The Year of QC Applications

Thomas Gabor

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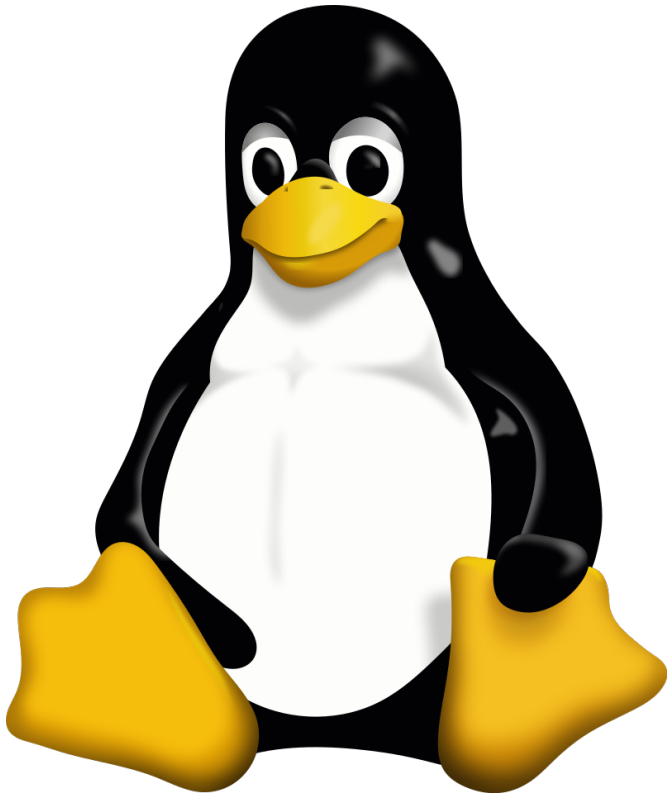
QAR LAB

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

The Year of the Linux Desktop

The Year of the Linux Desktop



free operating system

quasi standard on servers and high-performance computers

comprehensive GUIs for desktop users

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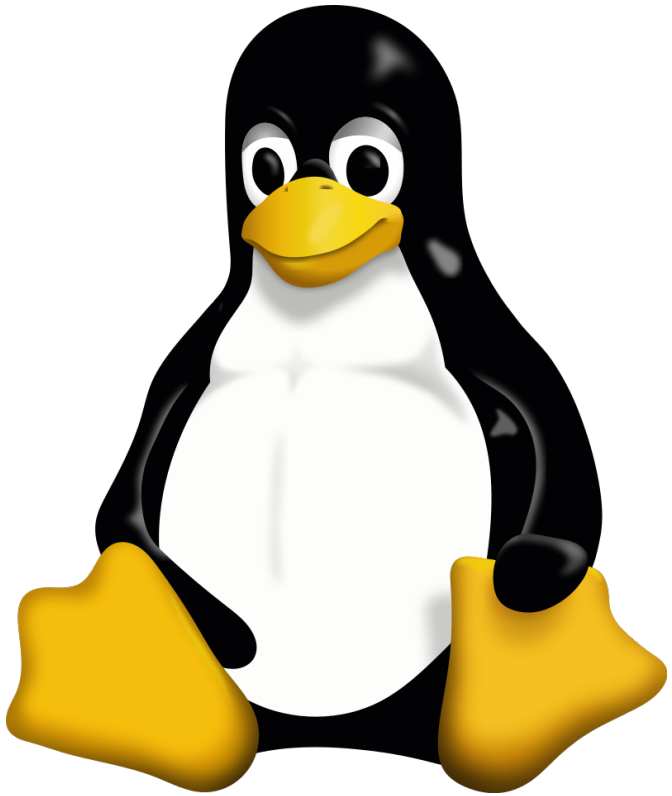

