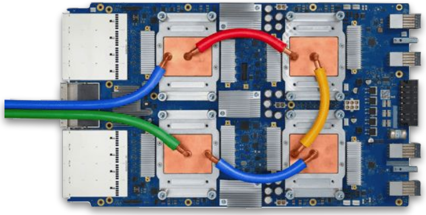
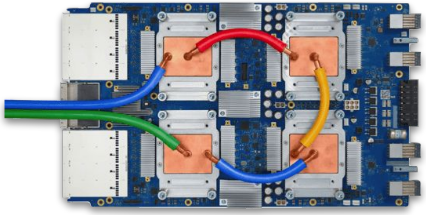
TF vs. TFLite vs. TFLite Micro

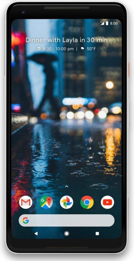
TensorFlow



TensorFlow

TensorFlow Lite

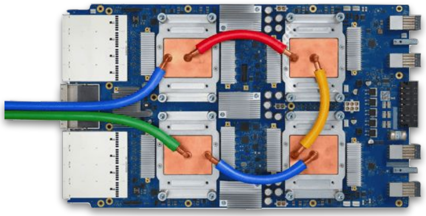


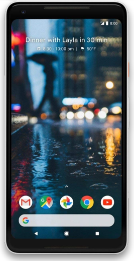


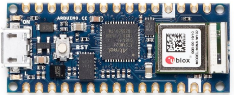
TensorFlow

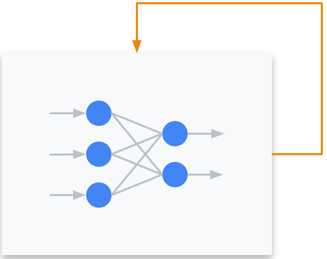
TensorFlow Lite

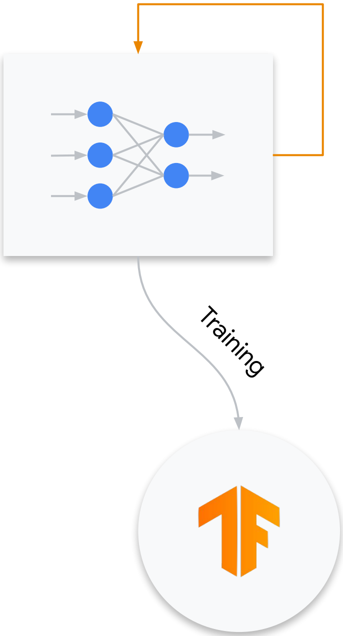
TensorFlow Lite Micro

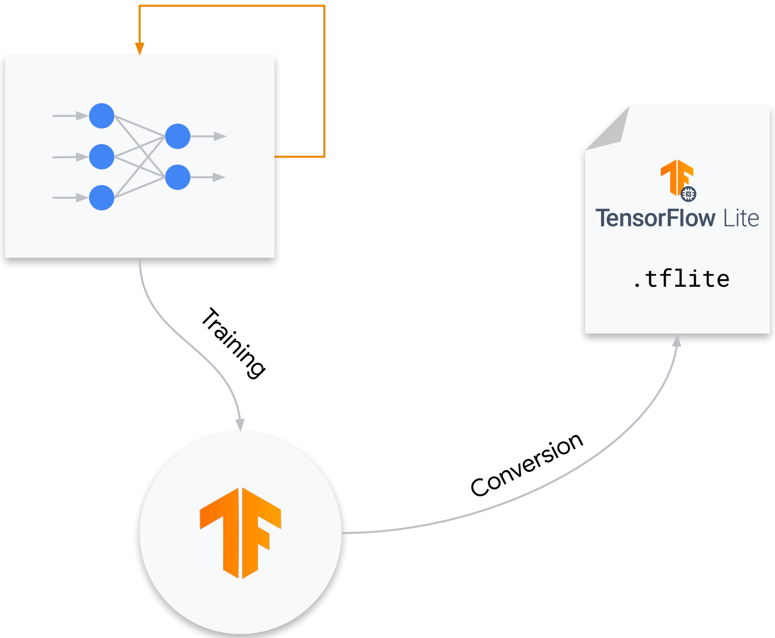


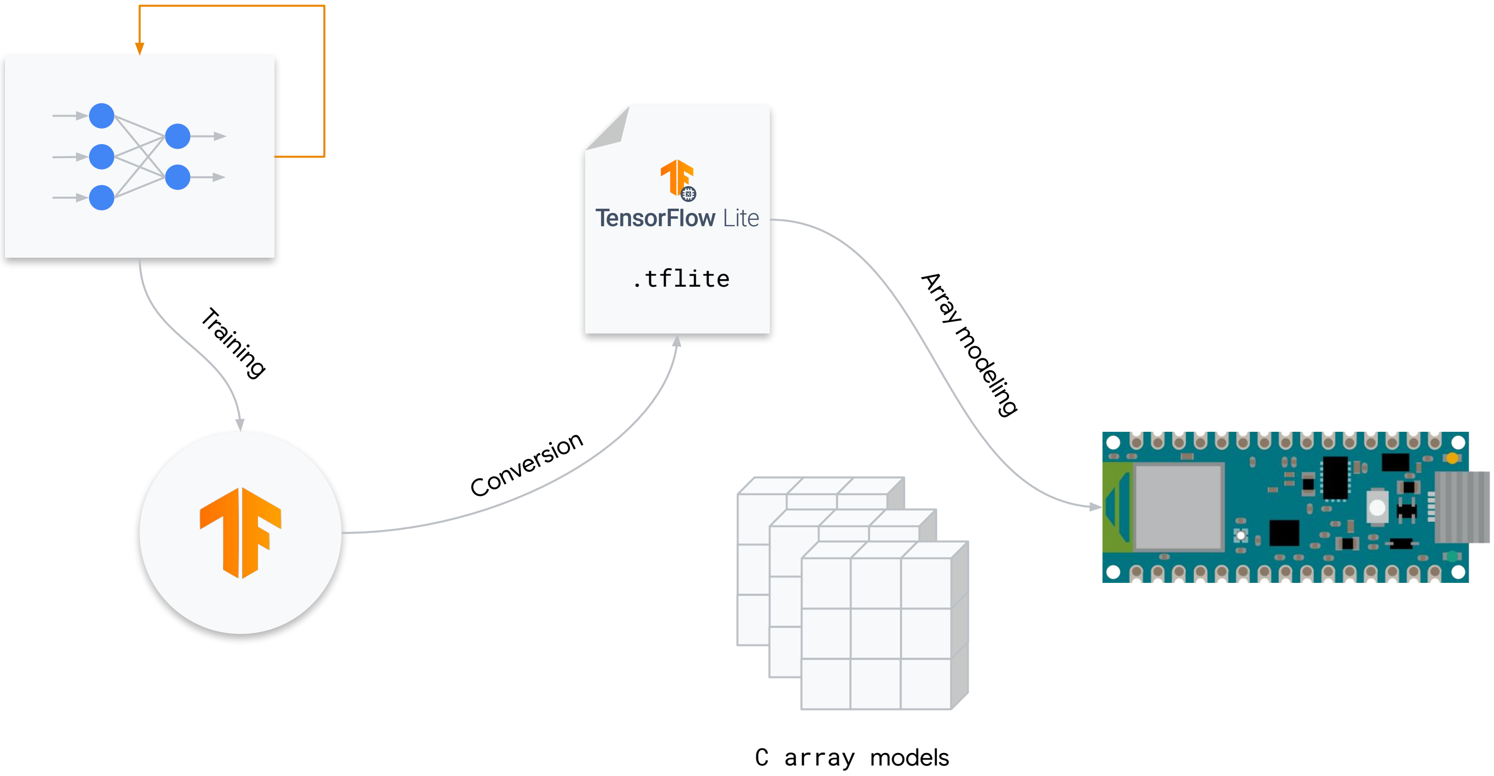


