Last-Mile Challenges at the Network's Edge

OVERVIEW

The process of accelerating operations in a telco network involves compute-intensive algorithms, and requires high-performance computing solutions that:

- process large amounts of data
- relieve bottlenecks in server and network traffic
- facilitate streamed processing

One of the enduring challenges facing network operators is that of delivering more varied and appealing services to more customers, without increasing costs. Another challenge is that of finding lucrative uses for the thousands of miles of unlit fiber placed in the ground during the last ten years. The industry invested heavily in building out the network, and continues to seek ways to move traffic through it with as little incremental capital expenditure (CapEx) as possible.

Facing these challenges, the operator of a nationwide, fiber-optic network finds a unique opportunity for revenue at the network's edge. In underserved areas of the country, the operator offers network and broadband services without using telephone company copper lines, and without incurring the overhead of building local telco facilities.

The operator sees the need at the POPs to accelerate the more bandwidth-hungry, compute-intensive functions and services.

At hundreds of signal regeneration points placed every 40 miles throughout the nationwide network, the operator installs points of presence (POPs). Downstream traffic is converted from optical to wireless—WiFi, line-of-sight, point to multipoint—and upstream traffic from wireless back to optical, delivering local broadband service to consumers accustomed to low-performing landline and dial-up service. Servers at each POP perform network operations and consolidate information in the same way that a local telco facility would: authentication, network security, account billing data, status of traffic, and status of equipment.

By owning and managing these POPs, the operator provides value for three sets of customers: subscribers now have access to high-speed bandwidth; wireless carriers can service subscribers without incurring CapEx; and content providers and advertisers get wider pipes to more devices.

But as traffic across the POPs increases, throughput decreases. The operator sees

the need at the POPs to accelerate the more bandwidth-hungry, compute-intensive functions and services, such as virus detection, Voice over IP, intrusion detection, encryption/decryption, data compression, Web services, and XML processing.

Enter the Tarari Processor. When installed on the servers of this network, Tarari Processors allow the reconfiguration of the processing capabilities of the network in real time. Tarari Processors installed in the servers in the POPs accelerate the real-time packet inspection required for anti-virus and network security applications, as well as the encryption, decryption, and processing of XML documents. The servers represent an application platform at the network's edge, and Tarari Processors accelerate the heavy lifting of network functions and network security.

More precisely, the Tarari Processor's role in this application is to bear the compute-intensive burden of particular network activities in the POPs, freeing up cycles in the server's host processor to manage the platform and all of the applications running on it.

ISSUES

- Deliver more services at local points of presence with minimal additional investment
- Maximize value of services offered, especially at the network's edge
- Enable host processor to manage the application platform by offloading compute-intensive operations

Tarari
The Acceleration Company

Tarari, Inc. – The award-winning acceleration company designs and produces Tarari Processors that offload and accelerate compute-intensive algorithms used in network security, Web Services, and high performance computing environments.

Tarari's customers include independent software vendors, computer manufacturers and networking manufacturers.

To learn how Tarari can help your applications run at wire speeds, contact Tarari.

FOR MORE INFORMATION

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