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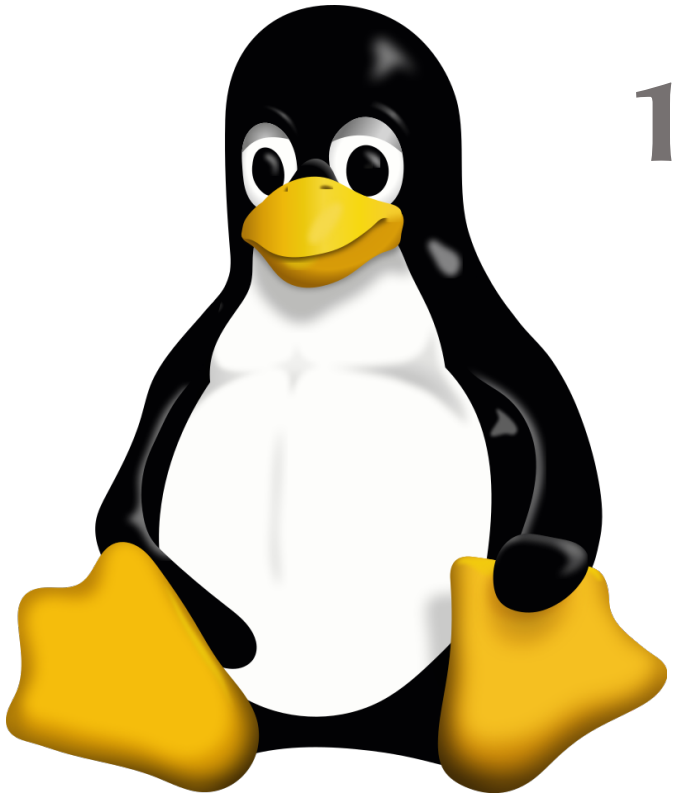
When is Linux finally going succeed as a desktop operating system?

The Year of the Linux Desktop



1999 2008 ???

When is Linux finally going succeed as a desktop operating system?

2002 2012

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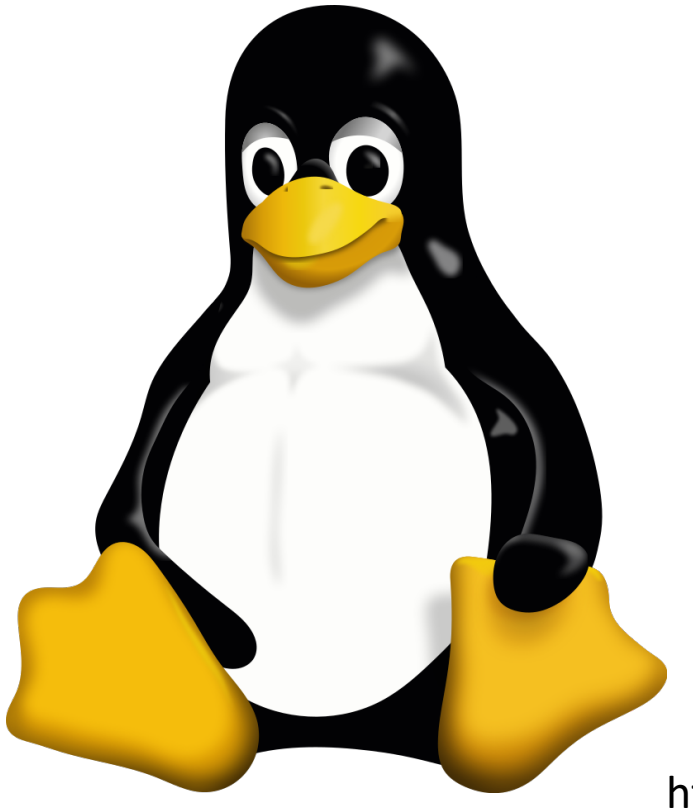


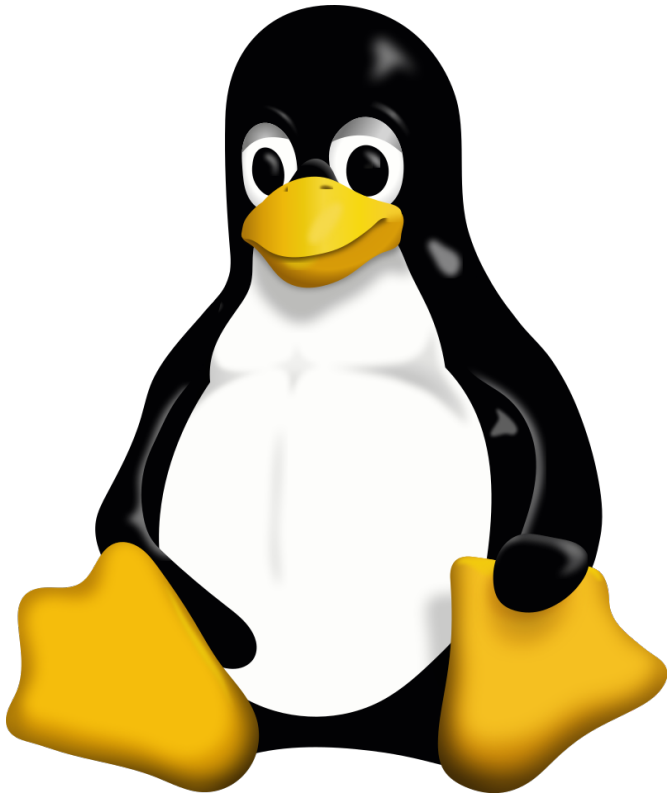
Is 2022 the year of the Linux desktop?

