CELTIC-NEXT
Proposers Day
26th of January 2022, Online via WebEx

Pitch of the Project Proposal

TrustVPN

Roberto Guanciale (KTH)
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Fast and Verified VPN-enabled Switch based on
- State Of the Art platform for Software Defined Network
- Verified and verifiable
- Secure independently of host malfunctions
Organisation Profile

KTH Royal Institute of Technology
Division of Theoretical Computer Science

- Focus on formal (mathematical) verification and testing of SW and Systems
- Proposing group: 2 Associate professors, 2 postdocs, 10 PhD students
- Members of Center for Cyber Defense and Information Security
  - collaboration with Swedish Armed forces
- Many collaborations with SAAB
Proposal Introduction

Wireguard
+ Fast, Modern, Secure, Small (4K LOC), VPN tunnel
+ Policies/routes = crypto keys
- 4 Linux (no multiplatform)

P4 Programmable Switches
+ High speed, programmable (new protocols), data plane
+ Policies reconfigurable by a controller
Proposal

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Introduction

- **Month 6:** Selection of Programmable Switch platform
- **Month 12:**
  - Prototype Static P4 wireguard implementation
  - Control plane API for reconfigurable VPN routes
- **Month 18:** Deployment of P4 wireguard on the target platform
- **Month 24:** Control plane for reconfigurable VPN routes
- **Month 30:** Verification of the P4 implementation
- **Month 36:** Run time monitoring of VPN routes
Partners

KTH (Sweden): expertise on verification, testing, and monitoring

Collaborations:
SAAB (Sweden): expertise on Software Defined Networking
DTU (Denmark): expertise on distributed software analysis

YOU: expertise on
● SDNs
● Usage of VPN in critical environments
● System Security

Proposal Name, Your Name, affiliation & e-mail of presenter
1st February  10.00-10:30 CET

Join the Follow-up Telco

Join meeting

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Meeting number (access code): 2740 094 6066
Meeting password: aGNfsmgG298

Join by phone
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Presentation available via: