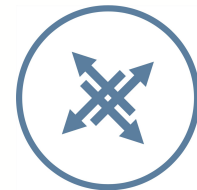# Arista 7130
Low-latency layer 3 and FPGAs

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ARISTA

SwitchApp

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SwitchApp - The lowest-latency switch for finance

- **Full-featured** 1/10G Layer 2/3 switch -- *implemented in FPGA*
  - Ultra-low latency packet forwarding averaging 89* ns (L2) or 133* ns (L3)
  - Full cut-through architecture
  - 48x 1/10G ports
  - 10k Uni- or multicast MAC addresses
  - 30k unicast, 22k multicast routes

- Fully **integrated** with EOS, running on 7130LB devices
  - Standard EOS CLI and protocols: STP, LLDP, IGMP, LAG
  - Standard EOS L3 stack: BGP, PIM, OSPF
  - Standard Management, telemetry, protocols, forwarding plane, CloudVision

- Layer 3 features were released in EOS 4.28.0F
  - Download at: https://mako.arista.com/dyn/softwareportal/releases/#switchapp

SwitchApp looks, feels and tastes like any EOS switch
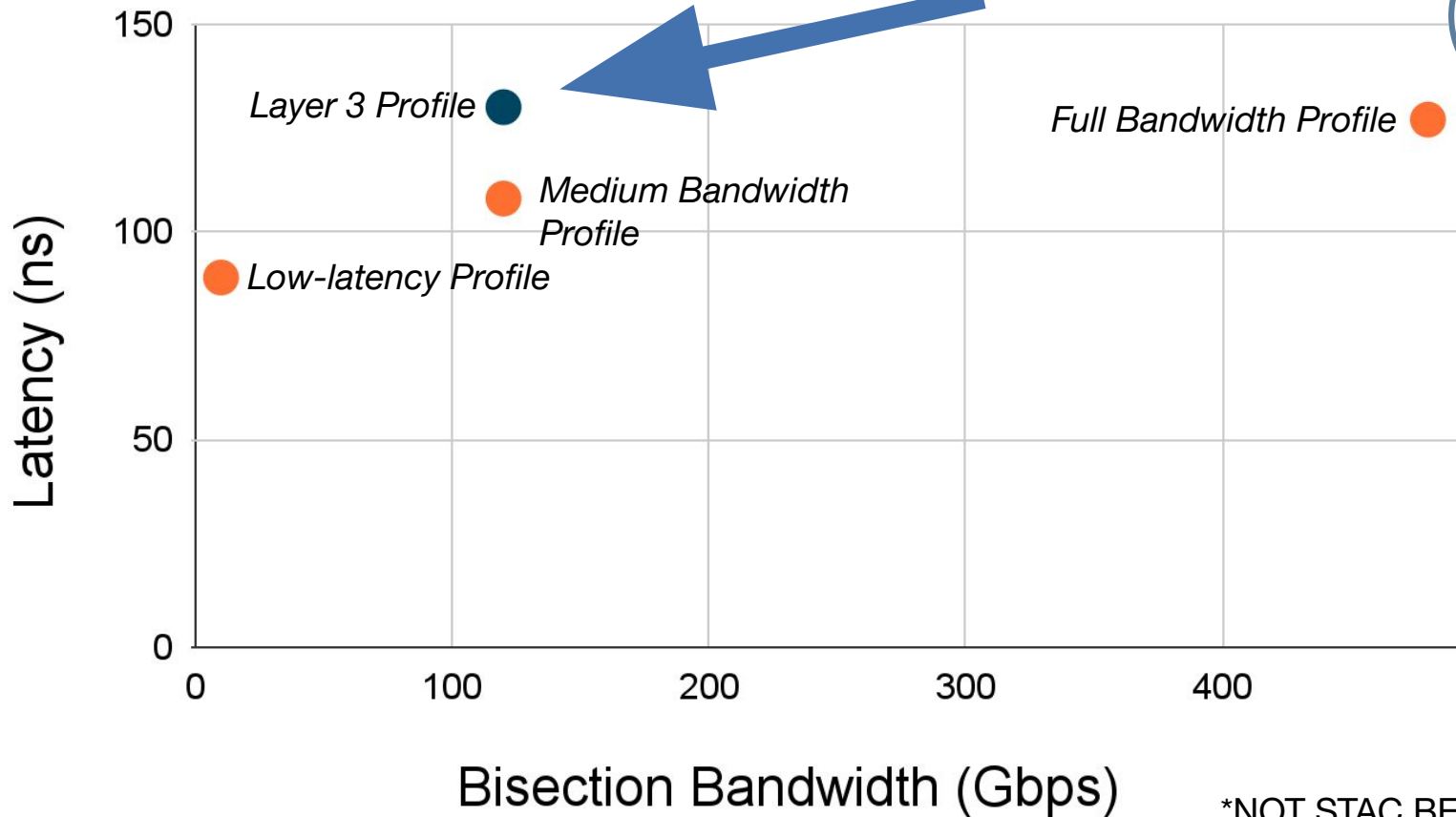
*NOT STAC BENCHMARKS

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SwitchApp - Updates

- **New features released** – In production now in EOS 4.29.0
  - MLAG, VRFs, multicast boundary join control

- Important features **coming in Q4**:
  - PTP Boundary Clock – time synchronisation
  - LANZ buffer monitoring – latency monitoring.
  - Routed ACLs
  - VRRP

- Watch this space:
  - More features coming via software update in Q1. Feedback welcome!

The features you need, without the baggage.