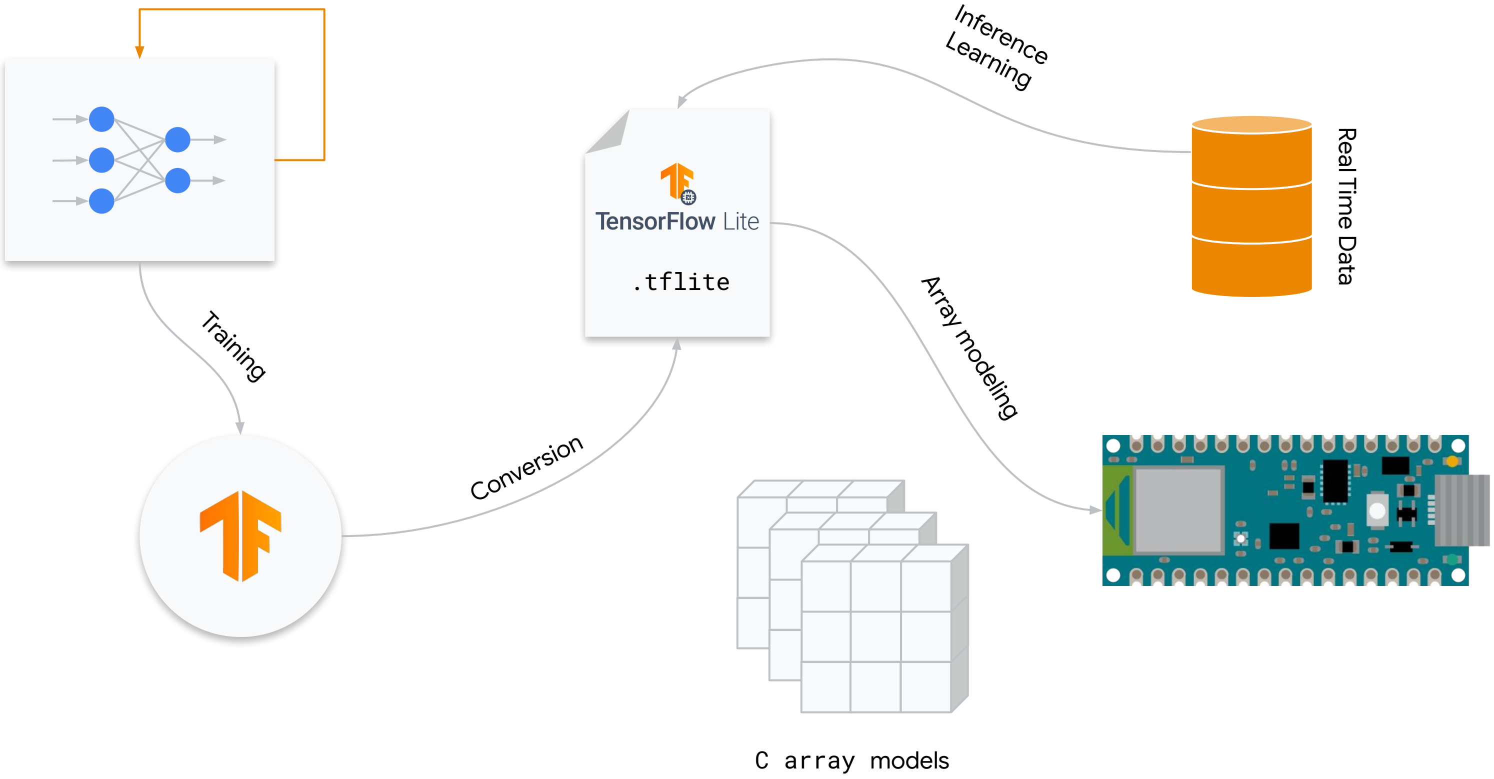


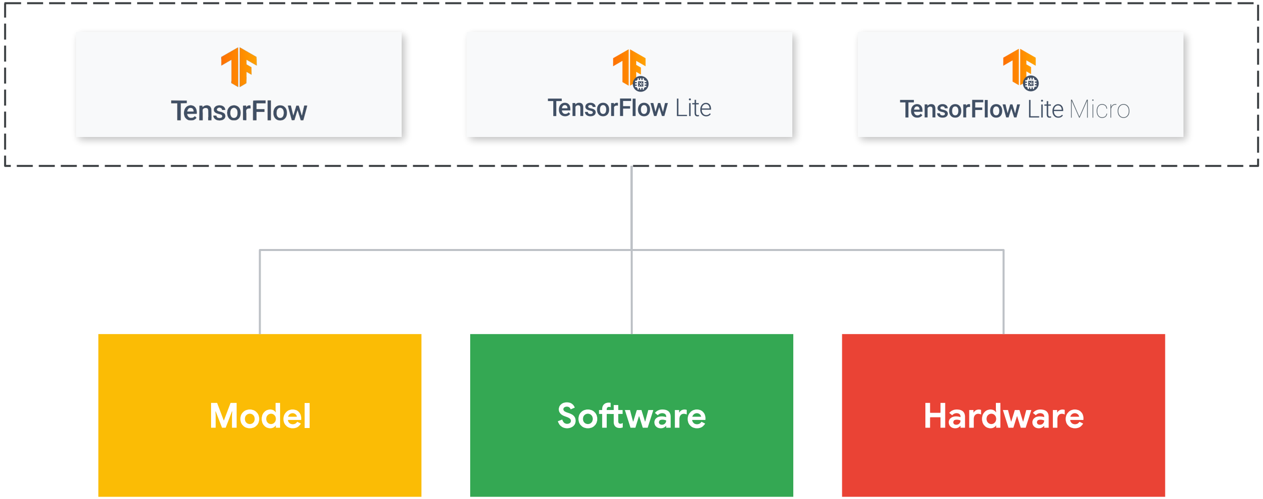



Training


TensorFlow Lite
.tflite
Training
Conversion


TensorFlow Lite
.tflite
Training
Conversion
Array modeling
C array models


Inference
Learning
TensorFlow Lite
.tflite
Real Time Data
Training
Array modeling
Conversion
C array models



TensorFlow

TensorFlow Lite

TensorFlow Lite Micro

Model

Software

Hardware

Model	TensorFlow	TensorFlow Lite	TensorFlow Lite Micro
Training	Yes	No	No

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Inference	Yes *(but inefficient on edge)*	Yes *(and efficient)*	Yes *(and even* ***more*** *efficient)*