Is such a thing even possible?

Tim Wells Jan 2 · 5 min read ★

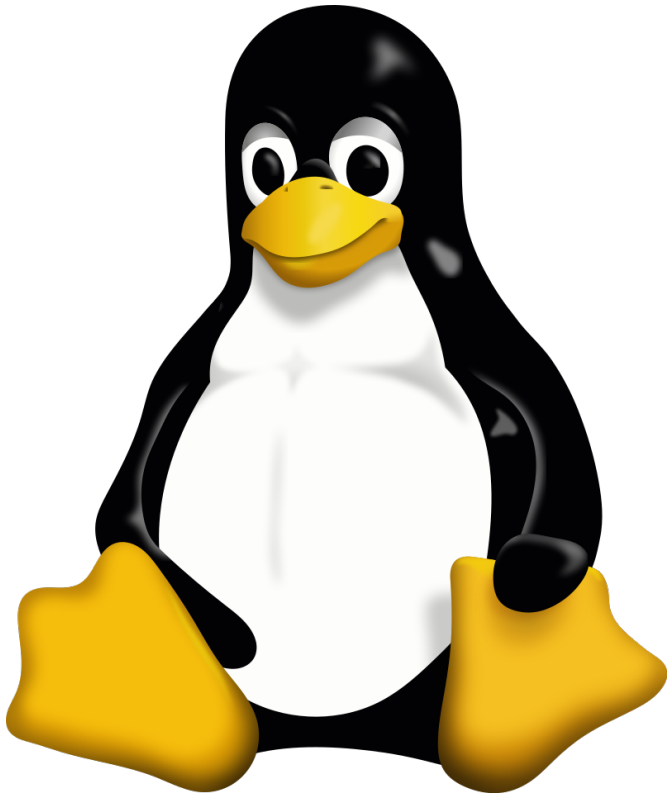
https://timnwells.medium.com/is-2022-the-year-of-the-linux-desktop-dc834ac6fa7a

The Year of the Linux Desktop



But...

