FTP Workflow Optimization

GLOBAL FTP ACCELERATION FOR PARADIGM

This use case description shows how TIXEL has improved the entire FTP workflow that is used for data exchange between Paradigm's facility in India and their US and European clients.

A comprehensive analysis of the previous performance regarding upload and download speed of image data from different global locations has been performed by TIXEL. In close collaboration with Paradigm's IT and with valuable feedback from clients TIXEL set up and configured a novel infrastructure based on an in-house FTP server at Paradigm's facility in India and TIXEL's FTP acceleration gateways located in Europe and the US. The current setup **reduces** the overall round trip **transfer time** of typical data sets of around 1 Gigabyte from about 6 hours to half an hour. This increases the data transfer **efficiency** by a **factor of 12**.
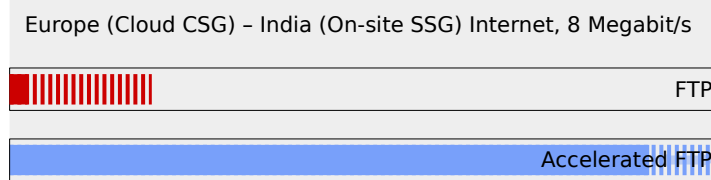
Benchmarks with configurations that temporarily utilize a 16 Megabit/s link instead of an 8 Megabit/s link showed that a future bandwidth upgrade can also be fully utilized and directly translates into better customer experience.

So far an external FTP service located in the US has been used for data exchange with customers in the US and Europe. A log file analysis revealed that upload and download speed for European clients was reasonable, for US clients fairly good. However, the major drawbacks with this off-site FTP server were:

- limited space of 500 Gigabytes and

- very long additional transfer times between off-site FTP server and Paradigm facility.

Therefor a dedicated in-house FTP server at Paradigm's facility in India plus dedicated TIXway acceleration gateways have been set up. Without acceleration especially data transfers from Europe or US to India suffer from typical long distance network effects and **only a fraction of the available bandwidth can be utilized** and transfer times would still be unnecessarily long.

Early tests with TIXway acceleration gateways in

Europe (Cloud CSG) – India (On-site SSG) Internet, 8 Megabit/s

FTP

Accelerated FTP

Germany and India (Nashik) showed that transfer speed can be increased by a factor of 2.5 to 24, i. e. from 25 to 200 Kilobytes/s (without TIXway) to 500-600 Kilobytes/s (with TIXway).

According to log file analysis of the external US FTP server, US clients experience transfer rates between 500 and 2000 Kilobytes/s while clients from Europe get rates between 300 and 800 Kilobytes/s with the external US FTP server. In order to keep client experience close to that one with the external US server, TIXEL installed the acceleration gateway in India directly on the machine of Paradigm's FTP server. This setup results in transfer rates between 900 and 1000 Kilobytes/s for European clients and 500 to 650 Kilobytes/s for US clients.

So with the server side gateway running directly on the FTP server host, we are able to accelerate transfer speed up to the maximum, i. e. 8 Megabit/s=1000 Kilobytes/s.

Considering all measured and analyzed numbers the above mentioned transfer time reduction for a 1 Gigabyte data set from 6 hours to 32 minutes is realized as follows.

With external off-site FTP server in the US:

- Client uploads at 500 Kilobytes/s to external FTP server (33 minutes)

- Paradigm team downloads from external US FTP server at 125 Kilobytes/s to Paradigm facility (2.2 hours)

- Paradigm team uploads to external US FTP server at 100 Kilobytes/s (2.8 hours)

- Client downloads from external US FTP server at

500 Kilobytes/s (33 minutes).

That makes about 6 hours in total. So 4 Gigabytes data result in an **entire day only for data transfer.**

With TIXway acceleration and in-house FTP server:

- Client uploads to Paradigm FTP server at 1000 Kilobytes/s (16 minutes)

- Client downloads from Paradigm FTP server 1000 Kilobytes/s (16 minutes)

Here 1 Gigabyte is transferred back and forth in half an hour. That is **12 times faster** than before and enables Paradigm to operate much more efficiently resulting in another competitive advantage.

> **Flexible as-a-service model with low TCO**
>
> **No software installed at customer's sites**
>
> **12 times faster file transfer**