



**RAYSYNC RAYSSH PRODUCTS TECHNICAL  
WHITE PAPER**  
RAYWING PTE. LTD.

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## 1. Preface

OpenSSH products include ssh/sshd, scp and rsync tools, which are characterized by security, convenience and powerful functions. It has become a standard transmission tool for Linux/Unix systems, but after testing, OpenSSH transmission speed on LAN can basically meet the needs of users, but the speed is not ideal when transmitted through the Internet. Therefore, RAYWING PTE. LTD. has developed Raysync RaySSH products based on Raysync transmission protocol. RaySSH products are fully compatible with OpenSSH in terms of functions, encryption and command line, and integrate Raysync transmission protocol in Internet high-speed transmission function, which can become a transmission sharp weapon on Linux/Unix system.

## 2. Basic technical principles of Raysync RaySSH products

Raysync RaySSH products include Raysync RaySSH client and Raysync RaySSH server:

	Functionalities	Deployment method
<b>Raysync</b> <b>RaySSH</b>	RaySSH, RayScp and Raysync command line tools are available.	The client deploys the Linux system and

<b>client</b>	Raysync transmission protocol after receiving the TCP connection.	completes the installation through the installation package.  software or on a different machine.
<b>Raysync RaySSH server</b>	RaySshd, RayScp and Raysync command line tools are available.	The server deploys Linux server system and completes installation through installation package.

The following is a schematic diagram of Raysync RaySSH application:



### Introduction to the functions of three tools for RaySSH transmission:

- Rayssh: RaySSH function is the same as SSH function under Linux, completing the establishment of encrypted connection channel, user authentication, authorization function and data encryption transmission;

- Rayscop: The Rayscop function is the same as the scp function under Linux, which can complete the uploading and downloading functions of files/folders.
- Raysync: The Raysync function is the same as the rsync function under Linux, which can complete the synchronization of file/folder data between two hosts, including the file differential transfer function that supports rsync (when files change, only the changed part of the file is transferred, not the entire file is re-transferred);

## **3. Main characteristics of Raysync RaySSH Products**

### **3.1 Features Fully Compatible with OpenSSH**

All functions of ssh, scp and rsync are supported, and user authentication, authorization and file encryption transmission are fully compatible.

### **3.2 Command Line Fully Compatible with OpenSSH**

RaySSH products are fully compatible with ssh, scp, rsync command line parameters. They only need to modify the name of the command line program when OpenSSH users migrate to RaySSH, and the functional parameters of the command line are fully compatible and consistent.

### 3.3 Fast transmission speed

RaySSH's transmission speed is 5-50 times faster than OpenSSH's in the network environment with high latency and packet loss.

## 4. Raysync RaySSH application case

### 4.1 Brief Introduction of RAYWING PTE. LTD. Business

RAYWING PTE. LTD. is an Internet technology Company that specializes in cluster rendering and parallel computing technology and provides cloud rendering computing services for computer animation and movie special effects industries. Its clients are mainly overseas.

Customers of RAYWING PTE. LTD. (such as movie animation rendering) need to submit a large amount of rendering materials. They need to download rendering video/picture finished products after rendering is completed, and the amount of data transferred is very large (single file transfer exceeds XTB and single file size exceeds 200GB). RAYWING PTE. LTD. used the traditional rsync file transfer before, the feedback speed of overseas customers was too slow, and big data transfer could not be completed at all. The transmission speed of RAYWING PTE. LTD. overseas customers has been increased by 100 times, and 1TB of data needs only half a day to complete after the application

of RaySSH, greatly improving the use experience of RAYWING PTE. LTD.

customers.

## 4.2 Introduction to RaySSH accelerated networking of RAYWING PTE. LTD.

RAYWING PTE. LTD. File Server is located in Singapore,, and its Indian customer data is located in Chennai computer room in India as shown in the above figure . Both local operators have access bandwidth of 100Mbps.

## 4.3 Real effect of Raysync acceleration of RAYWING PTE. LTD.

Transfer File Size: 1GB

Test scene		Transmission completion time ( second )	Average transmission time ( KB/S )
Uploading	Rsync	9198	114
	Raysync	104	9800
Downloading	Rsync	7767	135
	Raysync	99	10300

1GB of files are transmitted for at least 2.5 hours before acceleration, while the transmission time after acceleration is about 1.5-2 minutes, and the acceleration effect is about 60-80 times after several rounds of verification.