Barefoot Networks and Fox Networks demonstrate the power of programmable forwarding for professional broadcast networks

Barefoot Tofino™-powered switch running FOX Networks' P4 program implementing forwarding plane functions to switch SMPTE ST 2110-20 HD uncompressed video streams

Geneva, Switzerland | June 19, 2018 – At the European Broadcasting Union (EBU)Network Technology Seminar (NTS) 2018, June 19-20, 2018, Barefoot Networks and FOX Networks, with support from the open networking experts at STORDIS, will showcase the application of Barefoot's 6.5Tb/s Tofino™ switch ASIC and P4 language for broadcast media network environments.

Programmable forwarding plane technology is the ultimate development of Software-Defined Networking (SDN), allowing complete flexibility with what a switch can do in manipulating packets and making forwarding decisions. P4-programmable forwarding planes enable use-cases that are not possible with fixed-function switching silicon, giving users the ability to create simple and scalable packet processing pipelines that meets their unique needs. The richness of the open P4 ecosystem with a high-performance, networking domain-specific processor, such as Barefoot Tofino, empowers network owners and operators to create new functions and features at the forwarding plane-level to extract more value out of the network.

"I'm thrilled to see the advent and the uptake of P4-programmable forwarding plane technology and the value it could add to the broadcast IP media space," said Willem Vermost, senior IP media technology architect at EBU. "As the professional grade live video production infrastructure is moving to IP in its core, new opportunities become available for the broadcast industry. A collaboration between FOX Networks and Barefoot Networks using P4 and Tofino is a great example of one of the many possibilities that lie ahead of us."

"As broadcast media transmission increasingly becomes packetized with Live IP technology, having a programmable forwarding plane is crucial for enabling a rich set of network applications," said Thomas Edwards, vice president of engineering and development at FOX Networks. "With Tofino and P4, we've been able to implement custom forwarding plane functions to make intelligent switching decisions on media streams by looking into packet headers and applying rules that enable us to increase the performance and efficiency of our IP production infrastructure."

"Barefoot Tofino and P4 enable novel use-cases for a variety of deployment scenarios, including the professional network media infrastructure," said Alexander Jeffries, CEO of STORDIS. "We are excited to work with FOX Networks and Barefoot to demonstrate the versatility of our Tofino-powered BF6064X system and the end-user programmability with P4 as showcased by FOX Networks' use-case of composing media streams in real-time on the programmable network switch."

"We're delighted to collaborate with FOX Networks and STORDIS as they showcase the power of P4-programmable forwarding planes, like our Barefoot Tofino series of Ethernet switch ASICs," said Prem Jonnalagadda, director, product management at Barefoot Networks. "Barefoot Tofino allows users to define the packet processing functions they want in software using P4 so new features can be realized and deployed at a rapid pace with no tradeoff in performance. We believe the P4 programmability of Tofino will bring forth new and exciting forwarding plane applications for IP production infrastructure, accelerating the adoption of Live IP technology for broadcast media networks."

In a testament to the agility of P4-programmable forwarding planes, the live demonstration builds upon what was shown last year showcasing FOX Networks' use of a Barefoot Tofino-powered switch from STORDIS. Specifically, this year's demo will highlight how P4 and Tofino enable the forwarding plane to

perform packet processing functions to parse SMPTE ST 2110-20 headers and dynamically compose video from output that is switched using Real-time Transport Protocol (RTP) timestamp and video row number. The open-source P4 program implementing this forwarding plane logic is developed by FOX Networks, and the STORDIS BF6064X is a 64-port 100GB bare-metal switch powered by a 6.5Tb/s capacity Tofino ASIC.

FOX has also open-sourced its P4 code for other use cases, including RTP header field-based packet forwarding and load balancing, as well as applying Network Address Translation (NAT) to multicast-replicated packets, which today's fixed-function switches cannot achieve.

- WHEN: June 19-20, 2018, 8:30 AM - 6:00 PM CET
- WHERE: EBU NTS, L'Ancienne-Route 17A, CH-1218 Grand Saconnex, Geneva. The demo can be seen at the STORDIS table in the Courchevel room on the 1st floor.

EBU NTS takes place annually at EBU's headquarters in Geneva and brings together broadcast experts dealing with IP production infrastructure, as well as IT network and storage specialists who work with broadcast media content.

The 2018 conference consists of focused presentations from prominent experts in the field, provides the opportunity for participants to attend several in-depth tutorials at both introductory and advanced levels, and lines up an array of cutting-edge technology demonstrations. It also provides networking opportunities with peers and experts from the international broadcasting industry.

To meet with Barefoot Networks and STORDIS at EBU NTS 2018, please contact info@barefootnetworks.com or harsha.vardhan@stordis.com.

About Barefoot Networks

Barefoot Networks launched in 2016 after two years of developing technology that built switch silicon with a forwarding plane that is defined in software while not compromising on performance. Barefoot empowers network owners and their infrastructure partners to design, optimize, and innovate to meet their specific requirements and gain competitive advantage. In combining the P4 programming language with fast programmable switches, Barefoot has also created an ecosystem for compilers, tools, and P4 programs to make P4 accessible to anybody. Backed by Google Inc., Goldman Sachs Principal Strategic Investments, Alibaba, Tencent, and by premier venture capital firms Sequoia Capital, Lightspeed Venture Partners, and Andreessen Horowitz, Barefoot Networks is headquartered in Silicon Valley. For more information, visit https://barefootnetworks.com/.

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About STORDIS

STORDIS, founded in 2007, is The Open Networking Expert and leading provider of Open Networking Infrastructure Solutions with a strong presence in academia and research, cyber security, defence, financial services, media and entertainment, service providers, and telecommunications industries.

STORDIS is a supporter and contributor to the open source community efforts within the networking space.

With offices in Germany and the United Kingdom, STORDIS is specialized in developing, delivering and supporting tailor-made networking solutions for customers worldwide. As a full solution provider, STORDIS offers various services likes consultancy, hardware sourcing and technical support to enterprises of any size. The company runs two of the most advanced LABS for Open Networking hardware in Europe and helps to train developers and engineers on new technologies like P4 through STORDIS ACADEMY.

To learn more, please visit the STORDIS' newly redesigned website at www.stordis.com

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