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Arista SwitchApp – **Same Latency**, More Features

Latency (ns) vs Bisection Bandwidth (Gbps)

- Layer 3 Profile (~120, 130)
- Full Bandwidth Profile (~480, 125)
- Medium Bandwidth Profile (~115, 108)
- Low-latency Profile (~10, 88)

*NOT STAC BENCHMARKS

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SwitchApp - Now the **fastest* Layer 3** switch too
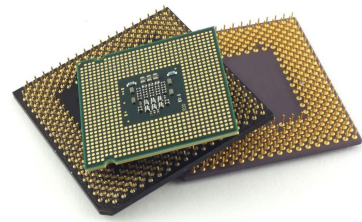
133 ns*

Average Latency

SwitchApp looks, feels and tastes like any EOS switch

*NOT STAC BENCHMARKS

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FPGAs

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# Arista 7130 is an **ideal FPGA platform**

- Arista 7130 is an **enterprise-grade platform** for FPGA apps:
  - hardware, manufacturing, support, RMAs – industry leading.
  - software (e.g. EOS/Linux), security/bug fixes. – industry leading.
  - engineering cost is amortised across 7130 sales for all use cases.

- Apps are software extensions (e.g. RPM).
  - FPGAs are programmed by software. Bitfiles are included in the package.

- Benefits: leverage the platform that we stand behind.
  - reduced engineering cost, greater agility.
  - trusted by partners and customers for critical applications.

> Arista 7130 is a solid foundation for FPGA development.
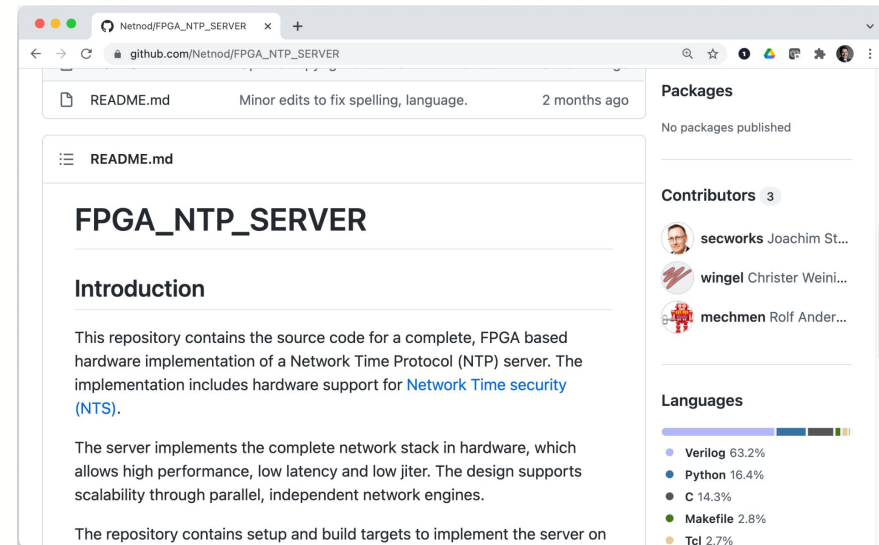
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Building a development ecosystem
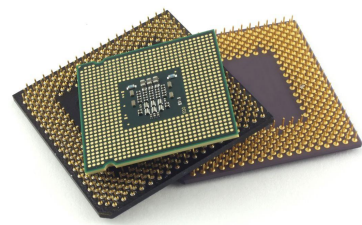
- Our goal: enable developers to write really useful FPGA applications.
    - Open source example apps

- What we provide:
    - An FPGA developer's kit with everything an FPGA team needs to use 7130.
    - Examples to copy and modify, IP cores for Arista hardware and networking.
    - For higher-layer business logic libraries, talk to our partners.

- Supporting open source
    - Recent open-source of pytest-netdut – a library for testing software on EOS/MOS.
    - Open source example apps in the FDK
    - Upcoming open-source release of a buildable FDK
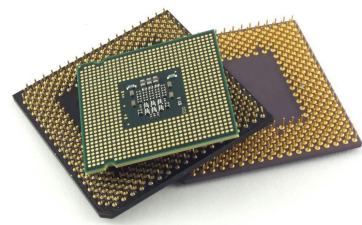
Focussed on enabling FPGA developers

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Open Source Example: Netnod
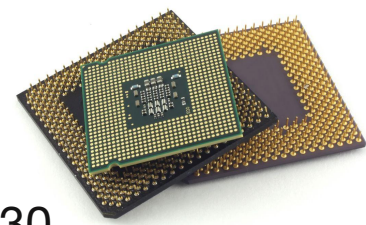
- Sweden's secure NTP service, delivered by FPGA on Arista 7130

- Open source: https://github.com/Netnod/FPGA_NTP_SERVER/tree/arista

- Moved from homebrew to Arista

- Time sync to PPS, using Arista core
- Uses 7130's OCXO stable oscillator

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How to get started:

- Download the FDK, choose an example, and **type "make"**.

- Have an existing FPGA team and FPGA app?
  - Your server: x86 -> PCIE -> FPGA -> Network
  - Arista 7130: x86 -> PCIE -> FPGA -> Network
  - Port your bitfile to the VU9P FPGA in the Arista 7130 platforms.
  - Use Arista's software tools to build operationgal apps.
- Working with a vendor?
  - No FPGA knowledge is required to *deploy* an FPGA app.
  - Third party FPGA vendors are better when strengthened by Arista 7130.
- Just starting out?
  - Get in touch with Arista, and we can recommend our partners.

Talk to your team, talk to us at the booth.

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Thank You

www.arista.com

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