Sustainable Smart CI

How to ensure happiness, sobriety and long-life…

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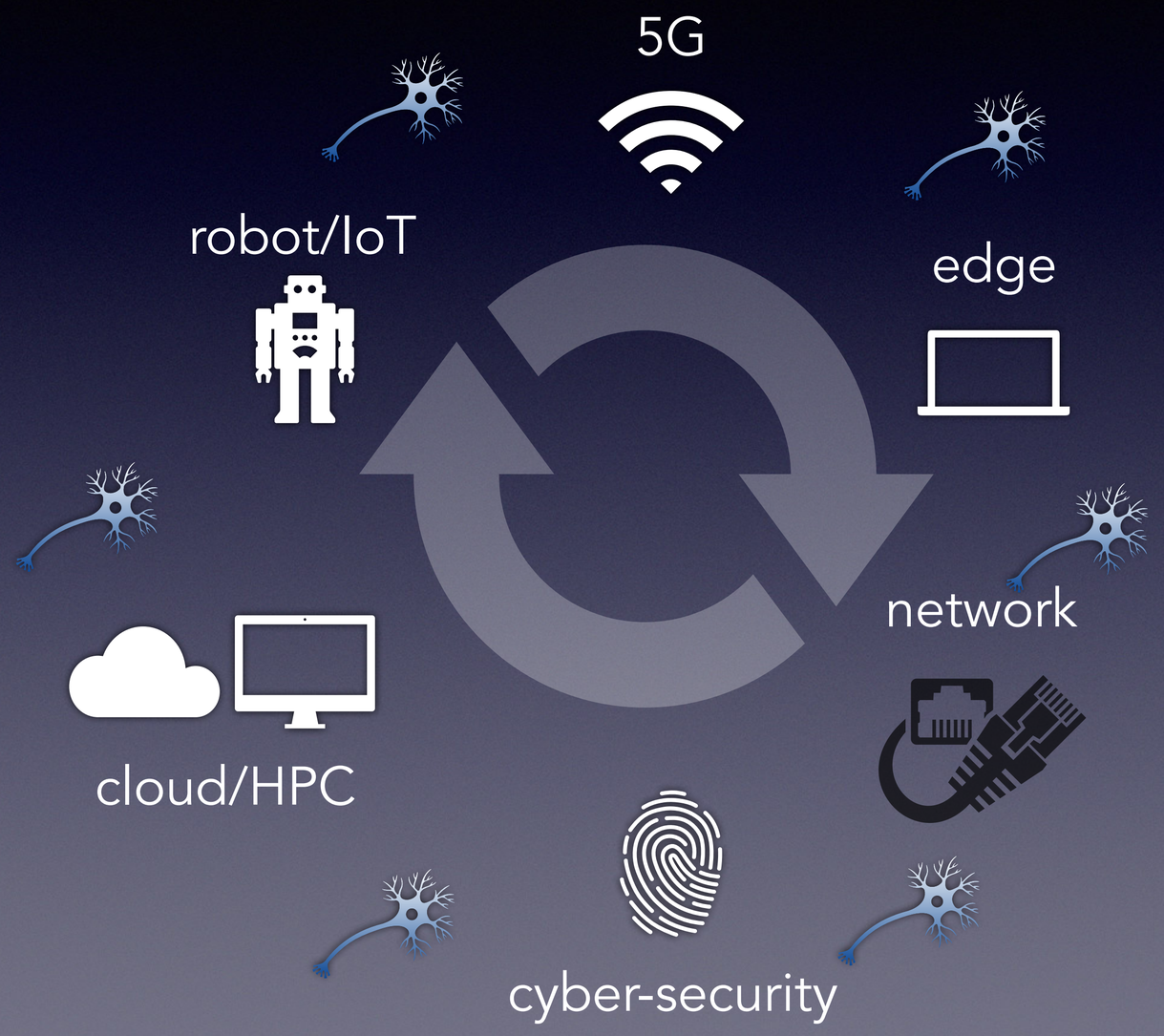
The new HPC landscape

- trans-continuum (end-to-end)
- ML-enabled
- cybersecurity is a BIG problem
- data quantity to data quality



Bottom line

- [Strubell2019] The energy cost (i.t.o. CO2 emissions) of training one NLP instance (encoder-decoder, 100M parameters) is equal to that of a trans-US flight. R&D (tuning, architecture, tests) multiplies this by thousands!
- Conclusion: vital need for energy efficient algorithms and hardware. And what about trans-continuum systems, that need:
  - deployment
  - + constant retraining
  - + data transfers???

Integration of Environmental Constraints over the Life-Cycle

- reduce impact on global warming
- reduce pollution
- reduce waste
- reduce costs

Towards a Sustainable (smart) CI

- hardware resilience
- hardware reconfigurability
- software resilience & reconfigurability
- software and hardware energy efficiency
- data: security & volume reduction

Thank You

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