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Needs an OS	Yes	Yes	No
Memory Mapping of Models	No	Yes	Yes

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Needs an OS	Yes	Yes	No
Memory Mapping of Models	No	Yes	Yes
Delegation to accelerators	Yes	Yes	No

Hardware	TensorFlow	TensorFlow Lite	TensorFlow Lite Micro
Base Binary Size	3MB+	100KB	~10 KB

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Base Binary Size	3MB+	100KB	~10 KB
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Hardware	TensorFlow	TensorFlow Lite	TensorFlow Lite Micro
Base Binary Size	3MB+	100KB	~10 KB
Base Memory Footprint	~5MB	300KB	20KB
Optimized Architectures	X86, TPUs, GPUs	Arm Cortex A, x86	Arm Cortex M, DSPs, MCUs

Conclusion

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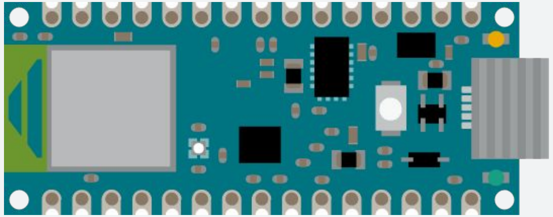
- **Major differences** between various deployment approaches even **within a single framework**
- Open standards are **not** a panacea for platform **neutrality** and **portability**



downstream deployment problems