# Wrapping up & Next Steps



# Why P4<sub>16</sub>?

#### Clearly defined semantics

You can describe what your data plane program is doing

#### Expressive

Supports a wide range of architectures through standard methodology

#### High-level, Target-independent

- Uses conventional constructs
- Compiler manages the resources and deals with the hardware

#### Type-safe

Enforces good software design practices and eliminates "stupid" bugs

### Agility

High-speed networking devices become as flexible as any software

#### Insight

Freely mixing packet headers and intermediate results



# Things we covered

- The P4 "world view"
  - Protocol-Independent Packet Processing
  - Language/Architecture Separation
  - If you can interface with it, it can be used
- Key Data Types
- Constructs for packet parsing
  - State machine-style programming
- Constructs for packet processing
  - Actions, tables and controls
- Packet deparsing
- Architectures & Programs



# Things we didn't cover

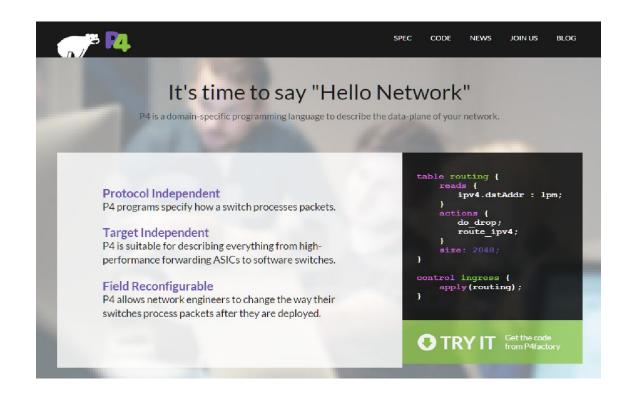
- Mechanisms for modularity
  - Instantiating and invoking parsers or controls
- Details of variable-length field processing
  - Parsing and deparsing of options and TLVs
- Architecture definition constructs
  - How these "templated" definitions are created
- Advanced features
  - How to do learning, multicast, cloning, resubmitting
  - Header unions
- Other architectures
- Control plane interface





# The P4 Language Consortium

- Consortium of academic and industry members
- Open source, evolving, domain-specific language
- Permissive Apache license, code on GitHub today
- Membership is free: contributions are welcome
- Independent, set up as a California nonprofit





#### P4.org Membership

















Tencent 腾讯

Operators/









CAVIUM









**SK** telecom



**End Users** 















(intel









**Targets** 

Solutions/

Services

Research

**Systems** 

































Academia/







University





PRINCETON







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# Thank you