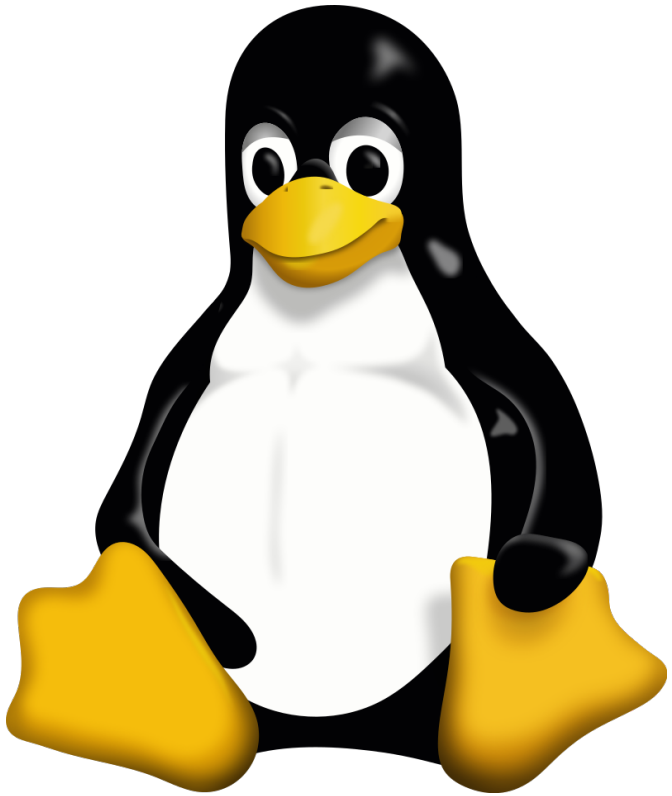
The Year of the Linux Desktop

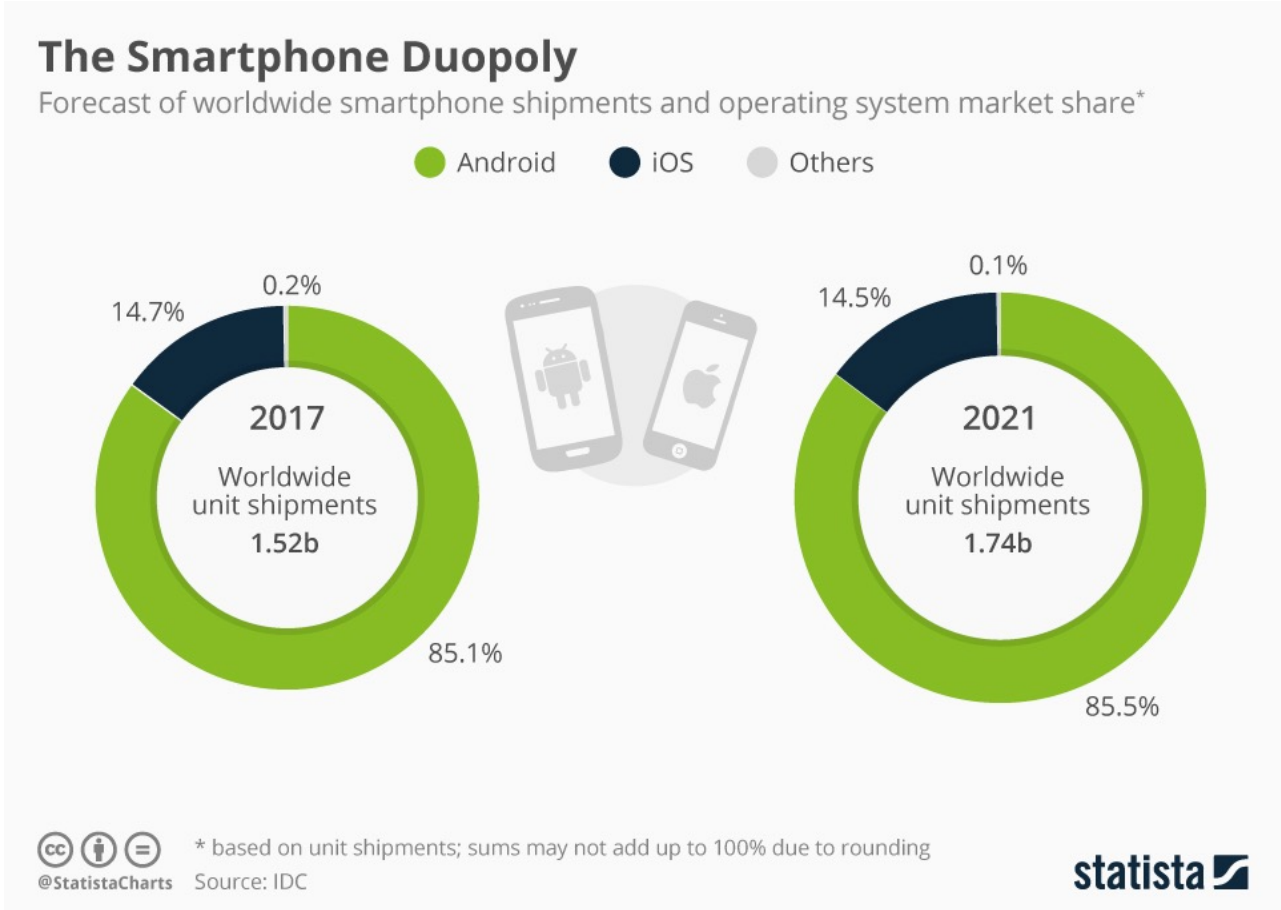


chromebook

https://www.intel.de/content/www/de/de/products/systems-devices/laptops/chromebooks.html

The Year of the Linux Desktop





https://www.statista.com/chart/9628/smartphone-platform-market-share-forecast/

Disruptive technology sometimes succeeds in a different way than expected.

