, they could run a bunch of scripts that make the workflow efficient instead, especially if the users don't care about the green screens. For this application, it sounds like they should hold off for now.

Some users sit behind a desk daily, but 10% of their workforce is mainly on the road or working remotely. Some partners may need access to the host systems but hesitate to set up a VPN.

In this case, having the flexibility to purchase different types of licenses to fit the needs of these other users might be more beneficial than fully modernizing their mainframe application.

An important aspect to consider when modernizing is whether your terminal emulator vendor can be your partner throughout the modernization journey, regardless of where you are starting or where you want to end up. Host access is where modernization starts. So, expertise in this environment is key for a successful modernization project. Does your vendor also offer the flexibility of anytime, anywhere mainframe access? Do they have experience helping companies build new user experiences through new GUIs and revamping workflows through Application Programming Interface (API) building?



Choosing the right terminal emulator vendor

How do terminal emulation administrations and management align their goals with business goals?

One way is assessing how your terminal emulation solution's total cost of ownership aligns with your business's financial goals. What does the licensing look like? Are you leaving money on the table because your vendor has been with you for 10-plus years? Are they responsive to any support issues you have? If not, what's the opportunity cost of that?

We've seen customers migrate to a new TE solution and save themselves 50% of the cost they were paying before.

Talking to customers, partners, and employees about what is working and what isn't regarding mainframe access could highlight an opportunity where you can improve your terminal emulation experience. Building out a plan to help improve that experience can link directly to the business goal of enhancing customer or partner satisfaction.



Navigating changes in IT while elevating terminal emulator access with Rocket Software

Many changes are happening in IT. You can take advantage of them to drive better user and employee experiences, strengthen the value of IT within the organization, and ultimately increase your company's competitive strength in the market.

If you are currently using or exploring the implementation of any of the trends mentioned above, consider exploring Rocket Software's wide range of terminal emulator and modernization solutions. Rocket® Terminal Emulator is a different solution and highly configurable. For over three decades, Rocket has helped users customize their environment to maximize comfort and efficiency. Its native security ensures critical business data remains protected while providing a cost-effective alternative that delivers exceptional value.

Rocket Terminal Emulator provides anywhere access to IBM zSystems®, IBM i, and VT applications:



Web Edition: secure, browser-based emulation on any PC, tablet, or mobile device



Desktop Edition: cost-efficient access to terminal-based applications from the desktop



Rocket Terminal Emulator also runs within the Zowe framework

A scalable and secure emulator

**Secure access to core systems and data
with robust built-in security, such as:**

01

Compliance with industry-standard cryptography protocols

02

Support for single sign-on SAML 2.0 Post/SAML 2.0 Redirect

03

Multi-factor authentication support through Rocket and IBM, Okta, and Duo

04

SSL/ TLS 1.3 and SSH connectivity to any compliant FTP server

05

Optional SSL/TLS encryption and authentication for FTP, Telnet, and other persistent TCP/IP protocols

About Rocket Software

Rocket Software partners with the largest Fortune 1000 organizations to solve their most complex IT challenges across Applications, Data and Infrastructure. Rocket Software brings customers from where they are in their modernization journey to where they want to be by architecting innovative solutions that deliver next-generation experiences. Over 10 million global IT and business professionals trust Rocket Software to deliver solutions that improve responsiveness to change and optimize workloads. Rocket Software enables organizations to modernize in place with a hybrid cloud strategy to protect investment, decrease risk and reduce time to value. Rocket Software is a privately held U.S. corporation headquartered in the Boston area with centers of excellence strategically located throughout North America, Europe, Asia and Australia. Rocket Software is a portfolio company of Bain Capital Private Equity. Follow Rocket Software on [LinkedIn](#) and [Twitter](#).

Rocket Terminal Emulator

Secure desktop, web, and mobile user interfaces with a lower total cost of ownership.

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