

RED HAT ENTERPRISE VIRTUALIZATION AND THE SPICE PROTOCOL

DATASHEET

SPICE PROTOCOL AT A GLANCE

- Designed explicitly for remote access to a virtualized desk-top infrastructure over LAN or WAN networks
- Ensures the highest virtual machine density levels by intelligently offloading CPU and GPU rendering to client
- User experience that is indistinguishable from a local PC
- Bi-directional audio and video of any codec or format
- VoIP soft phones and video conferencing
- HD video playback
- High-resolution, multi-monitor display
- Full USB redirection for nearly any device
- Open source technology drives innovation, allows for customizations and integration, and keeps costs at a minimum

OVERVIEW

Red Hat Enterprise Virtualization is a complete virtualization solution for virtualized servers and desktops. It can simplify virtual desktop management, reduce infrastructure costs, and provide access to complete Windows and Linux desktop environments from a controlled datacenter.

Based on the powerful and high-performing Kernel-based Virtual Machine (KVM) hypervisor technology, Red Hat Enterprise Virtualization provides industry-leading scalability with the highest virtual machine (VM) density, while simultaneously creating greater efficiency and reducing complexity.

WHAT IS SPICE?

SPICE is a high-performing, dynamic, and adaptive remote rendering protocol, able to deliver an end-user experience that is indistinguishable from that of a physical desktop PC.

Specifically designed and created for the purpose of remotely accessing virtualized desktops, SPICE is the protocol used to connect a user to a virtualized desktop when using Red Hat Enterprise Virtualization.

WHY SPICE?

Unlike legacy protocols like Microsoft's RDP and Citrix's ICA, SPICE is built on a multi-tiered architecture that is designed to meet the multimedia-rich needs of the current desktop user. At the core of its design is the ability to intelligently assess the system resources available on the user's client device (CPU, RAM, etc.) versus the host virtualization server. As a result of this assessment, the protocol dynamically decides whether to render the desktop applications on the client device or the host server, yielding optimum user experience in any network condition.

The SPICE protocol is also an open source software technology, which drives innovation at a higher pace than proprietary software. It produces a higher quality product at a lower cost, ultimately returning control of the software to its users. For more information on the SPICE open source community, visit spicespace.org.



facebook.com/redhatinc
[@redhatnews](https://twitter.com/redhatnews)

linkedin.com/company/red-hat

KEY FEATURES

Usability

- Windows XP, 7, and 8 (32- and 64-bit)
- Red Hat Enterprise Linux 5 and 6 (32- and 64-bit)
- Copy and paste between desktops and clients
- Access from a simple web browser

Security and authentication

- Secure SSL encrypted tunnel between client and desktop
- Single sign-on

Client devices

- Windows or Linux clients
- Desktop or laptop PCs
- Thin clients

Audio/video

- Any video format/codec
- Bi-directional audio/video
- Native frame-rate playback (streaming or local)
- Lip-sync keeps audio synced with video
- Dynamic image compression

KEY BENEFITS

EXCEPTIONAL USER EXPERIENCE

Since SPICE can use the system resources of the end user's client device to render resource-intensive applications, remote desktops appear to function as if they were locally installed environments. This approach yields exceptional results, particularly with more challenging applications like audio, video, and other forms of multimedia, which have historically been second-rate or even impossible to watch with other virtual desktop solutions. In addition, SPICE has WAN optimization capabilities optimize the user experience for lower bandwidth and/or higher latency network connections.

REDUCE ASSOCIATED COSTS

By using the system resources of the local client, valuable system resources on the host virtualization server are simultaneously freed. The result is the highest VM density on the host server enabling host server system resources to run more VMs and allowing businesses to purchase and support less server hardware than competitive solutions.

ENSURE DATA SECURITY

Red Hat Enterprise Virtualization includes an optional feature to fully encrypt the SPICE connection with an end-to-end SSL (secure sockets layer) tunnel between the end user's client device and desktop VM. This secure tunnel ensures that the data link between the client and the host server is protected—regardless of the location or client device that users access their desktops from.

CONNECT ANY USB DEVICE

Most desktop users connect a variety of USB devices to their local desktop PCs. When users move to a virtualized desktop infrastructure, they expect the same experience.

