

## DATASHEET

# RED HAT ENTERPRISE VIRTUALIZATION FOR DESKTOPS AND THE SPICE PROTOCOL

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### AT A GLANCE

- Designed explicitly for remote access to a virtualized desktop 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
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### OVERVIEW

Red Hat Enterprise Virtualization for Desktops is an end-to-end desktop virtualization solution that simplifies desktop management, reduces infrastructure costs, and provides access to complete Windows and Linux desktop environments from a controlled datacenter.

Based on the powerful and high-performing KVM (kernel-based virtual machine) hypervisor technology, Red Hat Enterprise Virtualization for Desktops provides industry-leading scalability with the highest virtual machine 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 for Desktops.

### 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](http://spicespace.org).

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## AT A GLANCE

- Full USB redirection for nearly any device
- Open source technology drives innovation, allows for customizations and integration, and keeps costs at a minimum

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## KEY FEATURES

- Windows XP & 7 (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
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## KEY BENEFITS

### Exceptional user experience

Since SPICE can leverage 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 that optimize the user experience for lower bandwidth and/or higher latency network connections.

### Reduce associated costs

By leveraging the system resources of the local client, it simultaneously frees valuable system resources on the host virtualization server. The result is the highest virtual machine density on the host server—essentially freeing host server system resources to run more virtual machines and allowing businesses to purchase and support less server hardware than competitive solutions.

### Ensure data security

Red Hat Enterprise Virtualization for Desktops 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 virtual machine. This secure tunnel ensures that the data link between the client and the host server is protected—regardless of the location or client device users access their desktops from.

### Connect any USB device

Most desktop users today 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 for Desktops and the SPICE protocol employ full USB data redirection for virtualized desktops. This means nearly any USB 1.0 and 2.0 devices 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, thumb drives, and printers.

## KEY FEATURES

### 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 SPICE Agent

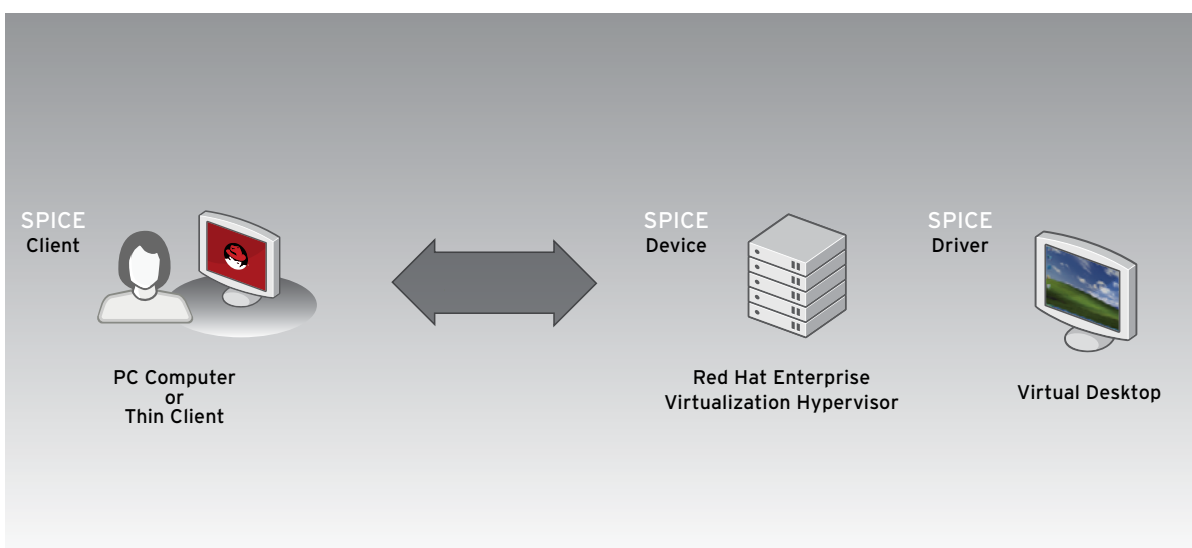
An optional software component included in the Red Hat Enterprise Virtualization tools package installed within the virtual machine guest. It is designed to enhance the user's experience by performing guest-oriented management tasks, such as enhanced mouse position reporting, display monitor settings, 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 virtual machine 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 virtual machine on Red Hat Enterprise Virtualization for Desktops. The client runs on both Windows and Linux client devices, including thin clients and repurposed PCs.



SPICE Architecture



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## ABOUT RED HAT

Red Hat was founded in 1993 and is headquartered in Raleigh, NC. Today, with more than 70 offices around the world, Red Hat is the largest publicly traded technology company fully committed to open source. That commitment has paid off over time, for us and our customers, proving the value of open source software and establishing a viable business model built around the open source way.

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[apac@redhat.com](mailto:apac@redhat.com)

**LATIN AMERICA**  
+54 11 4329 7300  
[latammktg@redhat.com](mailto:latammktg@redhat.com)