P3KI

trust yourself.

Offline-capable, Decentralized Authorization for Critical Infrastructure
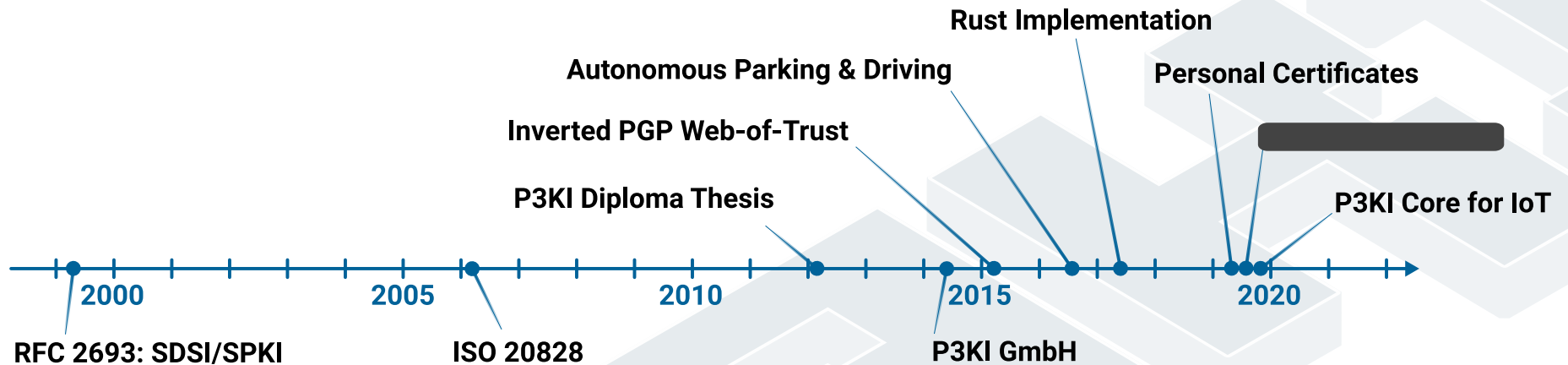
P3KI Core Technology

- Research since 2006

- Active development since 2014

- Two best-of-class diploma theses
  - Gregor Kopf on decentralized PKI
  - Simon Willnauer on step precise network simulation

- Backed by a steadily growing consortium
  - 4+ companies
  - 30+ individuals

P3HI GmbH

- Founded by Felix 'FX' Lindner
  - Broke Cisco routers [1,2]
  - Broke Huawei routers [3,4]
  - Broke NSA's Lawful Interception (LI) interfaces [5]
  - Hacked a German Utilities Company [6]
  - Pwnie Lifetime Achievement Award [7]
- Subsidiary of high-end security consultancy Recurity Labs [8]
- Privately owned and operated

Berlin ●

● Ghent

● Stuttgart

Research & Development Timeline

Rust Implementation

Autonomous Parking & Driving

Inverted PGP Web-of-Trust

Personal Certificates

P3KI Diploma Thesis

P3KI Core for IoT

2000   2005   2010   2015   2020

RFC 2693: SDSI/SPKI

ISO 20828

P3KI GmbH

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P3KI vs. Classic PKI

- Fully offline-capable dynamic authorization of peers
  - Stay operational, even in blackout scenarios!
- Built for federation and decentralization
- Delegation at the edge instead of center (can be pinned)
  - Arbitrary precision in expressing delegations
  - Mathematically proven full or partial delegations
- "2n-eyes" trust: Multi-path / parallel-path delegations
- Synthetic quoted delegation proofs instead of fixed certificates
- Dynamic rescinding instead of revocation (no CRL/OCSP needed)
  - Rescue & reuse leaf certificates after revocation of intermediate CA
  - Communicate delegation renewals / changes via any means
  - Reduced attack surface
- Fully transport agnostic (no Blockchain, no nothing)

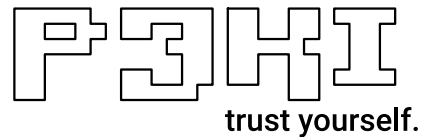# P3KI Core

Application Scenarios

- Automotive C2x/V2x Communication
- SCADA/ICS off-grid authorization
- Network-on-Card enabled physical access control
- Rental and sharing economy
- IoT / IIoT interoperability

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