Unlike competitive solutions that are limited to just storage devices or perhaps a limited list of hard-coded devices, Red Hat Enterprise Virtualization and the SPICE protocol employ full USB data redirection for virtualized desktops. This means nearly any USB 1.0 and 2.0 device is supported through the SPICE protocol. This includes user input devices, like artist tablets and specialized keyboards, as well as general devices, like cell phones, PDAs, flash drives, and printers.

KEY FEATURES CONT.

Display

- Up to 2560x1600 resolution per display
- Multiple-monitor support (up to four monitors)
- 32-bit native color

Peripherals

- Full USB redirection for any device
- USB 1.0 and 2.0 devices
- Isochronous video camera support
- Nearly any USB peripheral device
- Enhanced USB remoting for Linux guests

SPICE ARCHITECTURE

The SPICE architecture is based on a three-tier model, allowing the intelligence of the protocol to decide on the best location to render the user's actions. The model includes:

- **The SPICE agent**

An optional software component included in the Red Hat Enterprise Virtualization tools package installed within the VM guest. It is designed to enhance the user's experience by performing guest-oriented management tasks, such as enhanced mouse position reporting, display monitor settings, USB device mounting, and more.

- **The SPICE server**

A software component that is part of the Red Hat Enterprise Virtualization Hypervisor on the host servers. It acts as the primary interface between the agent within the VM and the client within the end user's PC, providing seamless communication of data and device interaction.

- **The SPICE client**

A cross-platform software component that resides on the end user's client device. It is used to access each VM on Red Hat Enterprise Virtualization. The client runs on both Windows and Linux client devices, including thin clients and repurposed PCs.

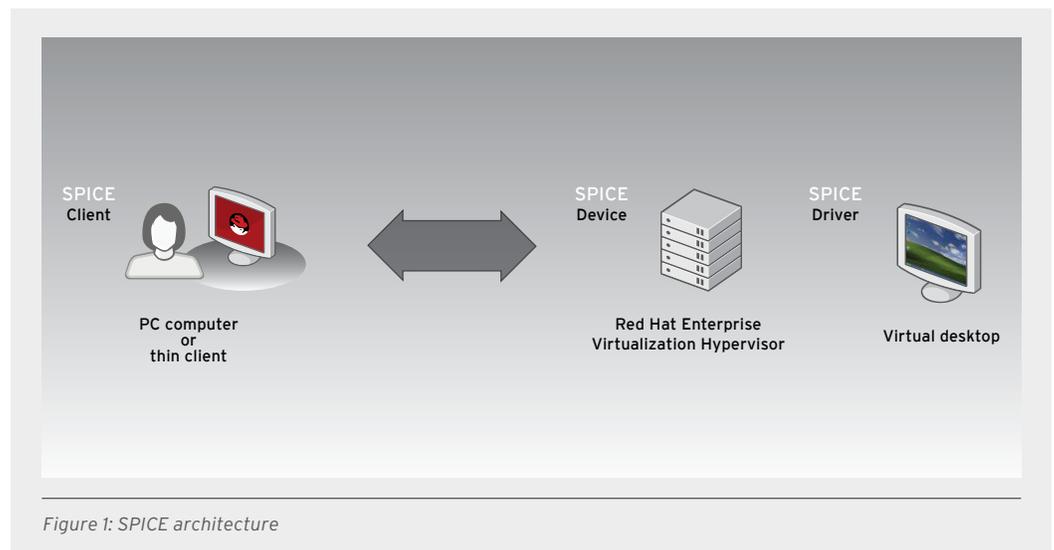
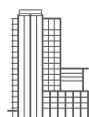


Figure 1: SPICE architecture

**ABOUT RED HAT**

Red Hat is the world's leading provider of open source solutions, using a community-powered approach to provide reliable and high-performing cloud, virtualization, storage, Linux, and middleware technologies. Red Hat also offers award-winning support, training, and consulting services. Red Hat is an S&P company with more than 70 offices spanning the globe, empowering its customers' businesses.

RED HAT PORTFOLIO Learn more at redhat.com.



facebook.com/redhatinc
[@redhatnews](https://twitter.com/redhatnews)
linkedin.com/company/red-hat

NORTH AMERICA
1-888-REDHAT1

**EUROPE, MIDDLE EAST
AND AFRICA**
00800 7334 2835
europa@redhat.com

ASIA PACIFIC
+65 6490 4200
apac@redhat.com

LATIN AMERICA
+54 11 4329 7300
latammktg@redhat.com