Ad tech star Criteo's big data relies on NTT Com infrastructure to provide critical services for businesses in the APAC region

> **"** With our continued focus on delivering new options for our clients such as our mobile services and our new performance engine, we are poised to capture the massive opportunity ahead of us. With 700+ new clients added in Q2 2015 alone, we are growing fast and will look to expand into emerging markets such as China, Russia and Latin America. We are fully confident that our infrastructure with NTT Com will keep pace and support us. **"**

Romain Niccoli, Co-founder & CTO, Criteo

Background

Criteo is a top performance marketing company and a pioneer of the online advertising form, retargeting. Retargeting helps companies reach users who visited their websites but left without actively engaging (such as buying a product on the website). This is also referred to as conversion.

Criteo's performance engine, based on machine learning and predictive technology, helps its customers reach these users who did not convert, by displaying personalised ads in real-time. To identify potential users, Criteo's algorithms process a vast amount of rich, purchase-intent data. Criteo places a bid in real time for ad space available in websites referred to as 'publishers'. It then determines the product(s) most likely to receive a click for sale, creates a banner dynamically and then displays it. This process is completed in less than 100 milliseconds.

In 2014 alone, Criteo analysed 430 billion transactions to serve 740 billion ads. It generated $17.5 billion in post-click sales for its customers in the 12 months preceding June 2015.

Criteo's own growth numbers are similar to the big data it deals with proving the success of performance marketing as well. Established in France in 2005, Criteo clocked high growth rates and won the Deloitte's Technology Fast 500 in the EMEA region in 2012 for its rapid growth between 2007-2012. This growth rate was also greater than any other European company by more than 1000% for that time period.

With a number of large global players such as Sony and Yahoo! Japan as its customers, Criteo is a market leader and game changer in the advertising technology market.

NTT Communications

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Objectives

Criteo operates in 27 locations across Europe, Americas and Asia, and works with over 8500 advertisers to serve real-time ads. These publishers are websites where Criteo has bought space to display ads in real time. To ensure that each ad serve process can be completed in under 100 milliseconds, Criteo needs to build a platform in every region in which it operates to be close to its publishers in that region.

Criteo tracks the online behaviour of over a billion users to make predictions and display its online ads. It then bills its customers with the post-click that resulted from its data analysis and ads. Criteo stores and computes all collected data in a Hadoop platform operated in Paris and Amsterdam data centers. This Hadoop infrastructure, the largest privately owned in Europe, offers 100 PB of raw storage and 30,000 cores.

Challenges

Japan and Hong Kong are key Asian markets for Criteo as these are ecommerce hubs with a large number of the publishers that Criteo can work with. Criteo has seen aggressive growth rates of 75% in Asia, its second biggest market after America. This growth has meant that Criteo stores 26 TB of fresh data every day. As it computes more than 9 PB of data every day, the company requires robust infrastructure and reliable network connectivity.

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"In the last four years, we went from 300 servers to 15 000 servers (yes, fifteen thousand) and APAC has been one of our biggest growth areas. With a small engineering team based in Paris and growth happening in the APAC region, we rely on NTT Com to handle physical deployment. That way we are able to focus on architecture, design and operations. In many instances they anticipated our expectations and were prepared for it, which shows impressive levels of commitment." Matthieu Blumberg Infrastructure & Production Manager, Criteo
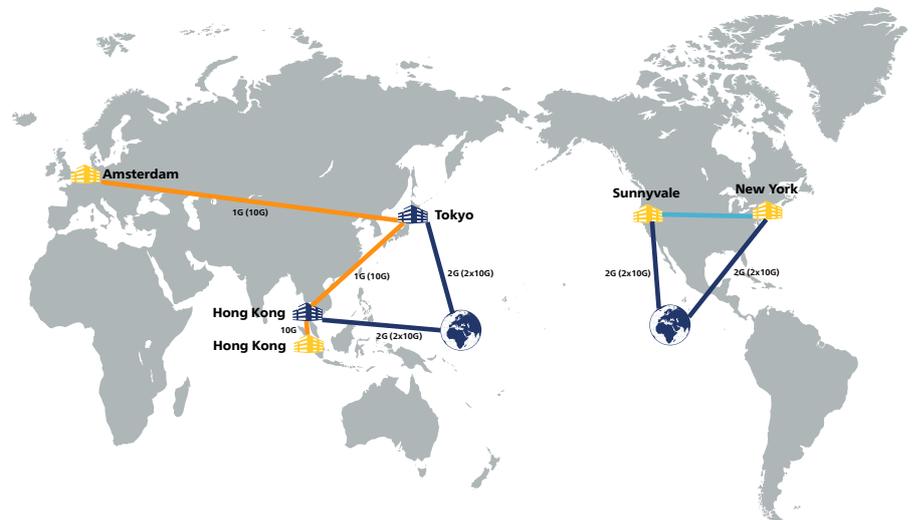
Solution

Criteo's main Asia-Pac platform is hosted in NTT Com's data center in Tokyo (TK5) – a 20-floor isolated building which benefits from redundant and resilient power. When Criteo expanded into Hong Kong, it chose NTT Com's Financial Data Center (FDC) to host its services. With easy replication of processes from Tokyo to Hong Kong, deployment was rapid. Both data centers are connected to the internet to ensure proximity to local publishers and internet users.

As Criteo had to transfer a large amount of data every day, a private link of 10 Gbps was opened between Tokyo and Amsterdam. Another private 10 Gbps link based on the submarine cable ASE was established between Tokyo and Hong Kong to ensure that data transfer from Tokyo to Europe via Hong Kong is fast and secure.

> 66 The quality of the infrastructure we have in Japan is excellent. It was amazing to see that the 2011 earthquake did not affect the data center availability that NTT Com provided to us. We saw the same level of quality in the 100MW data center in Hong Kong. 99

Matthieu Blumberg, Infrastructure & Production Manager, Criteo

Legend

—— NTT Private Connection	🏢 NTT Data Center
—— NTT Internet Connection / Gateway	🏢 Third Party Operator Data Center
—— Third Party Operator Connection	

x G (n*yG) x = guaranteed bandwidth n = ports y = Gbps

> " Criteo makes 15 million behaviour predictions per second, publishes 2 billion banner ads per day at peak times, and logs 50 billion total events per day. To handle the vast data as well as enable the transfers between different regions, the infrastructure has to be solid. We are happy to provide that foundation and support Criteo on their fast growth path. "

Masaaki Moribayashi, Managing Director, NTT Communications, Europe

Benefit

The quality of NTT Com's infrastructure is a continuing and important benefit for Criteo. The high levels of standardization in the processes between the NTT Com data centers in Tokyo and Hong Kong has resulted in rapid deployments mirroring Criteo's growth and keeping pace with its expansion. This has enabled Criteo to continue to keep its focus on growth and expansion, assured that it is all backed by a solid infrastructure and connectivity.

The success in two regions (Tokyo and Hong Kong) augurs well for the Criteo-NTT Com partnership. It means that Criteo can exploit NTT Com's global infrastructure when expanding into other newer and emerging APAC markets, while keeping a strong base in Hong Kong.