Disruptive technology sometimes succeeds in a different way than expected.

Still, we can prepare.

A Quantum Computing Timeline

1981	Feynman conceived a quantum computer.
1998	Kadowaki and Nishimori conceived quantum annealing.
2011	D-Wave released first commerical quantum annealer.
2019	IBM released first commerical circuit-based quantum computer.
2019	Google demonstrates quantum advantage on one domain
???	Quantum advantage on commericially relevant domain
???	Companies invested in, built on, or simply using quantum computing have more commercial success.
???	Rush for new domains, new hardware, and new quantum-knowledgable employees (compare AI in the last few years)
???	Quantum computing is integrated into all domains where it offers an (commericially relevant) advantage

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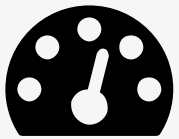
The Year of QC Applications

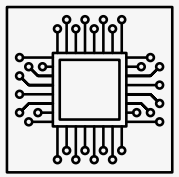
Use Case Selection at QAR-Lab

Hard
Use Cases



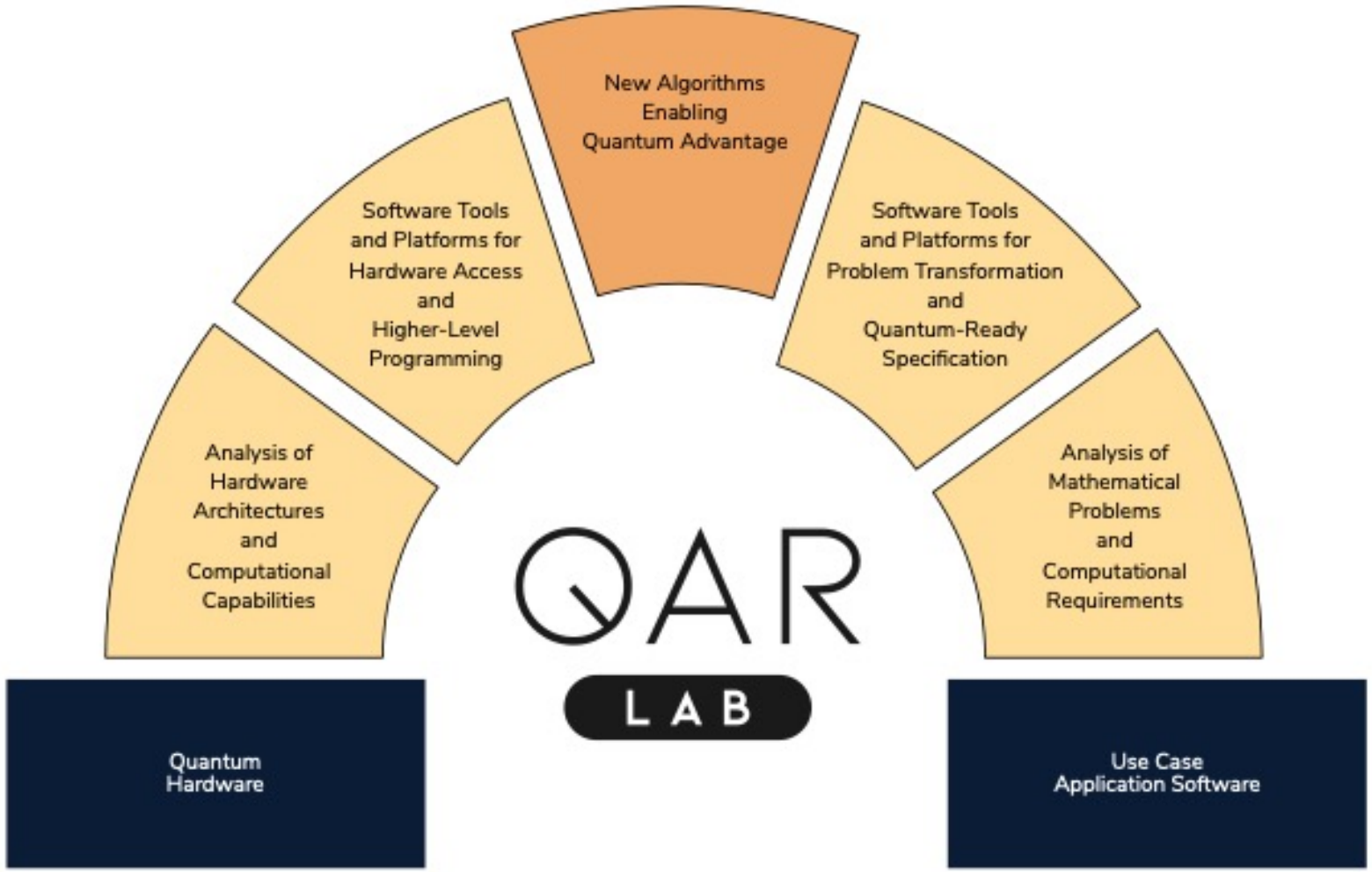
Important
Use Cases

Fitting
Use Cases



Early
Use Cases

Development at QAR-Lab



Results at QAR-Lab

Results at QAR-Lab

Quantum Computing is not profitable for your use case.

Date: January 2022

Results at QAR-Lab

precise specification of requirements

evaluation of practically occurring problem instances

Quantum Computing is not profitable for your use case.

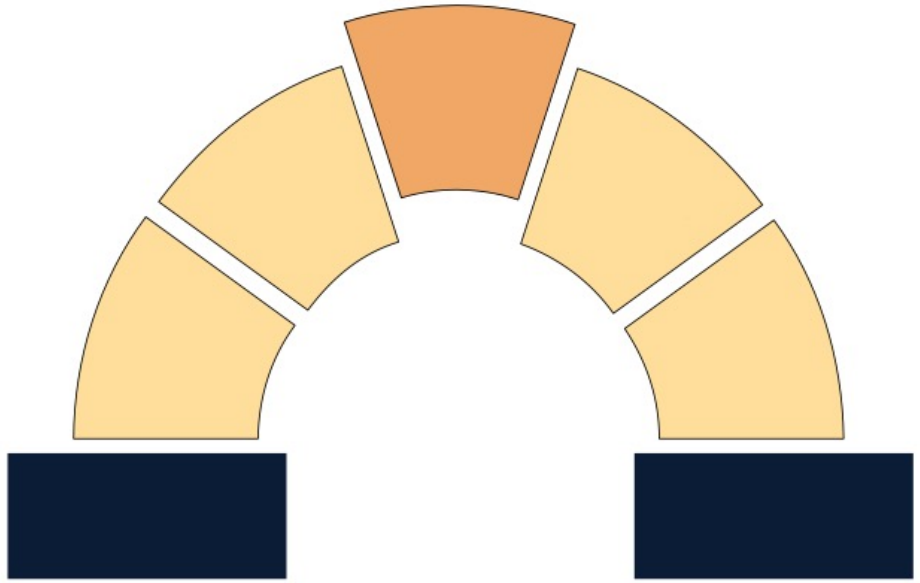
modern solution methods with heuristic optimization

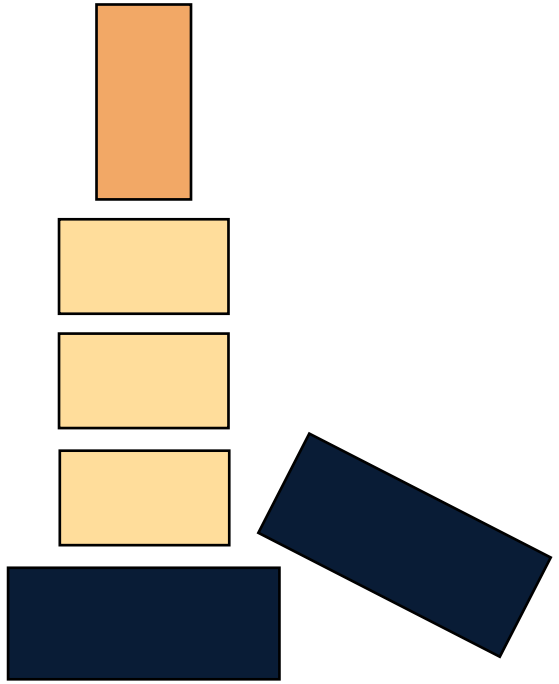
Date: January 2022

better understanding of algorithmic complexity

implementation and test of competitive solution approaches

However new technology is going to be used in the future, we need the building blocks first!





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Thank You for
Your Attention!

image sources

- https://de.wikipedia.org/wiki/Linux