Barefoot Networks Uses Franz's Allegro CL to Drive Artificial Intelligence in Networks

Expressive Power of Allegro CL and Common Lisp Enables Machine Learning in Tofino Programmable Chips

OAKLAND, Calif., April 16, 2019 – Franz Inc., an early innovator in Artificial Intelligence (AI) and leading supplier of Common Lisp (CL) development tools along with Graph Database technology for Knowledge Graphs, today announced that Barefoot Networks uses Franz Allegro CL® (Allegro Common Lisp) in the design of the Barefoot Tofino series programmable switch chips to enable Artificial Intelligence, solve complexity, drive superior performance and power efficiency within networks.

"At Barefoot Networks we use Lisp (via Allegro CL's Enterprise class development environment) in the design of our Tofino series of programmable switch chips," said Patrick Bosshart, CTO and Co-founder, Barefoot Networks. " Important to us are basic features of the language like its ability to manipulate symbolic data, to represent programs and create embedded languages. We have created embedded languages for building design netlists, and for the gate placement and routing phases of physical design. All of these have the expressive power of lisp seamlessly included. We build custom module generators and layout compilers on a scale significantly larger and more complex than industry standard approaches, which we believe gives us significant competitive advantages in chip area, performance and power efficiency."

"The best software programmers in the world choose Common Lisp

since it is the most exciting language for deploying Artificial Intelligence solutions. Lisp delivers powerful symbolic computing capabilities and its unique homoiconicity simply makes learning systems more powerful that other programming languages," said Dr. Jans Aasman, CEO of Franz Inc. "We are pleased that Barefoot Networks has tapped into the power of Allegro CL to apply the benefits of Artificial Intelligence to the future of programmable networks."

Barefoot Tofino is the world's first end-user programmable Ethernet switch that was built using a P4-Protocol Independent Switch Architecture (PISA). The forwarding logic of Barefoot Tofino resides in the P4 program that the network operator or switch manufacturer loads on the chip, rather than in the silicon. This innovative approach enables Barefoot Tofino switches to employ machine learning to automatically baseline the network performance and detect anomalies. The switch analyzes every packet from every switch and router in the network, in-band at line-rate with an intelligent and flexible triggering mechanism to detect and report events in real time, with nanosecond accuracy.

About Lisp and Allegro CL

Lisp was originally created as a practical mathematical notation for computer programs and quickly became the favored programming language for artificial intelligence (AI) research. Allegro CL is the enterprise level development environment for the Common Lisp language which is developed and sold by Franz Inc.

Allegro CL is a powerful dynamic object-orientated development system that is especially well-suited for enterprise-wide, complex application development. Allegro CL's unparalleled speed and accuracy in analyzing large amounts of unstructured content has made the language a pervasive system for

developing applications to solve complex problems in a broad range of fields including financial analytics, healthcare, life sciences, national defense, and manufacturing. Applications will billions of objects can be made simple and high performing using Allegro CL, which delivers parallel memory management capabilities, including parallel garbage collection and fast memory recycling.

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/.

About Franz Inc.

Franz Inc. is an early innovator in Artificial Intelligence (AI) and leading supplier of Graph Database technology with expert knowledge in developing and deploying Knowledge Graph solutions. The foundation for Knowledge Graphs and AI lies in the facets of semantic technology provided by AllegroGraph and Allegro CL. The ability to rapidly integrate new knowledge is the crux of the Knowledge Graph and Franz Inc. provides the

key technologies and services to address your complex challenges. Franz Inc. is your Knowledge Graph technology partner.