



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

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1. Preface

The Raysync transmission protocol has been verified by a large number of customers and actual networks, and has proved the high speed transmission capability and stability of the transmission engine. Many users feedback that the integration of Raysync transmission protocol needs to revise its own software code in the process of using, and the development and verification need a certain period and cost.

Therefore, RAYWING PTE. LTD. has developed Raysync Proxy products based on Raysync Transmission Protocol. Users do not need to modify their own software, and can integrate the high-speed transmission capability of Raysync transmission through the standard Proxy protocol.

2. Raysync Proxy product basic technical principle

Raysync Proxy products include:

- ① Raysync Proxy Client and ② Raysync Proxy Server

| | Functionalities | Deployment method |
|-----------------------------|---|--|
| Raysync Proxy Client | Providing standard Http Proxy/Socks Proxy interface functions. Establish the connection and send the | It can be deployed on the client of the user software, either on the |

| | | |
|-----------------------------|--|--|
| | data on the TCP connection to the Raysync Proxy server through the Raysync transmission protocol after receiving the TCP connection. | same machine as the client of the user software or on a different machine. |
| Raysync Proxy server | <p>Keep connection with Raysync Proxy client and connect with actual target server.</p> <p>Establish TCP connection with the actual user software server and forward the data to the actual target user software server after receiving the request from Raysync Proxy client.</p> <p>Keep connection with Raysync Proxy client and connect with actual target server.</p> | <p>Establish TCP connection with the actual user software server and forward the data to the actual target user software server after receiving the request from Raysync Proxy client.</p> |

The following is the schematic diagram of Raysync Proxy before and after application:

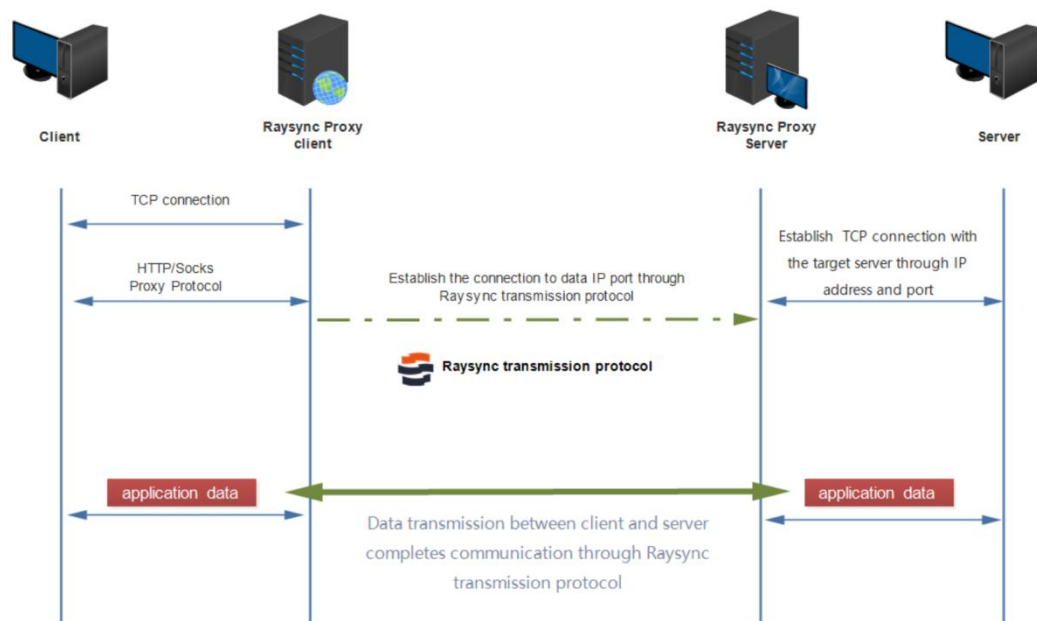
Before applying Raysync Proxy



After applying Raysync Proxy



3. Raysync Proxy product basic technical process



As shown in the figure above:

- 1) TCP protocol ends between user software and Raysync Proxy. TCP protocol runs in an ideal network with very low latency (1ms) and no packet loss in local area network. TCP can work effectively and at high speed under this network condition.
- 2) Internet transmission between user client and server completes communication through Raysync Transmission Protocol;
- 3) The user client software only needs to communicate with Raysync Proxy through the standard Http/Socks proxy protocol interface, and the user software does not need to be changed;

The user application can obtain the following benefits through the above deployment:

- 1) **High-speed transmission speed:** the transmission speed of big data for FTP application /Web application etc. can be increased by more than 100 times, and the maximum speed for a single connection can support 1Gbps according to the actual test results;
- 2) **Better real-time transmission experience:** thanks to the multi-channel design of Raysync transmission protocol, users can save transmission latency caused by TCP three-way handshake connection when transmitting data, and the real-time performance can be increased by up to twice;

4. Main Characteristics of Raysync Proxy Products

4.1 Support for Multiple Proxy Protocols

- Http/Https/Socks proxy supporting standard;
- Support transparent Proxy (only support Linux system, redirect TCP connection through iptables), transparent proxy can be used in gateway mode, network hardware manufacturer can integrate Raysync proxy, TCP connection and data transmission between two sites of transparent proxy;

4.2 Support for Multiple Integration Methods

- Raysync Proxy can be run separately as a process, and users can integrate through command line scripts.
- Meanwhile, Raysync Proxy provides SDK development package. Raysync Proxy can be integrated as thread to run in user application.

4.3 High Performance.

Raysync Proxy is developed based on event-driven/asynchronous network processing model. Raysync Proxy single thread can support thousands of TCP

concurrent connection processing on a common desktop CPU, with a maximum data throughput of 1Gbps.

4.4 Very Low Resource Occupancy

- **Raysync Proxy CPU consumption:**

There is no CPU consumption when there is no data transmission; CPU consumption should not exceed 20% at 100Mbps data throughput for normal desktop CPU configuration.

- **Raysync Proxy memory consumption:**

The memory consumption of the management structure of a single connection is less than 30KB;

4.5 Cross-platform

Raysync Proxy supports mainstream computing platforms such as Windows/Mac/Android/iOS/Linux/UNIX;

4.6 Seamless Integration of Common Software

Raysync Proxy supports seamless, integration of various common popular software such as FTP/Http/ssh/Scp/Rsync. Users can complete the integration

of common software within 30 minutes in accordance with the tutorials provided by Raysync Proxy.

5. Raysync Proxy Accelerated FTP Application Case

5.1 FTP Acceleration Case of RAYWING PTE. LTD.

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.

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 FTP 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 Proxy, greatly improving the use experience of RAYWING PTE. LTD.

customers.

5.2 FTP Accelerating Networking of RAYWING PTE. LTD.



As shown in the above figure, RAYWING PTE. LTD. File Server is located in Singapore Telecom's computer room, and its US customer data is located in North America's computer room as shown in the above figure. Both local ISP access bandwidths are 100Mbps.

5.3 Real Effect of FTP Acceleration of RAYWING PTE. LTD.

Transfer File Size: 1GB

| Test scene | | Transmission completion time (second) | Average transmission time (KB/S) |
|----------------------|------------------------|---|------------------------------------|
| FTP unloading | Pre-acceleration | 27594 | 38 |
| | After the acceleration | 191 | 5500 |
| FTP uploading | Pre-acceleration | 23301 | 45 |
| | After the acceleration | 184 | 5700 |

1GB of files are transmitted for at least 6 hours before acceleration, while the transmission time after acceleration is about 3 minutes, with an acceleration effect of more than 100 times after several rounds of verification.