



Firewalls have numerous functions. Limited bandwidth management is one of them. As many operators prefer an all-in-one solution, they try to solve problems like copyright violations caused by P2P file sharing with blocking the application using a firewall. But how exact is a tool, that is not constructed for such tasks? This is exactly the kind of question the team of the Gauss IT Center at the Technische Universität Braunschweig asked, when copyright violations in their network increased alarmingly. This case study shows why firewalls are not always the best option and how operators can improve the situation with a bandwidth management solution such as ipoque's PRX Traffic Manager.

Internet Traffic Management Solution vs. Firewall

The Gauss IT Center is the central facility for information and communication technology at the Technische Universität (TU) Braunschweig. To keep the maintenance and the handling of the different devices as simple as possible, the responsible network operators try to combine as many services as possible in one solution. This is not an easy task. "Before working with a bandwidth management tool, we tried to solve many things with our firewall," says Jan-Marc Pilawa, head of the network department of Gauss IT Center. He and his colleagues soon realized that they would need bandwidth management in their university network.

The issue of bandwidth management arose as peer-to-peer (P2P) traffic in the university's network increased exponentially. Although users are required to sign an agreement that prohibits illegal file sharing and copyright violations upon receipt of network access, Pilawa says:

"Either they didn't know, or they just ignored it. And it was really annoying and time-consuming to discuss this matter with every single user."

How to solve this challenge? First of all, the IT Center team tried to address the issue with the existing firewall system. Although it is theoretically possible to block protocols for P2P file sharing with firewall systems, in practice, this becomes too complex and difficult, given the variety of P2P applications. Furthermore an across-the-board P2P blocking would also block access to the large amount of legitimate content relevant for education and research.

It became obvious for the team at the IT Center that the firewall couldn't provide the extra services they needed. "Firewalls have extensive features and therefore complicated structures. What we wanted was a simple graphical user interface, simple rules and a solution that digs deep and can do traffic management – nothing cursorily," says Pilawa.



**TECHNISCHE UNIVERSITÄT
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Challenges:

- Firewall couldn't provide extensive traffic management
- Data rates of 3 Gbit/s
- Exponential growth of P2P traffic
- Copyright violations
- Desires an easy management to enable quality of service for critical applications

The ipoque Solution:

- Restored quality of service
- Reliable application classification
- Effective & flexible traffic management

Bandwidth Management Restores Quality of Service

ipoque's PRX Traffic Manager was the optimal device for the requirements of the TU Braunschweig. The Gauss IT Center deploys two PRX-5G Traffic Managers between their network and the Internet. Traffic of three gigabits per second passes through the devices.

With a combination of layer-7 deep packet inspection (DPI) and behavioral traffic analysis, PRX Traffic Manager detects all major protocols, including encrypted and unencrypted P2P file sharing, instant messaging, media streaming and Internet telephony. The integrated QoS management allows prioritization and bandwidth management of classified traffic. Extensive accounting features provide in-depth application- and subscriber-aware network visibility.

P2P traffic is throttled to a small amount, although it is possible to activate legal BitTorrent trackers via white listing. With

a tiered service model for the various applications in the network, PRX Traffic Manager saves not only time in the daily work of Jan-Marc Pilawa and his team but also restores the QoS in the network.

PRX Traffic Manager Enables Special Research

Another advantage is the flexibility of the traffic management solution: "Our scientists can come to us and tell us what they need, if they have network problems." A colleague of Pilawa for example does research work with and about video applications and therefore needs a lot of bandwidth for her work. With a simple prioritization of the applications she needs, Pilawa enables efficient, uninterrupted working. "We try to support the research and not to block it. If the bandwidth in our network is consumed by P2P, such things as described above wouldn't be possible," explains Pilawa.

Key Benefits:

- Reporting and statistics provide overview of application usage
- Improved QoS
- Intuitive graphical user interface
- Customized rules and prioritization of critical applications to fit special requirements of research projects



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Jan-Marc Pilawa,
Head of the Network Department of Gauss IT Center,
Technische Universität Braunschweig

PRX-5G Traffic Manager



PRX-5G is a high-performance traffic management system for large operators with up to 1 million subscribers, Gigabit Ethernet or 10-Gigabit-Ethernet infra-

structure and data rates up to 4 Gbit/s. It provides fail-safe operation through its integrated bypass and optional system redundancy.

Key Features:

- 4 Gbit/s and 700,000 packets/s throughput
- 3 Gigabit Ethernet links
- 1 optional 10-Gigabit Ethernet link
- Asymmetric traffic support
- 20 million concurrent flows
- Optional flow-based subscriber reporting

About Technische Universität Braunschweig

The Technische Universität Braunschweig (University of Braunschweig – Institute of Technology) in Germany has over 2,900 University employees and 12,500 students. The academic focus is on engineering and natural sciences, closely linked with economics and the social sciences. One of the earliest students was the mathematician Carl Friedrich Gauss. The university is a member of the consortium of nine major technical universities in Germany known as "TU9 – German Institutes of Technology" and the "Consortium Technicum" partnership with the universities of Hannover and Clausthal in Lower Saxony.

More information at <http://www.tu-braunschweig.de>

About ipoque

ipoque is the leading European provider of deep packet inspection (DPI) solutions for Internet traffic management and analysis. Designed for Internet service providers, enterprises and educational institutions, ipoque's PRX Traffic Manager allows to effectively monitor, shape and optimize network applications. These include the most critical and hard-to-detect protocols used for peer-to-peer file sharing (P2P), instant messaging (IM), Voice over IP (VoIP), tunneling and media streaming, but also many legacy applications.

More information at <http://www.ipoque.com>